

# GEOLOGICAL REPORT ON COAL EXPLORATION PRODUCTION SUPPORT DRILLING LOHAPATTI (EAST) BLOCK

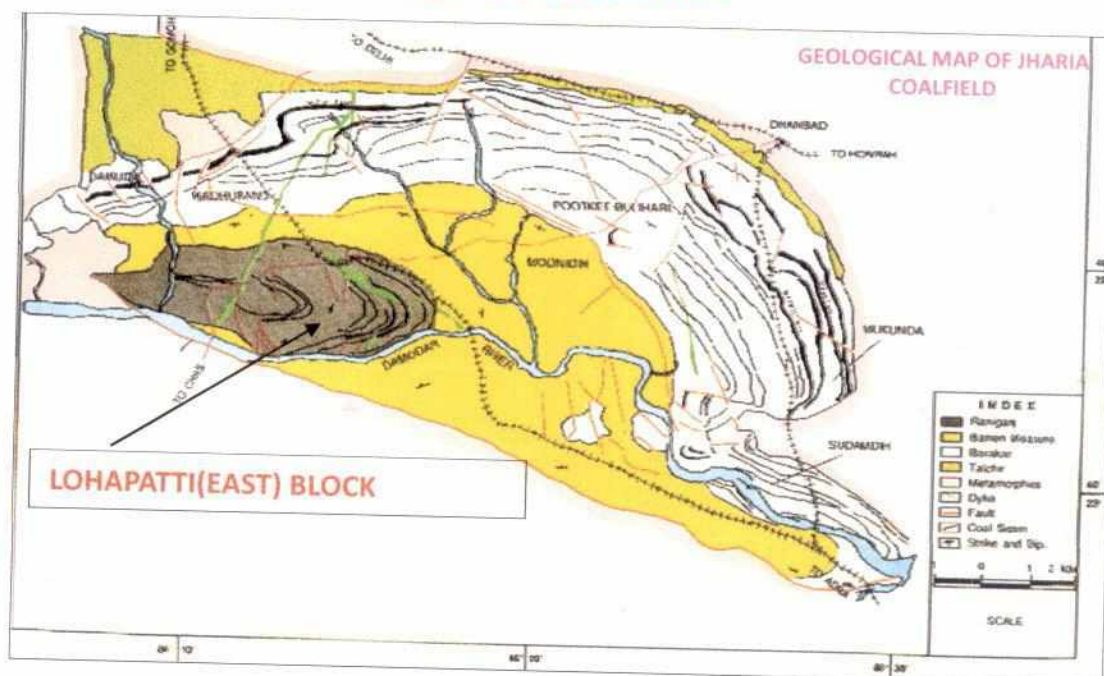
(UNDER MOU WITH CMPDIL)

## JHARIA COALFIELD

DISTRICT-DHANBAD, JHARKHAND

VOLUME - I

TEXT & ANNEXURES



**MINERAL EXPLORATION CORPORATION LIMITED**  
(A Government of India Enterprise)  
EASTERN ZONE  
RANCHI-834003

MAY- 2013

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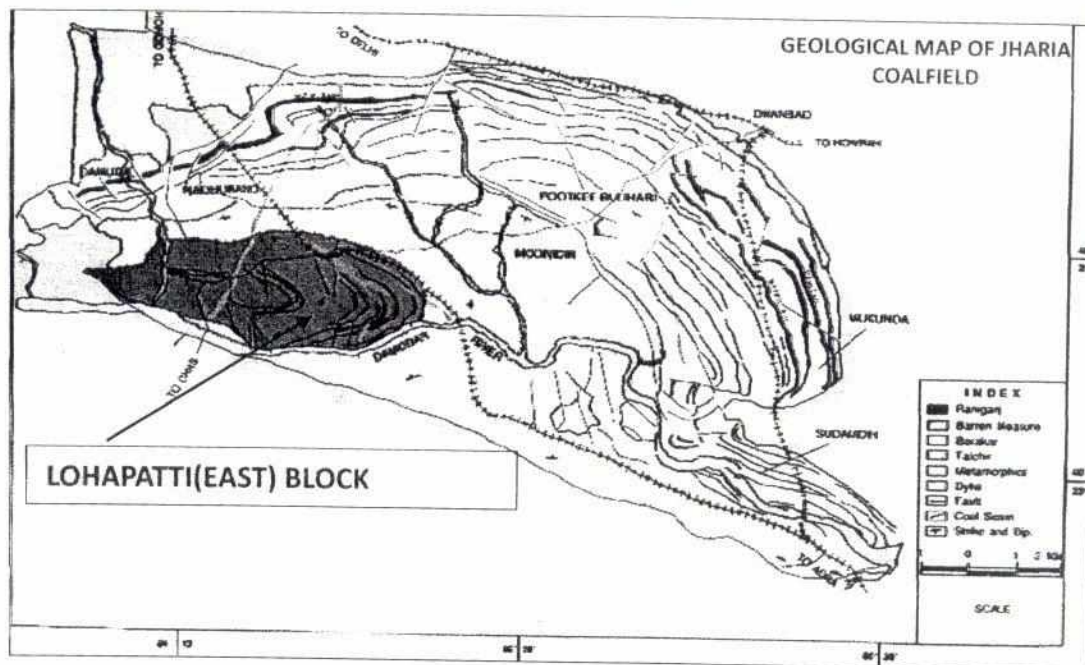
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### **ACKNOWLEDGEMENT**

Mineral Exploration Corporation Limited expresses its sincere gratitude to S/Shri Naeem Ahmad, G.M.(Expl), Amitabh Das, G.M.(Geology) and Dr. H.K. Misra G.M.(Lab.) CMPDIL (HQ), Ranchi for their whole hearted co-operation, valuable advice and help rendered during the progress of investigation and documentation phase.

Special thanks are due to HOD (Expl) and all geo-scientists of CMPDIL, RI-II, Dhanbad for the help extended during the investigation.

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**GEOLOGICAL REPORT ON DETAILED EXPLORATION FOR COAL  
LOHAPATTI-EAST(MOU) BLOCK  
JHARIA COALFIELD, DISTRICT : DHANBAD, JHARKHAND**

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## LIST OF ABBREVIATIONS

BM/Barakar	:	Barren Measures/Barakar Contact
RANI / BM	:	Raniganj / Barren Measures Contact
BAR/TAL	:	Barakar/Talchir Contact
TAL/META	:	Talchir/Metamorphic Contact
BARR. MEASURE	:	Barren Measure Formation
SH	:	Shale
Gr. Sh	:	Grey Shale
D.Gr.Sh	:	Dark Grey Shale
S.Sh	:	Sandy Shale
SH+CS	:	Shale with coal streaks
SST	:	Sandstone
SST MIC	:	Sandstone, micaceous
Sh.SST	:	Shaly Sandstone
Sh/Sst.Intercal	:	Intercalation of Shale & Sandstone
SST. Vfgd.	:	Very fine-grained Sandstone
SST. Fgd	:	Fine-grained Sandstone
Sst. Mgd	:	Medium-grained Sandstone
SST. VCGD	:	Very Coarse Grained Sandstone
SST SIDT	:	Sandstone, sideritic
SST GRITTY	:	Sandstone Gritty
SST CGD	:	Coarse-Grained Sandstone
CARB	:	Carbonaceous
SST VFGD-FGD	:	Sandstone Very fine grained to fine grained.
SST FGD-MGD	:	Sandstone Fine grained to medium grained.
SST MGD-CGD	:	Sandstone medium grained to coarse grained.
SST+SH BD	:	Sandstone with shale band.
SHALY SST	:	Shaly sandstone
CONG (Bould)	:	Conglomerate (boulder)
M.P.	:	Mica-Peridotite
DOL	:	Dolerite
DC	:	Dull coal
DC+TLB	:	Dull coal with thin lamination of bright
SH with CS	:	Shale with Coal Streak
LAM	:	Laminae
BOT	:	BOTtom
COMB.	:	Combined

## LIST OF ABBREVIATIONS

FERR.	:	Ferruginous
SH. COAL	:	Shaly Coal
C+TLB	:	Coal with thin lamination of bright
C+PY	:	Coal with pyrite
C.SH	:	Carbonaceous Shale
C BANDS	:	Coal bands
Jh	:	Jhama
SID	:	Siderite
SIDT	:	Sideritic
TLD	:	Thin Laminated Dirt Bands
QUTZ. PEBB	:	Quartz Pebbles
Aren	:	Arenaceous
GRN. GREY	:	Greenish Grey
BD	:	Band
W.M.	:	Weathered Mantle
SL	:	Slickensides
FR.BR	:	Fractured and Broken Core
FR.SV	:	Subvertical Fracture
FR.SL	:	Slickensided Fracture
FRACT. (High Dip)	:	Fracture with High Amount of Dip
CB/BR CR.	:	Core Broken
HBR	:	Highly Broken Core
RECOV.	:	Recovered
EXT.	:	Extrapolated
H/C	:	Highly crushed
COMP.	:	Compact
GR	:	Greyish
GRN	:	Green
CLZ	:	Clay Zone
SP.SH	:	Splintery Shale

**GEOLOGICAL REPORT ON DETAILED EXPLORATION FOR COAL  
LOHAPATTI –EAST(MOU) BLOCK  
JHARIA COALFIELD, DISTRICT : DHANBAD, JHARKHAND**

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**GEOLOGICAL REPORT ON DETAILED EXPLORATION FOR COAL  
LOHAPATTI-EAST(MOU) BLOCK,  
JHARIA COALFIELD,  
DISTRICT: DHANBAD, JHARKHAND**

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**ON BEHALF OF CMPDIL UNDER MOU**

**LOHAPATTI-EAST(MOU) BLOCK  
JHARIA COALFIELD, DIST. DHANBAD, JHARKHAND**

**SALIENT FEATURES**

1. Name of the Block : LOHAPATTI-EAST(MOU)  
Production Support Drilling (under MOU)  
Jharia Coalfield, Dist. Dhanbad (Jharkhand)
2. Location : Located in the south western part of  
Jharia coalfield and included in Toposheet No.73 I/6  
  
Latitude (N) : 23° 43' 20" to 23° 44' 25"  
Longitude (E) : 86° 13' 10" to 86° 14' 04"
3. Objective :
  - i) To assess the extent of coal seams XIV, XIII & XII
  - ii) To assess the occurrence of lower coal horizons upto seam Zero '0'
  - iii) To assess the quality of coal seams.
4. Duration of Field Work : 27.07.2010 to 14.09.2012
5. Quantum of Work : The quantum of work carried out by MECL in Lohapatti-East(MOU) Block, District Dhanbad, Jharkhand involving various activities.

TABLE-I

## QUANTUM OF WORK DONE BY MECL IN LOHAPATTI-EAST(MOU) BLOCK

Sl. No	Item of work	Quantum of work
1.	Area of the block	3.0 Sq. Km.
2.	Drilling	3027.80 (16 Bhs.)
3.	Geology	
	i) Geological Logging	3027.80 m (16 Bhs.)
	ii) Sampling	
	Band-by-Band	14.14m } 68.79m 54.65m }
4.	Geophysical Logging	548.00m (1 Bh – MLE-15)
5.	Surveying	
	iii) Triangulation	08 Sq. Kms.
	iv) Theodolite Traverse	08 Sq. Kms.
	v) Leveling	07 L. Kms.
	vi) Borehole fixation	18 Nos.
	vii) Co-ordinates of BHs.	16 Bhs.
	viii) R.L. of BHs	16 Bhs. (MLE-1 to 16)
6.	<b>Chemical Analysis</b>	
	i) Band by band	14.14m. (3 Bhs) CIMFR, Dhanbad 54.65m (11 Bhs) MECL, Nagpur
	Total	68.79m (14 Bhs)
	ii) Proximate Overall Analysis	53 Samples (11 Bhs.)
	iii) CV	53 Samples (11 Bhs.)
	iv) Ultimate Analysis.	23 Samples - 1 Bh. (MLE-6) (NR)
7.	Petrography	21.55m - 1 Bh. (MLE-15) (NR) CMPDIL Lab, Ranchi
8.	Physico Mechanical Investigations	240.43m -1 Bh. (MLE-16) CMPDI Lab, Ranchi

NR (Results not Received)

6. Geology  
 i) Geological Sequence:  
 Soil, Loose Sand & Alluvium

-----Un conformity-----

Raniganj Formation	4. Sandstone of Lohapiti & Kunji
	3. Coal Measures of Talmucha and Pathergoria
	2. Sandstone of Jamdih & Kumardih
	1. Coal Measures of Bamangora and Mutondih

Barren Measures Formation

- ii) Structure: Lohapatti-East (MOU) Block forms the central part of Mahuda Basin. Block shows basinal structure with dip Varies from 3° to 20° towards the centre of the basin.
7. Coal Seams: A total of 20 coal horizons from seam XIV to zero '0' seams have been established in the block.
8. Quality: The coal seams are high volatile, medium coking with grade varying from S-I to W-IV. In general the grade of coal seams varies from W-I to W-III.
9. Mining Activity: In Progress.
10. Reserves: A total of **14.4856** million tonnes of coal reserves has been estimated in Proved category from seam XIV to XII. Seam-wise Area and Reserves are given below:

TABLE II  
 SEAM-WISE, SECTOR-WISE AREA

(Area in Sq.Km.)

SEAM	SECTORS				TOTAL
	I	II	III	IV	
XIV	1.77	0.03	--	0.29	2.09
XIII	2.51	0.03	0.07	0.27	2.88
XII	2.54	0.03	0.08	0.33	2.97

TABLE III

## SEAM-WISE, BARRIER-WISE SUMMARY OF RESERVES

SEAM	VIRGIN	DEVELOPED	TOTAL
XIV	3.2789	1.4916	4.7705
XIII	3.7722	0.7640	4.5362
XII	4.8406	0.3383	5.1789
TOTAL :	11.8917	2.5939	14.4856
PERCENTAGE :	82.07	17.93	

TABLE IV

## SEAM-WISE, SECTOR-WISE SUMMARY OF RESERVES

SEAM	I	II	III	IV	TOTAL
XIV	4.0304	0.0491		0.6910	4.7705
XIII	3.9559	0.0433	0.1144	0.4226	4.5362
XII	4.4406	0.0468	0.1228	0.5687	5.1789
TOTAL :	12.4269	0.1392	0.2372	1.6823	14.4856
PERCENTAGE :	85.76	0.96	1.64	11.64	

TABLE V

## SEAM-WISE, THICKNESS-WISE SUMMARY OF RESERVES

SEAM	0.90 - 1.20	1.20 - 1.50	1.50 - 2.00	2.00 - 2.50	TOTAL
XIV	0.1415	1.0438	2.1218	1.4634	4.7705
XIII	1.6683	2.4053	0.4626		4.5362
XII	0.8770	4.1151	0.1868		5.1789
TOTAL :	2.6868	7.5642	2.7712	1.4634	14.4856
PERCENTAGE :	18.54	52.20	19.12	10.14	

TABLE VI

SEAM-WISE, GRADE-WISE SUMMARY OF RESERVES

SEAM	S-I	S-II	W-I	W-II	W-III	W-IV	UG	TOTAL
XIV		0.0029	0.0294	0.0220	0.7253	3.7509	0.2400	4.7705
XIII	0.9660	0.8899	1.1192	1.1258	0.3897	0.0456		4.5362
XII	0.2488	1.2211	1.4870	0.8596	1.0278	0.3346		5.1789
TOTAL	1.2148	2.1139	2.6356	2.0074	2.1428	4.1311	0.2400	14.4856
PERCENTAGE :	8.38	14.59	18.19	13.85	14.79	28.51	1.69	

TABLE-VII

SEQUENCE OF COAL SEAMS AS PER BOREHOLE INTERSECTIONS  
LOHAPATTI-EAST(MOU) BLOCK; JHARIA COALFIELD; DISTRICT: DHANBAD; JHARKHAND

Sequence of Seams/Parting	Range of Seam Thickness (m)		Range of Parting Thickness (m)		No. of Full Intersections
	Minimum	Maximum	Minimum	Maximum	
XIV	0.40 (MH-33)	2.50 (MLE-3)			26
Parting			38.57 (MLE-1)	46.45 (MLE-4)	18
XIII	0.35 (MH-31)	1.71 (LMS-9)			31
Parting			8.50 (MH-31)	16.00 (MLE-9)	30
XII	0.47 (MH-33)	1.61 (LMS-10)			32
Parting			157.34 (MLE-15)	161.35 (MLE-6)	4
XI-A	0.35 (MLE-3)	0.90 (MLE-16)			4
Parting			2.15 (MLE-16)	4.40 (MLE-3)	3
XI-B	0.50 (MLE-16)	0.63 (MLE-15)			3
Parting			17.20 (MLE-16)	28.17 (MLE-15)	2
XI-C	0.20 (MLE-15)	0.36 (MLE-16)			3
Parting			71.50 (MLE-6)	71.50 (MLE-6)	1
X	0.50 (MLE-6)	0.50 (MLE-6)			1
Parting			34.70 (MLE-6)	34.70 (MLE-6)	1
IX-A	0.42 (MLE-16)	0.80 (MLE-6)			3
Parting			9.78 (MLE-16)	11.93 (MLE-15)	2
IX-B	0.43 (MLE-15)	1.53 (MLE-16)			2
Parting					
VIII-A	0.90 (MLE-6)	0.90 (MLE-6)			1
Parting			7.10 (MLE-6)	7.10 (MLE-6)	1
VIII-B	0.46 (MLE-15)	1.30 (MLE-6)			3
Parting			9.90 (MLE-15)	15.20 (MLE-6)	3
VIII-C	0.25 (MLE-16)	0.95 (MLE-6)			3

TABLE-VII (CONTD.)

Sequence of Seams/Parting	Range of Seam Thickness (m)		Range of Parting Thickness (m)		No. of Full Intersections
	Minimum	Maximum	Minimum	Maximum	
			29.75 (MLE-6)	29.75 (MLE-6)	1
VI-A	0.70 (MLE-6)	0.70 (MLE-6)			1
			7.90 (MLE-6)	7.90 (MLE-6)	1
VI-B	0.50 (MLE-6)	0.50 (MLE-6)			1
			9.90 (MLE-6)	9.90 (MLE-6)	1
V	1.05 (MLE-16)	1.40 (MLE-6)			2
			23.80 (MLE-6)	53.70 (MLE-16)	2
IV	0.65 (MLE-15)	0.80 (MLE-6)			3
			25.75 (MLE-15)	53.10 (MLE-6)	3
III	3.50 (MLE-16)	3.80 (MLE-15)			3
			25.30 (MLE-6)	35.95 (MLE-15)	3
II	0.60 (MLE-6)	1.50 (MLE-15)			3
			7.50 (MLE-16)	17.70 (MLE-15)	3
I	0.50 (MLE-6)	1.00 (MLE-16)			3
			2.80 (MLE-6)	21.60 (MLE-16)	3
'0'	1.55 (MLE-6)	3.19 (MLE-15)			3

**TABLE - VIII**  
**VARIATION IN PROXIMATE ANALYSIS (AS ON RECEIVED BASIS) OF COAL SEAMS**  
**HAVING WORKABLE THICKNESS OF  $\geq 0.9\text{M}$**   
**LOHAPATTI-EAST(MOU) BLOCK; JHARIA COALFIELD; DISTRICT: DHANBAD; JHARKHAND**

Seam Name	General Seam Thickness ( $\geq 0.9\text{m}$ )		Range of Proximate Analysis As on received basis						Range of determined CV in K.Cal/Kg		Grade		Net Proved Reserves In MT
			M%		Ash%		VM%						
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	
XIV	1.00	2.30	2.1	3.2	20.6	41.0	26.2	29.2	4820	6020	UG	W-I	<b>4.7705</b>
XIII	1.01	1.71	1.4	3.0	10.6	29.5	29.1	33.2	6090	7030	W-IV	S-I	<b>4.5362</b>
XII	0.95	1.61	1.4	3.9	12.2	33.0	26.4	32.9	6070	6900	W-IV	S-I	<b>5.1789</b>

## CHAPTER – 1

### 1.00.00 INTRODUCTION

#### 1.01.00 GENERAL

- 1.01.01 The Jharia Coalfield located in Dhanbad, Giridih and Bokaro districts of Jharkhand is the most important and extensively developed coalfield in the country and is also the main source of coking coal.
- 1.01.02 The Mahuda basin, lies in the south-western part of the Jharia Coalfield and are occupied by the rocks of Raniganj Formation containing medium coking coal seams, is one of the areas from where additional coal production is proposed.
- 1.01.03 With reference to letter no. CMPD/DG/49(A)/341 dated 8/9.3.2011 of GM(GS), CMPDI, under MOU MECL mobilised its resources for taking exploration in Lohapatti-East (MOU) Block covering an area of about 3.00 sq.km. is located in the central part of Mahuda basin. MECL commenced drilling in Lohapatti-East (MOU) Block on 27.07.2010 and the drilling operations were completed on 14.09.2012 after drilling 16 boreholes.

#### 1.02.00 LOCATION

- 1.02.01 Lohapatti-East (MOU) Block covering an area of 3.00 sq.km. forms the central part of Mahuda basin in Jharia Coalfield. It is included in Survey of India Topo Sheet No. 73 I/6. It lies between:

Latitude (N) 23° 43' 20" – 23° 44' 25"  
Longitude(E) 86° 13' 10" – 86° 14' 04"

#### 1.03.00 BLOCK BOUNDARY *Define*

- 1.03.01 The limit of Lohapatti-East (MOU) Block is depicted in Plate-I.

#### 1.04.00 ACCESSIBILITY

- 1.04.01 The area is well connected by road and rail. The district town Dhanbad is about 25 km. from the block and is connected by NH-32. In addition there are number of unmetalled all weather road within the block. The block is well connected by rail with the Dhanbad Railway Station of Eastern Railway.

#### 1.05.00 PHYSIOGRAPHY

- 1.05.01 The topography of Lohapatti-East (MOU) area is undulating with gentle southerly to south-westerly slope. The maximum elevation is 217.62m (LMS-6) in the north-east and lowest level 190.20m (MH-55) is recorded in south-western part towards river Damodar.

## 1.06.00 DRAINAGE

1.06.01 The drainage in the area is controlled by the river Damodar, flowing 1 km south of Lohapatti-East (MOU) Block. The surface run-off during monsoon drains into Damodar through small southerly to south-easterly flowing seasonal streams.

## 1.07.00 PREVIOUS WORK

1.07.01 The first geological survey of the Jharia Coalfield was carried out by T.W.H. Hughes in 1865-66, C.S. Fox in 1930 and many other eminent geoscientists carried out detailed geological mapping of J.C.F. Mehta and Murthy (1956) resurveyed the coalfield and updated the assessment of coal reserves.

1.07.02 The G.S.I. carried out exploration by drilling in the Mahuda basin from 1964 to 1968 and results are incorporated in unpublished report of 1972.

1.07.03 The detailed exploration of Mahuda basin had also been carried out by MECL in 1974-1978 and submitted geological report in 1979 to CMDPIL.

1.07.04 The quality analysis and other tests of coal seams of Mahuda basin has been carried out by CFRI/CSL, Jealgora, Dhanbad and results are available in their annual reports and publications. *Dijwadi*

## 1.08.00 PRESENT WORK

1.08.01 Objective:

The objectives of present work are as follow:

- i) To assess the extent of coal seams XIV, XIII & XII
- ii) To assess the occurrence of lower coal horizons upto seam Zero '0'
- iii) To assess the quality of coal seams.

1.08.02 MECL has carried out detailed exploration in Lohapatti-East(MOU) block involving different activities such as drilling, surveying, chemical analysis and special test. The quantum of work is given in Table- 1.08.02.

TABLE-1.08.02  
**QUANTUM OF WORK DONE BY MECL IN LOHAPATTI-EAST(MOU) BLOCK**

SI. No	Item of work	Quantum of work
1.	Area of the block	3.0 Sq. Km.
2.	Drilling	3027.80 (16 Bhs.)
3.	Geology :	
	ix) Geological Logging	3027.80 m (16 Bhs.)
	x) Sampling	
	Band-by-Band	14.14m } 68.79m 54.65m }
4.	Geophysical Logging	548.00m (1 Bh – MLE-15)
5.	Surveying	
	xi) Triangulation	08 Sq. Kms.
	xii) Theodolite Traverse	08 Sq. Kms.
	xiii) Leveling	07 L. Kms.
	xiv) Borehole fixation	18 Nos.
	xv) Co-ordinates of BHs.	16 Bhs.
	xvi) R.L. of BHs	16 Bhs. (MLE-1 to 16)
6.	<b>Chemical Analysis</b>	
	i) Band by band	14.14m. (3 Bhs) CIMFR, Dhanbad 54.65m (11 Bhs) MECL, Nagpur
	Total	68.79m (14 Bhs)
	ii) Proximate Overall Analysis	53 Samples (11 Bhs.)
	iii) CV	53 Samples (11 Bhs.)
	iv) Ultimate Analysis.	23 Samples - 1 Bh. (MLE-6) (NR)
7.	Petrography	21.55m - 1 Bh. (MLE-15) (NR) CMPDIL Lab, Ranchi
8.	Physico Mechanical Investigations	240.43m -1 Bh. (MLE-16) CMPDI Lab, Ranchi

NR (Results not Received)

#### 1.09.00 DRILLING

1.09.01 The exploratory drilling by MECL started on 27.07.2010 and was concluded on 14.09.2012 after drilling 3027m in 16 boreholes. The location of these boreholes were fixed in consultation with CMPDIL.

#### 1.10.00 LOGGING

- 1.10.01 The entire drill core recovered from the boreholes drilled by MECL were logged for lithology, mineral assemblages, structural features, etc. The detailed runwise lithologs are included in Annexure-II. The graphic representation of lithology of the boreholes on R.F. 1 : 500 are given in Plates – III-1 & III-2.
- 1.10.02 The entire drilling operation was conducted by conventional drilling aided by Vol-300 drill wireline equipment. Controlled speed, adequate pressure, circulation of bentonite mud with other chemicals etc, were resorted to maximise the core recovery in both coal and non coal portions. The core recovery in coal and non-coal portion is more than 90% and 70% respectively except in weathered, friable and disturbed zone. The drilling was done in NQ size with hole diameter of 75.8 mm.

#### 1.11.00 GEOPHYSICAL LOGGING

- 1.11.01 Geophysical Logging has been carried out in one borehole (MLE-15) for 548.00m on parameters SPR, Resistivity, Gamma and Density/Caliper.

## CHAPTER - 2

### 2.00.00 GEOLOGY AND STRUCTURE

#### 2.01.00 GENERAL

2.01.01 Jharia Coalfield, covering an area of about 453 sq.kms. is one of the major coalfields of Damodar Vally coal belt. It is an outlier of Permo-Carboniferous sediments in an Archaean country. The Jharia coalfield is roughly sickle shaped synclinal basin with an east-west alignment of axis. It is covered by Damuda Group of lower Gondwana Formation. The southern boundary of the basin is prominently marked by a major NW-SE trending fault of great magnitude. The generalised stratigraphic sequence of Jharia Coalfield (After G.S.I.) is exhibited in Table : 2.01.01

**TABLE : 2.01.01**

**GENERALISED STRATIGRAPHIC SEQUENCE OF JHARIA COALFIELD  
( After Geological Survey of India )**

AGE	GROUP	FORMATION	THICK. (m) (Max.)	LITHOLOGY
Recent & Sub-Recent			30	Alluvium, sandy soil, clay, gravel etc.
Jurassic		Unconformity Intrusives		Dolerite, Mica-Peridotite Lamprophyres. and
Upper Permian	D A M U	Raniganj	725	Fine to medium grained, mica- ceous sandstones, shales, carbonaceous shales and coal seams.
Middle Permian	D A	Barren Measure	625	Coarse to medium grained sideritic sandstone, dark grey shales with ironstone nodules.
Lower Permian	G R O U	Barakar	1250	Conglomerate, coarse to gritty, felspathic sandstones, shales, carbonaceous shales and coal seams.
Upper Carboniferous	P	Talchir	250	Coarse grained, khaki sand- stones, olive green splintery shales and greenish basal Boulder beds.
Archaean		Unconformity Metamorphics	-	Granites, gneisses and schists with quartz veins.

## 2.02.00 REGIONAL GEOLOGY

- 2.02.01 The basement of Jharia Coalfield is represented by metamorphic rocks of Archaean age. The Archaeans, consisting of gneisses and mica-schists with quartz veins are exposed along the northern, western and southern fringes of Jharia Coalfield. A tongue of metamorphics, thrusting into the Gondwanas, is observed near Patherdih in the south eastern part of the coalfield.
- 2.02.02 Archaeans are overlain by Talchirs of Lower Gondwana Group, belonging to Upper Carboniferous age. Talchir Formation is mainly represented by coarse grained khaki sandstones and greenish needle shales. It is exposed all along the northern fringe of the coalfield. Talchirs are comparatively well developed near Lutipahari in the north western part of the coalfield.
- 2.02.03 Talchirs are followed by Barakars which are found well developed in the northern, north-eastern and eastern part of the coalfield whereas along the southern boundary they extend under a thick cover of Barren Measures. Barakars are represented by pebbly to gritty or coarse grained, feldspathic sandstone, grey shale, shale-sandstone intercalations, carbonaceous shales and coal seams. Barakars envelope 18 major workable coal seams, mostly coking coal.
- 2.02.04 Barakars are conformably overlain by Barren Measures. Barren Measures Formation exhibits a wide spread development, extending from the central part of the coalfield to the southern limit. It is mainly represented by massive sideritic sandstones, grey to dark grey shales with ironstone nodules and bands. The Barren Measures attain maximum thickness in the central part of the coalfield. It gradually decreases westward and eastward.
- 2.02.05 The Raniganj Formation has very limited development in Jharia Coalfield. It lies conformably over Barren Measures in Damuda basin, representing south western part of the coalfield. Raniganj Formation is represented by medium grained, micaceous sandstones, grey shales, carbonaceous shales and coal seams. The Raniganj coals are high moisture, high volatile, medium coking in nature.
- 2.02.06 Post-Gondwana igneous intrusives occur in the form of dykes and sills of mica-peridotite, dolerite and lamprophyres. Number of igneous intrusives and their off shoots cut across the coal seams of Barakars and Raniganj Formations, resulting pyrolitisation of the coal seams. Considerable quantity of prime-coking coals of Barakars has been pyrolitised.
- 2.02.07 The Lower Gondwana sediments unconformably overlying the Archaeans, are represented by the rocks of Talchir Formation and the Damuda Group of Lower Gondwana, comprising Barakar, Barren Measures and Raniganj Formations. The coal bearing Barakar and Raniganj Formations occupy an area of about 219 and 53 sq.km. respectively. The non coal bearing Barren Measure Formation and Talchir Formation occupy the remaining 181 sq.km.

- 2.02.08 Talchir Formation: The Talchir Formation comprising variegated shales and greenish sandstones are exposed along the northern fringes of coalfield. The best Talchir outcrops are, however, seen in the north-western part of coalfield in Lotipahari area.
- 2.02.09 Barakar Formation: The Barakar Formation is the most important rock unit in the area, since it includes a number of coal seams. It comprises of pebbly sandstone, shales, carbonaceous shales, besides coal seams. There are numerous coal seams in the Barakar, of which 18 seams (numbered I to XVIII in the ascending order) are important. The coal seams of Barakar Formation are mostly coking quality but the Prime Coking coal is mostly confined to the IX/X and above.
- 2.02.10 Barren Measure Formation: The Barren Measure Formation lying conformably over Barakar Formation consists of massive sandstone alternating with carbonaceous shale, grey shale and sandstone-shale intercalation with very few thin, non-workable coal bands in the lower part.
- 2.02.11 Raniganj Formation: The Raniganj Formation has limited development in this coalfield around Mahuda area, in south-western part. It contains 14 coal seams, of which 5 are considered important. These seams are high volatile medium coking coal.
- 2.02.12 Igneous Intrusives: Mica-peridotite and dolerite are known Post Gondwana intrusives. Of these, the Mica-peridotite sills and dykes are primarily responsible for destruction of valuable coking coals due to Pyrolitisation. With one exception, dolerite dykes are found only in the western part of the coalfield. These have a very limited burning effect on the coal seams.

#### 2.03.00 GEOLOGY OF LOHAPATTI-EAST(MOU) BLOCK

- 2.03.01 Lohapatti-East (MOU) Block located in the southern-western part of Jharia Coalfield is occupied by the rocks of Raniganj Formation, which overlies Barren Measure Formation of Gondwana Super Group. The Raniganj Formation is surrounded by the rocks of Barren Measure Formation on all sides except to the west and south-west, where it is in juxtaposition with Archaeans Gneissic complex due to faulting. The Raniganj and the Barren Measure contact is normal, except in the north-western part, where it is faulted. The generalized sequence (as per GSI) of the Raniganj Formation in Lohapatti-East (MOU) Block of Mahuda basin, is given in Table : 2.02.02.

TABLE : 2.02.02  
GEOLOGICAL SUCCESSION OF RANIGANJ FORMATION  
LOHAPATTI-EAST(MOU) BLOCK

	FOX(1930)	Mukhopadhyay and Samaddar (1972)
Raniganj Formation	4. Sandstone of Lohapatti and Kunju	Upper Member
	3. Coal Measures of Telmuchu and Pathergoria	
	2. Sandstone of Jamdiha and Kumardih	Lower Member
	1. Coal Measures of Bamangora and Huntodih	

2.03.02 The 'Lower Member' includes the coal measures of Bamangora (FOX-1930) and comprises medium to fine grained micaceous sandstone, shaly sandstone, sandy shales, intercalations of sandstone and shale, carbonaceous shale and shale. All the major coal seams occur in these strata.

2.03.03 The 'Upper Member' includes the sandstone of Jamdiha, coal measures of Telmuchu and sandstone of Lohapiti (FOX-1930). This member is represented predominantly by thick sandstone horizons with interbanding of shaly sandstone, intercalated shale and sandstone, shale and carbonaceous shale with three coal seams.

2.03.04 The area considered in this report forms the central part of Mahuda basin. In this area rocks of the lower and upper members of Raniganj Formation are conformably overlying the Barren Measures Formation.

2.03.05 The area is mostly covered by alluvium and sandy soil. Good rock exposures are scanty.

#### 2.04.00 REGIONAL STRUCTURE

2.04.01 General: The regional strike of the formation in Jharia Coalfield, in general, follows the sickle shaped boundary of the coalfield.

2.04.02 Jharia Coalfield is considered to be the northern remnant of the cross-folded synclinal basin, preserved as down-thrown block of the southern boundary fault, with the principal syncline axis trending nearly east-west from the Dugda in the west, through Mahuda to Bhulanbarari in the east and further. The south-eastern part of this syncline is further folded in the form of anticlines and synclines. The coalfield is traversed by a number of faults. These are probably the results of the local adjustment to the regional tectonic events.

2.04.03 In Jharia Coalfield, the Raniganj strata are disposed in synclinal "Oval Shaped" trough, the Mahuda basin. The axis of syncline trends nearly east-west. The syncline appears to be doubly plunging. In the eastern part, it shows a broad closure, with plung varying from 6° to 7° due west. The dip of beds in the northern limb of syncline varies from 8° to 10° whereas on the southern limbs the dips are comparatively steeper, being 15° to 25°.

#### 2.05.00 STRUCTURE OF LOHAPATTI-EAST(MOU) BLOCK

2.05.01 As already mentioned, the block under reference is covered with soil and alluvium and outcrop/rock exposures are scanty, hence the structure of the block has been deciphered mainly on the basis of sub-surface data generated from the boreholes drilled in Lohapatti-East (MOU) Block and its adjoining area.

2.05.02 Strike and Dip. The block under reference covers central part of of the syncline. The dip of formation is steeper near the surface and gradually decreases down dip. It generally varies from 5° to 15° towards centre. The Floor Contour of individual seams are depicted on Plate No.: VII-1 to VII-3.

2.05.03 Three numbers of faults have been deciphered in this block. Fault  $F_1 - F_1$  trending almost N-S is located in western part of the block. The throw of fault varies from 30m to 105m. Fault  $F_1 - F_1$  is intersected in borehole JK-9 & LMS-8. Fault  $F_{1a} - F_{1a}$  is a split of fault  $F_1 - F_1$ . It varies in throw from 40m to 50m. These faults dip towards east. Fault  $F_2 - F_2$  located in the south-western part varies in throw from 10m to 20m.

## CHAPTER - 3

### 3.00.00 COAL SEAMS

#### 3.01.00 GENERAL

3.01.01 As already mentioned, the objective of exploration in Lohapatti-East (MOU) block was to assess the quantity, quality and disposition of seams XIV, XIII & XII and to know the occurrence of lower seam horizons up to '0 seam'.

3.01.02 Altogether 20 correlatable coal seams have been established within the block. All these seams occur as independent seam within the block. These seams have been correlated as follows in descending order:

XIV, XIII, XII, XI-A, XI-B, X, IX, VIII-A, VIII-B, VIII-C, VI-A, VI-B, V, IV, III, II, I & '0'.

Seam VII is not developed in the block.

3.01.03 Seam Correlation: Correlation of coal seams intersected in various boreholes has been done on the basis of established criteria such as thickness, quality, roof and floor characteristic of seam and inter seam parting etc. while attempting the correlation of the coal seams, due care has been taken to identify and correlate each coal horizon in different boreholes. The correlation of coal seams as worked out earlier by G.S.I. and M.E.C.L. (1979) in the Mohuda basin has been taken into account.

3.01.04 Seam Nomenclature: Nomenclature of the coal seams has been adopted as in Geological Report of Mahuda basin submitted by M.E.C.L. in 1979. All the correlatable coal horizons have been given number in chronological order.

3.01.05 Norms for Coking and Non-Coking Coal: For the purpose of categorization of coking and non-coking coals, the norms taken are as follows:

- i) Prime Coking Coal – Where UVM is more than 22%.
- ii) Medium Coking Coal – Where UVM is between 20%-22%.
- iii) Non-Coking Coal – Where UVM is less than 20%.

#### 3.02.00 BASIS FOR THICKNESS AND QUALITY DETERMINATION

3.02.01 Thickness, quality and general characteristic of coal seams have been done on the basis of chemical analysis of coal cores. The analysis of coal cores have been carried out by CIMFR, Digwadih, Dhanbad and MECL Chemical Lab., Nagpur.

3.02.02 While determining the coal, shaly coal & carbonaceous shale horizons the norms given below have been followed:

- a) Coal - Ash up to 35%.
- b) Shaly Coal - Ash more than 35%, up to 50%.
- c) Carbonaceous Shale - Ash more than 50%, up to 75%.

3.02.03 I-30 and BCS Thickness: For calculation of BCS thickness of coal seams all the obvious bands and bands containing ash more than 50% have been excluded from seam thickness.

3.02.04 For calculation of I-30 thickness of coal seam dirt bands up to 0.30m thickness have been included. Obvious bands irrespective of their thickness have been excluded. Pyrolitised section of seam have also been considered as obvious bands.

3.02.05 The I-30 ash of the seams wherever not available, was calculated by weighted average method.

3.02.06 The Special Test such as Ultimate Analysis (Bh.No. MLE-6) and Petrographic Analysis (Bh. No. MLE-15) are not received.

3.02.07 The Volatile Matter on Unit Coal Basis has been calculated by following formula:

$$\text{U.V.M. (Unit Coal Basis)} = \frac{100 - 100 \times \text{F.C. \%}}{100 - (1.1 \text{ Ash\%} + \text{M\%})}$$

### 3.03.00 SEAM STRUCTURE

3.03.01 Seam structure of all the correlatable / workable seams have been drawn on 1:50 (R.F) based on analytical results as received from analytical agency. These are included in Plate No. VI-1 to VI-7.

### 3.04.00 SEAM FOLIO

3.04.01 Seam folio plans on I-30 bands have been prepared depicting Iso-chore and Iso-ash of following values and are presented in Plate Nos.: IX-1 to IX-3.

- a) Iso-chore : 0.90m, 1.20m, 1.50m, 2.00m & 2.50m.
- b) Iso-ash : 15%, 18%, 21%, 24%, 28% & 35%.

3.04.02 The grading of coals have been done as per notification of the Ministry of Energy (Department of Coal). These are given below:

CLASS	GRADE	GRADE SPECIFICATION
Coking Coal	Steel Grade-I	Ash content not exceeding 15%.
	Steel Grade-II	Ash content 15% to 18%.
	Washery Grade-I	Ash content 18% to 21%.
	Washery Grade-II	Ash content 21% to 24%.
	Washery Grade-III	Ash content 24% to 28%.
	Washery Grade-IV	Ash content 28% to 35%.
	Un-graded	Ash content more than 35%.

## CHAPTER - 4

### 4.00.00 DESCRIPTION OF COAL SEAMS

#### 4.01.00 General

- 4.01.01 The detailed coal exploration in Lohapatti-East (MOU) block of Jharia coalfield has revealed the presence of a total of 20 coal seams including sections designated as XIV to '0' in descending order. These seams are XIV, XIII, XII, XI-A, XI-B, XI-C, X, IX-A, IX-B, VIII-A, VIII-B, VIII-C, VI-A, VI-B, V, IV, III, II, I & '0'. Seam VII is not developed in the block. All these seams occur in Raniganj Formation.
- 4.01.02 Of all the seams, only the 3 seams are persistent within the block and have attained workable thickness >0.90m. Remaining seams are either impersistent and show patchy development, found in limited area or are represented by thin bands (<0.90m) and hence are unworkable.
- 4.01.03 The correlation of seams, their thickness range and the range of intervening parting between the seams intersected in the boreholes of Lohapatti-East (MOU) block, is given in Table 4.01.03.
- 4.01.04 An attempt has been made to assess the coal potentiality, Both qualitatively and quantitatively, of only 3 persistent and workable seams (XIV, XIII & XII) Hence, only these seams have been described in detail while other seams are dealt-with, in brief.

TABLE-4.01.03

SEQUENCE OF COAL SEAMS AS PER BOREHOLE INTERSECTIONS  
LOHAPATTI-EAST(MOU) BLOCK; JHARIA COALFIELD; DISTRICT: DHANBAD; JHARKHAND

Sequence of Seams/Parting	Range of Seam Thickness (m)		Range of Parting Thickness (m)		No. of Full Intersections
	Minimum	Maximum	Minimum	Maximum	
XIV	0.40 (MH-33)	2.50 (MLE-3)			26
Parting			38.57 (MLE-1)	46.45 (MLE-4)	18
XIII	0.35 (MH-31)	1.71 (LMS-9)			31
Parting			8.50 (MH-31)	16.00 (MLE-9)	30
XII	0.47 (MH-33)	1.61 (LMS-10)			32
Parting			157.34 (MLE-15)	161.35 (MLE-6)	4
XI-A	0.35 (MLE-3)	0.90 (MLE-16)			4
Parting			2.15 (MLE-16)	4.40 (MLE-3)	3
XI-B	0.50 (MLE-16)	0.63 (MLE-15)			3
Parting			17.20 (MLE-16)	28.17 (MLE-15)	2
XI-C	0.20 (MLE-15)	0.36 (MLE-16)			3
Parting			71.50 (MLE-6)	71.50 (MLE-6)	1
X	0.50 (MLE-6)	0.50 (MLE-6)			1
Parting			34.70 (MLE-6)	34.70 (MLE-6)	1
IX-A	0.42 (MLE-16)	0.80 (MLE-6)			3
Parting			9.78 (MLE-16)	11.93 (MLE-15)	2
IX-B	0.43 (MLE-15)	1.53 (MLE-16)			2
Parting					
VIII-A	0.90 (MLE-6)	0.90 (MLE-6)			1
Parting			7.10 (MLE-6)	7.10 (MLE-6)	1
VIII-B	0.46 (MLE-15)	1.30 (MLE-6)			3
Parting			9.90 (MLE-15)	15.20 (MLE-6)	3
VIII-C	0.25 (MLE-16)	0.95 (MLE-6)			3

TABLE-4.01.03 (CONTD.)

Sequence of Seams/Parting	Range of Seam Thickness (m)		Range of Parting Thickness (m)		No. of Full Intersections
	Minimum	Maximum	Minimum	Maximum	
			29.75 (MLE-6)	29.75 (MLE-6)	1
VI-A	0.70 (MLE-6)	0.70 (MLE-6)			1
			7.90 (MLE-6)	7.90 (MLE-6)	1
VI-B	0.50 (MLE-6)	0.50 (MLE-6)			1
			9.90 (MLE-6)	9.90 (MLE-6)	1
V	1.05 (MLE-16)	1.40 (MLE-6)			2
			23.80 (MLE-6)	53.70 (MLE-16)	2
IV	0.65 (MLE-15)	0.80 (MLE-6)			3
			25.75 (MLE-15)	53.10 (MLE-6)	3
III	3.50 (MLE-16)	3.80 (MLE-15)			3
			25.30 (MLE-6)	35.95 (MLE-15)	3
II	0.60 (MLE-6)	1.50 (MLE-15)			3
			7.50 (MLE-16)	17.70 (MLE-15)	3
I	0.50 (MLE-6)	1.00 (MLE-16)			3
			2.80 (MLE-6)	21.60 (MLE-16)	3
'0'	1.55 (MLE-6)	3.19 (MLE-15)			3

#### 4.02.00 SEAM : XIV

##### Reference of documentation :

I.	Seam structure	:	Plate No. – VI-1	
II.	Floor contour plan	:	Plate No. – VII-1	
III.	Seam folio plan	:	Plate No. – IX-1	
IV.	Seam Quality	:	Annexure –III & IV	
V.	Reserves	:	Proved : Virgin	3.2789 million tonnes
			Developed	1.4916 million tonnes
			Total	<b>4.7705 million tonnes</b>

4.02.01 The seam XIV has been intersected in 26 boreholes. The incrop of the seam can be traced to the north of borehole MLE-15, south of borehole MLE-5, east of borehole MLE-4 and south of borehole KLP-47. It overlies seam XIII with a parting of 38.57m (MLE-1) to 46.45m (MLE-4). The seam occurs within the depth range of 9.40m (LMS-16) to 109.20m (LMS-7). Seam is workable throughout the block except in a small part located in the eastern part around borehole MLE-4. The thickness of seam varies from 0.65m (MLE-4) to 2.50m (MLE-3). The seam has been worked out in about 50% of the block.

4.02.02 Quality : The quality of coal is available in 17 boreholes. The grade of the seam varies from UG to W-I. In major part of the block the seam is represented by Grade W-IV. However, in a small part around borehole MLE-2, located in the western part, the seam improves to Grade S-II. In the north-western part of the block in a small area, the seam becomes ungraded. UVM% is >35% in the entire area.

The variation in different parameters of quality is given below :

TABLE – 4.02.02  
SEAM : XIV  
QUALITY PARAMETERS (AS ON RECEIVED BASIS)

PARAMETER	NO. OF BHS.	MINIMUM	MAXIMUM	MEAN	STANDARD DEVIATION
MOISTURE (%)	13	2.10 LMS-2	3.20 MLE-12	2.57	0.37
ASH (%)	17	20.60 MLE-12	41.00 LMS-19	32.05	4.26
V.M. (%)	13	26.20 LMS-6	29.20 MLE-12	27.31	0.81
UVM (%)	13	36.53 MLE-10	40.18 LMS-9	38.35	1.17
GRADE	13	UG MLE-19	W-I LMS-12		
C.V. (K-Cal/Kg)	3	4820 MLE-13	6020 MLE-12	5400	490

OVERALL DETERMINED : 17 Bhs.  
MLE- 10, 12, 13, LMS-1, 2, 3, 4, 5, 6, 7, 9, 10, 16, 19, MH-40,  
KLP-9, 47

#### 4.03.00 SEAM : XIII

##### Reference of documentation :

I.	Seam structure	:	Plate No. – VI-2	
II.	Floor contour plan	:	Plate No. – VII-2	
III.	Seam folio plan	:	Plate No. – IX-2	
IV.	Seam Quality	:	Annexure –III & IV	
V.	Reserves	:	Proved : Virgin	3.7722 million tonnes
			Developed	0.7640 million tonnes
			Total	<b>4.5362 million tonnes</b>

4.03.01 The seam XIII has been intersected in 31 boreholes. The seam incrops near the northern, south-eastern and south-western boundary. It overlies seam XII with a parting of 8.50m (MH-31) to 16.00m (MLE-9). The seam occurs within the depth range of 14.75m (MLE-9) to 152.79m (LMS-7). Seam is workable in the major part of the block except in 2 isolated patches located in the central and western part of the block. The thickness of seam varies from 0.35m (MH-31) to 1.71m (LMS-9). The seam has been worked out in northern to central part of the block.

4.03.02 Quality : The quality of coal is available in 22 boreholes. The grade of the seam varies from W-IV to S-I. The seam is represented by Grade S-I to S-II in the eastern and northern to central part of the block. In major part the seam exhibits grade W-I to W-III. UVM% is 35% in the entire area.

The variation in different parameters of quality is given below :

TABLE – 4.03.02  
SEAM : XIII  
QUALITY PARAMETERS (AS ON RECEIVED BASIS)

PARAMETER	NO. OF BHS.	MINIMUM	MAXIMUM	MEAN	STANDARD DEVIATION
MOISTURE (%)	19	1.40 LMS-13	3.00 MLE-7	2.54	0.44
ASH (%)	22	10.60 MLE-11	29.50 MH-33	19.99	5.76
V.M. (%)	19	29.10 LMS-14	33.20 MLE-11	30.87	1.31
UVM (%)	19	36.17 MLE-10	39.34 LMS-13	37.90	0.91
GRADE	19	W-IV MLE-33	S-I MH-11		
C.V. (K.Cal/Kg)	11	6090 MLE-9	7030 MLE-14	6639	319

OVERALL DETERMINED : 22 Bhs.

MLE- 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, LMS-6, 7, 9, 13,  
14, 16, 19, MH-33, 55, KLP-9, 53

#### 4.04.00 SEAM : XII

##### Reference of documentation :

I.	Seam structure	:	Plate No. – VI-3	
II.	Floor contour plan	:	Plate No. – VII-3	
III.	Seam folio plan	:	Plate No. – IX-3	
IV.	Seam Quality	:	Annexure –III & IV	
V.	Reserves	:	Proved : Virgin	4.8406 million tonnes
			Developed	0.3383 million tonnes
			Total	<b>5.1789 million tonnes</b>

4.04.01 The seam XII has been intersected in 32 boreholes. The seam incrops near the northern, south-eastern and south-western boundary. It overlies seam XI-A with a parting of 157.34m (MLE-15) to 161.35m (MLE-6). The seam occurs within the depth range of 19.70m (MH-48) to 168.97m (LMS-7). Seam is workable throughout the block except in a small patch located in the south-eastern part of the block around borehole MLE-9. The thickness of seam varies from 0.47m (MH-33) to 1.61m (LMS-10). The seam has been worked out in the northern part of the block.

4.04.02 Quality : The quality of coal is available in 23 boreholes. The grade of the seam varies from W-IV to S-I. In major part of the block the grade of the seam varies from Grade W-I to W-III. It improves to Grade S-I to S-II in the eastern part and Grade S-II is observed in the central part of the block. UVM% is >35% in the entire area.

The variation in different parameters of quality is given below :

TABLE – 4.04.02  
SEAM : XII  
QUALITY PARAMETERS (AS ON RECEIVED BASIS)

PARAMETER	NO. OF BHS.	MINIMUM	MAXIMUM	MEAN	STANDARD DEVIATION
MOISTURE (%)	20	1.40 LMS-6	3.90 MLE-8	2.46	0.55
ASH (%)	23	12.20 MLE-14	33.00 LMS-7	23.31	6.27
V.M. (%)	20	26.40 LMS-7	32.90 MLE-14	29.80	1.64
UVM (%)	20	35.91 MLE-10	39.91 LMS-6	37.97	1.02
GRADE	20	W-IV MLE-7	S-I LMS-14		
C.V. (K.Cal/Kg)	10	6070 MLE-4	6900 MLE-14	6486	223

OVERALL DETERMINED : 23 Bhs.

MLE- 4, 5, 6, 7, 8, 10, 11, 12, 13, 14, LMS-6, 7, 9, 10, 13,  
14, 16, 19, MH-48, 55, KLP-9, 47, 53

## CHAPTER - 5

### 5.00.00 COAL RESERVES

#### 5.01.00 GENERAL

5.01.01 The interpretation of both primary and processed data has led to a determination of the extent of which correlation, interpretation and extrapolation of data could be projected to generate a stratigraphic model of Lohapatti-East (MOU) block of Jharia Coalfield and to construct structural model depicting the lay and disposition of strata including the coal seams there in.

5.01.02 The objective of detailed exploration in this block was to assess the quality, quantity and disposition of coking coal seams XIV, XIII & XII. However, with the data available from earlier drilled BCCL, GSI and MECL boreholes and the present series of LP boreholes, it has been possible to recognize 20 distinctly correlatable coal seam in this block upto '0' seam. These in descending order are as follows:

XIV, XIII, XII, XI-A, XI-B, X, IX, VIII-A, VIII-B, VIII-C, VI-A, VI-B, V, IV, III, II, I & '0'.

5.01.03 For the coal seams XIV, XIII & XII explored in detail, the structural model depicting the lay and disposition of coal seams has been shown in various plates illustrating vertical section and the seam floor contour plans. Two dimensional model with quality overlays of these seams are presented in individual seam folios and in the seam structure plans.

#### 5.02.00 AREA CONSIDERED FOR RESERVE ESTIMATION

5.02.01 The limit of block boundary and incrop of respective seams has been considered for reserves estimation.

#### 5.03.00 METHOD OF RESERVE COMPUTATION FOR SEAMS

5.03.01 Iso-chore method has been adopted for estimation of volumes with the aid of seam folios.

5.03.02 Iso-chore lines have been drawn on the seam folios for 0.90m, 1.20m, 1.50m, 2.00m & 2.50m.

5.03.03 The reserves have been estimated for the seams with the ash content up to 15%, between 15% and 18%, 18% and 21%, 21% and 24%, 24% and 28% and 35% and over 35%, in conformity with the grade of coal as per the Government of India Notification of 13.02.1981.

5.03.04 The reserves have been calculated for the seam thickness ranges of 0.90m to 1.20m, 1.20m to 1.50m, 1.50m to 2.00m and 2.00m to 2.50m.

#### 5.04.00 BASIC CONSIDERATIONS

- 5.04.01 Following basic considerations have been taken into account while estimating the reserves.
- 5.04.02 Thickness: The minimum workable thickness of the individual I-30 seam has been considered as 0.90m.
- 5.04.03 For the area falling between two iso-chore lines, the average of the two iso-chore values has been taken as the mean thickness of that area.
- 5.04.04 In a segment where there is only one iso-chore, the average of the iso-chore value and the thickness of the seam in the controlling borehole/ boreholes within the area has been taken as the thickness of the seam.
- 5.04.05 Ash Content: The average ash value of the 'Iso-ash Lines' within a segment has been taken as the ash content of the seam in that area.
- 5.04.06 Specific Gravity:
- a) The Specific Gravity has been calculated from the ash value by adopting the formula:

$$\text{Specific Gravity} = 1.28 + (0.01 \times \text{Ash}\%)$$

- 5.04.07 A deduction of 10% from the "Gross Reserves" of coal has been made on account of normal geological variation like structural disturbances, pyrolitisation of seam etc. and unforeseen data gaps to arrive at "Net Reserves" while 30% deduction has been considered to "Gross Reserves" in developed area to arrive at "Net Reserves".

#### 5.05.00 COAL RESERVES

- 5.05.01 As per the objective of the present exploration, sector-wise, thickness and grade-wise reserves of coals have been estimated for seams XIV, XIII and XII. The reserves of these seams have been calculated considering their persistent workable thickness in the major part of the block. The details of reserves are given in Annexures-IX A & IX B. Summary Tables of Reserves estimated, have been given in Tables : 5.05.01 to 5.05.01 C

TABLE 5.05.01

## SEAM-WISE, BARRIER-WISE SUMMARY OF RESERVES

SEAM	VIRGIN	DEVELOPED	TOTAL
XIV	3.2789	1.4916	4.7705
XIII	3.7722	0.7640	4.5362
XII	4.8406	0.3383	5.1789
TOTAL :	11.8917	2.5939	14.4856
PERCENTAGE :	82.07	17.93	

TABLE 5.05.01 A

## SEAM-WISE, SECTOR-WISE SUMMARY OF RESERVES

SEAM	I	II	III	IV	TOTAL
XIV	4.0304	0.0491		0.6910	4.7705
XIII	3.9559	0.0433	0.1144	0.4226	4.5362
XII	4.4406	0.0468	0.1228	0.5687	5.1789
TOTAL :	12.4269	0.1392	0.2372	1.6823	14.4856
PERCENTAGE :	85.76	0.96	1.64	11.64	

TABLE 5.05.01 B

## SEAM-WISE, THICKNESS-WISE SUMMARY OF RESERVES

SEAM	0.90 - 1.20	1.20 - 1.50	1.50 - 2.00	2.00 - 2.50	TOTAL
XIV	0.1415	1.0438	2.1218	1.4634	4.7705
XIII	1.6683	2.4053	0.4626		4.5362
XII	0.8770	4.1151	0.1868		5.1789
TOTAL :	2.6868	7.5642	2.7712	1.4634	14.4856
PERCENTAGE :	18.54	52.20	19.12	10.14	

TABLE 5.05.01 C

SEAM-WISE, GRADE-WISE SUMMARY OF RESERVES

SEAM	S-I	S-II	W-I	W-II	W-III	W-IV	UG	TOTAL
XIV		0.0029	0.0294	0.0220	0.7253	3.7509	0.2400	4.7705
XIII	0.9660	0.8899	1.1192	1.1258	0.3897	0.0456		4.5362
XII	0.2488	1.2211	1.4870	0.8596	1.0278	0.3346		5.1789
TOTAL :	1.2148	2.1139	2.6356	2.0074	2.1428	4.1311	0.2400	14.4856
PERCENTAGE :	8.38	14.59	18.19	13.85	14.79	28.51	1.69	

## CHAPTER- 6

### 6.00.00 PHYSICO-MECHANICAL INVESTIGATIONS

#### 6.01.00 GENERAL

6.01.01 The physico-mechanical analysis on borehole cores of MLE-16 from 11.00m to 632.20m depth was carried out in Mining Laboratory, Underground Mining Division, CMPDI, Ranchi. All the cores, be it sandstone, shale, carb. shale, shaly coal and coal were subjected to different physico-mechanical parameters.

#### 6.02.00 PHYSICO-MECHANICAL STUDY (BH.NO. MLE-16)

6.02.01 Physico-mechanical study for parameters like Density (143 samples), Compressive Strength (70 samples), Tensile Strength (71 samples), Shear Strength (102 samples), Triaxial Strength (8 samples), Young's Modulus of elasticity (63 samples) and Protodyakonov Strength Index (16 samples) were carried out in the laboratory. The detailed test results along with Mohr's Diagram are given in Annexure VIII. Broad range of result of major litho types irrespective of their depth of occurrence is provided in Table 6.02.01.

TABLE – 6.02.01

RANGE OF DIFFERENT PARAMETERS OF PHYSICO-MECHANICAL PROPERTIES OF ROCK AND COAL CORE SAMPLES  
FROM BOREHOLE No. MLE-16 LOHAPATTI -EAST(MOU) BLOCK, JHARIA COALFIELD

Rock Type	Density (gm/cc)		Young's Modulus		PSI		Compressive Strength (dry)(M Pa)		Tensile Strength (M Pa)		Shear Strength (M Pa)		Triaxial Strength			
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Angle of Internal Friction		Cohesion	
													Min	Max	Min	Max
SAND STONE	2.35	2.75	1.12	7.39	--	--	17.02	74.64	2.71	10.49	3.51	18.98	37	58	2.86	8.89
COAL	1.35	1.61	0.56	0.56	0.67	1.94	7.29	7.29	--	--	1.17	4.47	--	--	--	--
SHALE	2.04	2.75	1.07	3.38	3.58	5.64	24.79	49.14	3.44	10.06	1.17	10.34	--	--	--	--
ICAL	2.41	2.77	1.21	5.31	3.27	3.27	32.58	52.92	3.72	10.72	2.81	10.71	38	44	5.37	6.02
CARB.SHALE	1.74	2.47	--	--	--	--	--	--	4.93	4.93	3.66	3.66	--	--	--	--

PSI = Protodyakonov Strength Index

## CHAPTER - 7

### 7.00.00 CONCLUSION

#### 7.01.00 GENERAL

- 7.01.01 The detailed exploration of Lohapatti-East (MOU) block in Jharia Coalfield established the presence of 20 correlatable coal seams in Raniganj Formation of Damuda Sub-Group (Lower Gondwana).
- 7.01.02 The block shows basinal structure with closure towards east. The dip varies from 5° to 15° towards centre.
- 7.01.03 Out of 20 correlatable coal seams in the block 3 seams namely XIV, XIII & XII have been identified for drawing of seams folio considering their persistency and mineable thickness within the block.
- 7.01.04 It is observed from the analytical parameters that the coal occurring in Lohapatti-East (MOU) block is low moisture high volatile, medium coking coal.
- 7.01.05 A total of **14.4856** million tones of coal reserves in 'Proved Category' has been estimated in the block, out of which **11.8917** million tones occur in virgin area while **2.5939** million tones are locked up in developed area.

# ANNEXURES

**ANNEXURE-I A**  
**[ p A-I A/ 1 ]**

## ANNEXURE-IA

STATEMENT SHOWING LATITUDE, DEPARTURE, R.L., TOTAL DEPTH, DATE OF COMMENCEMENT &amp; CLOSURE OF BOREHOLES

DRILLED BY MECL

BLOCK: LOHAPATTI (EAST)  
COAL FIELD: JHARIADISTRICT: DHANBAD  
STATE : JHARKHAND

A-IA/ 1

SL. NO.	BOREHOLE NO.	R.L. (MTS.)	TOTAL DEPTH DRILLED (M)	LATITUDE (M)	DEPARTURE (M)	DATE OF COMMENCEMENT	DATE OF CLOSURE
1	MLE-1	200.81	105.50	1081802.318	3226544.785	27/07/10	31/07/10
2	MLE-2	206.74	96.00	1081862.852	3227284.129	07/08/10	14/08/10
3	MLE-3	200.84	276.50	1082058.308	3226964.327	23/08/10	08/10/10
4	MLE-4	205.90	80.00	1082154.404	3227918.540	27/11/11	07/12/11
5	MLE-5	212.93	71.50	1082683.867	3227564.127	18/12/11	30/12/11
6	MLE-6	194.56	588.00	1082212.651	3228140.375	14/12/11	14/03/12
7	MLE-7	203.47	58.40	1082514.548	3227913.918	09/01/12	14/01/12
8	MLE-8	198.79	54.50	1081871.463	3228098.291	18/01/12	23/01/12
9	MLE-9	191.01	34.00	1081606.986	3227858.992	24/01/12	29/01/12
10	MLE-10	197.31	133.30	1082209.083	3226731.479	01/02/12	09/02/12
11	MLE-11	210.63	78.70	1082806.654	3227102.526	11/02/12	18/02/12
12	MLE-12	211.08	98.00	1082348.191	3226186.040	20/02/12	29/02/12
13	MLE-13	211.49	102.00	1082917.222	3226144.893	03/03/12	07/03/12
14	MLE-14	196.55	59.20	1082046.657	3228118.130	20/03/12	26/03/12
15	MLE-15	210.03	560.00	1083164.965	3226466.009	19/04/12	08/07/12
16	MLE-16	210.28	632.20	1082359.722	3227572.510	09/06/12	14/09/12
17	LMS-1	213.28	62.10			/ /	/ /
18	LMS-2	203.40	94.50			/ /	/ /
19	LMS-3	211.42	60.00			/ /	/ /
20	LMS-4	201.00	40.00			/ /	/ /
21	LMS-5	211.16	32.30			/ /	/ /
22	LMS-6	217.62	126.60			/ /	/ /
23	LMS-7	206.23	172.50			/ /	/ /
24	LMS-8	204.63	141.50			/ /	/ /
25	LMS-9	205.74	94.60			/ /	/ /
26	LMS-10	208.68	62.00			/ /	/ /
27	LMS-13	204.57	55.80			/ /	/ /
28	LMS-14	205.92	43.20			/ /	/ /
29	LMS-16	209.25	68.00			/ /	/ /
30	LMS-19	211.70	113.05			/ /	/ /
31	MH-31	215.33	515.00			/ /	/ /
32	MH-33	209.81	565.70			/ /	/ /
33	MH-40	209.97	669.15			/ /	/ /
34	MH-48	197.22	571.45			/ /	/ /
35	MH-55	190.20	509.80			/ /	/ /
36	KLP-9	191.48	600.10			/ /	/ /
37	KLP-47	202.23	627.50			/ /	/ /
38	KLP-53	202.23	502.70			/ /	/ /
39	JK-9	202.52	680.61			/ /	/ /

**ANNEXURE-I B**  
**[ p A-I B/ 1 ]**

**ANNEXURE-IB**  
**STATEMENT SHOWING REDUCED LEVEL, LATITUDE AND DEPARTURE OF**  
**TRAVERSE STATIONS IN LOHAPATTI (EAST) BLOCK, JHARIA COALFIELD,**  
**DISTRICT: DHANBAD, JHARKHAND**

A-IB/ 1				
SL. NO.	TRAVERSE STATION	LATITUDE	DEPARTURE	REDUCED LEVEL (m)
1	L-1	1082593.3432	3226438.3655	204.990
2	L-2	1082343.7747	3226665.5741	200.535
3	L-3	1082218.2171	3226775.9942	198.845
4	L-4	1082074.5989	3226887.5108	197.345
5	L-5	1081928.9710	3226619.3335	200.355
6	L-6	1082054.7512	3226928.5146	199.125
7	L-7	1082061.0346	3227002.4971	202.935
8	L-8	1082119.2335	3227141.1843	206.735
9	L-9	1082066.6914	3227240.3205	211.930
10	L-10	1081951.7823	3227322.0264	211.745
11	L-11	1082062.6267	3227389.7916	211.825
12	L-12	1081987.7203	3227845.7877	204.945
13	L-13	1082065.1133	3227910.5675	207.080
14	L-14	1082087.9569	3228072.7662	200.705
15	L-15	1082473.4611	3228089.8866	197.970
16	L-16	1082589.0034	3227936.7709	201.195
17	L-17	1082827.0278	3227745.9675	211.040
18	L-18	1083048.5588	3227511.2267	212.600
19	L-19	1083132.3086	3227303.6184	216.400
20	L-20	1083206.6589	3227249.5261	216.700
21	L-21	1083218.1531	3226795.9767	211.060
22	L-22	1083055.2825	3226563.8663	209.425
23	L-23	1082894.9692	3226499.0196	204.440
24	L-24	1082548.4346	3226405.2382	208.145
25	L-25	1082881.4688	3226312.0855	209.365
26	L-26	1082423.6840	3226286.8288	207.140
27	L-27	1082923.4664	3226831.0861	213.350
28	L-28	1082865.7552	3226984.5653	215.700
29	L-29	1081808.8240	3227864.7074	198.405
30	L-30	1082198.8619	3227727.6257	207.730
31	L-31	1082657.3860	3227742.5543	206.990
32	L-32	1082738.4540	3227504.1472	215.625
33	L-33	1082819.6184	3227492.5316	216.020
34	L-34	1082777.9689	3226803.9703	213.730
35	L-35	1082606.3476	3227311.0534	213.500
36	L-36	1082476.7076	3227051.7759	204.115
37	L-37	1081913.2601	3228245.1007	192.700
38	L-38	1081841.2026	3228016.8987	200.285
39	L-39	1083321.6167	3226659.4230	215.520

**ANNEXURE-II**  
**[ p A-II/ 1 to A-II/ 85 ]**

ANNEXURE-II

B O R E H O L E L I T H O L O G

B.H.NO. : MLE-1

LATITUDE : 1081802.318 (M)      COLLAR R.L. : 200.805(M)      COMMENCED ON : 27/07/10  
 DEPARTURE : 3226544.785 (M)      DEPTH DRILLED : 105.50 (M)      COMPLETED ON : 31/07/10

A-II / 1

R U N		TOTAL	TOTAL	RECO-	THICKNESS		FLOOR	D E S C R I P T I O N			OTHER DETAILS
FROM	TO	LENGTH	RECOV	VERY	RECOV	EXTRA	DEPTH	LITHOLOGY	COLOUR	STRUCTURAL	
(M)	(M)	(M)	(M)	(%)	(M)	(M)	(M)			FEATURES	
.00	1.00	1.00	.00	.00	.00	1.00	1.00	SOIL SANDY	YELLOW WHITE SLUDGE		SOIL 1.00M
SOIL											
*****											
RANIGANJ											
1.00	3.00	2.00	.83	41.50	.83	2.00	3.00	SST VFGD	YELLOW WHITE		
3.00	6.00	3.00	.82	27.33	.82	3.00	6.00	SST VFGD	YELLOW WHITE		
6.00	6.50	.50	.35	70.00	.35	.50	6.50	SST VFGD	YELLOW WHITE		W.Z 6.50M
6.50	9.00	2.50	2.50	100.00	2.50	2.50	9.00	SST VFGD	GR. WHITE		
9.00	12.00	3.00	3.00	100.00	3.00	3.00	12.00	SST VFGD-FGD+SH BD	GR. WHITE		
12.00	15.00	3.00	2.85	95.00	2.85	3.00	15.00	SST VFGD-FGD+SH BD	GR. WHITE		
15.00	15.50	.50	.50	100.00	.50	.50	15.50	SST VFGD-FGD+SH BD	GR. WHITE		
15.50	18.50	3.00	2.97	99.00	1.28	1.29	16.79	SST VFGD-FGD+SH BD	GR. WHITE		
					.33	.33	17.12	SH/SST INTERCAL			
					1.36	1.38	18.50	SH AREN	GREY		
18.50	21.50	3.00	2.35	78.33	1.40	1.79	20.29	SH/SST INTERCAL			
					.95	1.21	21.50	SH	GREY		
21.50	24.50	3.00	2.97	99.00	.15	.15	21.65	SH	DARK GREY	FR BR	
*****											
SEAM XIV											
							21.65	ROOF			MTS-----
					.95	.96	22.61	COAL			FR BR SL
					.12	.12	22.73	CSH			
					.20	.20	22.93	COAL			FR BR
							22.93	FLOOR			MTS-----
							22.93	SEAM XIV			THICKNESS 1.28 MTS
*****											
					1.55	1.57	24.50	SH/SST INTERCAL			
24.50	27.50	3.00	3.00	100.00	2.30	2.30	26.80	SST VFGD-FGD	GR. WHITE		
					.70	.70	27.50	SH/SST INTERCAL			

R U N		TOTAL	TOTAL	RECO-	THICKNESS		FLOOR	D E S C R I P T I O N			OTHER DETAILS
FROM	TO	LENGTH	RECOV	VERY	RECOV	EXTRA	DEPTH	LITHOLOGY	COLOUR	STRUCTURAL	
(M)	(M)	(M)	(M)	(%)	(M)	(M)	(M)			FEATURES	
27.50	30.50	3.00	3.00	100.00	3.00	3.00	30.50	SH/SST INTERCAL			
30.50	33.50	3.00	3.00	100.00	1.55	1.55	32.05	SH/SST INTERCAL			
					1.45	1.45	33.50	SST VFGD-FGD	GR. WHITE	FR BR SL SF	
33.50	36.50	3.00	3.00	100.00	3.00	3.00	36.50	SST VFGD-FGD	GR. WHITE		
36.50	39.50	3.00	3.00	100.00	1.10	1.10	37.60	SST VFGD-FGD	GR. WHITE		
					1.90	1.90	39.50	SH/SST INTERCAL			
39.50	42.50	3.00	3.00	100.00	3.00	3.00	42.50	SH/SST INTERCAL			
42.50	45.50	3.00	3.00	100.00	1.30	1.30	43.80	SH/SST INTERCAL			
					1.70	1.70	45.50	SH AREN	GREY		
45.50	48.50	3.00	3.00	100.00	3.00	3.00	48.50	SH/SST INTERCAL			
48.50	51.50	3.00	3.00	100.00	3.00	3.00	51.50	SH/SST INTERCAL			
51.50	54.50	3.00	3.00	100.00	3.00	3.00	54.50	SH/SST INTERCAL			
54.50	57.50	3.00	3.00	100.00	3.00	3.00	57.50	SST FGD-MGD	WHITE		
57.50	60.50	3.00	3.00	100.00	3.00	3.00	60.50	SST FGD-MGD	WHITE		
60.50	63.50	3.00	3.00	100.00	1.00	1.00	61.50	SST FGD-MGD	WHITE		
*****											
SEAM XIII					ROOF		61.50 MTS-----				
					.40	.40	61.90	COAL		BROKEN	
					.07	.07	61.97	CSH			
					.60	.60	62.57	COAL		BROKEN	
FLOOR					62.57 MTS-----		SEAM XIII				
										THICKNESS	1.07 MTS
*****											
					.93	.93	63.50	SH/SST INTERCAL			
63.50	66.50	3.00	3.00	100.00	1.70	1.70	65.20	SH/SST INTERCAL			
					1.30	1.30	66.50	SH AREN	GREY		
66.50	69.50	3.00	3.00	100.00	.40	.40	66.90	SH AREN	GREY		
					2.60	2.60	69.50	SH/SST INTERCAL			
69.50	72.50	3.00	3.00	100.00	2.10	2.10	71.60	SH/SST INTERCAL			
					.55	.55	72.15	SH AREN	GREY		
					.20	.20	72.35	SH	DARK GREY		
					.15	.15	72.50	COAL		BROKEN	
72.50	75.50	3.00	3.00	100.00	1.85	1.85	74.35	SH/SST INTERCAL			
					.55	.55	74.90	SST VFGD-FGD			
*****											
SEAM XII					ROOF		74.90 MTS-----				

RU N	TOTAL	TOTAL	RECO-	THICKNESS	FLOOR	DESCRIPTION			OTHER DETAILS
FROM	LENGTH	RECOV	VERY	RECOV	EXTRA	DEPTH	LITHOLOGY	COLOUR	STRUCTURAL
(M)	(M)	(M)	(%)	(M)	(M)	(M)			FEATURES
75.50	78.50	3.00	3.00	100.00	.60	.60	75.50 COAL		FR BR
					.60	.60	76.10 COAL		FR BR
					FLOOR 76.10 MTS-----SEAM XII			THICKNESS	1.20 MTS
*****									
					.55	.55	76.65 SH AREN	GREY	
					1.85	1.85	78.50 SH/SST INTERCAL		
78.50	81.50	3.00	3.00	100.00	2.55	2.55	81.05 SH/SST INTERCAL		
					.45	.45	81.50 SH AREN	GREY	
81.50	84.50	3.00	3.00	100.00	2.00	2.00	83.50 SH/SST INTERCAL		
					1.00	1.00	84.50 SH AREN	LIGHT GREY	
84.50	87.50	3.00	3.00	100.00	2.00	2.00	86.50 SH/SST INTERCAL		
					.90	.90	87.40 SH AREN	GREY	
					.10	.10	87.50 COAL		FR BR
87.50	90.50	3.00	3.00	100.00	.15	.15	87.65 SH	GREY	BROKEN
					2.85	2.85	90.50 SH/SST INTERCAL		
90.50	93.50	3.00	3.00	100.00	3.00	3.00	93.50 SH/SST INTERCAL		
93.50	96.50	3.00	3.00	100.00	1.20	1.20	94.70 SH/SST INTERCAL		
					1.80	1.80	96.50 SST FGD-MGD	GR. WHITE	
96.50	99.50	3.00	3.00	100.00	3.00	3.00	99.50 SST FGD-MGD	GR. WHITE	
99.50	102.50	3.00	3.00	100.00	.40	.40	99.90 SST FGD-MGD	GR. WHITE	
					1.40	1.40	101.30 SH AREN	LIGHT GREY	
					1.20	1.20	102.50 SST FGD-MGD	GR. WHITE	
102.50	105.50	3.00	3.00	100.00	3.00	3.00	105.50 SST FGD-MGD+SH BD	GR. WHITE	

-----B O R E H O L E C L O S E D

A T : 105.50 MTS.-----



R U N		TOTAL	TOTAL	RECO-	THICKNESS		FLOOR	D E S C R I P T I O N			OTHER DETAILS
FROM	TO	LENGTH	RECOV	VERY	RECOV	EXTRA	DEPTH	LITHOLOGY	COLOUR	STRUCTURAL	
(M)	(M)	(M)	(M)	(%)	(M)	(M)	(M)			FEATURES	
					1.95	1.95	36.00	SST VFGD-FGD	GR. WHITE		
36.00	39.00	3.00	3.00	100.00	.50	.50	36.50	SST VFGD-FGD	GR. WHITE		
					2.50	2.50	39.00	SH/SST INTERCAL			
39.00	42.00	3.00	3.00	100.00	.90	.90	39.90	SH/SST INTERCAL			
					2.10	2.10	42.00	SST VFGD-FGD	GR. WHITE		
42.00	45.00	3.00	3.00	100.00	3.00	3.00	45.00	SST VFGD-FGD	GR. WHITE		
45.00	48.00	3.00	3.00	100.00	3.00	3.00	48.00	SST VFGD-FGD	GR. WHITE		
48.00	51.00	3.00	3.00	100.00	1.20	1.20	49.20	SST VFGD-FGD	GR. WHITE		
					1.80	1.80	51.00	SH AREN	GREY		
51.00	54.00	3.00	3.00	100.00	.80	.80	51.80	SH AREN	GREY		
					2.20	2.20	54.00	SST VFGD-FGD	GR. WHITE		
54.00	57.00	3.00	3.00	100.00	3.00	3.00	57.00	SST FGD-MGD	GR. WHITE		
57.00	60.00	3.00	3.00	100.00	3.00	3.00	60.00	SST FGD-MGD	GR. WHITE		
60.00	63.00	3.00	3.00	100.00	1.90	1.90	61.90	SST VFGD-FGD	GR. WHITE		
					1.10	1.10	63.00	SH AREN	GREY		
63.00	66.00	3.00	3.00	100.00	3.00	3.00	66.00	SH AREN	GREY		
66.00	69.00	3.00	3.00	100.00	3.00	3.00	69.00	SH/SST INTERCAL			
69.00	72.00	3.00	3.00	100.00	3.00	3.00	72.00	SST VFGD-FGD+SH BD	GR. WHITE		
72.00	75.00	3.00	3.00	100.00	3.00	3.00	75.00	SST VFGD-FGD+SH BD	GR. WHITE		
75.00	78.00	3.00	3.00	100.00	.60	.60	75.60	SST VFGD-FGD+SH BD	GR. WHITE		
					.30	.30	75.90	SH AREN	GREY		
					.30	.30	76.20	SST VFGD	GR. WHITE		
					.10	.10	76.30	SH AREN	GREY		
*****											
SEAM XIII							ROOF	76.30	MTS-----		
					1.10	1.10	77.40	COAL		FR BR	
	FLOOR				77.40	MTS-----SEAM XIII			THICKNESS	1.10	MTS
*****											
					.60	.60	78.00	SH AREN	GREY		
78.00	81.00	3.00	3.00	100.00	3.00	3.00	81.00	SH/SST INTERCAL			
81.00	84.00	3.00	3.00	100.00	.05	.05	81.05	COAL		BROKEN	
					2.95	2.95	84.00	SH/SST INTERCAL			
84.00	87.00	3.00	3.00	100.00	3.00	3.00	87.00	SH/SST INTERCAL			

! R U N !	! TOTAL !	! TOTAL !	! RECO- !	! THICKNESS !	! FLOOR !	! D E S C R I P T I O N !	! OTHER DETAILS !	
! FROM TO !	! LENGTH !	! RECOV !	! VERY !	! RECOV !	! EXTRA !	! DEPTH !	! L I T H O L O G Y !	
! (M) (M) !	! (M) (M) !	! (%) !	! (M) (M) !	! (M) (M) !	! (M) (M) !	! L I T H O L O G Y !	! C O L O U R !	
! (M) (M) !	! (M) (M) !	! (%) !	! (M) (M) !	! (M) (M) !	! (M) (M) !	! L I T H O L O G Y !	! S T R U C T U R A L !	
! (M) (M) !	! (M) (M) !	! (%) !	! (M) (M) !	! (M) (M) !	! (M) (M) !	! L I T H O L O G Y !	! F E A T U R E S !	
87.00	90.00	3.00	3.00	100.00	.55	.55	87.55 SH/SST INTERCAL	
					.20	.20	87.75 CSH	BROKEN
					.05	.05	87.80 CSH	BROKEN
					.10	.10	87.90 CSH	BROKEN
					.10	.10	88.00 CSH	BROKEN
					.05	.05	88.05 CSH	
*****								
							SEAM LOCAL	ROOF
								88.05 MTS-----
					.10	.10	88.15 COAL	BROKEN
							FLOOR	88.15 MTS-----SEAM LOCAL
								THICKNESS .10 MTS
*****								
					.05	.05	88.20 CSH	
					1.80	1.80	90.00 SH/SST INTERCAL	
90.00	93.00	3.00	3.00	100.00	.30	.30	90.30 SH/SST INTERCAL	
*****								
							SEAM XII	ROOF
								90.30 MTS-----
					.15	.15	90.45 COAL	V-FR BR
					.10	.10	90.55 SHALY COAL	
					1.25	1.25	91.80 COAL	V-FR BR
							FLOOR	91.80 MTS-----SEAM XII
								THICKNESS 1.50 MTS
*****								
					.20	.20	92.00 SH	GREY
					1.00	1.00	93.00 SH AREN	GREY
93.00	96.00	3.00	3.00	100.00	3.00	3.00	96.00 SST VFGD-FGD	GR. WHITE

----- B O R E H O L E C L O S E D A T : 96.00 MTS. -----

B O R E H O L E L I T H O L O G

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B.H.NO. : MLE-3

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LATITUDE : 1082058.308 (M)      COLLAR R.L. : 200.835(M)      COMMENCED ON : 23/08/10  
 DEPARTURE : 3226964.327 (M)      DEPTH DRILLED : 276.50 (M)      COMPLETED ON : 08/10/10

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R U N	TOTAL	TOTAL	RECO-	THICKNESS	FLOOR	D E S C R I P T I O N			OTHER DETAILS	
FROM	TO	LENGTH	RECOV	RECOV	EXTRA	LITHOLOGY	COLOUR	STRUCTURAL		
(M)	(M)	(M)	(M)	(%)	(M)	(M)	(M)	FEATURES		
.00	1.00	1.00	.00	.00	.00	1.00	1.00	SOIL SANDY	YELL. GREY SLUDGE	SOL 1.00M
								SOIL		
								*****		
								RANIGANJ		
1.00	3.00	2.00	.00	.00	.00	2.00	3.00	SST VFGD	YELLOW WHITE SLUDGE	
3.00	6.00	3.00	.00	.00	.00	3.00	6.00	SST VFGD	GR. WHITE SLUDGE	W.Z. 6.00M
6.00	9.00	3.00	.60	20.00	.60	3.00	9.00	SH/SST INTERCAL		
9.00	10.50	1.50	1.50	100.00	.65	.65	9.65	SH/SST INTERCAL		
					.85	.85	10.50	SH AREN	GREY	
10.50	13.50	3.00	3.00	100.00	3.00	3.00	13.50	SH AREN	GREY	
13.50	16.50	3.00	3.00	100.00	3.00	3.00	16.50	SH AREN	GREY	
16.50	19.50	3.00	3.00	100.00	1.50	1.50	18.00	SH/SST INTERCAL		
					.70	.70	18.70	SH	DARK GREY	FR BR
					.80	.80	19.50	SH/SST INTERCAL		
19.50	22.50	3.00	3.00	100.00	3.00	3.00	22.50	SH/SST INTERCAL		
22.50	25.50	3.00	3.00	100.00	.30	.30	22.80	SH/SST INTERCAL		
					2.70	2.70	25.50	SST VFGD-FGD	GR. WHITE	
25.50	28.50	3.00	3.00	100.00	3.00	3.00	28.50	SST VFGD-FGD	GR. WHITE	
28.50	31.50	3.00	3.00	100.00	3.00	3.00	31.50	SST VFGD-FGD	GR. WHITE	
31.50	34.50	3.00	3.00	100.00	3.00	3.00	34.50	SST VFGD-FGD	GR. WHITE	
34.50	37.50	3.00	3.00	100.00	3.00	3.00	37.50	SST VFGD-FGD	GR. WHITE	
37.50	40.50	3.00	3.00	100.00	3.00	3.00	40.50	SST VFGD-FGD	GR. WHITE	
40.50	43.50	3.00	3.00	100.00	3.00	3.00	43.50	SST VFGD-FGD	GR. WHITE	
43.50	46.50	3.00	3.00	100.00	3.00	3.00	46.50	SST VFGD-FGD	GR. WHITE	
46.50	49.50	3.00	3.00	100.00	2.00	2.00	48.50	SST VFGD-FGD	GR. WHITE	
					1.00	1.00	49.50	SH AREN	GREY	
49.50	52.50	3.00	3.00	100.00	1.35	1.35	50.85	SH AREN	GREY	
					1.65	1.65	52.50	SST VFGD-FGD	GR. WHITE	
52.50	55.50	3.00	3.00	100.00	.40	.40	52.90	SH AREN	GREY	
					.10	.10	53.00	SH	GREY	
*****										
SEAM XIV					ROOF		53.00 MTS-----			

R U N	TOTAL	TOTAL	RECO-	THICKNESS	FLOOR	D E S C R I P T I O N			OTHER DETAILS
FROM	TO	LENGTH	RECOV	RECOV	EXTRA	DEPTH	LITHOLOGY	COLOUR	STRUCTURAL
(M)	(M)	(M)	(M)	(%)	(M)	(M)			FEATURES

.25	.25	53.25	COAL	FR BR
.15	.15	53.40	CSH	FR BR
.10	.10	53.50	CSH	
.40	.40	53.90	SHALY COAL	
.80	.80	54.70	COAL	FR BR
.25	.25	54.95	SHALY COAL	
.55	.55	55.50	COAL	FR BR

FLOOR 55.50 MTS-----SEAM XIV

THICKNESS 2.50 MTS

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55.50	58.50	3.00	3.00	100.00	3.00	3.00	58.50	SH/SST INTERCAL	
58.50	61.50	3.00	3.00	100.00	2.00	2.00	60.50	SH/SST INTERCAL	
					1.00	1.00	61.50	SST VFGD-FGD	GR. WHITE
61.50	64.50	3.00	3.00	100.00	3.00	3.00	64.50	SST VFGD-FGD	GR. WHITE
64.50	67.50	3.00	3.00	100.00	3.00	3.00	67.50	SST VFGD-FGD	GR. WHITE
67.50	70.50	3.00	3.00	100.00	3.00	3.00	70.50	SST VFGD-FGD	GR. WHITE
70.50	73.50	3.00	3.00	100.00	3.00	3.00	73.50	SST VFGD-FGD	GR. WHITE
73.50	76.50	3.00	3.00	100.00	3.00	3.00	76.50	SST VFGD-FGD	GR. WHITE
76.50	79.50	3.00	3.00	100.00	3.00	3.00	79.50	SST VFGD-FGD	GR. WHITE
79.50	82.50	3.00	3.00	100.00	2.75	2.75	82.25	SST VFGD-FGD	GR. WHITE
					.25	.25	82.50	SH AREN	GREY
82.50	85.50	3.00	2.95	98.33	.90	.92	83.42	SH/SST INTERCAL	
					.40	.40	83.82	SH	DARK GREY FR BR
					.60	.60	84.42	SH AREN	GREY
					1.05	1.08	85.50	SH/SST INTERCAL	
85.50	88.50	3.00	3.00	100.00	3.00	3.00	88.50	SH/SST INTERCAL	
88.50	91.50	3.00	3.00	100.00	3.00	3.00	91.50	SH/SST INTERCAL	
91.50	94.50	3.00	3.00	100.00	3.00	3.00	94.50	SH/SST INTERCAL	
94.50	97.50	3.00	3.00	100.00	.35	.35	94.85	SH/SST INTERCAL	

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SEAM XIII ROOF 94.85 MTS-----

1.05 1.05 95.90 COAL

FR BR

FLOOR 95.90 MTS-----SEAM XIII

THICKNESS 1.05 MTS

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R U N FROM (M)	TO (M)	TOTAL LENGTH (M)	TOTAL RECOV (M)	RECO- VERY (%)	THICKNESS		FLOOR DEPTH (M)	DESCRIPTION			OTHER DETAILS
					RECOV ERED (M)	EXTRA POLATED (M)		LITHOLOGY	COLOUR	STRUCTURAL FEATURES	
					1.60	1.60	97.50	SH/SST	INTERCAL		
97.50	100.50	3.00	3.00	100.00	.90	.90	98.40	SH/SST	INTERCAL		
					.10	.10	98.50	COAL			
					2.00	2.00	100.50	SH/SST	INTERCAL		
100.50	103.50	3.00	3.00	100.00	2.65	2.65	103.15	SH/SST	INTERCAL		
					.35	.35	103.50	SST	FGD-MGD	WHITE	
103.50	106.50	3.00	3.00	100.00	.25	.25	103.75	SST	FGD-MGD	WHITE	
					.25	.25	104.00	SH		GREY	
					.30	.30	104.30	COAL			
					2.20	2.20	106.50	SH	AREN	LIGHT GREY	
106.50	109.50	3.00	3.00	100.00	1.15	1.15	107.65	SH/SST	INTERCAL		
*****											
SEAM XII					ROOF		107.65 MTS-----				
					1.20	1.20	108.85	COAL		FR BR	
FLOOR 108.85 MTS-----SEAM XII							THICKNESS 1.20 MTS				
*****											
					.65	.65	109.50	SH/SST	INTERCAL		
109.50	111.00	1.50	1.50	100.00	1.50	1.50	111.00	SH/SST	INTERCAL		
111.00	112.50	1.50	1.50	100.00	1.50	1.50	112.50	SH/SST	INTERCAL		
112.50	115.50	3.00	3.00	100.00	3.00	3.00	115.50	SST	FGD-MGD	WHITE	
115.50	118.50	3.00	3.00	100.00	2.10	2.10	117.60	SST	FGD-MGD	WHITE	
					.90	.90	118.50	SH	AREN	GREY	
118.50	121.50	3.00	3.00	100.00	3.00	3.00	121.50	SH/SST	INTERCAL		
121.50	124.50	3.00	3.00	100.00	3.00	3.00	124.50	SH/SST	INTERCAL		
124.50	127.50	3.00	3.00	100.00	1.80	1.80	126.30	SH/SST	INTERCAL		
					.45	.45	126.75	SH		DARK GREY	
					.20	.20	126.95	COAL		FR BR	
					.55	.55	127.50	SH	AREN	GREY	
127.50	130.50	3.00	3.00	100.00	3.00	3.00	130.50	SH/SST	INTERCAL		
130.50	133.50	3.00	3.00	100.00	3.00	3.00	133.50	SH/SST	INTERCAL		
133.50	136.50	3.00	3.00	100.00	3.00	3.00	136.50	SST	FGD-MGD	WHITE	
136.50	139.50	3.00	3.00	100.00	3.00	3.00	139.50	SST	FGD-MGD	WHITE	
139.50	142.50	3.00	3.00	100.00	3.00	3.00	142.50	SST	VFGD-FGD	GR. WHITE	

R U N		TOTAL	TOTAL	RECO-	THICKNESS		FLOOR	D E S C R I P T I O N			OTHER DETAILS
FROM	TO	LENGTH	RECOV	VERY	RECOV	EXTRA	DEPTH	LITHOLOGY	COLOUR	STRUCTURAL	FEATURES
(M)	(M)	(M)	(M)	(%)	(M)	(M)	(M)				
142.50	145.50	3.00	3.00	100.00	3.00	3.00	145.50	SST VFGD-FGD	GR. WHITE		
145.50	148.50	3.00	3.00	100.00	3.00	3.00	148.50	SST VFGD-FGD	GR. WHITE		
148.50	151.50	3.00	3.00	100.00	2.50	2.50	151.00	SH/SST INTERCAL			
					.50	.50	151.50	SST VFGD-FGD	GR. WHITE		
151.50	154.50	3.00	3.00	100.00	.30	.30	151.80	SST VFGD-FGD	GR. WHITE		
					1.75	1.75	153.55	SH AREN	GREY		
					.95	.95	154.50	SH/SST INTERCAL			
154.50	157.50	3.00	3.00	100.00	3.00	3.00	157.50	SST FGD-MGD	GR. WHITE		
157.50	160.50	3.00	3.00	100.00	3.00	3.00	160.50	SST FGD-MGD	GR. WHITE		
160.50	163.50	3.00	3.00	100.00	3.00	3.00	163.50	SST FGD-MGD	GR. WHITE		
163.50	166.50	3.00	3.00	100.00	3.00	3.00	166.50	SST FGD-MGD	GR. WHITE		
166.50	169.50	3.00	3.00	100.00	3.00	3.00	169.50	SST FGD-MGD	GR. WHITE		
169.50	172.50	3.00	3.00	100.00	3.00	3.00	172.50	SST FGD-MGD	GR. WHITE		
172.50	175.50	3.00	3.00	100.00	3.00	3.00	175.50	SCT FGD-MGD	GR. WHITE		
175.50	178.50	3.00	3.00	100.00	3.00	3.00	178.50	SST FGD-MGD	GR. WHITE		
178.50	181.50	3.00	3.00	100.00	3.00	3.00	181.50	SST FGD-MGD	GR. WHITE		
181.50	184.50	3.00	3.00	100.00	3.00	3.00	184.50	SST FGD-MGD	GR. WHITE		
184.50	187.50	3.00	3.00	100.00	.40	.40	184.90	SST FGD-MGD	GR. WHITE		
					2.20	2.20	187.10	SH AREN	GREY		
					.40	.40	187.50	SH/SST INTERCAL			
187.50	190.50	3.00	3.00	100.00	2.85	2.85	190.35	SST VFGD-FGD	GR. WHITE		
					.15	.15	190.50	SH	DARK GREY		
190.50	193.50	3.00	3.00	100.00	2.00	2.00	192.50	SH AREN	GREY		
					1.00	1.00	193.50	SH/SST INTERCAL			
193.50	196.50	3.00	3.00	100.00	1.00	1.00	194.50	SST VFGD-FGD	GR. WHITE		
					2.00	2.00	196.50	SH AREN	GREY		
196.50	199.50	3.00	3.00	100.00	1.50	1.50	198.00	SH AREN	GREY		
					1.50	1.50	199.50	SH/SST INTERCAL			
199.50	202.50	3.00	3.00	100.00	3.00	3.00	202.50	SH/SST INTERCAL			
202.50	205.50	3.00	2.95	98.33	.90	.91	203.41	SH/SST INTERCAL			
					.90	.91	204.32	SH	GREY		
					1.15	1.18	205.50	SH AREN	GREY		
205.50	208.50	3.00	3.00	100.00	3.00	3.00	208.50	SST VFGD-FGD	GR. WHITE		
208.50	211.50	3.00	3.00	100.00	3.00	3.00	211.50	SST VFGD-FGD	GR. WHITE		
211.50	214.50	3.00	3.00	100.00	1.75	1.75	213.25	SST VFGD-FGD	GR. WHITE		
					1.25	1.25	214.50	SH/SST INTERCAL			
214.50	217.50	3.00	3.00	100.00	1.85	1.85	216.35	SH/SST INTERCAL			
					1.15	1.15	217.50	SH	GREY		

R U N FROM	TO	TOTAL	TOTAL	RECO-	THICKNESS		FLOOR	D E S C R I P T I O N			OTHER DETAILS	
		LENGTH	RECOV	VERY	RECOV	EXTRA	DEPTH	LITHOLOGY	COLOUR	STRUCTURAL		
(M)	(M)	(M)	(M)	(%)	(M)	(M)	(M)			FEATURES		
217.50	220.50	3.00	3.00	100.00	.20	.20	217.70	SH	GREY			
					2.80	2.80	220.50	SH/SST INTERCAL				
220.50	223.50	3.00	3.00	100.00	3.00	3.00	223.50	SH/SST INTERCAL				
223.50	226.50	3.00	3.00	100.00	1.50	1.50	225.00	SH/SST INTERCAL				
					1.50	1.50	226.50	SST VFGD-FGD	GR. WHITE			
226.50	229.50	3.00	3.00	100.00	3.00	3.00	229.50	SST VFGD-FGD	GR. WHITE			
229.50	232.50	3.00	3.00	100.00	3.00	3.00	232.50	SST VFGD-FGD	GR. WHITE			
232.50	235.50	3.00	3.00	100.00	3.00	3.00	235.50	SST VFGD-FGD	GR. WHITE			
235.50	238.50	3.00	3.00	100.00	3.00	3.00	238.50	SST VFGD-FGD	GR. WHITE			
238.50	241.50	3.00	3.00	100.00	3.00	3.00	241.50	SST VFGD-FGD	GR. WHITE			
241.50	244.50	3.00	3.00	100.00	3.00	3.00	244.50	SST VFGD-FGD	GR. WHITE			
244.50	247.50	3.00	2.90	96.67	1.30	1.34	245.84	SST FGD	GR. WHITE			
					.80	.83	246.67	SANDY SH				
					.80	.83	247.50	SST FGD+SH BD		COAL STREAKS		
247.50	250.50	3.00	3.00	100.00	3.00	3.00	250.50	SST FGD+SH BD		COAL STREAKS		
250.50	253.50	3.00	2.95	98.33	2.95	3.00	253.50	SST FGD+SH BD		COAL STREAKS		
253.50	256.50	3.00	3.00	100.00	3.00	3.00	256.50	SST FGD+SH BD		COAL STREAKS		
256.50	259.50	3.00	3.00	100.00	1.00	1.00	257.50	SST FGD+SH BD		COAL STREAKS		
					2.00	2.00	259.50	SST MGD				
259.50	262.50	3.00	2.95	98.33	1.00	1.02	260.52	SST MGD				
					1.95	1.98	262.50	SANDY SH				
262.50	265.50	3.00	3.00	100.00	3.00	3.00	265.50	SH/SST INTERCAL				
265.50	268.50	3.00	2.85	95.00	1.50	1.60	267.10	SH/SST INTERCAL				
					.10	.10	267.20	SANDY SH				
*****												
SEAM XI-A					ROOF		267.20	MTS-----				
					.33	.35	267.55	COAL				
FLOOR					267.55		MTS-----SEAM XI-A		THICKNESS	.35 MTS		
*****												
					.20	.20	267.75	GREY SH				
					.72	.75	268.50	SST FGD+SH BD		COAL STREAKS		
268.50	271.50	3.00	2.90	96.67	1.00	1.03	269.53	SST FGD+SH BD		COAL STREAKS		
					1.90	1.97	271.50	SH/SST INTERCAL				

B.H. NO : MLE-3

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R U N FROM	TO	TOTAL	TOTAL	RECO-	THICKNESS		FLOOR	DESCRIPTION			OTHER DETAILS
		LENGTH	RECOV	VERY	RECOV	EXTRA	DEPTH	LITHOLOGY	COLOUR	STRUCTURAL FEATURES	
(M)	(M)	(M)	(M)	(%)	(M)	(M)	(M)				
271.50	274.50	3.00	2.65	88.33	.20	.20	271.70	SH/SST INTERCAL			
					.25	.25	271.95	SANDY SH			
*****											
							271.95	SEAM XI-B ROOF			
					.50	.55	272.50	COAL			
					FLOOR 272.50 MTS-----SEAM XI-B			THICKNESS		.55 MTS	
*****											
					.05	.05	272.55	CSH			
					.05	.05	272.60	CSH			
					1.00	1.25	273.85	SANDY SH			
					.60	.65	274.50	SH/SST INTERCAL			
274.50	276.50	2.00	1.80	90.00	1.80	2.00	276.50	SH/SST INTERCAL			

-----B O R E H O L E C L O S E D                      A T :    276.50 MTS.-----

B O R E H O L E L I T H O L O G

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B.H.NO. : MLE-4

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LATITUDE : 1082154.404 (M)    COLLAR R.L. : 205.900(M)    COMMENCED ON : 27/11/11  
 DEPARTURE : 3227918.540 (M)    DEPTH DRILLED : 80.00 (M)    COMPLETED ON : 07/12/11

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! R U N !	! TOTAL !	! TOTAL !	! RECO- !	! THICKNESS !	! FLOOR !	! D E S C R I P T I O N !			! OTHER DETAILS !		
! FROM !	! TO !	! LENGTH !	! RECOV !	! VERY !	! RECOV !	! EXTRA !	! DEPTH !	! LITHOLOGY !	! COLOUR !	! STRUCTURAL !	! !
! (M) !	! (M) !	! (M) !	! (M) !	! (%) !	! (M) !	! (M) !	! (M) !	! !	! !	! FEATURES !	! !
.00	3.00	3.00	.00	.00	.00	3.00	3.00	SOIL SANDY	YELL. GREY	SLUDGE	SOIL 3.00M
SOIL											
*****											
RANIGANJ											
3.00	5.00	2.00	.30	15.00	.30	2.00	5.00	SST VFGD	YELLOW		
5.00	7.00	2.00	1.85	92.50	1.30	1.41	6.41	SST VFGD	YELLOW		
					.55	.59	7.00	CLAYSTONE	YELLOW		
7.00	9.00	2.00	2.00	100.00	.10	.10	7.10	CLAYSTONE	GREY		W.Z. 7.10M
					1.90	1.90	9.00	SH/SST INTERCAL			
9.00	11.00	2.00	2.00	100.00	2.00	2.00	11.00	SH/SST INTERCAL		FR BR	
11.00	14.00	3.00	3.00	100.00	3.00	3.00	14.00	SH/SST INTERCAL			
14.00	17.00	3.00	3.00	100.00	1.15	1.15	15.15	SH/SST INTERCAL			
					.05	.05	15.20	SH	GREY		
*****											
SEAM XIV											
							15.20	ROOF			MTS-----
					.10	.10	15.30	COAL			
					.15	.15	15.45	COAL			
					.30	.30	15.75	COAL		FR BR	
					.10	.10	15.85	SHALY COAL			
								FLOOR			15.85 MTS-----SEAM XIV
										THICKNESS	.65 MTS
*****											
					.85	.85	16.70	CSH		FR BR	
					.30	.30	17.00	SH/SST INTERCAL			
17.00	18.00	1.00	1.00	100.00	.80	.80	17.80	SH/SST INTERCAL			
					.20	.20	18.00	SST VFGD-FGD+SH BD	GR. WHITE		
18.00	20.00	2.00	1.70	85.00	.60	.71	18.71	SST VFGD-FGD+SH BD	GR. WHITE		
					.15	.17	18.88	COAL		FR BR	
					.95	1.12	20.00	SST VFGD-FGD+SH BD	GR. WHITE		

R U N		TOTAL	TOTAL	RECO-	THICKNESS		FLOOR	D E S C R I P T I O N			OTHER DETAILS
FROM	TO	LENGTH	RECOV	VERY	RECOV	EXTRA	DEPTH	LITHOLOGY	COLOUR	STRUCTURAL	
(M)	(M)	(M)	(M)	(%)	ERED	POLATED	(M)			FEATURES	
20.00	23.00	3.00	3.00	100.00	1.70	1.70	21.70	SST VFGD-FGD+SH BD	GR. WHITE		
					1.30	1.30	23.00	SH/SST INTERCAL			
23.00	26.00	3.00	3.00	100.00	1.40	1.40	24.40	SH/SST INTERCAL			
					1.60	1.60	26.00	SST VFGD-FGD	GR. WHITE		
26.00	29.00	3.00	3.00	100.00	3.00	3.00	29.00	SST VFGD-FGD	GR. WHITE		
29.00	32.00	3.00	3.00	100.00	3.00	3.00	32.00	SST VFGD-FGD	GR. WHITE		
32.00	35.00	3.00	3.00	100.00	3.00	3.00	35.00	SST VFGD-FGD	GR. WHITE		
35.00	38.00	3.00	3.00	100.00	3.00	3.00	38.00	SST FGD-MGD	WHITE		
38.00	41.00	3.00	2.95	98.33	2.35	2.39	40.39	SST FGD-MGD	WHITE		
					.60	.61	41.00	SST VFGD-FGD	WHITE	HARD, COMP.	
41.00	44.00	3.00	3.00	100.00	3.00	3.00	44.00	SST VFGD-FGD	GR. WHITE		
44.00	47.00	3.00	3.00	100.00	3.00	3.00	47.00	SST VFGD-FGD	GR. WHITE		
47.00	50.00	3.00	3.00	100.00	1.05	1.05	48.05	SST VFGD-FGD	GR. WHITE		
					1.95	1.95	50.00	SH/SST INTERCAL			
50.00	53.00	3.00	3.00	100.00	1.45	1.45	51.45	SH/SST INTERCAL			
					.15	.15	51.60	CSH			
					1.40	1.40	53.00	SH/SST INTERCAL		V-FR BR	
53.00	56.00	3.00	2.85	95.00	2.85	3.00	56.00	SH/SST INTERCAL			
56.00	59.00	3.00	3.00	100.00	3.00	3.00	59.00	SH/SST INTERCAL			
59.00	62.00	3.00	3.00	100.00	1.35	1.35	60.35	SH/SST INTERCAL			
					.80	.80	61.15	SH AREN	GREY		
					.85	.85	62.00	SH/SST INTERCAL			
62.00	65.00	3.00	3.00	100.00	.30	.30	62.30	SST VFGD-FGD	GR. WHITE		
*****											
SEAM XIII							ROOF	62.30	MTS-----		
					1.50	1.50	63.80	COAL		V-FR BR	
FLOOR					63.80	MTS-----	SEAM XIII			THICKNESS	1.50 MTS
*****											
					1.20	1.20	65.00	SH/SST INTERCAL			
65.00	68.00	3.00	3.00	100.00	2.50	2.50	67.50	SH/SST INTERCAL			
					.10	.10	67.60	SH	GREY		
					.40	.40	68.00	COAL		FR BR	
68.00	71.00	3.00	3.00	100.00	3.00	3.00	71.00	SH/SST INTERCAL			

! R U N !	! TOTAL !	! TOTAL !	! RECO- !	! THICKNESS !	! FLOOR !	! D E S C R I P T I O N !			! OTHER DETAILS !		
FROM	TO	! LENGTH !	! RECOV !	! VERY !	! RECOV !	EXTRA	! DEPTH !	LITHOLOGY	COLOUR	STRUCTURAL	!
(M)	(M)	(M)	(M)	(%)	(M)	(M)	(M)			FEATURES	!
71.00	74.00	3.00	2.90	96.67	1.70	1.76	72.76	SH/SST INTERCAL			
					.30	.31	73.07	COAL		FR BR	
					.30	.31	73.38	SH	GREY		
					.60	.62	74.00	SH/SST INTERCAL			
74.00	77.00	3.00	3.00	100.00	1.50	1.50	75.50	SH/SST INTERCAL			
*****											
		SEAM XII					ROOF	75.50	MTS-----		
					.10	.10	75.60	COAL		FR BR	
					.10	.10	75.70	SHALY COAL			
					1.30	1.30	77.00	COAL		V-FR BR	
		FLOOR			77.00		MTS-----SEAM XII		THICKNESS	1.50 MTS	
*****											
77.00	80.00	3.00	3.00	100.00	.75	.75	77.75	SH AREN	GREY		
					2.25	2.25	80.00	SH/SST INTERCAL			

-----B O R E H O L E C L O S E D                      A T :    80.00 MTS.-----



B.H. NO : MLE-5

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RUN FROM (M)	TO (M)	TOTAL LENGTH (M)	TOTAL RECOV (M)	RECOVERY (%)	RECOVERED (M)	THICKNESS EXTRA POLATED (M)	FLOOR DEPTH (M)	DESCRIPTION	COLOUR	STRUCTURAL FEATURES	OTHER DETAILS
50.50	53.50	3.00	3.00	100.00	.50	.50	51.00	SH AREN	GREY		
					.55	.55	51.55	SH/SST INTERCAL			
					.55	.55	52.10	SST MGD-CGD	WHITE		
*****											
							52.10	SEAM XIII ROOF			
					1.40	1.40	53.50	COAL		FR BR	
53.50	56.50	3.00	3.00	100.00	.10	.10	53.60	COAL		FR BR	
								FLOOR 53.60 MTS-----SEAM XIII		THICKNESS 1.50 MTS	
*****											
					1.45	1.45	55.05	SH/SST INTERCAL			
					.35	.35	55.40	SH WITH C BANDS			
					1.10	1.10	56.50	SH/SST INTERCAL			
56.50	59.50	3.00	3.00	100.00	3.00	3.00	59.50	SH/SST INTERCAL			
59.50	62.50	3.00	3.00	100.00	3.00	3.00	62.50	SST FGD-MGD	WHITE		
62.50	65.50	3.00	3.00	100.00	2.10	2.10	64.60	SST FGD-MGD	WHITE	V-FR BR	
					.90	.90	65.50	SH/SST INTERCAL			
65.50	68.50	3.00	3.00	100.00	1.10	1.10	66.60	SH/SST INTERCAL			
*****											
							66.60	SEAM XII ROOF			
					1.50	1.50	68.10	COAL		FR BR	
								FLOOR 68.10 MTS-----SEAM XII		THICKNESS 1.50 MTS	
*****											
					.40	.40	68.50	SH AREN	GREY		
68.50	71.50	3.00	3.00	100.00	2.05	2.05	70.55	SH/SST INTERCAL			
					.95	.95	71.50	SST FGD-MGD MIC	GR. WHITE		

-----BORE HOLE CLOSED AT : 71.50 MTS.-----

B O R E H O L E L I T H O L O G

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B.H.NO. : MLE-6

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LATITUDE : 1082212.651 (M)    COLLAR R.L. : 194.560(M)    COMMENCED ON : 14/12/11  
 DEPARTURE : 3228140.375 (M)    DEPTH DRILLED : 588.00 (M)    COMPLETED ON : 14/03/12

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! R U N	! TOTAL		! RECO-		! THICKNESS		! FLOOR	! D E S C R I P T I O N			! OTHER DETAILS
! FROM	! TO	! LENGTH	! RECOV	! VERY	! RECOV	! EXTRA	! DEPTH	! LITHOLOGY	! COLOUR	! STRUCTURAL	! FEATURES
! (M)	! (M)	! (M)	! (M)	! (%)	! (M)	! (M)	! (M)	!	!	!	!
.00	1.00	1.00	.00	.00	.00	1.00	1.00	SOIL SANDY	YELL. GREY	SLUDGE	SOIL 1.00M
								SOIL			
								*****			
								RANIGANJ			
1.00	2.00	1.00	.40	40.00	.40	1.00	2.00	SST VFGD	YELLOW		
2.00	5.00	3.00	.45	15.00	.45	3.00	5.00	SST VFGD	GR. WHITE		W.Z. 5.00M
5.00	7.00	2.00	1.80	90.00	1.80	2.00	7.00	SST FGD-MGD	GR. WHITE		
7.00	8.00	1.00	1.00	100.00	1.00	1.00	8.00	SST FGD-MGD	GR. WHITE		
8.00	11.00	3.00	3.00	100.00	3.00	3.00	11.00	SST FGD-MGD	GR. WHITE		
11.00	14.00	3.00	3.00	100.00	3.00	3.00	14.00	SST FGD-MGD	GR. WHITE		
14.00	17.00	3.00	3.00	100.00	3.00	3.00	17.00	SST FGD-MGD	GR. WHITE		
17.00	19.50	2.50	2.50	100.00	2.50	2.50	19.50	SST FGD-MGD	GR. WHITE		
19.50	22.50	3.00	3.00	100.00	3.00	3.00	22.50	SH/SST INTERCAL			
22.50	25.50	3.00	3.00	100.00	3.00	3.00	25.50	SH/SST INTERCAL		COAL STREAKS	
25.50	28.50	3.00	3.00	100.00	3.00	3.00	28.50	SH/SST INTERCAL			
28.50	31.50	3.00	3.00	100.00	3.00	3.00	31.50	SH/SST INTERCAL			
31.50	34.50	3.00	3.00	100.00	3.00	3.00	34.50	SH/SST INTERCAL			
34.50	37.50	3.00	3.00	100.00	1.10	1.10	35.60	SH/SST INTERCAL			
					.35	.35	35.95	SH WITH C BANDS	DARK GREY		
								*****			
								SEAM XIII			
								ROOF			35.95 MTS-----
								1.15	1.15	37.10	COAL
								FLOOR	37.10 MTS-----	SEAM XIII	V-FR BR
											THICKNESS 1.15 MTS
								*****			
								.40	.40	37.50	SH/SST INTERCAL
37.50	40.50	3.00	3.00	100.00	3.00	3.00	40.50	SH/SST INTERCAL			
40.50	43.50	3.00	3.00	100.00	3.00	3.00	43.50	SH/SST INTERCAL		COAL STREAKS	

! R U N !	! TOTAL !	! TOTAL !	! RECO- !	! THICKNESS !	! FLOOR !	! D E S C R I P T I O N !			! OTHER DETAILS !			
! FROM !	! TO !	! LENGTH !	! RECOV !	! VERY !	! RECOV !	! EXTRA !	! POLATED !	! DEPTH !	! LITHOLOGY !	! COLOUR !	! STRUCTURAL !	! OTHER DETAILS !
! (M) !	! (M) !	! (M) !	! (M) !	! (%) !	! (M) !	! (M) !	! (M) !	! (M) !	! !	! !	! FEATURES !	! !
43.50	44.00	.50	.50	100.00	.50	.50		44.00	SH/SST INTERCAL			
44.00	47.00	3.00	3.00	100.00	2.35	2.35		46.35	SH/SST INTERCAL			
					.25	.25		46.60	SH	GREY		
					.35	.35		46.95	COAL		FR BR	
					.05	.05		47.00	SH WITH C BANDS			
47.00	50.00	3.00	3.00	100.00	1.60	1.60		48.60	SH/SST INTERCAL			
*****												
	SEAM XII							ROOF	48.60 MTS-----			
					1.40	1.40		50.00	COAL		FR BR	
	FLOOR				50.00 MTS-----			SEAM XII		THICKNESS	1.40 MTS	
*****												
50.00	53.00	3.00	3.00	100.00	3.00	3.00		53.00	SH/SST INTERCAL			
53.00	56.00	3.00	3.00	100.00	1.80	1.80		54.80	SH/SST INTERCAL			
					.30	.30		55.10	COAL		FR BR	
					.90	.90		56.00	SH/SST INTERCAL			
56.00	59.00	3.00	3.00	100.00	3.00	3.00		59.00	SH/SST INTERCAL			
59.00	62.00	3.00	3.00	100.00	3.00	3.00		62.00	SH/SST INTERCAL			
62.00	65.00	3.00	3.00	100.00	.45	.45		62.45	SH/SST INTERCAL			
					.55	.55		63.00	SH	DARK GREY		
					.30	.30		63.30	COAL		FR BR	
					1.10	1.10		64.40	SH AREN	DARK GREY	V-FR BR	
					.60	.60		65.00	SH WITH C BANDS	DARK GREY		
65.00	68.00	3.00	3.00	100.00	3.00	3.00		68.00	SH/SST INTERCAL			
68.00	71.00	3.00	3.00	100.00	3.00	3.00		71.00	SH/SST INTERCAL			
71.00	74.00	3.00	3.00	100.00	3.00	3.00		74.00	SST VFGD-FGD	GR. WHITE		
74.00	77.00	3.00	3.00	100.00	3.00	3.00		77.00	SST VFGD-FGD+SH BD	GR. WHITE		
77.00	80.00	3.00	3.00	100.00	3.00	3.00		80.00	SST VFGD-FGD	GR. WHITE		
80.00	83.00	3.00	3.00	100.00	3.00	3.00		83.00	SST VFGD-FGD	GR. WHITE		
83.00	86.00	3.00	3.00	100.00	3.00	3.00		86.00	SST VFGD-FGD+SH BD	GR. WHITE		
86.00	89.00	3.00	3.00	100.00	3.00	3.00		89.00	SST VFGD-FGD+SH BD	GR. WHITE		
89.00	92.00	3.00	3.00	100.00	3.00	3.00		92.00	SST FGD-MGD	GR. WHITE		
92.00	95.00	3.00	3.00	100.00	3.00	3.00		95.00	SST FGD-MGD+SH BD	GR. WHITE		
95.00	98.00	3.00	3.00	100.00	3.00	3.00		98.00	SST FGD-MGD	GR. WHITE		
98.00	101.00	3.00	3.00	100.00	.40	.40		98.40	SST FGD-MGD	GR. WHITE		
					2.60	2.60		101.00	SH/SST INTERCAL			

R U N		TOTAL	TOTAL	RECO-	THICKNESS		FLOOR	D E S C R I P T I O N			OTHER DETAILS
FROM	TO	LENGTH	RECOV	VERY	RECOV	EXTRA	DEPTH	LITHOLOGY	COLOUR	STRUCTURAL	
(M)	(M)	(M)	(M)	(%)	ERED	POLATED	(M)			FEATURES	
101.00	104.00	3.00	3.00	100.00	3.00	3.00	104.00	SST FGD-MGD	GR. WHITE		
104.00	107.00	3.00	3.00	100.00	1.75	1.75	105.75	SST FGD-MGD	GR. WHITE		
					1.25	1.25	107.00	SH AREN	GREY		
107.00	110.00	3.00	3.00	100.00	3.00	3.00	110.00	SST FGD-MGD	GR. WHITE		
110.00	113.00	3.00	3.00	100.00	3.00	3.00	113.00	SST FGD-MGD	GR. WHITE		
113.00	116.00	3.00	3.00	100.00	3.00	3.00	116.00	SST FGD-MGD	GR. WHITE		
116.00	119.00	3.00	3.00	100.00	3.00	3.00	119.00	SST FGD-MGD	GR. WHITE		
119.00	122.00	3.00	3.00	100.00	3.00	3.00	122.00	SST FGD-MGD	GR. WHITE		
122.00	125.00	3.00	3.00	100.00	.50	.50	122.50	SST FGD-MGD	GR. WHITE		
					1.50	1.50	124.00	SH WITH C BANDS	DARK GREY		
					1.00	1.00	125.00	SH/SST INTERCAL			
125.00	128.00	3.00	3.00	100.00	2.45	2.45	127.45	SST FGD-MGD	WHITE		
					.25	.25	127.70	COAL		FR BR	
					.30	.30	128.00	SH AREN	GREY		
128.00	131.00	3.00	3.00	100.00	3.00	3.00	131.00	SH/SST INTERCAL			
131.00	134.00	3.00	3.00	100.00	3.00	3.00	134.00	SH/SST INTERCAL		FR BR	
134.00	135.50	1.50	1.50	100.00	1.50	1.50	135.50	SH/SST INTERCAL			
135.50	137.00	1.50	1.50	100.00	1.50	1.50	137.00	SH/SST INTERCAL			
137.00	138.50	1.50	1.50	100.00	1.50	1.50	138.50	SH AREN	GREY		
138.50	140.00	1.50	1.50	100.00	1.50	1.50	140.00	SH/SST INTERCAL			
140.00	143.00	3.00	3.00	100.00	3.00	3.00	143.00	SH AREN	GREY		
143.00	146.00	3.00	3.00	100.00	3.00	3.00	146.00	SH AREN	GREY		
146.00	149.00	3.00	3.00	100.00	3.00	3.00	149.00	SH/SST INTERCAL	GREY		
149.00	152.00	3.00	3.00	100.00	2.45	2.45	151.45	SH AREN	GREY		
					.55	.55	152.00	SH	DARK GREY		
152.00	153.50	1.50	1.50	100.00	.45	.45	152.45	SH	DARK GREY		
					1.05	1.05	153.50	SH AREN	GREY		
153.50	155.00	1.50	1.50	100.00	.60	.60	154.10	SH/SST INTERCAL			
					.90	.90	155.00	SST FGD-MGD	WHITE		
155.00	158.00	3.00	3.00	100.00	.65	.65	155.65	SST FGD-MGD	WHITE		
					.20	.20	155.85	SH	DARK GREY		
					.80	.80	156.65	SH/SST INTERCAL			
					.40	.40	157.05	SH AREN	GREY		
					.95	.95	158.00	SH/SST INTERCAL			
158.00	161.00	3.00	3.00	100.00	.95	.95	158.95	SH AREN	GREY		
					2.05	2.05	161.00	SH/SST INTERCAL			

! R U N !	! TOTAL !	! TOTAL !	! RECO- !	! THICKNESS !	! FLOOR !	! D E S C R I P T I O N !			! OTHER DETAILS !			
! FROM !	! TO !	! LENGTH !	! RECOV !	! VERY !	! RECOV !	! EXTRA !	! POLATED !	! DEPTH !	! LITHOLOGY !	! COLOUR !	! STRUCTURAL !	! OTHER DETAILS !
! (M) !	! (M) !	! (M) !	! (M) !	! (%) !	! (M) !	! (M) !	! (M) !	! (M) !	! !	! !	! FEATURES !	! !
161.00	164.00	3.00	3.00	100.00	3.00	3.00		164.00	SH/SST INTERCAL			
164.00	167.00	3.00	3.00	100.00	2.10	2.10		166.10	SH/SST INTERCAL			
					.90	.90		167.00	SST FGD-MGD	GR. WHITE		
167.00	170.00	3.00	3.00	100.00	3.00	3.00		170.00	SST FGD-MGD	GR. WHITE		
170.00	173.00	3.00	3.00	100.00	2.35	2.35		172.35	SH/SST INTERCAL			
					.65	.65		173.00	SST FGD-MGD	WHITE		
173.00	176.00	3.00	3.00	100.00	3.00	3.00		176.00	SST FGD-MGD	WHITE		
176.00	179.00	3.00	3.00	100.00	3.00	3.00		179.00	SST FGD-MGD	WHITE		
179.00	182.00	3.00	3.00	100.00	.90	.90		179.90	SH/SST INTERCAL		COAL STREAKS	
					2.10	2.10		182.00	SST FGD-MGD	WHITE		
182.00	185.00	3.00	3.00	100.00	3.00	3.00		185.00	SST FGD-MGD	WHITE		
185.00	188.00	3.00	3.00	100.00	3.00	3.00		188.00	SST VFGD-FGD+SH BD	WHITE		
188.00	191.00	3.00	3.00	100.00	3.00	3.00		191.00	SST FGD-MGD	WHITE		
191.00	194.00	3.00	3.00	100.00	3.00	3.00		194.00	SST FGD-MGD	WHITE		
194.00	196.70	2.70	2.70	100.00	2.70	2.70		196.70	SST FGD-MGD	WHITE		
196.70	199.70	3.00	3.00	100.00	3.00	3.00		199.70	SST FGD-MGD	WHITE	COAL STREAKS	
199.70	202.70	3.00	3.00	100.00	.50	.50		200.20	SST FGD-MGD	WHITE		
					1.10	1.10		201.30	SH/SST INTERCAL		COAL STREAKS	
					1.40	1.40		202.70	SH AREN	GREY		
202.70	204.70	2.00	2.00	100.00	2.00	2.00		204.70	SH/SST INTERCAL			
204.70	205.40	.70	.60	85.71	.60	.70		205.40	SH/SST INTERCAL			
205.40	208.10	2.70	2.70	100.00	2.15	2.15		207.55	SH/SST INTERCAL			
					.20	.20		207.75	SH AREN	GREY		
*****												
								SEAM LOCAL				
								ROOF	207.75	MTS-----		
					.20	.20		207.95	COAL			
					.15	.15		208.10	COAL		FR BR	
208.10	211.10	3.00	3.00	100.00	.15	.15		208.25	COAL		FR BR	
								FLOOR	208.25	MTS-----	SEAM LOCAL	
										THICKNESS	.50	MTS
*****												
					.10	.10		208.35	SH AREN	GREY		
					2.75	2.75		211.10	SH/SST INTERCAL			
211.10	214.00	2.90	2.90	100.00	.05	.05		211.15	SH AREN	GREY		
					.10	.10		211.25	SHALY COAL			
					.10	.10		211.35	SH	GREY		

! R U N !	! TOTAL !	! TOTAL !	! RECO- !	! THICKNESS !	! FLOOR !	! D E S C R I P T I O N !			! OTHER DETAILS !	
! FROM !	! TO !	! LENGTH !	! RECOV !	! VERY !	! RECOV !	! EXTRA !	! DEPTH !	! LITHOLOGY !	! COLOUR !	! STRUCTURAL !
! (M) !	! (M) !	! (M) !	! (M) !	! (%) !	! (M) !	! (M) !	! (M) !	! !	! !	! FEATURES !

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SEAM XI-A ROOF 211.35 MTS-----

FLOOR 211.95 MTS-----SEAM XI-A THICKNESS .60 MTS

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1.75 1.75 213.70 SH/SST INTERCAL

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SEAM XI-C ROOF 213.70 MTS-----

FLOOR 214.00 MTS-----SEAM XI-C THICKNESS .30 MTS

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214.00	217.00	3.00	3.00	100.00	.30	.30	214.30	SH AREN	GREY
					2.70	2.70	217.00	SST VFGD-FGD	GR. WHITE
217.00	220.00	3.00	3.00	100.00	3.00	3.00	220.00	SST FGD-MGD	WHITE
220.00	223.00	3.00	3.00	100.00	3.00	3.00	223.00	SST FGD-MGD	WHITE
223.00	226.00	3.00	3.00	100.00	3.00	3.00	226.00	SST FGD-MGD	WHITE
226.00	229.00	3.00	3.00	100.00	.35	.35	226.35	SST FGD-MGD	WHITE
					2.65	2.65	229.00	SH/SST INTERCAL	
229.00	232.00	3.00	3.00	100.00	.40	.40	229.40	SH/SST INTERCAL	
					.50	.50	229.90	SST FGD-MGD	WHITE
					.15	.15	230.05	SH	GREY
					.25	.25	230.30	SHALY COAL	
					1.70	1.70	232.00	SH AREN	GREY
232.00	235.00	3.00	3.00	100.00	.95	.95	232.95	SH/SST INTERCAL	
					2.05	2.05	235.00	SST FGD-MGD	WHITE
235.00	238.00	3.00	2.90	96.67	.60	.62	235.62	SST FGD-MGD	WHITE
					.45	.47	236.09	SH AREN	GREY
					.30	.31	236.40	SHALY COAL	
					.55	.57	236.97	SH AREN	GREY
					1.00	1.03	238.00	SH/SST INTERCAL	

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R U N		TOTAL	TOTAL	RECO-	THICKNESS		FLOOR	D E S C R I P T I O N			OTHER DETAILS
FROM	TO	LENGTH	RECOV	VERY	RECOV	EXTRA	DEPTH	LITHOLOGY	COLOUR	STRUCTURAL	
(M)	(M)	(M)	(M)	(%)	(M)	(M)	(M)			FEATURES	
238.00	241.00	3.00	3.00	100.00	.25	.25	238.25	SH/SST INTERCAL			
					.85	.85	239.10	SH AREN	GREY		
					1.90	1.90	241.00	SH/SST INTERCAL			
241.00	244.00	3.00	3.00	100.00	3.00	3.00	244.00	SH/SST INTERCAL			
244.00	246.50	2.50	2.50	100.00	1.60	1.60	245.60	SH/SST INTERCAL			
					.75	.75	246.35	SH AREN	GREY		
					.15	.15	246.50	SHALY COAL			
246.50	249.50	3.00	3.00	100.00	3.00	3.00	249.50	SH/SST INTERCAL			
249.50	252.50	3.00	3.00	100.00	2.55	2.55	252.05	SST FGD-MGD	WHITE		
					.45	.45	252.50	SH/SST INTERCAL			
252.50	255.50	3.00	3.00	100.00	3.00	3.00	255.50	SST FGD-MGD	WHITE		
255.50	258.40	2.90	2.90	100.00	2.90	2.90	258.40	SST FGD-MGD	WHITE		
258.40	261.20	2.80	2.80	100.00	.10	.10	258.50	CSH			
					2.70	2.70	261.20	SH/SST INTERCAL			
261.20	264.00	2.80	2.80	100.00	2.80	2.80	264.00	SH/SST INTERCAL		COAL STREAKS	
264.00	266.00	2.00	2.00	100.00	2.00	2.00	266.00	SST VFGD-FGD	GR. WHITE		
266.00	266.80	.80	.80	100.00	.20	.20	266.20	SST VFGD-FGD	GR. WHITE		
					.60	.60	266.80	SH/SST INTERCAL			
266.80	269.60	2.80	.80	28.57	.80	2.80	269.60	SH/SST INTERCAL			
269.60	272.40	2.80	2.80	100.00	1.20	1.20	270.80	SH/SST INTERCAL			
					1.60	1.60	272.40	SST VFGD-FGD	GR. WHITE		
272.40	274.00	1.60	1.60	100.00	1.60	1.60	274.00	SH AREN	GREY		
274.00	277.00	3.00	3.00	100.00	2.15	2.15	276.15	SH/SST INTERCAL			
					.85	.85	277.00	SST FGD-MGD	WHITE		
277.00	280.00	3.00	3.00	100.00	3.00	3.00	280.00	SST FGD-MGD	WHITE		
280.00	283.00	3.00	3.00	100.00	3.00	3.00	283.00	SST FGD-MGD	WHITE		
283.00	286.00	3.00	3.00	100.00	2.35	2.35	285.35	SST FGD-MGD	WHITE		
					.15	.15	285.50	SH	GREY		
*****											
SEAM X							ROOF	285.50	MTS-----		
					.50	.50	286.00	COAL		FR BR	
					FLOOR	286.00	MTS-----	SEAM X		THICKNESS	.50
*****											
286.00	287.50	1.50	1.50	100.00	.80	.80	286.80	SH AREN	GREY		
					.70	.70	287.50	SH/SST INTERCAL			

! R U N !	! TOTAL !	! TOTAL !	! RECO- !	! THICKNESS !	! FLOOR !	! D E S C R I P T I O N !			! OTHER DETAILS !	
! FROM !	! TO !	! LENGTH !	! RECOV !	! VERY !	! RECOV !	! EXTRA !	! DEPTH !	! LITHOLOGY !	! COLOUR !	! STRUCTURAL !
! (M) !	! (M) !	! (M) !	! (M) !	! (%) !	! (M) !	! (M) !	! (M) !	!	!	! FEATURES !
287.50	289.00	1.50	1.50	100.00	1.50	1.50	289.00	SH/SST INTERCAL		COAL STREAKS
289.00	291.80	2.80	2.00	71.43	1.35	1.89	290.89	SH/SST INTERCAL		
					.50	.70	291.59	SH WITH C BANDS	DARK GREY	
					.15	.21	291.80	SH AREN	GREY	
291.80	294.60	2.80	2.80	100.00	2.80	2.80	294.60	SH AREN	GREY	
294.60	296.50	1.90	1.90	100.00	1.90	1.90	296.50	SH AREN	GREY	
296.50	299.30	2.80	2.80	100.00	2.80	2.80	299.30	SH AREN	GREY	
299.30	300.20	.90	.90	100.00	.15	.15	299.45	SH AREN	GREY	
*****										
SEAM UNCORRELATED					ROOF		299.45 MTS-----			
					.70	.70	300.15	COAL		FR BR
					.05	.05	300.20	SH(SID)		
300.20	303.20	3.00	3.00	100.00	.70	.70	300.90	COAL		FR BR
					FLOOR		300.90 MTS-----SEAM UNCORRELATED			
							THICKNESS		1.45 MTS	
*****										
					.10	.10	301.00	SH AREN	GREY	
					.50	.50	301.50	SH/SST INTERCAL		
					1.70	1.70	303.20	SST FGD-MGD	WHITE	
303.20	306.00	2.80	2.80	100.00	2.80	2.80	306.00	SST FGD-MGD	WHITE	
306.00	308.80	2.80	2.80	100.00	2.80	2.80	308.80	SST FGD-MGD	WHITE	
308.80	311.60	2.80	2.80	100.00	1.20	1.20	310.00	SH/SST INTERCAL		
					1.25	1.25	311.25	SH AREN	DARK GREY	
					.05	.05	311.30	COAL		
					.30	.30	311.60	SH AREN	LIGHT GREY	
311.60	314.40	2.80	2.80	100.00	2.80	2.80	314.40	SH/SST INTERCAL		
314.40	317.20	2.80	2.80	100.00	2.80	2.80	317.20	SH/SST INTERCAL		
317.20	320.00	2.80	2.80	100.00	2.80	2.80	320.00	SST FGD-MGD	WHITE	
320.00	322.80	2.80	2.80	100.00	.40	.40	320.40	SST FGD-MGD	WHITE	
					.30	.30	320.70	SH	GREY	
*****										
SEAM IX-A					ROOF		320.70 MTS-----			
					.65	.65	321.35	COAL		FR BR
					.05	.05	321.40	GREY SH	GREY	

! R U N !	! TOTAL !	! TOTAL !	! RECO- !	! THICKNESS !	! FLOOR !	! D E S C R I P T I O N !			! OTHER DETAILS !	
! FROM !	! TO !	! LENGTH !	! RECOV !	! VERY !	! RECOV !	! EXTRA !	! DEPTH !	! LITHOLOGY !	! COLOUR !	! STRUCTURAL !
! (M) !	! (M) !	! (M) !	! (M) !	! (%) !	! (M) !	! (M) !	! (M) !	!	!	! FEATURES !
					.10	.10	321.50	SHALY COAL		FR BR
	FLOOR	321.50	MTS	-----	SEAM IX-A				THICKNESS	.80 MTS
*****										
					1.30	1.30	322.80	SH/SST INTERCAL		
322.80	325.60	2.80	2.80	100.00	2.80	2.80	325.60	SH/SST INTERCAL		
325.60	328.40	2.80	2.80	100.00	1.80	1.80	327.40	SH/SST INTERCAL		
					1.00	1.00	328.40	SH AREN	GREY	
328.40	331.20	2.80	2.80	100.00	.85	.85	329.25	SH AREN	GREY	
					.20	.20	329.45	SH	DARK GREY	
					.15	.15	329.60	COAL		FR BR
					.40	.40	330.00	SH	DARK GREY	
					.30	.30	330.30	COAL		FR BR
					.90	.90	331.20	SH AREN	GREY	
331.20	334.00	2.80	2.80	100.00	.25	.25	331.45	SST FGD-MGD	WHITE	
					.30	.30	331.75	SH/SST INTERCAL		
					.05	.05	331.80	SH	DARK GREY	
					.25	.25	332.05	COAL		FR BR
					.05	.05	332.10	SH	GREY	
334.00	336.80	2.80	2.80	100.00	1.90	1.90	334.00	SST VFGD-FGD	WHITE	
336.80	339.60	2.80	2.80	100.00	2.80	2.80	336.80	SST VFGD-FGD	WHITE	
339.60	342.40	2.80	2.80	100.00	2.80	2.80	339.60	SST VFGD-FGD	WHITE	
342.40	345.20	2.80	2.80	100.00	2.80	2.80	342.40	SST VFGD-FGD	WHITE	
345.20	348.00	2.80	2.80	100.00	2.80	2.80	345.20	SST VFGD-FGD	WHITE	
348.00	350.80	2.80	2.80	100.00	2.80	2.80	348.00	SST FGD-MGD	WHITE	
350.80	353.60	2.80	2.80	100.00	2.80	2.80	350.80	SST FGD-MGD	WHITE	
353.60	356.40	2.80	2.80	100.00	2.80	2.80	353.60	SST FGD-MGD	WHITE	
356.40	359.20	2.80	2.80	100.00	1.65	1.65	356.40	SST FGD-MGD	WHITE	
					.15	.15	358.05	SH	GREY	
					.20	.20	358.20	COAL		FR BR
					.20	.20	358.40	SH AREN	GREY	
					.60	.60	358.60	SH/SST INTERCAL		
359.20	362.00	2.80	2.80	100.00	2.80	2.80	359.20	SH/SST INTERCAL		
362.00	364.80	2.80	2.80	100.00	.60	.60	362.00	SH/SST INTERCAL		
					.60	.60	362.60	SH/SST INTERCAL		
					2.20	2.20	364.80	SH AREN	GREY	

R U N		TOTAL	TOTAL	RECO-	THICKNESS		FLOOR	D E S C R I P T I O N			OTHER DETAILS
FROM	TO	LENGTH	RECOV	VERY	RECOV	EXTRA	DEPTH	LITHOLOGY	COLOUR	STRUCTURAL	
(M)	(M)	(M)	(M)	(%)	(M)	(M)	(M)			FEATURES	
364.80	367.60	2.80	2.80	100.00	.85	.85	365.65	SH AREN	GREY		
					1.95	1.95	367.60	SH/SST INTERCAL			
367.60	370.40	2.80	2.80	100.00	2.80	2.80	370.40	SH/SST INTERCAL			
370.40	373.20	2.80	2.80	100.00	2.35	2.35	372.75	SH/SST INTERCAL			
					.25	.25	373.00	SH WITH C BANDS	DARK GREY		
					.10	.10	373.10	COAL		FR BR	
					.10	.10	373.20	SH	GREY		
373.20	376.00	2.80	2.80	100.00	1.80	1.80	375.00	SH/SST INTERCAL	GREY		
*****											
SEAM VIII-A											
							ROOF	375.00	MTS-----		
					.90	.90	375.90	COAL		FR BR	
							FLOOR	375.90	MTS-----	THICKNESS	.90 MTS
*****											
					.10	.10	376.00	SH AREN	GREY		
376.00	378.80	2.80	2.80	100.00	2.25	2.25	378.25	SH/SST INTERCAL			
					.55	.55	378.80	SH AREN	GREY		
378.80	381.60	2.80	2.80	100.00	2.80	2.80	381.60	SH/SST INTERCAL			
381.60	384.40	2.80	2.80	100.00	.40	.40	382.00	SH/SST INTERCAL			
					1.00	1.00	383.00	SST VFGD-FGD	GR. WHITE		
*****											
SEAM VIII-B											
							ROOF	383.00	MTS-----		
					1.30	1.30	384.30	COAL		FR BR	
							FLOOR	384.30	MTS-----	THICKNESS	1.30 MTS
*****											
					.10	.10	384.40	SH	DARK GREY		
384.40	387.20	2.80	2.80	100.00	2.60	2.60	387.00	SH/SST INTERCAL			
					.20	.20	387.20	SH	DARK GREY		
387.20	390.00	2.80	2.80	100.00	2.80	2.80	390.00	SH/SST INTERCAL			
390.00	392.80	2.80	2.80	100.00	2.80	2.80	392.80	SH/SST INTERCAL			
392.80	395.60	2.80	2.80	100.00	2.80	2.80	395.60	SH/SST INTERCAL			

! R U N !	! TOTAL !	! TOTAL !	! RECO- !	! THICKNESS !	! FLOOR !	! D E S C R I P T I O N !			! OTHER DETAILS !		
! FROM !	! TO !	! LENGTH !	! RECOV !	! VERY !	! RECOV !	! EXTRA !	! DEPTH !	! LITHOLOGY !	! COLOUR !	! STRUCTURAL !	! OTHER DETAILS !
! (M) !	! (M) !	! (M) !	! (M) !	! (%) !	! (M) !	! (M) !	! (M) !	! !	! !	! FEATURES !	! !
395.60	398.40	2.80	2.80	100.00	2.60	2.60	398.20	SH/SST INTERCAL			
					.20	.20	398.40	SH	DARK GREY		
398.40	401.20	2.80	2.80	100.00	1.10	1.10	399.50	SH	DARK GREY		
*****											
SEAM VIII-C					ROOF		399.50 MTS-----				
					.95	.95	400.45	COAL		FR BR	
FLOOR					400.45 MTS-----		SEAM VIII-C				
							THICKNESS		.95 MTS		
*****											
401.20	404.00	2.80	2.80	100.00	.75	.75	401.20	SH	DARK GREY		
					.45	.45	401.65	SH	DARK GREY		
					2.35	2.35	404.00	SH/SST INTERCAL			
404.00	406.80	2.80	2.80	100.00	.95	.95	404.95	SH AREN	GREY		
					1.85	1.85	406.80	SH/SST INTERCAL			
406.80	409.60	2.80	2.80	100.00	1.80	1.80	408.60	SST FGD-MGD	GR. WHITE		
					1.00	1.00	409.60	SH/SST INTERCAL			
409.60	411.40	1.80	1.80	100.00	1.80	1.80	411.40	SH AREN	GREY	COAL STREAKS	
411.40	414.20	2.80	2.80	100.00	2.80	2.80	414.20	COAL		COAL STREAKS	
414.20	417.00	2.80	2.80	100.00	2.80	2.80	417.00	SH/SST INTERCAL		COAL STREAKS	
417.00	419.80	2.80	2.80	100.00	2.80	2.80	419.80	SH/SST INTERCAL			
419.80	421.80	2.00	2.00	100.00	.75	.75	420.55	SH/SST INTERCAL			
					1.25	1.25	421.80	SH AREN	GREY		
421.80	424.80	3.00	3.00	100.00	.60	.60	422.40	SH	DARK GREY		
					.30	.30	422.70	CSH			
					2.10	2.10	424.80	SH/SST INTERCAL			
424.80	425.80	1.00	1.00	100.00	1.00	1.00	425.80	SH/SST INTERCAL			
425.80	428.20	2.40	2.20	91.67	.60	.65	426.45	SH/SST INTERCAL			
					1.60	1.75	428.20	SH AREN	GREY		
428.20	431.00	2.80	2.80	100.00	1.50	1.50	429.70	SH/SST INTERCAL			
					.50	.50	430.20	SH	DARK GREY		
*****											
SEAM VI-A					ROOF		430.20 MTS-----				
					.30	.30	430.50	COAL		FR BR	
					.10	.10	430.60	SH	DARK GREY		
					.30	.30	430.90	COAL		FR BR	

! R U N !	! TOTAL !	! TOTAL !	! RECO- !	! THICKNESS !	! FLOOR !	! D E S C R I P T I O N !			! OTHER DETAILS !
! FROM TO !	! LENGTH !	! RECOV !	! VERY !	! RECOV !	! EXTRA !	! DEPTH !	! LITHOLOGY !	! COLOUR !	! STRUCTURAL !
! (M) (M) !	! (M) !	! (M) !	! (%) !	! (M) !	! (M) !	! (M) !	! !	! !	! FEATURES !

FLOOR 430.90 MTS-----SEAM VI-A

THICKNESS .70 MTS

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				.10	.10	431.00	SH AREN	GREY	
431.00	433.80	2.80	2.80	100.00	2.80	2.80	433.80	SH/SST INTERCAL	
433.80	436.40	2.60	2.60	100.00	2.60	2.60	436.40	SH/SST INTERCAL	
436.40	439.20	2.80	2.80	100.00	1.40	1.40	437.80	SH/SST INTERCAL	
				1.00	1.00	438.80	SH AREN	GREY	

\*\*\*\*\*

SEAM VI-B ROOF 438.80 MTS-----

				.40	.40	439.20	COAL	FR BR	
439.20	440.20	1.00	1.00	100.00	.10	.10	439.30	COAL	FR BR

FLOOR 439.30 MTS-----SEAM VI-B

THICKNESS .50 MTS

\*\*\*\*\*

				.40	.40	439.70	SH AREN	GREY	COAL STREAKS
				.50	.50	440.20	SH/SST INTERCAL		
440.20	442.00	1.80	1.80	100.00	1.80	1.80	442.00	SST VFGD-FGD	WHITE
442.00	444.80	2.80	2.80	100.00	1.90	1.90	443.90	SST VFGD-FGD	WHITE
				.90	.90	444.80	SH AREN	GREY	
444.80	447.60	2.80	2.80	100.00	1.00	1.00	445.80	SH AREN	GREY
				1.60	1.60	447.40	SH/SST INTERCAL		
				.20	.20	447.60	SH AREN	GREY	
447.60	450.40	2.80	2.80	100.00	1.30	1.30	448.90	SH AREN	GREY
				.30	.30	449.20	SH	DARK GREY	

\*\*\*\*\*

SEAM V ROOF 449.20 MTS-----

				.25	.25	449.45	COAL	FR BR	
				.15	.15	449.60	SH	GREY	
				.45	.45	450.05	COAL	FR BR	
				.10	.10	450.15	SH	GREY	
				.25	.25	450.40	COAL	FR BR	

! R U N !	! TOTAL !	! TOTAL !	! RECO- !	! THICKNESS !	! FLOOR !	! D E S C R I P T I O N !			! OTHER DETAILS !	
FROM	TO	! LENGTH !	! RECOV !	! RECOV !	EXTRA	! DEPTH !	! LITHOLOGY !	! COLOUR !	! STRUCTURAL !	
(M)	(M)	(M)	(M)	(%)	! ERD !	! POLATED !	(M)	!	! FEATURES !	
450.40	453.20	2.80	2.80	100.00	.20	.20	450.60	COAL	FR BR	
							FLOOR	450.60 MTS-----SEAM V	THICKNESS	1.40 MTS
*****										
					.45	.45	451.05	SH AREN	GREY	
					.65	.65	451.70	SH/SST INTERCAL		
					1.20	1.20	452.90	SST VFGD-FGD	WHITE	
					.30	.30	453.20	SH AREN	GREY	
453.20	456.00	2.80	2.80	100.00	2.80	2.80	456.00	SH AREN	GREY	COAL STREAKS
456.00	458.80	2.80	2.80	100.00	2.80	2.80	458.80	SST VFGD-FGD	WHITE	
458.80	461.40	2.60	2.60	100.00	2.00	2.00	460.80	SST VFGD-FGD	WHITE	
					.30	.30	461.10	SH/SST INTERCAL		
					.30	.30	461.40	SST VFGD-FGD	WHITE	
451.40	464.40	3.00	3.00	100.00	3.00	3.00	464.40	SST VFGD-FGD	WHITE	
464.40	467.20	2.80	2.80	100.00	2.80	2.80	467.20	SST FGD-MGD	WHITE	
467.20	470.00	2.80	2.80	100.00	2.80	2.80	470.00	SST FGD-MGD	WHITE	
470.00	472.80	2.80	2.65	94.64	1.05	1.11	471.11	SST FGD-MGD	WHITE	
					1.45	1.53	472.64	SH AREN	GREY	
					.15	.16	472.80	SH	DARK GREY	
472.80	475.60	2.80	2.80	100.00	1.60	1.60	474.40	SH AREN	GREY	
*****										
							SEAM IV	ROOF	474.40 MTS-----	
					.80	.80	475.20	COAL	FR BR	
							FLOOR	475.20 MTS-----SEAM IV	THICKNESS	.80 MTS
*****										
					.40	.40	475.60	SH AREN	GREY	
475.60	478.40	2.80	2.80	100.00	.25	.25	475.85	SH/SST INTERCAL		
					2.55	2.55	478.40	SST FGD-MGD	WHITE	
478.40	481.20	2.80	2.80	100.00	.60	.60	479.00	SST FGD-MGD	WHITE	
					2.20	2.20	481.20	SH AREN	GREY	
481.20	484.00	2.80	2.80	100.00	.45	.45	481.65	SH AREN	GREY	
					2.35	2.35	484.00	SST MGD-CGD	WHITE	
484.00	486.80	2.80	2.80	100.00	1.90	1.90	485.90	SST MGD-CGD	WHITE	
					.90	.90	486.80	SH WITH C BANDS	DARK GREY	

R U N		TOTAL	TOTAL	RECO-	THICKNESS		FLOOR	D E S C R I P T I O N			OTHER DETAILS
FROM	TO	LENGTH	RECOV	VERY	RECOV	EXTRA	DEPTH	LITHOLOGY	COLOUR	STRUCTURAL	
(M)	(M)	(M)	(M)	(%)	(M)	(M)	(M)			FEATURES	
486.80	489.60	2.80	2.80	100.00	2.80	2.80	489.60	SH AREN	GREY		
489.60	492.60	3.00	3.00	100.00	.90	.90	490.50	SH AREN	GREY		
					.60	.60	491.10	SH/SST INTERCAL			
					.10	.10	491.20	CSH			
					.15	.15	491.35	COAL		FR BR	
					1.25	1.25	492.60	SH/SST INTERCAL			
492.60	495.60	3.00	3.00	100.00	3.00	3.00	495.60	SH/SST INTERCAL		COAL STREAKS	
495.60	498.40	2.80	2.80	100.00	2.30	2.30	497.90	SH/SST INTERCAL			
					.50	.50	498.40	SH AREN	GREY		
498.40	501.40	3.00	3.00	100.00	3.00	3.00	501.40	SH/SST INTERCAL			
501.40	504.40	3.00	3.00	100.00	.80	.80	502.20	SH/SST INTERCAL			
					1.45	1.45	503.65	SH AREN	GREY		
					.10	.10	503.75	CSH			
*****											
SEAM LOCAL							ROOF	503.75 MTS-----			
					.50	.50	504.25	COAL		FR BR	
FLOOR		504.25 MTS-----					SEAM LOCAL		THICKNESS	.50 MTS	
*****											
					.15	.15	504.40	SH WITH C BANDS	GREY		
504.40	507.20	2.80	2.80	100.00	2.80	2.80	507.20	SH AREN	GREY		
507.20	510.00	2.80	2.80	100.00	2.80	2.80	510.00	SH/SST INTERCAL			
510.00	512.80	2.80	2.80	100.00	2.80	2.80	512.80	SH/SST INTERCAL			
512.80	515.60	2.80	2.80	100.00	.70	.70	513.50	SH/SST INTERCAL			
					2.10	2.10	515.60	SST FGD-MGD	WHITE		
515.60	518.40	2.80	2.80	100.00	1.90	1.90	517.50	SST FGD-MGD	WHITE		
					.90	.90	518.40	SH AREN	GREY		
518.40	521.20	2.80	2.80	100.00	2.80	2.80	521.20	SST FGD-MGD	WHITE		
521.20	524.00	2.80	2.80	100.00	2.80	2.80	524.00	SST FGD-MGD	WHITE		
524.00	526.80	2.80	2.80	100.00	1.30	1.30	525.30	SST FGD-MGD	WHITE		
					.30	.30	525.60	SH AREN	GREY		
					1.20	1.20	526.80	SH	DARK GREY		
526.80	529.60	2.80	2.80	100.00	1.50	1.50	528.30	SH	DARK GREY	FR BR	
*****											
SEAM III							ROOF	528.30 MTS-----			

! R U N !	! TOTAL !	! TOTAL !	! RECO- !	! THICKNESS !	! FLOOR !	! D E S C R I P T I O N !			! OTHER DETAILS !		
FROM	TO	! LENGTH !	! RECOV !	! VERY !	! RECOV !	EXTRA	! DEPTH !	! LITHOLOGY !	! COLOUR !	! STRUCTURAL !	! OTHER DETAILS !
(M)	(M)	(M)	(M)	(%)	(M)	(M)	(M)			! FEATURES !	! OTHER DETAILS !
529.60	532.40	2.80	2.80	100.00	1.30	1.30	529.60	COAL			FR BR
					2.50	2.50	532.10	COAL			FR BR
FLOOR 532.10 MTS-----SEAM III								THICKNESS	3.80 MTS		
*****											
532.40	535.20	2.80	2.80	100.00	.30	.30	532.40	SH/SST INTERCAL			
					.50	.50	532.90	SH/SST INTERCAL			
					2.30	2.30	535.20	SH AREN	GREY		
535.20	538.00	2.80	2.80	100.00	1.90	1.90	537.10	SH AREN	GREY		
					.90	.90	538.00	SST FGD-MGD	WHITE		
538.00	540.80	2.80	2.80	100.00	2.80	2.80	540.80	SST FGD-MGD	WHITE		
540.80	543.60	2.80	2.80	100.00	2.80	2.80	543.60	SST FGD-MGD	WHITE		
543.60	546.40	2.80	2.80	100.00	2.80	2.80	546.40	SST FGD-MGD	WHITE		
546.40	549.20	2.80	2.80	100.00	2.80	2.80	549.20	SST FGD-MGD	WHITE		
549.20	552.00	2.80	2.80	100.00	2.80	2.80	552.00	SST FGD-MGD	WHITE		
552.00	554.00	2.00	2.00	100.00	.90	.90	552.90	SST FGD-MGD	WHITE		
					1.10	1.10	554.00	SH	GREY		FR BR SL
554.00	554.80	.80	.80	100.00	.80	.80	554.80	SH AREN	GREY		
554.80	557.60	2.80	2.80	100.00	2.20	2.20	557.00	SH AREN	GREY		
					.40	.40	557.40	SH	GREY		
*****											
SEAM II								ROOF	557.40 MTS-----		
557.60	560.40	2.80	2.80	100.00	.20	.20	557.60	COAL			FR BR
					.40	.40	558.00	COAL			FR BR
FLOOR 558.00 MTS-----SEAM II								THICKNESS	.60 MTS		
*****											
					.40	.40	558.40	SH AREN	GREY		
					2.00	2.00	560.40	SH/SST INTERCAL			
560.40	563.20	2.80	2.80	100.00	2.80	2.80	563.20	SH/SST INTERCAL			
563.20	566.00	2.80	2.80	100.00	2.80	2.80	566.00	SST FGD-MGD	WHITE		
566.00	568.00	2.00	2.00	100.00	1.60	1.60	567.60	SST FGD-MGD	WHITE		
					.40	.40	568.00	SH AREN	GREY		

R U N		TOTAL	TOTAL	RECO-	THICKNESS	FLOOR	D E S C R I P T I O N			OTHER DETAILS	
FROM	TO	LENGTH	RECOV	VERY	RECOV	EXTRA	DEPTH	LITHOLOGY	COLOUR	STRUCTURAL	
(M)	(M)	(M)	(M)	(%)	(M)	(M)	(M)			FEATURES	
568.00	569.00	1.00	1.00	100.00	1.00	1.00	569.00	SH AREN	GREY		
569.00	570.50	1.50	1.50	100.00	1.00	1.00	570.00	SH AREN	GREY		
					.50	.50	570.50	SST VFGD-FGD	GR. WHITE		
570.50	573.50	3.00	3.00	100.00	.60	.60	571.10	SST FGD-MGD	WHITE		
*****											
SEAM I							ROOF	571.10	MTS-----		
					.50	.50	571.60	COAL		FR BR	
FLOOR							571.60	MTS-----SEAM I			THICKNESS .50 MTS
*****											
					1.90	1.90	573.50	SH AREN	GREY		
573.50	576.30	2.80	2.80	100.00	.90	.90	574.40	SH AREN	GREY	FR BR	
*****											
SEAM '0'							ROOF	574.40	MTS-----		
					.20	.20	574.60	COAL		FR BR	
					.20	.20	574.80	SH	GREY	FR BR	
					.40	.40	575.20	COAL		FR BR	
					.20	.20	575.40	SH	GREY		
					.15	.15	575.55	SHALY COAL			
					.40	.40	575.95	COAL		FR BR	
FLOOR							575.95	MTS-----SEAM '0'			THICKNESS 1.55 MTS
*****											
					.10	.10	576.05	SH AREN	GREY		
					.25	.25	576.30	SH/SST INTERCAL	GREY		
576.30	579.30	3.00	3.00	100.00	2.80	2.80	579.10	SH/SST INTERCAL	GREY		
					.20	.20	579.30	SH AREN	GREY		
579.30	582.10	2.80	2.80	100.00	2.80	2.80	582.10	SH AREN	GREY		
582.10	585.10	3.00	3.00	100.00	.20	.20	582.30	SH AREN	GREY		
*****											
SEAM UNCORRELATED							ROOF	582.30	MTS-----		
					.80	.80	583.10	COAL		FR BR	
FLOOR							583.10	MTS-----SEAM UNCORRELATED			THICKNESS .80 MTS
*****											

B.H. NO : MLE-6

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! R U N !	! TOTAL !	! TOTAL !	! RECO- !	! THICKNESS !	! FLOOR !	! D E S C R I P T I O N !			! OTHER DETAILS !
FROM TO	! LENGTH !	! RECOV !	! VERY !	! RECOV !	EXTRA !	! DEPTH !	! LITHOLOGY !	! COLOUR !	! STRUCTURAL !
(M)	(M)	(M)	(M)	(%)	(M)	(M)	(M)	!	! FEATURES !
					1.05	1.05	584.15	SH AREN	GREY
					.95	.95	585.10	SH/SST INTERCAL	
585.10	588.00	2.90	2.90	100.00	2.90	2.90	588.00	SST FGD-MGD	WHITE

-----B O R E H O L E C L O S E D

A T : 588.00 MTS.-----

B O R E H O L E L I T H O L O G

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B.H.NO. : MLE-7

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LATITUDE : 1082514.548 (M)      COLLAR R.L. : 203.470(M)      COMMENCED ON : 09/01/12  
 DEPARTURE : 3227913.918 (M)      DEPTH DRILLED : 58.40 (M)      COMPLETED ON : 14/01/12

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R U N	T O T A L	T O T A L	R E C O -	T H I C K N E S S	F L O O R	D E S C R I P T I O N			O T H E R D E T A I L S	
F R O M	L E N G T H	R E C O V	V E R Y	R E C O V	E X T R A	D E P T H	L I T H O L O G Y	C O U L O U R	S T R U C T U R A L	F E A T U R E S
( M )	( M )	( M )	( M )	( % )	( M )	( M )	( M )	( M )	( M )	( M )
.00	2.00	2.00	.00	.00	.00	2.00	SOIL SANDY	YELLOW WHITE SLUDGE		SOIL 2.00M
SOIL										
*****										
RANIGANJ										
2.00	3.50	1.50	.70	46.67	.70	1.50	3.50	SST VFGD	YELLOW WHITE	
3.50	6.50	3.00	3.00	100.00	.50	.50	4.00	SST VFGD	YELLOW WHITE	W.Z. 4.00M
					2.50	2.50	6.50	SST FGD-MGD	GR. WHITE	
6.50	8.00	1.50	1.50	100.00	1.50	1.50	8.00	SST FGD-MGD	GR. WHITE	
8.00	11.00	3.00	3.00	100.00	3.00	3.00	11.00	SST FGD-MGD	GR. WHITE	
11.00	14.00	3.00	3.00	100.00	3.00	3.00	14.00	SST FGD-MGD	GR. WHITE	
14.00	17.00	3.00	3.00	100.00	3.00	3.00	17.00	SST FGD-MGD	GR. WHITE	
17.00	20.00	3.00	3.00	100.00	2.20	2.20	19.20	SST FGD-MGD	GR. WHITE	
					.80	.80	20.00	SH AREN	GREY	
20.00	23.00	3.00	3.00	100.00	1.15	1.15	21.15	SH AREN	GREY	
					.75	.75	21.90	SH/SST INTERCAL		
					1.10	1.10	23.00	SH AREN	GREY	
23.00	25.80	2.80	2.80	100.00	2.80	2.80	25.80	SH AREN	GREY	
25.80	28.60	2.80	2.80	100.00	2.40	2.40	28.20	SH AREN	GREY	
					.40	.40	28.60	SH/SST INTERCAL		
28.60	31.60	3.00	3.00	100.00	3.00	3.00	31.60	SH AREN	GREY	
31.60	34.40	2.80	2.40	85.71	1.60	1.87	33.47	SH/SST INTERCAL		
					.80	.93	34.40	SST FGD-MGD	WHITE	
34.40	37.40	3.00	3.00	100.00	1.30	1.30	35.70	SST FGD-MGD	WHITE	
					1.70	1.70	37.40	SH AREN	GREY	
37.40	40.40	3.00	3.00	100.00	.70	.70	38.10	SH/SST INTERCAL		
					2.30	2.30	40.40	SST FGD-MGD+SH BD	WHITE	
40.40	43.40	3.00	3.00	100.00	.90	.90	41.30	SST FGD-MGD+SH BD	WHITE	
					.20	.20	41.50	SH	DARK GREY	
*****										
SEAM XIII			ROOF			41.50 MTS-----				

! R U N !	! TOTAL !	! TOTAL !	! RECO- !	! THICKNESS !	! FLOOR !	! D E S C R I P T I O N !			! OTHER DETAILS !		
! FROM !	! TO !	! LENGTH !	! RECOV !	! VERY !	! RECOV !	! EXTRA !	! DEPTH !	! LITHOLOGY !	! COLOUR !	! STRUCTURAL !	! OTHER DETAILS !
! (M) !	! (M) !	! (M) !	! (M) !	! (%) !	! (M) !	! (M) !	! (M) !	! !	! !	! FEATURES !	! !

1.20 1.20 42.70 COAL  
 FLOOR 42.70 MTS-----SEAM XIII  
 THICKNESS FR BR  
 1.20 MTS

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					.70	.70	43.40	SH AREN	GREY		
43.40	46.40	3.00	3.00	100.00	2.60	2.60	46.00	SH AREN	GREY		
					.20	.20	46.20	COAL		FR BR	
					.20	.20	46.40	SH AREN	GREY		
46.40	49.40	3.00	3.00	100.00	2.75	2.75	49.15	SH AREN	GREY		
					.25	.25	49.40	SH/SST INTERCAL			
49.40	52.40	3.00	3.00	100.00	3.00	3.00	52.40	SH AREN	GREY		
52.40	55.40	3.00	3.00	100.00	.15	.15	52.55	SH	GREY		
					.10	.10	52.65	COAL		FR BR	
					.60	.60	53.25	SH	DARK GREY		

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SEAM XII ROOF 53.25 MTS-----

1.50 1.50 54.75 COAL  
 FLOOR 54.75 MTS-----SEAM XII  
 THICKNESS FR BR  
 1.50 MTS

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					.65	.65	55.40	SH AREN	GREY		
55.40	58.40	3.00	3.00	100.00	3.00	3.00	58.40	SST FGD-MGD	WHITE		

-----BORE HOLE CLOSED AT : 58.40 MTS.-----

B O R E H O L E L I T H O L O G

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B.H.NO. : MLE-8

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LATITUDE : 1081871.463 (M)      COLLAR R.L. : 198.795(M)      COMMENCED ON : 18/01/12  
 DEPARTURE : 3228098.291 (M)      DEPTH DRILLED : 54.50 (M)      COMPLETED ON : 23/01/12

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R U N	!	TOTAL!	TOTAL!	!RECO-	!	THICKNESS	!	FLOOR	!	D E S C R I P T I O N			!	OTHER DETAILS								
FROM	TO	!LENGTH!	!RECOV!	!VERY	!	!RECOV	!	EXTRA	!	DEPTH	!	LITHOLOGY	!	COLOUR	!	STRUCTURAL	!	FEATURES	!			
(M)	(M)	(M)	(M)	(%)	!	(M)	!	(M)	!	(M)	!	!	!	!	!	!	!	!	!			
.00	1.00	1.00	.00	.00		.00		1.00		1.00		SOIL SANDY		YELL. GREY		SLUDGE						
1.00	2.00	1.00	.00	.00		.00		1.00		2.00		SOIL SANDY		YELL. GREY		SLUDGE						
2.00	3.00	1.00	.00	.00		.00		1.00		3.00		SOIL SANDY		YELL. GREY		SLUDGE			SOIL 3.00M			
SOIL																						
*****																						
RANIGANJ																						
3.00	6.00	3.00	3.00	100.00		3.00		3.00		6.00		SST VFGD-FGD		YELLOW WHITE					W.Z. 6.00M			
6.00	8.50	2.50	2.00	80.00		2.00		2.50		8.50		SH/SST INTERCAL										
8.50	11.50	3.00	1.85	61.67		1.85		3.00		11.50		SH/SST INTERCAL										
11.50	14.50	3.00	3.00	100.00		3.00		3.00		14.50		SST FGD-MGD+SH BD		GR. WHITE								
14.50	17.50	3.00	2.90	96.67		2.90		3.00		17.50		SST FGD-MGD+SH BD		GR. WHITE								
17.50	20.50	3.00	3.00	100.00		3.00		3.00		20.50		SST FGD-MGD+SH BD		GR. WHITE								
20.50	23.50	3.00	3.00	100.00		3.00		3.00		23.50		SST FGD-MGD+SH BD		GR. WHITE								
23.50	25.30	1.80	1.80	100.00		.80		.80		24.30		SH AREN		LIGHT GREY								
						1.00		1.00		25.30		SH/SST INTERCAL										
25.30	26.30	1.00	1.00	100.00		1.00		1.00		26.30		SH/SST INTERCAL										
26.30	29.10	2.80	2.70	96.43		2.70		2.80		29.10		SST VFGD-FGD+SH BD		WHITE								
29.10	31.70	2.60	2.60	100.00		2.60		2.60		31.70		SST VFGD-FGD+SH BD		WHITE								
31.70	34.70	3.00	3.00	100.00		3.00		3.00		34.70		SH/SST INTERCAL										
34.70	36.00	1.30	1.30	100.00		1.30		1.30		36.00		SH/SST INTERCAL										
36.00	37.50	1.50	1.50	100.00		1.00		1.00		37.00		SH/SST INTERCAL										
						.50		.50		37.50		SH AREN		GREY								
37.50	40.30	2.80	2.80	100.00		.45		.45		37.95		SH AREN		GREY								
						.30		.30		38.25		SH		GREY		BROKEN						
*****																						
SEAM XIII										ROOF 38.25 MTS-----												
						1.25		1.25		39.50		COAL				FR BR						
						FLOOR	39.50 MTS-----SEAM XIII														THICKNESS	1.25 MTS
*****																						

! R U N	! TOTAL	! TOTAL	! RECO-	! THICKNESS	! FLOOR	! D E S C R I P T I O N			! OTHER DETAILS	
! FROM	! TO	! LENGTH	! RECOV	! VERY	! RECOV	! EXTRA	! DEPTH	! LITHOLOGY	! COLOUR	! STRUCTURAL
! (M)	! (M)	! (M)	! (M)	! (%)	! (M)	! (M)	! (M)	!	!	! FEATURES
					.80	.80	40.30	SH AREN	LIGHT GREY	
40.30	43.10	2.80	2.80	100.00	2.80	2.80	43.10	SH AREN	LIGHT GREY	
43.10	45.90	2.80	2.80	100.00	.20	.20	43.30	COAL		FR BR
					2.60	2.60	45.90	SH AREN	LIGHT GREY	
45.90	48.70	2.80	2.80	100.00	2.80	2.80	48.70	SH AREN	LIGHT GREY	
48.70	51.70	3.00	3.00	100.00	.15	.15	48.85	SH AREN	GREY	
					.15	.15	49.00	SH WITH C BANDS	GREY	
					.25	.25	49.25	COAL		FR BR
					1.00	1.00	50.25	SH/SST INTERCAL		
					.05	.05	50.30	SH	GREY	
*****										
SEAM XII					ROOF		50.30 MTS-----			
					1.40	1.40	51.70	COAL		FR BR
FLOOR					51.70 MTS-----		SEAM XII THICKNESS 1.40 MTS			
*****										
51.70	53.30	1.60	1.60	100.00	.60	.60	52.30	SH AREN	GREY	
					1.00	1.00	53.30	SH/SST INTERCAL		
53.30	54.50	1.20	1.20	100.00	1.20	1.20	54.50	SH/SST INTERCAL		

-----B O R E H O L E C L O S E D A T : 54.50 MTS.-----

B O R E H O L E L I T H O L O G

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B.H.NO. : MLE-9

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LATITUDE : 1081606.986 (M)    COLLAR R.L. : 191.015(M)    COMMENCED ON : 24/01/12  
 DEPARTURE : 3227858.992 (M)    DEPTH DRILLED : 34.00 (M)    COMPLETED ON : 29/01/12

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! R U N !	! T O !	! T O T A L !	! T O T A L !	! R E C O - !	! T H I C K N E S S !	! F L O O R !	! D E S C R I P T I O N !			! O T H E R D E T A I L S !	
! F R O M !	! F R O M !	! L E N G T H !	! R E C O V !	! V E R Y !	! R E C O V !	! E X T R A !	! L I T H O L O G Y !	! C O U L O U R !	! S T R U C T U R A L !	! F E A T U R E S !	
! ( M ) !	! ( M ) !	! ( M ) !	! ( M ) !	! ( % ) !	! ( M ) !	! ( M ) !	! ( M ) !	! ( M ) !	! ( M ) !	! ( M ) !	
.00	2.90	2.90	.00	.00	.00	2.90	2.90	SOIL SANDY	YELL. GREY	SLUDGE	SOIL 2.90M
SOIL											
*****											
RANIGANJ											
2.90	5.00	2.10	.80	38.10	.80	2.10	5.00	CLAYSTONE			
5.00	8.00	3.00	2.60	86.67	.10	.10	5.10	CLAYSTONE			W.Z. 5.10M
					2.50	2.90	8.00	SH/SST INTERCAL			
8.00	10.00	2.00	1.90	95.00	1.00	1.05	9.05	SH/SST INTERCAL			
					.90	.95	10.00	SH AREN	LIGHT GREY		
10.00	11.50	1.50	1.40	93.33	.20	.21	10.21	SH AREN	LIGHT GREY		
					.40	.43	10.64	SH WITH C BANDS	DARK GREY		
					.50	.54	11.18	SH AREN	GREY		
					.30	.32	11.50	SH/SST INTERCAL			
11.50	14.50	3.00	3.00	100.00	1.90	1.90	13.40	SH/SST INTERCAL		FR BR	
					.20	.20	13.60	SH AREN	GREY		
*****											
SEAM XIII											
							13.60	ROOF			MTS-----
					.90	.90	14.50	COAL		FR BR	
14.50	17.50	3.00	3.00	100.00	.25	.25	14.75	COAL		FR BR	
								FLOOR			14.75 MTS-----SEAM XIII
									THICKNESS		1.15 MTS
*****											
					1.90	1.90	16.65	SH AREN	GREY		
					.85	.85	17.50	SH/SST INTERCAL			
17.50	20.30	2.80	2.80	100.00	2.40	2.40	19.90	SH/SST INTERCAL			
					.40	.40	20.30	SST FGD-MGD	GR. WHITE		
20.30	23.10	2.80	2.70	96.43	.60	.62	20.92	SST FGD-MGD	GR. WHITE		
					1.25	1.30	22.22	SH AREN	LIGHT GREY		
					.15	.16	22.38	CSH			

R U N		TOTAL	TOTAL	RECO-	THICKNESS		FLOOR	D E S C R I P T I O N			OTHER DETAILS	
FROM	TO	LENGTH	RECOV	VERY	RECOV	EXTRA	DEPTH	LITHOLOGY	COLOUR	STRUCTURAL		
(M)	(M)	(M)	(M)	(%)	(M)	(M)	(M)			FEATURES		
					.05	.05	22.43	SH	GREY			
					.05	.05	22.48	CSH				
					.60	.62	23.10	SH AREN	GREY			
23.10	24.90	1.80	.90	50.00	.20	.40	23.50	SH/SST INTERCAL				
					.70	1.40	24.90	SST FGD-MGD	WHITE			
24.90	25.90	1.00	1.00	100.00	.30	.30	25.20	SH AREN	DARK GREY			
					.20	.20	25.40	COAL		FR BR		
					.50	.50	25.90	SH/SST INTERCAL				
25.90	28.70	2.80	2.80	100.00	2.80	2.80	28.70	SH/SST INTERCAL				
28.70	31.50	2.80	2.80	100.00	.30	.30	29.00	SH AREN	GREY			
					1.30	1.30	30.30	SH/SST INTERCAL				
					.25	.25	30.55	SH AREN	GREY			
					.20	.20	30.75	CSH				
*****												
SEAM XII					ROOF		30.75	MTS-----				
					.75	.75	31.50	COAL		FR BR		
FLOOR		31.50					MTS-----		SEAM XII		THICKNESS	.75
*****												
31.50	34.00	2.50	2.25	90.00	.40	.44	31.94	SH WITH C BANDS	DARK GREY			
					.20	.22	32.16	SH/SST INTERCAL				
					.20	.22	32.38	SH/SST INTERCAL				
					.10	.11	32.49	SH WITH C BANDS	DARK GREY			
					1.35	1.51	34.00	SH/SST INTERCAL				

-----B O R E H O L E C L O S E D A T : 34.00 MTS.-----

B O R E H O L E L I T H O L O G

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B.H.NO. : MLE-10

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LATITUDE : 1082209.083 (M)      COLLAR R.L. : 197.305(M)      COMMENCED ON : 01/02/12  
 DEPARTURE : 3226731.479 (M)      DEPTH DRILLED : 133.30 (M)      COMPLETED ON : 09/02/12

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R U N	! TOTAL	! TOTAL	! RECO-	! THICKNESS		! FLOOR	D E S C R I P T I O N			! OTHER DETAILS	
FROM	! LENGTH	! RECOV	! VERY	! RECOV	EXTRA	! DEPTH	!	!	!	!	
(M)	(M)	(M)	(M)	(%)	(M)	(M)	(M)	LITHOLOGY	! COLOUR	! STRUCTURAL	!
(M)	(M)	(M)	(M)	(%)	(M)	(M)	(M)	!	!	! FEATURES	!
.00	1.00	1.00	.15	15.00	.15	1.00	1.00	SST VFGD	YELLOW WHITE		
1.00	3.00	2.00	2.00	100.00	.80	.80	1.80	SST VFGD	YELLOW WHITE		W.Z. 1.80M
					1.20	1.20	3.00	SST FGD-MGD	GR. WHITE		
3.00	5.00	2.00	1.75	87.50	1.75	2.00	5.00	SST FGD-MGD	GR. WHITE		
5.00	7.00	2.00	2.00	100.00	2.00	2.00	7.00	SST FGD-MGD+SH BD			
7.00	9.60	2.60	2.60	100.00	2.60	2.60	9.60	SST FGD-MGD	GR. WHITE		
9.60	12.40	2.80	2.80	100.00	2.80	2.80	12.40	SST FGD-MGD	GR. WHITE		
12.40	15.40	3.00	3.00	100.00	3.00	3.00	15.40	SST FGD-MGD	GR. WHITE		
15.40	18.40	3.00	3.00	100.00	3.00	3.00	18.40	SST FGD-MGD	GR. WHITE		
18.40	21.20	2.80	2.80	100.00	1.45	1.45	19.85	SST FGD-MGD	GR. WHITE		
					.10	.10	19.95	CSH		COAL STREAKS	
					.60	.60	20.55	SH	GREY		
					.65	.65	21.20	SH AREN	GREY		
21.20	24.00	2.80	2.80	100.00	2.80	2.80	24.00	SH/SST INTERCAL	GREY		
24.00	25.20	1.20	1.20	100.00	1.20	1.20	25.20	SST VFGD-FGD	WHITE		
25.20	28.00	2.80	2.75	98.21	1.65	1.70	26.90	SST VFGD-FGD	WHITE		
					.45	.45	27.35	SH/SST INTERCAL			
					.65	.65	28.00	SH AREN	GREY		
28.00	30.80	2.80	2.80	100.00	2.80	2.80	30.80	SH AREN	GREY		
30.80	33.80	3.00	3.00	100.00	3.00	3.00	33.80	SH AREN	GREY		
33.80	36.60	2.80	2.80	100.00	2.00	2.00	35.80	SH AREN	GREY		
					.80	.80	36.60	SH	DARK GREY	FR BR SL	
36.60	39.40	2.80	2.80	100.00	2.80	2.80	39.40	SH/SST INTERCAL			
39.40	42.20	2.80	2.80	100.00	2.80	2.80	42.20	SH/SST INTERCAL			
42.20	45.00	2.80	2.80	100.00	2.80	2.80	45.00	SH/SST INTERCAL			
45.00	47.80	2.80	2.80	100.00	2.80	2.80	47.80	SST VFGD-FGD	GR. WHITE		
47.80	50.60	2.80	2.80	100.00	2.80	2.80	50.60	SST MGD-CGD	GR. WHITE		

R U N		TOTAL	TOTAL	RECO-	THICKNESS		FLOOR	D E S C R I P T I O N			OTHER DETAILS	
FROM	TO	LENGTH	RECOV	VERY	RECOV	EXTRA	DEPTH	LITHOLOGY	COLOUR	STRUCTURAL		
(M)	(M)	(M)	(M)	(%)	(M)	(M)	(M)			FEATURES		
50.60	53.40	2.80	2.80	100.00	2.80	2.80	53.40	SST MGD-CGD	GR. WHITE			
53.40	56.20	2.80	2.80	100.00	2.80	2.80	56.20	SST MGD-CGD	GR. WHITE			
56.20	59.00	2.80	2.80	100.00	2.80	2.80	59.00	SST MGD-CGD	GR. WHITE			
59.00	61.80	2.80	2.80	100.00	2.80	2.80	61.80	SST MGD-CGD	GR. WHITE			
61.80	64.60	2.80	2.80	100.00	2.80	2.80	64.60	SST MGD-CGD	GR. WHITE			
64.60	67.40	2.80	2.80	100.00	2.60	2.60	67.20	SST MGD-CGD	GR. WHITE			
					.20	.20	67.40	SH/SST INTERCAL				
67.40	70.20	2.80	2.80	100.00	2.10	2.10	69.50	SH/SST INTERCAL				
*****												
SEAM XIV							ROOF	69.50	MTS-----			
					.40	.40	69.90	COAL		FR BR		
					.30	.30	70.20	SHALY COAL		FR BR		
70.20	73.00	2.80	2.80	100.00	.05	.05	70.25	SHALY COAL		FR BR		
					1.55	1.55	71.80	COAL		FR BR		
FLOOR							71.80	MTS-----SEAM XIV			THICKNESS 2.30 MTS	
*****												
					1.20	1.20	73.00	SH/SST INTERCAL				
73.00	75.80	2.80	2.80	100.00	2.80	2.80	75.80	SH/SST INTERCAL				
75.80	78.60	2.80	2.80	100.00	2.80	2.80	78.60	SH/SST INTERCAL				
78.60	81.40	2.80	2.80	100.00	2.80	2.80	81.40	SST VFGD-FGD+SH BD	GR. WHITE			
81.40	84.20	2.80	2.80	100.00	2.80	2.80	84.20	SST VFGD-FGD+SH BD	GR. WHITE			
84.20	87.00	2.80	2.80	100.00	2.80	2.80	87.00	SST FGD-MGD	WHITE			
87.00	89.80	2.80	2.80	100.00	2.80	2.80	89.80	SST FGD-MGD	WHITE			
89.80	92.60	2.80	2.80	100.00	2.80	2.80	92.60	SST FGD-MGD	WHITE			
92.60	95.40	2.80	2.80	100.00	2.80	2.80	95.40	SST FGD-MGD	WHITE			
95.40	98.20	2.80	2.80	100.00	.95	.95	96.35	SST FGD-MGD	WHITE			
					1.50	1.50	97.85	SH/SST INTERCAL				
					.35	.35	98.20	SH AREN	GREY			
98.20	101.00	2.80	2.80	100.00	.90	.90	99.10	SH AREN	GREY			
					.05	.05	99.15	COAL		FR BR		
					1.85	1.85	101.00	SH/SST INTERCAL				
101.00	103.80	2.80	2.80	100.00	2.80	2.80	103.80	SH/SST INTERCAL				
103.80	106.60	2.80	2.80	100.00	2.80	2.80	106.60	SST FGD-MGD+SH BD	WHITE			
106.60	109.40	2.80	2.80	100.00	2.80	2.80	109.40	SST FGD-MGD+SH BD	WHITE			



B O R E H O L E L I T H O L O G

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B.H.NO. : MLE-11

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LATITUDE : 1082806.654 (M)      COLLAR R.L. : 210.625(M)      COMMENCED ON : 11/02/12  
 DEPARTURE : 3227102.526 (M)      DEPTH DRILLED : 78.70 (M)      COMPLETED ON : 18/02/12

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R U N	TOTAL	TOTAL	RECO-	THICKNESS	FLOOR	D E S C R I P T I O N			OTHER DETAILS									
						FROM	TO	LENGTH		RECOV	VERY	RECOV	EXTRA	DEPTH	LITHOLOGY	COLOUR	STRUCTURAL	
(M)	(M)	(M)	(M)	(%)	(M)	(M)	(M)	(M)	(M)	(M)	(M)	(M)	(M)	(M)	(M)	(M)	(M)	(M)
.00	.50	.50	.00	.00	.00	.50	.50	SOIL CLAYEY	YELL. GREY	SLUDGE				SOIL 0.50M				
								SOIL										
								*****										
								RANIGANJ										
.50	2.50	2.00	.80	40.00	.80	2.00	2.50	SST VFGD	YELLOW									
2.50	3.00	.50	.30	60.00	.30	.50	3.00	SST VFGD	YELLOW									
3.00	5.80	2.80	1.10	39.29	1.10	2.80	5.80	SST VFGD	YELL. GREY									
5.80	6.80	1.00	.85	35.00	.85	1.00	6.80	SST VFGD-FGD	YELLOW WHITE				W.Z. 6.80M					
6.80	9.60	2.80	2.80	100.00	2.80	2.80	9.60	SST VFGD-FGD	GR. WHITE									
9.60	12.40	2.80	2.80	100.00	2.80	2.80	12.40	SST VFGD-FGD	GR. WHITE									
12.40	15.20	2.80	2.60	92.86	.20	.22	12.62	SH/SST INTERCAL										
					.05	.05	12.67	SH WITH C BANDS	DARK GREY									
					.05	.05	12.72	COAL		FR BR								
					2.30	2.48	15.20	SH AREN	GREY	COAL STREAKS								
15.20	18.00	2.80	2.50	89.29	2.50	2.80	18.00	SH AREN	GREY									
18.00	19.50	1.50	1.30	86.67	.30	.35	18.35	SH AREN	GREY									
					.10	.12	18.47	COAL		FR BR								
					.10	.12	18.59	SH	DARK GREY									
					.20	.22	18.81	COAL		FR BR								
					.60	.69	19.50	SH	DARK GREY									
19.50	22.30	2.80	2.80	100.00	.20	.20	19.70	COAL		FR BR								
					2.60	2.60	22.30	SST FGD-MGD	WHITE									
22.30	25.10	2.80	2.80	100.00	2.20	2.20	24.50	SST FGD-MGD	WHITE									
					.60	.60	25.10	SH/SST INTERCAL										
25.10	27.90	2.80	2.80	100.00	2.80	2.80	27.90	SH/SST INTERCAL										
27.90	30.70	2.80	2.80	100.00	2.80	2.80	30.70	SST FGD-MGD	WHITE									
30.70	33.50	2.80	2.80	100.00	2.80	2.80	33.50	SST FGD-MGD	WHITE									
33.50	36.50	3.00	3.00	100.00	3.00	3.00	36.50	SST FGD-MGD	WHITE									
36.50	39.30	2.80	2.80	100.00	2.80	2.80	39.30	SST FGD-MGD	WHITE									
39.30	42.30	3.00	3.00	100.00	3.00	3.00	42.30	SST FGD-MGD	WHITE									

R U N FROM (M)	TO (M)	TOTAL LENGTH (M)	TOTAL RECOV (M)	RECO- VERY (%)	THICKNESS		FLOOR DEPTH (M)	D E S C R I P T I O N			OTHER DETAILS
					RECOV ERED (M)	EXTRA POLATED (M)		LITHOLOGY	COLOUR	STRUCTURAL FEATURES	
42.30	45.10	2.80	2.80	100.00	2.80	2.80	45.10	SST FGD-MGD	WHITE		
45.10	47.90	2.80	2.80	100.00	1.40	1.40	46.50	SST FGD-MGD	WHITE		
					1.40	1.40	47.90	SH/SST INTERCAL			
47.90	50.70	2.80	2.80	100.00	2.80	2.80	50.70	SH/SST INTERCAL			
50.70	53.50	2.80	2.80	100.00	.50	.50	51.20	SH AREN	GREY	COAL STREAKS	
					2.30	2.30	53.50	SH/SST INTERCAL			
53.50	56.30	2.80	2.80	100.00	2.80	2.80	56.30	SH/SST INTERCAL			
56.30	59.10	2.80	2.80	100.00	2.80	2.80	59.10	SH/SST INTERCAL			
59.10	61.90	2.80	2.80	100.00	1.60	1.60	60.70	SH/SST INTERCAL			
					.10	.10	60.80	SH	GREY		
*****											
SEAM XIII					ROOF		60.80 MTS-----				
					1.10	1.10	61.90	COAL		FR BR	
61.90	64.70	2.80	2.80	100.00	.20	.20	62.10	COAL		FR BR	
					FLOOR		62.10 MTS-----SEAM XIII				
										THICKNESS	1.30 MTS
*****											
					1.80	1.80	63.90	SH/SST INTERCAL			
					.25	.25	64.15	COAL		FR BR	
					.55	.55	64.70	SH AREN	GREY		
64.70	67.50	2.80	2.80	100.00	2.80	2.80	67.50	SH/SST INTERCAL			
67.50	70.30	2.80	2.80	100.00	1.20	1.20	68.70	SH/SST INTERCAL			
					1.60	1.60	70.30	SST FGD-MGD	WHITE		
70.30	73.10	2.80	2.80	100.00	2.00	2.00	72.30	SST FGD-MGD	WHITE		
					.25	.25	72.55	COAL		FR BR	
					.55	.55	73.10	SH AREN	GREY		
73.10	75.90	2.80	2.80	100.00	1.90	1.90	75.00	SH AREN	GREY		
*****											
SEAM XII					ROOF		75.00 MTS-----				
					.90	.90	75.90	COAL		FR BR	
75.90	78.70	2.80	2.80	100.00	.35	.35	76.25	COAL		FR BR	
					FLOOR		76.25 MTS-----SEAM XII				
										THICKNESS	1.25 MTS
*****											

B.H. NO : MLE-11

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! R U N !	! TOTAL !	! TOTAL !	! RECO- !	! THICKNESS !	! FLOOR !	! D E S C R I P T I O N !			! OTHER DETAILS !		
! FROM !	! TO !	! LENGTH !	! RECOV !	! VERY !	! RECOV !	! EXTRA !	! DEPTH !	! LITHOLOGY !	! COLOUR !	! STRUCTURAL !	! OTHER DETAILS !
! (M) !	! (M) !	! (M) !	! (M) !	! (%) !	! (M) !	! (M) !	! (M) !	! !	! !	! FEATURES !	! !

2.30	2.30	78.55	SH/SST INTERCAL								
.15	.15	78.70	SST FGD-MGD	WHITE							

-----B O R E H O L E C L O S E D                      A T :    78.70 MTS.-----

B O R E H O L E L I T H O L O G

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B.H.NO. : MLE-12

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LATITUDE : 1082348.191 (M)      COLLAR R.L. : 211.080(M)      COMMENCED ON : 20/02/12  
 DEPARTURE : 3226186.040 (M)      DEPTH DRILLED : 98.00 (M)      COMPLETED ON : 29/02/12

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! R U N	! TOTAL	!TOTAL	!RECO-	! THICKNESS	! FLOOR	! D E S C R I P T I O N			! OTHER DETAILS		
! FROM	! TO	! LENGTH	! RECOV	! VERY	! RECOV	! EXTRA	! DEPTH	! LITHOLOGY	! COLOUR	! STRUCTURAL	!
! (M)	! (M)	! (M)	! (M)	! (%)	! (M)	! (M)	! (M)	!	!	! FEATURES	!
.00	1.00	1.00	.00	.00	.00	1.00	1.00	SOIL CLAYEY	YELL. GREY	SLUDGE	SOIL 1.00M
SOIL											
*****											
RANIGANJ											
1.00	2.90	1.90	.15	7.89	.15	1.90	2.90	SST VFGD-FGD	YELLOW		
2.90	5.00	2.10	.90	42.86	.90	2.10	5.00	CLAYSTONE		V-FR BR	
5.00	8.00	3.00	2.25	75.00	2.25	3.00	8.00	SST VFGD-FGD	YELLOW		
8.00	10.80	2.80	2.80	100.00	.30	.30	8.30	SST VFGD-FGD	YELLOW		W.L. 8.30M
					1.70	1.70	10.00	SH/SST INTERCAL			
					.50	.50	10.50	SH AREN	GREY		
					.30	.30	10.80	SH/SST INTERCAL			
10.80	13.60	2.80	2.80	100.00	2.80	2.80	13.60	SST FGD-MGD	WHITE		
13.60	16.40	2.80	2.80	100.00	2.80	2.80	16.40	SST FGD-MGD	WHITE		
16.40	19.20	2.80	2.80	100.00	2.80	2.80	19.20	SST FGD-MGD	WHITE		
19.20	22.00	2.80	2.80	100.00	2.80	2.80	22.00	SST FGD-MGD	WHITE		
22.00	24.80	2.80	2.80	100.00	2.80	2.80	24.80	SST FGD-MGD	WHITE		
24.80	27.60	2.80	2.80	100.00	2.80	2.80	27.60	SST FGD-MGD	WHITE		
27.60	30.40	2.80	2.80	100.00	2.80	2.80	30.40	SST FGD-MGD	WHITE		
30.40	33.20	2.80	2.80	100.00	2.80	2.80	33.20	SST FGD-MGD	WHITE		
33.20	36.00	2.80	2.80	100.00	2.80	2.80	36.00	SH/SST INTERCAL			
36.00	38.80	2.80	2.80	100.00	2.15	2.15	38.15	SH/SST INTERCAL			
*****											
	SEAM XIV						ROOF	38.15 MTS-----			
					.35	.35	38.50	SHALY COAL			
					.05	.05	38.55	SH	DARK GREY		
					.25	.25	38.80	COAL		FR BR	
38.80	41.60	2.80	2.80	100.00	.95	.95	39.75	COAL		FR BR	
			FLOOR				39.75 MTS-----	SEAM XIV	THICKNESS	1.60 MTS	
*****											

R U N		TOTAL	TOTAL	RECO-	THICKNESS		FLOOR	D E S C R I P T I O N			OTHER DETAILS
FROM	TO	LENGTH	RECOV	VERY	RECOV	EXTRA	DEPTH	LITHOLOGY	COLOUR	STRUCTURAL	
(M)	(M)	(M)	(M)	(%)	(M)	(M)	(M)			FEATURES	
					.35	.35	40.10	SH/SST INTERCAL			
					1.50	1.50	41.60	SST FGD-MGD	WHITE		
41.60	44.40	2.80	2.80	100.00	2.60	2.60	44.20	SST FGD-MGD	WHITE		
					.20	.20	44.40	SH/SST INTERCAL			
44.40	46.40	2.00	2.00	100.00	.60	.60	45.00	SH/SST INTERCAL			
					1.40	1.40	46.40	SH AREN	GREY		
46.40	47.20	.80	.80	100.00	.80	.80	47.20	SH AREN	GREY		
47.20	50.00	2.80	2.80	100.00	1.50	1.50	48.70	SH AREN	GREY		
					1.30	1.30	50.00	SST FGD-MGD	WHITE		
50.00	52.80	2.80	2.80	100.00	1.55	1.55	51.55	SST FGD-MGD	WHITE		
					1.25	1.25	52.80	SH AREN	GREY		
52.80	55.60	2.80	2.80	100.00	1.50	1.50	54.30	SH AREN	GREY		
					1.30	1.30	55.60	SH/SST INTERCAL	GREY		
55.60	58.40	2.80	2.80	100.00	.80	.80	56.40	SH/SST INTERCAL			
					2.00	2.00	58.40	SST FGD-MGD	WHITE		
58.40	61.20	2.80	2.80	100.00	2.80	2.80	61.20	SST FGD-MGD	WHITE		
61.20	64.00	2.80	2.80	100.00	2.80	2.80	64.00	SST FGD-MGD	WHITE		
64.00	66.80	2.80	2.80	100.00	2.80	2.80	66.80	SST FGD-MGD	WHITE		
66.80	69.60	2.80	2.80	100.00	.50	.50	67.30	SST FGD-MGD	WHITE		
					.05	.05	67.35	COAL			FR BR
					2.25	2.25	69.60	SH/SST INTERCAL			
69.60	72.40	2.80	2.80	100.00	1.60	1.60	71.20	SH/SST INTERCAL			
					1.20	1.20	72.40	SST FGD-MGD	WHITE		
72.40	75.20	2.80	2.80	100.00	2.80	2.80	75.20	SST FGD-MGD	WHITE		
75.20	78.00	2.80	2.80	100.00	1.70	1.70	76.90	SST FGD-MGD	WHITE		
					1.10	1.10	78.00	SH/SST INTERCAL			
78.00	80.80	2.80	2.80	100.00	.75	.75	78.75	SH/SST INTERCAL			
*****											
SEAM XIII							ROOF	78.75 MTS-----			
					1.30	1.30	80.05	COAL			FR BR
	FLOOR				80.05	MTS-----	SEAM XIII		THICKNESS		1.30 MTS
*****											
					.75	.75	80.80	SH AREN	GREY		

R U N	FROM	TO	TOTAL LENGTH	TOTAL RECOV	RECO-VERY	THICKNESS		FLOOR DEPTH	D E S C R I P T I O N			OTHER DETAILS	
						RECOV ERED	EXTRA POLATED		LITHOLOGY	COLOUR	STRUCTURAL FEATURES		
(M)	(M)	(M)	(M)	(M)	(%)	(M)	(M)	(M)					
80.80	83.60	2.80	2.80	100.00		1.10	1.10	81.90	SH AREN	GREY			
						.30	.30	82.20	SH WITH C BANDS	GREY			
						1.40	1.40	83.60	SH AREN	GREY			
83.60	86.40	2.80	2.80	100.00		.85	.85	84.45	SH AREN	GREY			
						1.95	1.95	86.40	SH/SST INTERCAL				
86.40	89.20	2.80	2.80	100.00		2.45	2.45	88.85	SST FGD-MGD	WHITE			
						.25	.25	89.10	COAL		FR BR		
						.10	.10	89.20	SH AREN	GREY			
89.20	92.00	2.80	2.80	100.00		.40	.40	89.60	SH AREN	GREY			
						.60	.60	90.20	SH/SST INTERCAL				
						1.80	1.80	92.00	SH AREN	GREY			
92.00	94.80	2.80	2.80	100.00		2.00	2.00	94.00	SH AREN	GREY			
*****													
	SEAM XII						ROOF		94.00	MTS-----			
						.80	.80	94.80	COAL		FR BR		
94.80	97.60	2.80	2.80	100.00		.30	.30	95.10	COAL		FR BR		
						FLOOR 95.10 MTS-----		SEAM XII			THICKNESS	1.10 MTS	
*****													
						1.80	1.80	96.90	SH AREN	GREY			
						.70	.70	97.60	SH/SST INTERCAL				
97.60	98.00	.40	.40	100.00		.40	.40	98.00	SST FGD-MGD	WHITE			

-----BORE HOLE CLOSED

A T : 98.00 MTS.-----

B O R E H O L E L I T H O L O G

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B.H.NO. : MLE-13

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LATITUDE : 1082917.222 (M)      COLLAR R.L. : 211.490(M)      COMMENCED ON : 03/03/12  
 DEPARTURE : 3226144.893 (M)      DEPTH DRILLED : 102.00 (M)      COMPLETED ON : 07/03/12

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R U N	TOTAL	TOTAL	RECO-	THICKNESS	FLOOR	D E S C R I P T I O N			OTHER DETAILS									
						FROM	TO	LENGTH		RECOV	VERY	RECOV	EXTRA	DEPTH	LITHOLOGY	COLOUR	STRUCTURAL	
(M)	(M)	(M)	(M)	(%)	(M)	(M)	(M)	(M)	(M)	(M)	(M)	(M)	(M)	(M)	(M)	(M)	(M)	(M)
.00	3.00	3.00	.00	.00	.00	3.00	3.00	SOIL SANDY	YELL. GREY	SLUDGE				SOIL 3.00M				
SOIL																		
*****																		
RANIGANJ																		
3.00	4.00	1.00	.45	45.00	.45	1.00	4.00	SST FGD	YELLOW	WHITE								
4.00	6.00	2.00	1.90	95.00	1.90	2.00	6.00	SST VFGD-FGD	YELLOW									
6.00	7.00	1.00	.50	50.00	.50	1.00	7.00	CLAY	GREY					W.Z. 7.00M				
7.00	9.60	2.60	1.25	48.08	.40	.83	7.83	SH	LIGHT GREY									
					.85	1.77	9.60	SH/SST INTERCAL										
9.60	12.40	2.80	2.80	100.00	2.80	2.80	12.40	SH/SST INTERCAL										
12.40	15.20	2.80	2.80	100.00	2.80	2.80	15.20	SH/SST INTERCAL										
15.20	18.00	2.80	2.80	100.00	2.80	2.80	18.00	SST VFGD-FGD	WHITE									
18.00	20.80	2.80	2.80	100.00	.20	.20	18.20	SH AREN	GREY									
					2.60	2.60	20.80	SST FGD-MGD	WHITE									
20.80	23.80	3.00	3.00	100.00	3.00	3.00	23.80	SST FGD-MGD	WHITE									
23.80	26.80	3.00	3.00	100.00	3.00	3.00	26.80	SST FGD-MGD	WHITE									
26.80	29.80	3.00	3.00	100.00	3.00	3.00	29.80	SST FGD-MGD	WHITE									
29.80	32.60	2.80	2.80	100.00	2.80	2.80	32.60	SST FGD-MGD	WHITE									
32.60	35.40	2.80	2.80	100.00	2.80	2.80	35.40	SST FGD-MGD	WHITE									
35.40	38.20	2.80	2.80	100.00	.70	.70	36.10	SST FGD-MGD	WHITE									
					2.10	2.10	38.20	SH AREN	GREY									
38.20	41.00	2.80	2.80	100.00	2.00	2.00	40.20	SH AREN	GREY									
*****																		
		SEAM XIV				ROOF	40.20	MTS-----										
					.10	.10	40.30	COAL			FR	BR						
					.10	.10	40.40	CSH										
					.25	.25	40.65	COAL			FR	BR						
					.20	.20	40.85	CSH										
					.15	.15	41.00	COAL			FR	BR						

R U N		TOTAL LENGTH	TOTAL RECOV	RECO-VERY (%)	THICKNESS		FLOOR DEPTH	DESCRIPTION			OTHER DETAILS
FROM (M)	TO (M)	(M)	(M)	(%)	RECOV (M)	EXTRA POLATED (M)	(M)	LITHOLOGY	COLOUR	STRUCTURAL FEATURES	
41.00	43.80	2.80	2.80	100.00	.10	.10	41.10	COAL		FR BR	
					.20	.20	41.30	CSH			
					1.10	1.10	42.40	COAL		FR BR	
FLOOR		42.40 MTS		-----		SEAM XIV		THICKNESS		2.20 MTS	
*****											
					.15	.15	42.55	SH AREN	GREY		
					.45	.45	43.00	SH/SST INTERCAL			
					.80	.80	43.80	SST FGD-MGD	WHITE		
43.80	44.80	1.00	1.00	100.00	1.00	1.00	44.80	SST FGD-MGD	WHITE		
44.80	47.60	2.80	2.80	100.00	2.80	2.80	47.60	SST FGD-MGD	WHITE		
47.60	50.40	2.80	2.80	100.00	.60	.60	48.20	SST FGD-MGD	WHITE		
					1.40	1.40	49.60	SH AREN	GREY		
					.80	.80	50.40	SST FGD-MGD	GR. WHITE		
50.40	53.20	2.80	2.80	100.00	1.00	1.00	51.40	SH/SST INTERCAL			
					1.80	1.80	53.20	SH AREN	GREY		
53.20	56.00	2.80	2.80	100.00	.10	.10	53.30	SH AREN	GREY		
					2.70	2.70	56.00	SST FGD-MGD	WHITE		
56.00	58.80	2.80	2.80	100.00	2.80	2.80	58.80	SST FGD-MGD	WHITE		
58.80	61.60	2.80	2.80	100.00	2.80	2.80	61.60	SST FGD-MGD	WHITE		
61.60	64.40	2.80	2.80	100.00	2.80	2.80	64.40	SST FGD-MGD	WHITE		
64.40	67.20	2.80	2.80	100.00	2.80	2.80	67.20	SST FGD-MGD	WHITE		
67.20	70.00	2.80	2.80	100.00	.45	.45	67.65	SST FGD-MGD	WHITE		
					1.80	1.80	69.45	SH AREN	GREY		
					.55	.55	70.00	SH/SST INTERCAL			
70.00	72.80	2.80	2.80	100.00	.40	.40	70.40	SH/SST INTERCAL			
					2.40	2.40	72.80	SH AREN	GREY		
72.80	75.60	2.80	2.80	100.00	.70	.70	73.50	SH AREN	GREY		
					2.10	2.10	75.60	SH/SST INTERCAL		COAL STREAKS	
75.60	78.40	2.80	2.80	100.00	2.80	2.80	78.40	SH/SST INTERCAL			
78.40	81.40	3.00	3.00	100.00	2.00	2.00	80.40	SH/SST INTERCAL			
					1.00	1.00	81.40	SST FGD-MGD+SH BD	WHITE		
81.40	84.20	2.80	2.80	100.00	1.05	1.05	82.45	SST FGD-MGD+SH BD	WHITE		
					1.55	1.55	84.00	SH/SST INTERCAL			
*****											
SEAM XIII						ROOF		84.00 MTS		-----	

! R U N !	! TOTAL !	! TOTAL !	! RECO- !	! THICKNESS !	! FLOOR !	! D E S C R I P T I O N !			! OTHER DETAILS !
! FROM TO !	! LENGTH !	! RECOV !	! VERY !	! RECOV !	! EXTRA !	! DEPTH !	! LITHOLOGY !	! COLOUR !	! STRUCTURAL !
! (M) (M) !	! (M) !	! (M) !	! (%) !	! (M) !	! POLATED !	! (M) !	! !	! !	! FEATURES !
84.20	87.00	2.80	2.80	100.00	.20	.20	84.20	COAL	FR BR
					1.20	1.20	85.40	COAL	FR BR
					FLOOR 85.40 MTS-----		SEAM XIII		THICKNESS 1.40 MTS
*****									
					.95	.95	86.35	SH AREN	GREY
					.65	.65	87.00	SH/SST INTERCAL	
87.00	89.80	2.80	2.80	100.00	.35	.35	87.35	SH AREN	GREY
					.15	.15	87.50	COAL	BROKEN
					2.30	2.30	89.80	SH AREN	GREY
89.80	92.60	2.80	2.80	100.00	.45	.45	90.25	SH AREN	GREY
					1.80	1.80	92.05	SH/SST INTERCAL	
					.55	.55	92.60	SST FGD-MGD	WHITE
92.60	95.40	2.80	2.80	100.00	2.80	2.80	95.40	SST FGD-MGD	WHITE
95.40	98.20	2.80	2.80	100.00	.40	.40	95.80	SST FGD-MGD	WHITE
					.40	.40	96.20	SH/SST INTERCAL	
					2.00	2.00	98.20	SH AREN	GREY
98.20	101.00	2.80	2.80	100.00	.05	.05	98.25	SH AREN	GREY
*****									
					SEAM XII		ROOF 98.25 MTS-----		
					1.30	1.30	99.55	COAL	FR BR
					FLOOR 99.55 MTS-----		SEAM XII		THICKNESS 1.30 MTS
*****									
					1.45	1.45	101.00	SH AREN	GREY
101.00	102.00	1.00	.80	80.00	.40	.50	101.50	SH AREN	GREY
					.40	.50	102.00	SH/SST INTERCAL	

-----B O R E H O L E C L O S E D A T : 102.00 MTS.-----

B O R E H O L E L I T H O L O G

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B.H.NO. : MLE-14

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LATITUDE : 1082046.657 (M)  
DEPARTURE : 3228118.130 (M)

COLLAR R.L. : 196.550(M)  
DEPTH DRILLED : 59.20 (M)

COMMENCED ON : 20/03/12  
COMPLETED ON : 26/03/12

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! R U N !	! TOTAL !	! TOTAL !	! RECO- !	! THICKNESS !	! FLOOR !	! D E S C R I P T I O N !			! OTHER DETAILS !		
! FROM !	! TO !	! LENGTH !	! RECOV !	! RECOV !	! EXTRA !	! DEPTH !	! LITHOLOGY !	! COLOUR !	! STRUCTURAL !		
! (M) !	! (M) !	! (M) !	! (M) !	! (%) !	! (M) !	! (M) !	! (M) !	! !	! FEATURES !		
.00	1.00	1.00	.00	.00	.00	1.00	1.00	SOIL CLAYEY	YELL. GREY	SLUDGE	SOIL 1.00M
SOIL											
*****											
RANIGANJ											
1.00	3.00	2.00	.40	20.00	.40	2.00	3.00	CLAY	YELLOW		
3.00	6.00	3.00	1.20	40.00	1.20	3.00	6.00	CLAY	YELLOW		
6.00	9.00	3.00	2.80	93.33	1.30	1.39	7.39	CLAY	YELLOW		W.Z. 7.39M
					1.50	1.61	9.00	SST VFGD-FGD	WHITE		
9.00	12.00	3.00	3.00	100.00	3.00	3.00	12.00	SST VFGD-FGD+SH BD	GR. WHITE		
12.00	13.80	1.80	1.80	100.00	1.80	1.80	13.80	SST FGD-MGD	WHITE		
13.80	16.60	2.80	2.80	100.00	2.80	2.80	16.60	SST FGD-MGD	WHITE		
16.60	18.00	1.40	1.40	100.00	1.40	1.40	18.00	SST FGD-MGD	WHITE	V-FR BR	
18.00	19.40	1.40	1.40	100.00	1.40	1.40	19.40	SST FGD-MGD	WHITE		
19.40	22.20	2.80	2.80	100.00	2.80	2.80	22.20	SST FGD-MGD	WHITE		
22.20	25.20	3.00	3.00	100.00	3.00	3.00	25.20	SST FGD-MGD	WHITE		
25.20	28.20	3.00	3.00	100.00	.40	.40	25.60	SST FGD-MGD	WHITE		
					2.60	2.60	28.20	SH/SST INTERCAL			
28.20	31.20	3.00	3.00	100.00	.30	.30	28.50	SH AREN	GREY		
					.10	.10	28.60	COAL		FR BR	
					1.70	1.70	30.30	SH AREN	GREY		
					.90	.90	31.20	SH/SST INTERCAL		COAL STREAKS	
31.20	34.20	3.00	3.00	100.00	3.00	3.00	34.20	SH/SST INTERCAL			
34.20	37.20	3.00	3.00	100.00	3.00	3.00	37.20	SH/SST INTERCAL			
37.20	40.20	3.00	3.00	100.00	.50	.50	37.70	SH/SST INTERCAL			
					1.80	1.80	39.50	SST FGD-MGD	WHITE		
					.70	.70	40.20	SH AREN	GREY		
40.20	43.20	3.00	3.00	100.00	2.40	2.40	42.60	SH/SST INTERCAL			
					.35	.35	42.95	SST FGD-MGD	WHITE		
					.05	.05	43.00	SH AREN	GREY		
					.20	.20	43.20	SH	DARK GREY		

RUN FROM (M)	TO (M)	TOTAL LENGTH (M)	TOTAL RECOV (M)	RECOVERY (%)	RECOVERED (%)	THICKNESS (M)	EXTRA POLATED (M)	FLOOR DEPTH (M)	DESCRIPTION	OTHER DETAILS
43.20	46.20	3.00	3.00	100.00	.15	.15	43.35	SH	DARK GREY	
*****										
SEAM XIII										
ROOF 43.35 MTS-----										
FLOOR 44.50 MTS-----SEAM XIII										
*****										
46.20	49.20	3.00	3.00	100.00	.95	.95	44.80	SH AREN	GREY	
					1.40	1.40	46.20	SH/SST INTERCAL		
					.20	.20	47.15	SH AREN	GREY	
					.20	.20	47.35	SH WITH C BANDS	DARK GREY	
					.20	.20	47.55	COAL		FR BR
					1.65	1.65	49.20	SH AREN	GREY	
49.20	52.20	3.00	3.00	100.00	3.00	3.00	52.20	SH/SST INTERCAL		
52.20	55.20	3.00	3.00	100.00	.70	.70	52.90	SH/SST INTERCAL		
					.25	.25	53.15	SH AREN	GREY	
					.25	.25	53.40	COAL		FR BR
					1.00	1.00	54.40	SH AREN	GREY	
					.05	.05	54.45	SST VFGD	WHITE	
					.25	.25	54.70	SH AREN	GREY	
					.05	.05	54.75	SH	GREY	
*****										
SEAM XII										
ROOF 54.75 MTS-----										
55.20	58.20	3.00	3.00	100.00	.45	.45	55.20	COAL		FR BR
					1.00	1.00	56.20	COAL		FR BR
FLOOR 56.20 MTS-----SEAM XII										
*****										
58.20	59.20	1.00	1.00	100.00	.20	.20	56.40	SH AREN	GREY	
					.80	.80	57.20	SH/SST INTERCAL		
					1.00	1.00	58.20	SST FGD-MGD	WHITE	FR BR SL
					1.00	1.00	59.20	SST FGD-MGD	WHITE	FR BR SL

-----BORE HOLE CLOSED AT : 59.20 MTS.-----

B O R E H O L E L I T H O L O G

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B.H.NO. : MLE-15

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LATITUDE : 1083164.965 (M)      COLLAR R.L. : 210.025(M)      COMMENCED ON : 19/04/12  
 DEPARTURE : 3226466.009 (M)      DEPTH DRILLED : 560.00 (M)      COMPLETED ON : 08/07/12

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R U N FROM (M)	T O (M)	TOTAL LENGTH (M)	TOTAL RECOV (M)	RECO- VERY (%)	THICKNESS		FLOOR DEPTH (M)	D E S C R I P T I O N			O T H E R D E T A I L S	
					RECOV ERED (M)	EXTRA POLATED (M)		LITHOLOGY	COLOUR	STRUCTURAL FEATURES		
.00	3.00	3.00	.00	.00	.00	3.00	3.00	SOIL SANDY	YELLOW	SLUDGE		
3.00	3.90	.90	.00	.00	.00	.90	3.90	SOIL SANDY	YELLOW	SLUDGE	SOIL 3.90M	
SOIL *****												
RANIGANJ												
3.90	7.00	3.10	2.60	83.87	2.60	3.10	7.00	SST VFGD	YELLOW	WHITE	W.Z. 7.00M	
7.00	9.80	2.80	2.80	100.00	2.80	2.80	9.80	SST FGD-MGD	GR.	WHITE		
9.80	12.60	2.80	2.80	100.00	2.80	2.80	12.60	SST FGD-MGD	GR.	WHITE		
12.60	15.40	2.80	2.80	100.00	2.25	2.25	14.85	SST FGD-MGD	GR.	WHITE		
					.55	.55	15.40	SH AREN	GREY			
15.40	18.20	2.80	2.80	100.00	.80	.80	16.20	SH AREN	GREY			
					2.00	2.00	18.20	SH/SST INTERCAL				
18.20	21.00	2.80	2.80	100.00	2.80	2.80	21.00	SH/SST INTERCAL				
21.00	23.80	2.80	2.80	100.00	2.80	2.80	23.80	SH/SST INTERCAL				
23.80	26.60	2.80	2.80	100.00	1.80	1.80	25.60	SH/SST INTERCAL				
					1.00	1.00	26.60	SH AREN	GREY			
26.60	28.40	1.80	1.70	94.44	.70	.74	27.34	SH AREN	GREY			
*****												
SEAM XIV					ROOF			27.34	MTS-----			
					.40	.42	27.76	COAL		FR BR		
					.30	.32	28.08	CSH				
					.30	.32	28.40	COAL		FR BR		
28.40	29.40	1.00	.90	90.00	.60	.67	29.07	COAL		FR BR		
					.30	.33	29.40	CSH				
29.40	32.20	2.80	2.80	100.00	.40	.40	29.80	COAL		FR BR		
FLOOR					29.80			MTS-----SEAM XIV		THICKNESS	2.46	MTS
*****												
					.80	.80	30.60	SH AREN	GREY			

R U N		TOTAL	TOTAL	RECO-	THICKNESS	FLOOR	D E S C R I P T I O N			OTHER DETAILS	
FROM	TO	LENGTH	RECOV	VERY	RECOV	EXTRA	DEPTH	LITHOLOGY	COLOUR	STRUCTURAL	
(M)	(M)	(M)	(M)	(%)	(M)	(M)	(M)			FEATURES	
					1.60	1.60	32.20	SST FGD-MGD	WHITE		
32.20	35.00	2.80	2.80	100.00	2.80	2.80	35.00	SST FGD-MGD	WHITE		
35.00	37.80	2.80	2.80	100.00	1.40	1.40	36.40	SH AREN	GREY		
					1.40	1.40	37.80	SST FGD-MGD	WHITE		
37.80	40.60	2.80	2.80	100.00	2.80	2.80	40.60	SST FGD-MGD	WHITE		
40.60	43.40	2.80	2.80	100.00	.40	.40	41.00	SH AREN	GREY		
					1.80	1.80	42.80	SH/SST INTERCAL			
					.60	.60	43.40	SH AREN	GREY		
43.40	46.20	2.80	2.80	100.00	2.80	2.80	46.20	SST MGD-CGD	WHITE		
46.20	49.00	2.80	2.80	100.00	2.80	2.80	49.00	SST MGD-CGD	WHITE		
49.00	52.00	3.00	3.00	100.00	3.00	3.00	52.00	SST MGD-CGD	WHITE		
52.00	54.80	2.80	2.80	100.00	2.25	2.25	54.25	SH/SST INTERCAL			
					.55	.55	54.80	SST FGD-MGD	WHITE		
54.80	57.60	2.80	2.80	100.00	2.80	2.80	57.60	SST FGD-MGD	WHITE		
57.60	60.40	2.80	2.80	100.00	.90	.90	58.50	SST FGD-MGD	WHITE		
					1.90	1.90	60.40	SH AREN	GREY		
60.40	63.20	2.80	2.80	100.00	.90	.90	61.30	SH/SST INTERCAL			
					1.90	1.90	63.20	SH AREN	GREY		
63.20	66.00	2.80	2.80	100.00	2.80	2.80	66.00	SH/SST INTERCAL			
66.00	68.80	2.80	2.80	100.00	2.80	2.80	68.80	SH/SST INTERCAL			
68.80	71.60	2.80	2.80	100.00	2.80	2.80	71.60	SH/SST INTERCAL			
71.60	74.40	2.80	2.80	100.00	2.80	2.80	74.40	SH/SST INTERCAL			
74.40	77.20	2.80	2.70	96.43	.30	.31	74.71	SH/SST INTERCAL			
*****											
SEAM XIII					ROOF		74.71	MTS-----			
*****											
					1.50	1.56	76.27	COAL	FR BR		
FLOOR					76.27		MTS-----SEAM XIII		THICKNESS 1.56 MTS		
*****											
					.90	.93	77.20	SH AREN	GREY		
77.20	80.00	2.80	2.75	98.21	.35	.36	77.56	SH AREN	GREY		
					.30	.30	77.86	COAL		FR BR	
					1.10	1.12	78.98	SH AREN	GREY		
					1.00	1.02	80.00	SH/SST INTERCAL			

R U N		TOTAL	TOTAL	RECO-	THICKNESS		FLOOR	D E S C R I P T I O N			OTHER DETAILS	
FROM	TO	LENGTH	RECOV	VERY	RECOV	EXTRA	DEPTH	LITHOLOGY	COLOUR	STRUCTURAL	FEATURES	
(M)	(M)	(M)	(M)	(%)	(M)	(M)	(M)					
80.00	82.80	2.80	2.80	100.00	2.80	2.80	82.80	SH/SST INTERCAL				
82.80	85.60	2.80	2.80	100.00	1.50	1.50	84.30	SH/SST INTERCAL				
					.25	.25	84.55	SH AREN	GREY			
					.10	.10	84.65	CSH				
					.20	.20	84.85	COAL				
					.35	.35	85.20	CSH				
*****												
SEAM XII					ROOF		85.20	MTS-----				
					.40	.40	85.60	COAL		FR BR		
85.60	88.40	2.80	2.80	100.00	1.10	1.10	86.70	COAL		FR BR		
					FLOOR		86.70	MTS-----		SEAM XII	THICKNESS 1.50 MTS	
*****												
					.60	.60	87.30	SH AREN	GREY			
					1.10	1.10	88.40	SH/SST INTERCAL				
88.40	91.40	3.00	3.00	100.00	.35	.35	88.75	SH/SST INTERCAL				
					2.65	2.65	91.40	SST MGD-CGD	WHITE			
91.40	94.40	3.00	3.00	100.00	2.05	2.05	93.45	SST MGD-CGD	WHITE			
					.95	.95	94.40	SH AREN	GREY			
94.40	97.40	3.00	3.00	100.00	3.00	3.00	97.40	SH AREN	GREY			
97.40	100.40	3.00	3.00	100.00	.80	.80	98.20	SH AREN	GREY			
					.60	.60	98.80	SH/SST INTERCAL				
					1.60	1.60	100.40	SST FGD-MGD	WHITE			
100.40	103.40	3.00	3.00	100.00	1.10	1.10	101.50	SST FGD-MGD	WHITE			
					.60	.60	102.10	SH WITH C BANDS	DARK GREY			
					1.30	1.30	103.40	SH/SST INTERCAL				
103.40	106.20	2.80	2.75	98.21	.30	.31	103.71	SH AREN	GREY			
					.55	.56	104.27	SH	DARK GREY			
					.25	.25	104.52	CSH WITH C BANDS				
					1.40	1.43	105.95	SH AREN	GREY			
					.25	.25	106.20	SST FGD-MGD	WHITE			
106.20	109.00	2.80	2.80	100.00	1.70	1.70	107.90	SST FGD-MGD	WHITE			
					.40	.40	108.30	SH AREN	GREY			
					.70	.70	109.00	SH/SST INTERCAL				
109.00	111.80	2.80	2.80	100.00	.95	.95	109.95	SH AREN	GREY			
					1.85	1.85	111.80	SST FGD-MGD	WHITE			

R U N		TOTAL	TOTAL	RECO-	THICKNESS		FLOOR	D E S C R I P T I O N			OTHER DETAILS
FROM	TO	LENGTH	RECOV	VERY	RECOV	EXTRA	DEPTH	LITHOLOGY	COLOUR	STRUCTURAL	
(M)	(M)	(M)	(M)	(%)	(M)	(M)	(M)			FEATURES	
111.80	114.60	2.80	2.80	100.00	1.30	1.30	113.10	SST FGD-MGD	WHITE		
					1.50	1.50	114.60	SH/SST INTERCAL			
114.60	117.40	2.80	2.80	100.00	2.80	2.80	117.40	SH/SST INTERCAL			
117.40	120.20	2.80	2.80	100.00	1.55	1.55	118.95	SH/SST INTERCAL			
					1.25	1.25	120.20	SH AREN	GREY		
120.20	123.00	2.80	2.80	100.00	2.80	2.80	123.00	SH/SST INTERCAL			
123.00	125.80	2.80	2.80	100.00	2.80	2.80	125.80	SST VFGD-FGD	WHITE		
125.80	128.60	2.80	2.80	100.00	2.10	2.10	127.90	SST FGD-MGD	WHITE		
					.70	.70	128.60	SH AREN	GREY	COAL STREAKS	
128.60	131.40	2.80	2.80	100.00	2.80	2.80	131.40	SH/SST INTERCAL			
131.40	134.20	2.80	2.75	98.21	1.05	1.07	132.47	SH AREN	GREY		
					.25	.25	132.72	CSH WITH C BANDS			
					.80	.81	133.53	SH AREN	GREY		
					.35	.36	133.89	SH/SST INTERCAL			
					.30	.31	134.20	SST FGD-MGD	WHITE		
134.20	137.00	2.80	2.80	100.00	2.80	2.80	137.00	SST FGD-MGD	WHITE		
137.00	139.80	2.80	2.80	100.00	2.80	2.80	139.80	SST FGD-MGD	WHITE		
139.80	142.60	2.80	2.80	100.00	2.80	2.80	142.60	SST FGD-MGD	WHITE	COAL STREAKS	
142.60	145.60	3.00	3.00	100.00	3.00	3.00	145.60	SST FGD-MGD	WHITE		
145.60	148.60	3.00	3.00	100.00	3.00	3.00	148.60	SST FGD-MGD	WHITE		
148.60	151.40	2.80	2.70	96.43	1.10	1.14	149.74	SST FGD-MGD	WHITE		
					.20	.21	149.95	SH/SST INTERCAL			
					.65	.67	150.62	SH AREN	GREY		
					.75	.78	151.40	SH WITH C BANDS	DARK GREY		
151.40	154.20	2.80	2.80	100.00	.30	.30	151.70	SH AREN	GREY		
					1.45	1.45	153.15	SH/SST INTERCAL			
					.65	.65	153.80	SH AREN	GREY	COAL STREAKS	
					.40	.40	154.20	SST FGD-MGD	WHITE		
154.20	157.00	2.80	2.80	100.00	2.80	2.80	157.00	SST FGD-MGD	WHITE		
157.00	159.80	2.80	2.80	100.00	2.80	2.80	159.80	SST FGD-MGD	WHITE		
159.80	162.60	2.80	2.75	98.21	1.25	1.27	161.07	SST FGD-MGD	WHITE		
					.05	.05	161.12	SH	GREY		
					.40	.41	161.53	CSH WITH C BANDS			
					1.05	1.07	162.60	SH AREN	GREY		
162.60	165.60	3.00	3.00	100.00	3.00	3.00	165.60	SST FGD-MGD	WHITE		
165.60	168.60	3.00	3.00	100.00	2.30	2.30	167.90	SST FGD-MGD	WHITE		
					.05	.05	167.95	SH	GREY		

R U N		TOTAL	TOTAL	RECO-	THICKNESS		FLOOR	D E S C R I P T I O N			OTHER DETAILS
FROM	TO	LENGTH	RECOV	VERY	RECOV	EXTRA	DEPTH	LITHOLOGY	COLOUR	STRUCTURAL	
(M)	(M)	(M)	(M)	(%)	(M)	(M)	(M)			FEATURES	
					.15	.15	168.10	COAL		BROKEN	
					.10	.10	168.20	SH AREN	GREY		
					.40	.40	168.60	SH/SST INTERCAL			
168.60	171.60	3.00	3.00	100.00	1.30	1.30	169.90	SH/SST INTERCAL			
					1.70	1.70	171.60	SH AREN	GREY		
171.60	174.60	3.00	3.00	100.00	3.00	3.00	174.60	SH/SST INTERCAL			
174.60	177.60	3.00	3.00	100.00	.10	.10	174.70	SH/SST INTERCAL			
					.60	.60	175.30	SH AREN	GREY		
					2.30	2.30	177.60	SST FGD-MGD	WHITE		
177.60	180.40	2.80	2.80	100.00	1.00	1.00	178.60	SH/SST INTERCAL			
					1.80	1.80	180.40	SH AREN	GREY		
180.40	183.40	3.00	3.00	100.00	.10	.10	180.50	SH AREN	GREY		
					2.90	2.90	183.40	SST VFGD-FGD	GR. WHITE		
183.40	186.40	3.00	3.00	100.00	3.00	3.00	186.40	SST VFGD-FGD	GR. WHITE		
186.40	189.20	2.80	2.80	100.00	2.80	2.80	189.20	SST VFGD-FGD	GR. WHITE		
189.20	192.20	3.00	3.00	100.00	3.00	3.00	192.20	SST VFGD-FGD	GR. WHITE		
192.20	195.20	3.00	3.00	100.00	1.00	1.00	193.20	SST VFGD-FGD	GR. WHITE		
					2.00	2.00	195.20	SH AREN	GREY		
195.20	198.00	2.80	2.80	100.00	1.30	1.30	196.50	SH AREN	GREY		
					1.50	1.50	198.00	SST FGD-MGD	WHITE		
198.00	200.80	2.80	2.80	100.00	1.80	1.80	199.80	SH AREN	GREY		
					1.00	1.00	200.80	SST FGD-MGD	GR. WHITE		
200.80	203.60	2.80	2.80	100.00	1.00	1.00	201.80	SST FGD-MGD	GR. WHITE		
					1.80	1.80	203.60	SH AREN	GREY		
203.60	206.40	2.80	2.80	100.00	.60	.60	204.20	SH WITH C BANDS	DARK GREY		
					1.15	1.15	205.35	SH AREN	GREY		
					1.05	1.05	206.40	SH/SST INTERCAL			
206.40	209.20	2.80	2.80	100.00	2.10	2.10	208.50	SH/SST INTERCAL			
					.70	.70	209.20	SH AREN	GREY		
209.20	212.00	2.80	2.80	100.00	2.80	2.80	212.00	SH/SST INTERCAL			
212.00	214.80	2.80	2.80	100.00	2.80	2.80	214.80	SST FGD-MGD	WHITE		
214.80	217.60	2.80	2.80	100.00	1.45	1.45	216.25	SST FGD-MGD	WHITE		
					.50	.50	216.75	SH	DARK GREY		
					.15	.15	216.90	SHALY COAL			
					.70	.70	217.60	SH AREN	GREY		
217.60	220.40	2.80	2.80	100.00	2.80	2.80	220.40	SH/SST INTERCAL			

R U N		TOTAL	TOTAL	RECO-	THICKNESS		FLOOR	D E S C R I P T I O N			OTHER DETAILS
FROM	TO	LENGTH	RECOV	VERY	RECOV	EXTRA	DEPTH	LITHOLOGY	COLOUR	STRUCTURAL	
(M)	(M)	(M)	(M)	(%)	(M)	(M)	(M)			FEATURES	
220.40	223.20	2.80	2.75	98.21	.30	.31	220.71	SH AREN	GREY		
					.30	.31	221.02	SH WITH C BANDS	GREY		
					.85	.86	221.88	SH/SST INTERCAL			
					1.30	1.32	223.20	SST FGD-MGD	WHITE		
223.20	226.00	2.80	2.80	100.00	1.30	1.30	224.50	SST FGD-MGD	WHITE		
					1.35	1.35	225.85	SH AREN	GREY		
					.15	.15	226.00	SST FGD-MGD	WHITE		
226.00	228.80	2.80	2.80	100.00	2.80	2.80	228.80	SST FGD-MGD	WHITE		
228.80	231.60	2.80	2.80	100.00	2.80	2.80	231.60	SST FGD-MGD	WHITE		
231.60	234.40	2.80	2.80	100.00	2.80	2.80	234.40	SST FGD-MGD	WHITE		
234.40	237.20	2.80	2.80	100.00	2.80	2.80	237.20	SST FGD-MGD	WHITE		
237.20	240.00	2.80	2.80	100.00	2.80	2.80	240.00	SST FGD-MGD	WHITE		
240.00	242.80	2.80	2.80	100.00	1.10	1.10	241.10	SH AREN	GREY		
					1.70	1.70	242.80	SH/SST INTERCAL			
242.80	245.60	2.80	2.70	96.43	1.20	1.24	244.04	SH/SST INTERCAL			
*****											
SEAM XI-A					ROOF		244.04	MTS-----			
					.15	.16	244.20	COAL	FR BR		
					.10	.10	244.30	CSH			
					.10	.10	244.40	COAL	BROKEN		
FLOOR					244.40	MTS-----		SEAM XI-A			
										THICKNESS	.36 MTS
*****											
					.25	.26	244.66	SH AREN	GREY		
					.90	.94	245.60	SST FGD-MGD	WHITE		
245.60	248.40	2.80	2.65	94.64	1.80	1.90	247.50	SST FGD-MGD	WHITE		
*****											
SEAM XI-B					ROOF		247.50	MTS-----			
					.60	.63	248.13	COAL	FR BR		
FLOOR					248.13	MTS-----		SEAM XI-B			
										THICKNESS	.63 MTS
*****											
					.25	.27	248.40	SH/SST INTERCAL			

R U N FROM (M)	TO (M)	TOTAL LENGTH (M)	TOTAL RECOV (M)	RECO- VERY (%)	THICKNESS		FLOOR DEPTH (M)	D E S C R I P T I O N			OTHER DETAILS
					RECOV ERED (M)	EXTRA POLATED (M)		LITHOLOGY	COLOUR	STRUCTURAL FEATURES	
248.40	251.40	3.00	2.80	93.33	2.80	3.00	251.40	SH/SST	INTERCAL		
251.40	254.20	2.80	2.80	100.00	2.80	2.80	254.20	SH/SST	INTERCAL		
254.20	257.20	3.00	3.00	100.00	.75	.75	254.95	SH/SST	INTERCAL		
					.20	.20	255.15	SH	AREN	GREY	
					.40	.40	255.55	COAL			FR BR
					1.65	1.65	257.20	SH/SST	INTERCAL		
257.20	260.00	2.80	2.80	100.00	.45	.45	257.65	SH/SST	INTERCAL		
					2.15	2.15	259.80	SST	FGD-MGD	WHITE	
					.20	.20	260.00	SH		GREY	
260.00	262.80	2.80	2.80	100.00	.20	.20	260.20	SH		GREY	
					2.60	2.60	262.80	SH/SST	INTERCAL		
262.80	265.60	2.80	2.80	100.00	2.80	2.80	265.60	SH/SST	INTERCAL		
265.60	268.40	2.80	2.80	100.00	2.80	2.80	268.40	SH/SST	INTERCAL		
268.40	271.20	2.80	2.80	100.00	.90	.90	269.30	SH/SST	INTERCAL		
					.90	.90	270.20	SH	AREN	GREY	
					1.00	1.00	271.20	SH		DARK GREY	FR BR
271.20	274.00	2.80	2.80	100.00	.80	.80	272.00	SST	FGD-MGD	WHITE	
					2.00	2.00	274.00	SH	AREN	GREY	
274.00	276.80	2.80	2.80	100.00	2.30	2.30	276.30	SH/SST	INTERCAL		
*****											
	SEAM XI-C						ROOF	276.30	MTS-----		
					.20	.20	276.50	COAL			
	FLOOR				276.50	MTS-----	SEAM XI-C			THICKNESS	.20 MTS
*****											
					.30	.30	276.80	SH		GREY	
276.80	279.60	2.80	2.80	100.00	2.80	2.80	279.60	SH/SST	INTERCAL		
279.60	282.40	2.80	2.80	100.00	2.80	2.80	282.40	SH/SST	INTERCAL		
282.40	285.20	2.80	2.80	100.00	2.80	2.80	285.20	SH/SST	INTERCAL		
285.20	288.00	2.80	2.80	100.00	2.80	2.80	288.00	SST	FGD-MGD	WHITE	
288.00	290.80	2.80	2.80	100.00	1.90	1.90	289.90	SST	FGD-MGD	WHITE	
					.90	.90	290.80	SH/SST	INTERCAL		
290.80	293.60	2.80	2.80	100.00	2.80	2.80	293.60	SH/SST	INTERCAL		
293.60	296.40	2.80	2.80	100.00	2.80	2.80	296.40	SH/SST	INTERCAL		
296.40	299.20	2.80	2.80	100.00	1.90	1.90	298.30	SH/SST	INTERCAL		
					.90	.90	299.20	SH		DARK GREY	

R U N		TOTAL	TOTAL	RECO-	THICKNESS		FLOOR	D E S C R I P T I O N			OTHER DETAILS
FROM	TO	LENGTH	RECOV	VERY	RECOV	EXTRA	DEPTH				
(M)	(M)	(M)	(M)	(%)	(M)	(M)	(M)	LITHOLOGY	COLOUR	STRUCTURAL	
					ERED	POLATED				FEATURES	
299.20	303.00	3.80	2.80	73.68	2.80	3.80	303.00	SH AREN	GREY		
303.00	305.80	2.80	2.80	100.00	2.80	2.80	305.80	SH AREN	GREY	COAL STREAKS	
305.80	307.60	1.80	1.80	100.00	1.50	1.50	307.30	SST FGD-MGD	WHITE		
					.30	.30	307.60	SH AREN	GREY		
307.60	310.40	2.80	2.80	100.00	2.80	2.80	310.40	SH/SST INTERCAL			
310.40	313.20	2.80	2.80	100.00	2.20	2.20	312.60	SH/SST INTERCAL			
					.60	.60	313.20	SH AREN	GREY		
313.20	316.00	2.80	2.80	100.00	1.50	1.50	314.70	SH/SST INTERCAL			
					1.30	1.30	316.00	SH AREN	GREY		
316.00	319.00	3.00	2.75	91.67	.60	.65	316.65	SH/SST INTERCAL			
					.15	.16	316.81	SH AREN	GREY		
*****											
SEAM IX-A											
ROOF 316.81 MTS-----											
					.60	.65	317.46	COAL		FR BR	
FLOOR 317.46 MTS-----SEAM IX-A											
THICKNESS .65 MTS											
*****											
					.40	.44	317.90	SH AREN	GREY		
					1.00	1.10	319.00	SST FGD-MGD	WHITE		
319.00	321.80	2.80	2.70	96.43	1.00	1.04	320.04	SST FGD-MGD	WHITE		
					1.70	1.76	321.80	SH AREN	GREY	FR BR	
321.80	324.60	2.80	2.70	96.43	2.20	2.28	324.08	SST VFGD-FGD	WHITE	FR BR	
					.50	.52	324.60	SH AREN	GREY	FR BR	
324.60	327.40	2.80	2.80	100.00	1.05	1.05	325.65	SH/SST INTERCAL			
					1.75	1.75	327.40	SH AREN	GREY	FR BR	
327.40	330.20	2.80	2.60	92.86	1.80	1.94	329.34	SH/SST INTERCAL			
					.05	.05	329.39	SH	GREY		
*****											
SEAM IX-B											
ROOF 329.39 MTS-----											
					.40	.43	329.82	COAL		FR BR	
FLOOR 329.82 MTS-----SEAM IX-B											
THICKNESS .43 MTS											
*****											

R U N		TOTAL	TOTAL	RECO-	THICKNESS		FLOOR	D E S C R I P T I O N			OTHER DETAILS
FROM	TO	LENGTH	RECOV	VERY	RECOV	EXTRA	DEPTH	LITHOLOGY	COLOUR	STRUCTURAL	
(M)	(M)	(M)	(M)	(%)	(M)	(M)	(M)			FEATURES	
					.15	.16	329.98	CSH			
					.20	.22	330.20	SH/SST INTERCAL			
330.20	332.20	2.00	1.70	85.00	1.40	1.65	331.85	SH/SST INTERCAL			
					.30	.35	332.20	SH AREN	GREY	FR BR	
332.20	333.20	1.00	1.00	100.00	1.00	1.00	333.20	SH AREN	GREY	FR BR	
333.20	335.20	2.00	2.00	100.00	.70	.70	333.90	SH AREN	GREY	FR BR	
					1.30	1.30	335.20	SH/SST INTERCAL		FR BR	
335.20	336.20	1.00	1.00	100.00	.90	.90	336.10	SH/SST INTERCAL			
					.10	.10	336.20	SST VFGD	WHITE	FR BR	
336.20	337.20	1.00	1.00	100.00	1.00	1.00	337.20	SST VFGD	WHITE	FR BR	
337.20	338.20	1.00	1.00	100.00	.50	.50	337.70	SST VFGD	WHITE	FR BR	
					.50	.50	338.20	SST VFGD	WHITE	FR BR	
338.20	339.20	1.00	1.00	100.00	.90	.90	339.10	SST VFGD	WHITE	FR BR	
					.10	.10	339.20	SH AREN	GREY	FR BR	
339.20	341.20	2.00	2.00	100.00	.20	.20	339.40	SH AREN	GREY	FR BR	
					.80	.80	340.20	SST FGD-MGD	WHITE		
					1.00	1.00	341.20	SH AREN	GREY		
341.20	342.20	1.00	1.00	100.00	1.00	1.00	342.20	SH AREN	GREY		
342.20	345.00	2.80	2.80	100.00	.70	.70	342.90	SH AREN	GREY		
					.40	.40	343.30	SH/SST INTERCAL			
					1.70	1.70	345.00	SST FGD-MGD	WHITE		
345.00	347.80	2.80	2.80	100.00	1.90	1.90	346.90	SST FGD-MGD	WHITE		
					.90	.90	347.80	SH AREN	GREY		
347.80	350.60	2.80	2.80	100.00	2.80	2.80	350.60	SH AREN	GREY		
350.60	352.10	1.50	1.50	100.00	1.50	1.50	352.10	SH AREN	GREY		
352.10	353.60	1.50	1.35	90.00	.85	.94	353.04	SH AREN	GREY		
					.50	.56	353.60	COAL		FR BR	
353.60	355.10	1.50	1.50	100.00	1.50	1.50	355.10	SH AREN	GREY		
355.10	356.60	1.50	1.50	100.00	1.50	1.50	356.60	SH/SST INTERCAL			
356.60	359.60	3.00	3.00	100.00	3.00	3.00	359.60	SST FGD-MGD	WHITE		
359.60	362.60	3.00	3.00	100.00	3.00	3.00	362.60	SST FGD-MGD	WHITE		
362.60	365.60	3.00	3.00	100.00	2.60	2.60	365.20	SST FGD-MGD	WHITE		
					.40	.40	365.60	SH AREN	GREY		
365.60	368.60	3.00	3.00	100.00	1.20	1.20	366.80	SH/SST INTERCAL			
					1.20	1.20	368.00	SST FGD-MGD	WHITE		
					.60	.60	368.60	SH AREN	GREY		

R U N		TOTAL	TOTAL	RECO-	THICKNESS		FLOOR	D E S C R I P T I O N			OTHER DETAILS
FROM	TO	LENGTH	RECOV	VERY	RECOV	EXTRA	DEPTH	LITHOLOGY	COLOUR	STRUCTURAL	FEATURES
(M)	(M)	(M)	(M)	(%)	(M)	(M)	(M)				
368.60	371.60	3.00	3.00	100.00	3.00	3.00	371.60	SH AREN	GREY		
371.60	374.60	3.00	3.00	100.00	3.00	3.00	374.60	SH AREN	GREY		
374.60	377.60	3.00	3.00	100.00	2.30	2.30	376.90	SH AREN	GREY		
					.70	.70	377.60	SH	DARK GREY		
377.60	380.60	3.00	3.00	100.00	3.00	3.00	380.60	SH	DARK GREY		
380.60	383.60	3.00	3.00	100.00	1.00	1.00	381.60	SH AREN	GREY		
					2.00	2.00	383.60	SST FGD-MGD	WHITE		
383.60	386.60	3.00	3.00	100.00	3.00	3.00	386.60	SST MGD-CGD	WHITE		
386.60	389.60	3.00	3.00	100.00	3.00	3.00	389.60	SST MGD-CGD	WHITE		
389.60	392.60	3.00	3.00	100.00	2.60	2.60	392.20	SST MGD-CGD	WHITE		
					.40	.40	392.60	SH AREN	GREY		
392.60	395.60	3.00	2.95	98.33	.40	.41	393.01	SST MGD	WHITE		
					1.30	1.32	394.33	SH	GREY		
					.15	.15	394.48	COAL			
					1.10	1.12	395.60	SH AREN	GREY		
395.60	398.60	3.00	3.00	100.00	2.00	2.00	397.60	SH/SST INTERCAL			
					1.00	1.00	398.60	SH	GREY		
398.60	401.60	3.00	3.00	100.00	2.00	2.00	400.60	SH/SST INTERCAL			
					1.00	1.00	401.60	SH AREN	GREY		
401.60	404.60	3.00	3.00	100.00	1.30	1.30	402.90	SH AREN	GREY		
					.80	.80	403.70	SH/SST INTERCAL			
					.90	.90	404.60	SST MGD-CGD	WHITE		
404.60	407.60	3.00	2.95	98.33	1.30	1.32	405.92	SST MGD-CGD	WHITE		
					.90	.92	406.84	SH AREN	GREY		
*****											
SEAM VIII-B						ROOF		406.84 MTS-----			
								.45 .46		407.30 SHALY COAL	
		FLOOR		407.30 MTS-----		SEAM VIII-B				THICKNESS .46 MTS	
*****											
					.30	.30	407.60	SH	GREY		
407.60	410.60	3.00	3.00	100.00	3.00	3.00	410.60	SH/SST INTERCAL			
410.60	413.60	3.00	3.00	100.00	2.10	2.10	412.70	SH AREN	GREY		
					.90	.90	413.60	SH/SST INTERCAL			
413.60	416.60	3.00	3.00	100.00	3.00	3.00	416.60	SH/SST INTERCAL			

R U N		TOTAL	TOTAL	RECO-	THICKNESS		FLOOR	D E S C R I P T I O N			OTHER DETAILS	
FROM	TO	LENGTH	RECOV	VERY	RECOV	EXTRA	DEPTH	LITHOLOGY	COLOUR	STRUCTURAL	FEATURES	
(M)	(M)	(M)	(M)	(%)	(M)	(M)	(M)					
416.60	419.60	3.00	3.00	100.00	.40	.40	417.00	SH/SST INTERCAL				
					.20	.20	417.20	SH	GREY			
*****												
SEAM VIII-C					ROOF		417.20	MTS-----				
					.80	.80	418.00	COAL		FR BR		
					FLOOR		418.00	MTS-----	SEAM VIII-C		THICKNESS	.80
*****												
					1.60	1.60	419.60	SH/SST INTERCAL				
419.60	422.60	3.00	3.00	100.00	3.00	3.00	422.60	SH/SST INTERCAL				
422.60	425.60	3.00	3.00	100.00	.80	.80	423.40	SH/SST INTERCAL				
					2.20	2.20	425.60	SST MGD+SH BD	WHITE			
425.60	428.60	3.00	3.00	100.00	3.00	3.00	428.60	SST MGD+SH BD	WHITE			
428.60	431.60	3.00	3.00	100.00	3.00	3.00	431.60	SST MGD-CGD	WHITE			
431.60	434.60	3.00	3.00	100.00	3.00	3.00	434.60	SST CGD	WHITE			
434.60	437.60	3.00	3.00	100.00	3.00	3.00	437.60	SST CGD	WHITE			
437.60	440.60	3.00	3.00	100.00	.20	.20	437.80	SST CGD	WHITE			
					1.90	1.90	439.70	SH AREN	GREY			
					.90	.90	440.60	SH/SST INTERCAL				
440.60	443.60	3.00	3.00	100.00	2.60	2.60	443.20	SH/SST INTERCAL				
					.40	.40	443.60	SH AREN	GREY			
443.60	446.60	3.00	3.00	100.00	1.40	1.40	445.00	SH AREN	GREY			
					.70	.70	445.70	SH/SST INTERCAL				
					.90	.90	446.60	SH AREN	GREY			
446.60	449.40	2.80	2.80	100.00	1.20	1.20	447.80	SH	GREY			
					.20	.20	448.00	SHALY COAL				
					.80	.80	448.80	SH	GREY			
					.05	.05	448.85	COAL				
					.55	.55	449.40	SH AREN	GREY			
449.40	452.40	3.00	3.00	100.00	1.40	1.40	450.80	SH AREN	GREY			
					1.60	1.60	452.40	SH/SST INTERCAL				
452.40	454.40	2.00	2.00	100.00	.60	.60	453.00	SH/SST INTERCAL				
					1.40	1.40	454.40	SH	GREY			
454.40	457.40	3.00	3.00	100.00	1.70	1.70	456.10	SH AREN	GREY			
					1.30	1.30	457.40	SH/SST INTERCAL				

R U N		TOTAL	TOTAL	RECO-	THICKNESS		FLOOR	D E S C R I P T I O N			OTHER DETAILS	
FROM	TO	LENGTH	RECOV	VERY	RECOV	EXTRA	DEPTH	LITHOLOGY	COLOUR	STRUCTURAL		
(M)	(M)	(M)	(M)	(%)	(M)	(M)	(M)			FEATURES		
457.40	460.40	3.00	3.00	100.00	2.65	2.65	460.05	SST MGD-CGD	WHITE			
					.35	.35	460.40	SH/SST INTERCAL				
460.40	463.40	3.00	3.00	100.00	.20	.20	460.60	SH	GREY			
					.15	.15	460.75	COAL		FR BR		
					1.00	1.00	461.75	SH	GREY			
					1.65	1.65	463.40	SH/SST INTERCAL				
463.40	466.40	3.00	3.00	100.00	.95	.95	464.35	SH/SST INTERCAL				
					2.05	2.05	466.40	SH AREN	GREY			
466.40	469.40	3.00	3.00	100.00	2.40	2.40	468.80	SH AREN	GREY			
*****												
SEAM IV							ROOF	468.80	MTS-----			
					.60	.60	469.40	COAL		FR BR		
469.40	472.40	3.00	3.00	100.00	.05	.05	469.45	COAL		FR BR		
FLOOR							469.45	MTS-----SEAM IV			THICKNESS .65 MTS	
*****												
					1.30	1.30	470.75	SH AREN	GREY			
					1.65	1.65	472.40	SH/SST INTERCAL				
472.40	475.40	3.00	3.00	100.00	3.00	3.00	475.40	SH/SST INTERCAL				
475.40	478.20	2.80	2.80	100.00	2.80	2.80	478.20	SH/SST INTERCAL				
478.20	479.50	1.30	1.30	100.00	1.30	1.30	479.50	SH/SST INTERCAL				
479.50	481.70	2.20	2.20	100.00	1.00	1.00	480.50	SH AREN	GREY			
					1.20	1.20	481.70	SH/SST INTERCAL				
481.70	483.80	2.10	2.05	97.62	2.05	2.10	483.80	SH/SST INTERCAL				
483.80	486.60	2.80	2.80	100.00	2.80	2.80	486.60	SH/SST INTERCAL				
486.60	489.40	2.80	2.80	100.00	.60	.60	487.20	SH/SST INTERCAL				
					2.20	2.20	489.40	SST FGD-MGD	GR. WHITE			
489.40	492.20	2.80	2.80	100.00	1.60	1.60	491.00	SST FGD-MGD	GR. WHITE			
					1.20	1.20	492.20	SH	DARK GREY			
492.20	494.70	2.50	2.50	100.00	2.50	2.50	494.70	SH	DARK GREY	V-FR BR		
494.70	497.70	3.00	3.00	100.00	1.00	1.00	495.70	SH	DARK GREY			
*****												
SEAM III							ROOF	495.70	MTS-----			
					2.00	2.00	497.70	COAL		FR BR		

! R U N !	! TOTAL !	! TOTAL !	! RECO- !	! THICKNESS !	! FLOOR !	! D E S C R I P T I O N !			! OTHER DETAILS !		
! FROM !	! TO !	! LENGTH !	! RECOV !	! VERY !	! RECOV !	! EXTRA !	! DEPTH !	! LITHOLOGY !	! COLOUR !	! STRUCTURAL !	! !
! (M) !	! (M) !	! (M) !	! (M) !	! (%) !	! (M) !	! POLATED !	! (M) !	! !	! !	! FEATURES !	! !
497.70	499.50	1.80	1.80	100.00	1.80	1.80	499.50	COAL			
FLOOR 499.50 MTS-----SEAM III								FR BR			
								THICKNESS	3.80	MTS	
*****											
499.50	501.70	2.20	2.15	97.73	.70	.72	500.22	SH WITH C BANDS	DARK GREY		
					1.45	1.48	501.70	SH/SST INTERCAL			
501.70	504.70	3.00	3.00	100.00	2.40	2.40	504.10	SH/SST INTERCAL			
					.60	.60	504.70	SH AREN	GREY		
504.70	506.50	1.80	1.75	97.22	.15	.15	504.85	SH AREN	GREY		
					1.60	1.65	506.50	SH/SST INTERCAL			
506.50	509.30	2.80	2.70	96.43	2.70	2.80	509.30	SH/SST INTERCAL			
509.30	512.30	3.00	2.90	96.67	.30	.31	509.61	SST MGD	WHITE		
					1.60	1.66	511.27	SH/SST INTERCAL			
					1.00	1.03	512.30	SH AREN	GREY		
512.30	515.30	3.00	3.00	100.00	.65	.65	512.95	CSH			
					.90	.90	513.85	SH AREN	GREY		
					.05	.05	513.90	SH	DARK GREY		
*****											
SEAM LOCAL								ROOF	513.90	MTS-----	
								FR BR			
								THICKNESS	1.20	MTS	
*****											
					1.20	1.20	515.10	COAL			
FLOOR 515.10 MTS-----SEAM LOCAL								FR BR			
								THICKNESS	1.20	MTS	
*****											
515.30	518.10	2.80	2.80	100.00	.20	.20	515.30	SH AREN	GREY		
					1.20	1.20	516.50	SH AREN	GREY		
					1.60	1.60	518.10	SH/SST INTERCAL			
518.10	521.10	3.00	3.00	100.00	3.00	3.00	521.10	SST FGD-MGD	WHITE		
521.10	524.00	2.90	2.90	100.00	2.90	2.90	524.00	SST MGD-CGD	WHITE		
524.00	527.00	3.00	3.00	100.00	3.00	3.00	527.00	SST MGD-CGD	WHITE		
527.00	529.80	2.80	2.75	98.21	1.30	1.32	528.32	SST MGD-CGD	WHITE		
					1.45	1.48	529.80	SH AREN	GREY		
529.80	532.60	2.80	2.80	100.00	.90	.90	530.70	SH AREN	GREY		
*****											
SEAM II								ROOF	530.70	MTS-----	

R U N		TOTAL	TOTAL	RECO-	THICKNESS		FLOOR	D E S C R I P T I O N			OTHER DETAILS
FROM	TO	LENGTH	RECOV	VERY	RECOV	EXTRA	DEPTH	LITHOLOGY	COLOUR	STRUCTURAL	
(M)	(M)	(M)	(M)	(%)	(M)	(M)	(M)			FEATURES	
					.50	.50	531.20	COAL			BROKEN
					.15	.15	531.35	CSH			
					.85	.85	532.20	COAL			BROKEN
FLOOR		532.20		MTS-----		SEAM II				THICKNESS	1.50
*****											
					.10	.10	532.30	SH AREN	GREY		
					.30	.30	532.60	SH/SST INTERCAL			
532.60	535.40	2.80	2.70	96.43	.25	.26	532.86	SH/SST INTERCAL			
					.90	.93	533.79	SST FGD-MGD	WHITE		
					.20	.21	534.00	SHALY COAL	WHITE		
					.20	.21	534.21	COAL		FR BR	
					.15	.15	534.36	SHALY COAL			
					.80	.83	535.19	SH AREN	GREY		
					.20	.21	535.40	SH/SST INTERCAL			
535.40	538.20	2.80	2.80	100.00	2.80	2.80	538.20	SH/SST INTERCAL			
538.20	541.00	2.80	2.80	100.00	2.40	2.40	540.60	SH/SST INTERCAL			
					.40	.40	541.00	SH AREN	GREY		
541.00	543.80	2.80	2.80	100.00	2.80	2.80	543.80	SH/SST INTERCAL			
543.80	546.00	2.20	2.20	100.00	1.20	1.20	545.00	SH AREN	GREY		
					1.00	1.00	546.00	SH/SST INTERCAL			
546.00	548.00	2.00	1.85	92.50	.35	.38	546.38	SH AREN	GREY		
					.70	.76	547.14	SH/SST INTERCAL			
					.80	.86	548.00	SH AREN	GREY	V-FR BR	
548.00	549.00	1.00	.90	90.00	.90	1.00	549.00	SH	DARK GREY	V-FR BR	
549.00	552.00	3.00	3.00	100.00	.90	.90	549.90	SH	DARK GREY	V-FR BR	
*****											
SEAM I						ROOF		549.90		MTS-----	
					.55	.55	550.45	COAL		FR BR	
FLOOR		550.45		MTS-----		SEAM I				THICKNESS	.55
*****											
					.60	.60	551.05	SH AREN	GREY		
					.55	.55	551.60	COAL		FR BR	

B.H. NO : MLE-15

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! R U N !	! TOTAL !	! TOTAL !	! RECO- !	! THICKNESS !	! FLOOR !	! D E S C R I P T I O N !			! OTHER DETAILS !	
! FROM !	! TO !	! LENGTH !	! RECOV !	! VERY !	! RECOV !	! EXTRA !	! DEPTH !	! LITHOLOGY !	! COLOUR !	! STRUCTURAL !
! (M) !	! (M) !	! (M) !	! (M) !	! (%) !	! (M) !	! POLATED !	! (M) !	! !	! !	! FEATURES !
					.40	.40	552.00	SH/SST INTERCAL		
552.00	555.00	3.00	3.00	100.00	.30	.30	552.30	SH/SST INTERCAL		
					.05	.05	552.35	SH	GREY	
					.05	.05	552.40	CSH		
					.55	.55	552.95	SH AREN	GREY	
					.50	.50	553.45	SH/SST INTERCAL		
					.10	.10	553.55	SH	DARK GREY	
*****										
SEAM '0'						ROOF	553.55	MTS-----		
					.50	.50	554.05	JHAMA	DARK GREY	
					.05	.05	554.10	MP	DARK GREY	
					.10	.10	554.20	JHAMA	DARK GREY	
					.05	.05	554.25	MP		
					.25	.25	554.50	JHAMA		
					.05	.05	554.55	MP		
					.45	.45	555.00	JHAMA		
555.00	558.00	3.00	2.85	95.00	.05	.05	555.05	JHAMA		
					.10	.11	555.16	MP		
					.75	.78	555.94	CSH		
					.10	.11	556.05	MP		
					.25	.26	556.31	JHAMA		
					.30	.32	556.63	MP		
					.10	.11	556.74	JHAMA		
FLOOR					556.74	MTS-----	SEAM '0'		THICKNESS	3.19
*****										
					.25	.26	557.00	SH/SST INTERCAL		
558.00	560.00	2.00	1.90	95.00	.95	1.00	558.00	SST VFGD-FGD	WHITE	
					1.90	2.00	560.00	SST VFGD-FGD	WHITE	

-----BORE HOLE CLOSED AT : 560.00 MTS.-----



R U N		TOTAL	TOTAL	RECO-	THICKNESS		FLOOR	D E S C R I P T I O N			OTHER DETAILS
FROM	TO	LENGTH	RECOV	VERY	RECOV	EXTRA	DEPTH	LITHOLOGY	COLOUR	STRUCTURAL	
(M)	(M)	(M)	(M)	(%)	(M)	(M)	(M)			FEATURES	
					.05	.05	34.85	SH AREN	GREY		
					.05	.05	34.90	SH	DARK GREY		
					.10	.10	35.00	COAL		FR BR	
35.00	38.00	3.00	3.00	100.00	.30	.30	35.30	COAL		FR BR	
					.15	.15	35.45	SH AREN	GREY		
					.55	.55	36.00	SH/SST INTERCAL			
					2.00	2.00	38.00	SST FGD-MGD+SH BD	WHITE		
38.00	41.00	3.00	3.00	100.00	.80	.80	38.80	SST FGD-MGD+SH BD	WHITE		
					.70	.70	39.50	SH/SST INTERCAL			
					.20	.20	39.70	SH	DARK GREY		
					1.30	1.30	41.00	SH	DARK GREY		
41.00	44.00	3.00	3.00	100.00	1.20	1.20	42.20	SH AREN	GREY		
					.30	.30	42.50	SH/SST INTERCAL			
					1.50	1.50	44.00	SST FGD-MGD	WHITE		
44.00	47.00	3.00	3.00	100.00	3.00	3.00	47.00	SST FGD-MGD	WHITE		
47.00	50.00	3.00	3.00	100.00	3.00	3.00	50.00	SST FGD-MGD	WHITE		
50.00	53.00	3.00	3.00	100.00	3.00	3.00	53.00	SST FGD-MGD			
53.00	56.00	3.00	3.00	100.00	3.00	3.00	56.00	SST FGD-MGD	WHITE		
56.00	59.00	3.00	3.00	100.00	3.00	3.00	59.00	SST FGD-MGD	WHITE		
59.00	62.00	3.00	2.80	93.33	1.30	1.39	60.39	SST FGD-MGD	WHITE		
					.50	.54	60.93	SH/SST INTERCAL			
					1.00	1.07	62.00	SH AREN	GREY		
62.00	65.00	3.00	3.00	100.00	3.00	3.00	65.00	SH AREN	GREY		
65.00	68.00	3.00	3.00	100.00	2.65	2.65	67.65	SH AREN	GREY		
					.35	.35	68.00	SH/SST INTERCAL			
68.00	71.00	3.00	3.00	100.00	3.00	3.00	71.00	SH/SST INTERCAL			
71.00	74.00	3.00	3.00	100.00	1.40	1.40	72.40	SH/SST INTERCAL			
					1.60	1.60	74.00	SST FGD-MGD	GR. WHITE		
74.00	77.00	3.00	2.80	93.33	1.05	1.12	75.12	SST FGD-MGD	GR. WHITE		
					.40	.43	75.55	SH	GREY		
					1.15	1.23	76.78	SH/SST INTERCAL			
*****											
SEAM XIII					ROOF		76.78 MTS-----				
					.20	.22	77.00	COAL		FR BR	
77.00	80.00	3.00	3.00	100.00	1.00	1.00	78.00	COAL		FR BR	
		FLOOR				78.00 MTS-----		SEAM XIII		THICKNESS	1.22 MTS
*****											

R U N		TOTAL	TOTAL	RECO-	THICKNESS		FLOOR	D E S C R I P T I O N			OTHER DETAILS
FROM	TO	LENGTH	RECOV	VERY	RECOV	EXTRA	DEPTH	LITHOLOGY	COLOUR	STRUCTURAL	
(M)	(M)	(M)	(M)	(%)	(M)	(M)	(M)			FEATURES	
					.05	.05	78.05	SH	DARK GREY		
					1.95	1.95	80.00	SH/SST INTERCAL			
80.00	83.00	3.00	3.00	100.00	.45	.45	80.45	SH AREN	GREY		
					2.55	2.55	83.00	SH/SST INTERCAL			
83.00	86.00	3.00	3.00	100.00	3.00	3.00	86.00	SH AREN	GREY		
86.00	89.00	3.00	3.00	100.00	.20	.20	86.20	COAL		FR BR	
					2.80	2.80	89.00	SH AREN	GREY		
89.00	92.00	3.00	3.00	100.00	.20	.20	89.20	SH AREN	GREY		
*****											
SEAM XII											
							ROOF	89.20	MTS-----		
					1.35	1.35	90.55	COAL		FR BR	
					FLOOR		90.55	MTS-----	SEAM XII	THICKNESS	1.35
*****											
					1.45	1.45	92.00	SH AREN	GREY		
92.00	95.00	3.00	3.00	100.00	1.40	1.40	93.40	SH AREN	GREY		
					1.00	1.00	94.40	SH/SST INTERCAL			
					.60	.60	95.00	SH AREN	GREY		
95.00	98.00	3.00	3.00	100.00	.15	.15	95.15	SHALY COAL			
					1.25	1.25	96.40	SH AREN	GREY		
					1.60	1.60	98.00	SH/SST INTERCAL			
98.00	101.00	3.00	3.00	100.00	.45	.45	98.45	SH/SST INTERCAL			
					2.55	2.55	101.00	SH AREN	GREY		
101.00	104.00	3.00	2.95	98.33	1.40	1.42	102.42	SH AREN	GREY		
					.45	.46	102.88	SH	DARK GREY		
					.30	.31	103.19	COAL		FR BR	
					.80	.81	104.00	SH	DARK GREY	COAL LENSES	
104.00	107.00	3.00	3.00	100.00	3.00	3.00	107.00	SH/SST INTERCAL			
107.00	110.00	3.00	3.00	100.00	1.75	1.75	108.75	SH/SST INTERCAL			
					1.25	1.25	110.00	SST MGD-CGD	WHITE		
110.00	111.00	1.00	1.00	100.00	1.00	1.00	111.00	SST MGD-CGD	WHITE		
111.00	113.00	2.00	2.00	100.00	2.00	2.00	113.00	SST MGD-CGD	WHITE	V-FR BR	
113.00	116.00	3.00	3.00	100.00	3.00	3.00	116.00	SST MGD-CGD	WHITE		
116.00	119.00	3.00	3.00	100.00	3.00	3.00	119.00	SST MGD-CGD	WHITE		

R U N		TOTAL	TOTAL	RECO-	THICKNESS		FLOOR	D E S C R I P T I O N			OTHER DETAILS
FROM	TO	LENGTH	RECOV	VERY	RECOV	EXTRA	DEPTH	LITHOLOGY	COLOUR	STRUCTURAL	
(M)	(M)	(M)	(M)	(%)	(M)	(M)	(M)			FEATURES	
119.00	119.50	.50	.50	100.00	.50	.50	119.50	SST MGD-CGD	WHITE		
119.50	121.00	1.50	1.50	100.00	1.50	1.50	121.00	SST MGD-CGD	WHITE		
121.00	123.00	2.00	2.00	100.00	2.00	2.00	123.00	SST MGD-CGD	WHITE		
123.00	126.00	3.00	3.00	100.00	2.00	2.00	125.00	SST MGD-CGD	WHITE		
					1.00	1.00	126.00	SH AREN	GREY		
126.00	127.50	1.50	1.50	100.00	1.50	1.50	127.50	SH AREN	GREY		
127.50	129.00	1.50	1.50	100.00	.50	.50	128.00	SH/SST INTERCAL	GREY		
					1.00	1.00	129.00	SST MGD-CGD	WHITE		
129.00	130.50	1.50	1.50	100.00	1.35	1.35	130.35	SH AREN	GREY		
					.15	.15	130.50	CSH	GREY		
130.50	132.00	1.50	1.50	100.00	1.10	1.10	131.60	SH AREN	GREY		
					.40	.40	132.00	SH/SST INTERCAL			
132.00	133.50	1.50	1.50	100.00	1.50	1.50	133.50	SST FGD-MGD	WHITE		
133.50	135.00	1.50	1.50	100.00	1.50	1.50	135.00	SST FGD-MGD	WHITE		
135.00	138.00	3.00	3.00	100.00	3.00	3.00	138.00	SST FGD-MGD+SH BD	WHITE		
138.00	141.00	3.00	3.00	100.00	3.00	3.00	141.00	SST FGD-MGD	WHITE		
141.00	144.00	3.00	3.00	100.00	3.00	3.00	144.00	SST FGD-MGD	WHITE		
144.00	147.00	3.00	2.95	98.33	2.20	2.24	146.24	SST FGD-MGD	WHITE		
					.75	.76	147.00	SH AREN	GREY		
147.00	150.00	3.00	2.90	96.67	1.70	1.76	148.76	SH AREN	GREY		
					1.20	1.24	150.00	SST FGD-MGD	WHITE		
150.00	151.50	1.50	1.50	100.00	1.50	1.50	151.50	SST MGD-CGD	WHITE		
151.50	153.00	1.50	1.50	100.00	1.50	1.50	153.00	SST MGD-CGD	WHITE		
153.00	154.50	1.50	1.50	100.00	1.50	1.50	154.50	SST MGD-CGD	WHITE		
154.50	156.00	1.50	1.50	100.00	1.50	1.50	156.00	SST MGD-CGD	WHITE		
156.00	159.00	3.00	3.00	100.00	3.00	3.00	159.00	SST MGD-CGD	WHITE		
159.00	160.50	1.50	1.50	100.00	1.50	1.50	160.50	SST MGD-CGD	WHITE		
160.50	161.80	1.30	1.30	100.00	1.30	1.30	161.80	SST MGD-CGD	WHITE	SHALE GAL	
161.80	164.60	2.80	2.80	100.00	1.80	1.80	163.60	SST MGD-CGD	WHITE	SHALE GAL	
					.30	.30	163.90	SH AREN	GREY		
					.50	.50	164.40	SH WITH C BANDS	DARK GREY		
					.20	.20	164.60	SH AREN	GREY		
164.60	167.40	2.80	2.80	100.00	.80	.80	165.40	SH/SST INTERCAL	GREY		
					2.00	2.00	167.40	SST FGD-MGD	WHITE		
167.40	168.50	1.10	1.05	95.45	.20	.21	167.61	COAL		BROKEN	
					.85	.89	168.50	SH/SST INTERCAL			
168.50	170.20	1.70	1.70	100.00	1.70	1.70	170.20	SH/SST INTERCAL			

R U N		TOTAL	TOTAL	RECO-	THICKNESS		FLOOR	D E S C R I P T I O N			OTHER DETAILS
FROM	TO	LENGTH	RECOV	VERY	RECOV	EXTRA	DEPTH	LITHOLOGY	COLOUR	STRUCTURAL	
(M)	(M)	(M)	(M)	(%)	(M)	(M)	(M)			FEATURES	
170.20	173.00	2.80	2.65	94.64	1.80	1.90	172.10	SH/SST INTERCAL		COAL LENSES	
					.85	.90	173.00	SH AREN	GREY		
173.00	175.80	2.80	2.80	100.00	2.80	2.80	175.80	SH/SST INTERCAL			
175.80	178.60	2.80	2.80	100.00	2.80	2.80	178.60	SH AREN			
178.60	179.60	1.00	1.00	100.00	1.00	1.00	179.60	SH/SST INTERCAL			
179.60	181.40	1.80	1.80	100.00	.70	.70	180.30	SH/SST INTERCAL			
					1.10	1.10	181.40	SH AREN	GREY		
181.40	184.40	3.00	3.00	100.00	.15	.15	181.55	SH	DARK GREY		
					.45	.45	182.00	SH AREN	GREY		
					1.05	1.05	183.05	SH/SST INTERCAL			
					1.35	1.35	184.40	SH AREN	GREY		
184.40	187.40	3.00	3.00	100.00	.40	.40	184.80	SH AREN	GREY		
					2.25	2.25	187.05	SH/SST INTERCAL		FR BR	
					.35	.35	187.40	SH AREN	GREY		
187.40	190.20	2.80	2.80	100.00	2.80	2.80	190.20	SH AREN	GREY	FR BR	
190.20	191.20	1.00	1.00	100.00	1.00	1.00	191.20	SH AREN	GREY	FR BR	
191.20	193.00	1.80	1.80	100.00	1.00	1.00	192.20	SH AREN	DARK GREY	V-FR BR	
					.80	.80	193.00	SH/SST INTERCAL			
193.00	195.80	2.80	2.80	100.00	1.75	1.75	194.75	SH/SST INTERCAL			
					.30	.30	195.05	SH	DARK GREY		
					.10	.10	195.15	CSH		FR BR	
					.65	.65	195.80	SH AREN	GREY		
195.80	198.60	2.80	2.80	100.00	.40	.40	196.20	SH AREN	GREY		
					.40	.40	196.60	SH WITH C BANDS	DARK GREY		
					2.00	2.00	198.60	SH/SST INTERCAL			
198.60	201.00	2.40	2.40	100.00	.70	.70	199.30	SH AREN	GREY		
					1.00	1.00	200.30	SH/SST INTERCAL			
					.70	.70	201.00	SH AREN	GREY		
201.00	204.00	3.00	3.00	100.00	1.00	1.00	202.00	SH AREN	GREY		
					2.00	2.00	204.00	SST FGD-MGD	WHITE		
204.00	207.00	3.00	3.00	100.00	3.00	3.00	207.00	SST FGD-MGD	WHITE		
207.00	209.40	2.40	2.40	100.00	.80	.80	207.80	SST FGD-MGD	WHITE		
					.80	.80	208.60	SH AREN	GREY		
					.80	.80	209.40	SH/SST INTERCAL			
209.40	212.20	2.80	2.80	100.00	2.80	2.80	212.20	SST FGD-MGD	WHITE		
212.20	215.20	3.00	3.00	100.00	3.00	3.00	215.20	SST FGD-MGD	WHITE		
215.20	218.20	3.00	3.00	100.00	3.00	3.00	218.20	SST FGD-MGD	WHITE		

R U N		TOTAL	TOTAL	RECO-	THICKNESS		FLOOR	D E S C R I P T I O N			OTHER DETAILS
FROM	TO	LENGTH	RECOV	VERY	RECOV	EXTRA	DEPTH	LITHOLOGY	COLOUR	STRUCTURAL	
(M)	(M)	(M)	(M)	(%)	(M)	(M)	(M)			FEATURES	
218.20	220.60	2.40	2.40	100.00	2.40	2.40	220.60	SST FGD-MGD	WHITE		
220.60	223.60	3.00	3.00	100.00	.30	.30	220.90	SST FGD-MGD	WHITE		
					2.70	2.70	223.60	SH/SST INTERCAL			
223.60	226.60	3.00	3.00	100.00	3.00	3.00	226.60	SST FGD-MGD	WHITE		
226.60	229.40	2.80	2.80	100.00	2.80	2.80	229.40	SST FGD-MGD	WHITE		
229.40	232.20	2.80	2.80	100.00	2.80	2.80	232.20	SST FGD-MGD	WHITE		
232.20	235.00	2.80	2.80	100.00	2.80	2.80	235.00	SST FGD-MGD	WHITE		
235.00	237.80	2.80	2.80	100.00	2.80	2.80	237.80	SST FGD-MGD	WHITE		
237.80	240.60	2.80	2.80	100.00	.90	.90	238.70	SST FGD-MGD	WHITE		
					1.90	1.90	240.60	SH/SST INTERCAL			
240.60	243.40	2.80	2.80	82.35	2.80	2.80	243.40	SH/SST INTERCAL			
243.40	246.20	2.80	2.80	100.00	2.00	2.00	245.40	SH/SST INTERCAL			
					.70	.70	246.10	SH AREN	GREY		
					.10	.10	246.20	SH	DARK GREY		
246.20	249.00	2.80	2.80	100.00	.60	.60	246.80	COAL		FR BR	
					.50	.50	247.30	SH AREN	GREY		
					.60	.60	247.90	SH/SST INTERCAL			
					.10	.10	248.00	SH AREN	GREY		
*****											
SEAM XI-A											
							ROOF	248.00	MTS-----		
					.90	.90	248.90	COAL		FR BR	
							FLOOR	248.90	MTS-----	SEAM XI-A	THICKNESS .90 MTS
*****											
					.10	.10	249.00	SH/SST INTERCAL			
249.00	251.80	2.80	2.80	100.00	2.00	2.00	251.00	SH/SST INTERCAL			
					.05	.05	251.05	SH AREN	GREY		
*****											
SEAM XI-B											
							ROOF	251.05	MTS-----		
					.50	.50	251.55	COAL		FR BR	
							FLOOR	251.55	MTS-----	SEAM XI-B	THICKNESS .50 MTS
*****											
					.25	.25	251.80	SH/SST INTERCAL		SL	

R U N		TOTAL	TOTAL	RECO-	THICKNESS		FLOOR	D E S C R I P T I O N			OTHER DETAILS	
FROM	TO	LENGTH	RECOV	VERY	RECOV	EXTRA	DEPTH	LITHOLOGY	COLOUR	STRUCTURAL		
(M)	(M)	(M)	(M)	(%)	(M)	(M)	(M)			FEATURES		
251.80	254.60	2.80	2.80	100.00	1.10	1.10	252.90	SH/SST INTERCAL				
					1.70	1.70	254.60	SST FGD-MGD	WHITE			
254.60	257.40	2.80	2.80	100.00	1.25	1.25	255.85	SST FGD-MGD	WHITE			
					.65	.65	256.50	SH/SST INTERCAL				
					.90	.90	257.40	SST FGD-MGD	WHITE			
257.40	260.20	2.80	2.80	100.00	2.80	2.80	260.20	SST FGD-MGD+SH BD	WHITE			
260.20	263.00	2.80	2.80	100.00	2.80	2.80	263.00	SH/SST INTERCAL				
263.00	265.80	2.80	2.80	100.00	1.05	1.05	264.05	SH/SST INTERCAL				
					.05	.05	264.10	SH AREN	GREY			
					.30	.30	264.40	COAL		FR BR		
					.80	.80	265.20	SH AREN	GREY			
					.60	.60	265.80	SH/SST INTERCAL				
265.80	268.60	2.80	2.75	98.21	2.50	2.55	268.35	SST FGD-MGD	WHITE			
					.25	.25	268.60	SH AREN	GREY			
268.60	270.60	2.00	1.95	97.50	.15	.15	268.75	SH AREN	GREY			
*****												
SEAM XI-C							ROOF	268.75	MTS-----			
					.35	.36	269.11	COAL		FR BR		
FLOOR							269.11	MTS-----SEAM XI-C			THICKNESS	.36
*****												
					.40	.41	269.52	SH AREN	GREY			
					.45	.46	269.98	SST FGD-MGD	WHITE			
					.05	.05	270.03	COAL		FR BR		
					.30	.31	270.34	SH/SST INTERCAL				
					.25	.26	270.60	SH AREN	GREY			
270.60	271.40	.80	.75	93.75	.40	.43	271.03	SH AREN	GREY			
					.35	.37	271.40	SH/SST INTERCAL				
271.40	274.20	2.80	2.80	100.00	2.80	2.80	274.20	SH/SST INTERCAL				
274.20	277.00	2.80	2.80	100.00	2.10	2.10	276.30	SH/SST INTERCAL				
					.70	.70	277.00	SH AREN	GREY			
277.00	279.80	2.80	2.80	100.00	2.80	2.80	279.80	SH AREN	GREY			
279.80	282.60	2.80	2.80	100.00	1.70	1.70	281.50	SH AREN	GREY			
					1.10	1.10	282.60	SH/SST INTERCAL				

R U N		TOTAL	TOTAL	RECO-	THICKNESS		FLOOR	D E S C R I P T I O N			OTHER DETAILS
FROM	TO	LENGTH	RECOV	VERY	RECOV	EXTRA	DEPTH	LITHOLOGY	COLOUR	STRUCTURAL	
(M)	(M)	(M)	(M)	(%)	(M)	(M)	(M)			FEATURES	
282.60	285.40	2.80	2.80	100.00	2.80	2.80	285.40	SST FGD-MGD	WHITE		
285.40	286.40	1.00	1.00	100.00	1.00	1.00	286.40	SST FGD-MGD	WHITE		
286.40	288.20	1.80	1.80	100.00	1.80	1.80	288.20	SST FGD-MGD	WHITE		
288.20	291.00	2.80	2.80	100.00	2.80	2.80	291.00	SST FGD-MGD	WHITE		
291.00	293.80	2.80	2.80	100.00	2.80	2.80	293.80	SST FGD-MGD	WHITE	SHALE GAL	
293.80	294.80	1.00	1.00	100.00	.05	.05	293.85	SST FGD-MGD	WHITE	SHALE GAL	
					.25	.25	294.10	COAL		FR BR	
					.10	.10	294.20	CSH			
					.60	.60	294.80	SH/SST INTERCAL			
294.80	296.60	1.80	1.80	100.00	1.30	1.30	296.10	SH/SST INTERCAL			
					.50	.50	296.60	SST FGD-MGD	WHITE		
296.60	299.40	2.80	2.80	100.00	2.80	2.80	299.40	SST FGD-MGD	WHITE		
299.40	299.70	.30	.30	99.99	.30	.30	299.70	SST FGD-MGD	WHITE		
299.70	300.70	1.00	.95	95.00	.50	.53	300.23	SH AREN	GREY		
					.45	.47	300.70	SH/SST INTERCAL			
300.70	302.20	1.50	1.40	93.33	1.40	1.50	302.20	SH/SST INTERCAL			
302.20	303.70	1.50	1.50	100.00	.20	.20	302.40	SH/SST INTERCAL			
					.80	.80	303.20	SH AREN	GREY		
					.50	.50	303.70	SH/SST INTERCAL			
303.70	305.00	1.30	1.30	100.00	1.30	1.30	305.00	SH/SST INTERCAL			
305.00	307.80	2.80	2.80	100.00	2.80	2.80	307.80	SH/SST INTERCAL			
307.80	310.60	2.80	2.80	100.00	2.80	2.80	310.60	SH AREN	GREY	FR BR	
310.60	313.40	2.80	2.80	100.00	2.80	2.80	313.40	SH AREN	GREY	V-FR BR	
313.40	316.40	3.00	2.90	96.67	2.90	3.00	316.40	SH/SST INTERCAL			
316.40	317.90	1.50	1.40	93.33	.05	.05	316.45	SH/SST INTERCAL			
					.55	.59	317.04	SH AREN	GREY		
					.30	.32	317.36	COAL		FR BR	
					.50	.54	317.90	SH AREN	GREY		
317.90	320.90	3.00	2.70	90.00	.70	.78	318.68	SH AREN	GREY		
					1.70	1.89	320.57	SH/SST INTERCAL			
					.30	.33	320.90	SH AREN	GREY		
320.90	322.90	2.00	2.00	100.00	.50	.50	321.40	SH AREN	GREY		
					1.50	1.50	322.90	SH/SST INTERCAL			
322.90	325.40	2.50	2.40	96.00	.30	.31	323.21	SH/SST INTERCAL			
*****											
	SEAM IX-A						ROOF	323.21	MTS-----		
					.40	.42	323.63	COAL		FR BR	

! RUN	! TOTAL	! TOTAL	! RECO-	! THICKNESS	! FLOOR	! DESCRIPTION			! OTHER DETAILS	
! FROM	! TO	! LENGTH	! RECOV	! VERY	! RECOV	! EXTRA	! DEPTH	! LITHOLOGY	! COLOUR	! STRUCTURAL
! (M)	! (M)	! (M)	! (M)	! (%)	! (M)	! (M)	! (M)	!	!	! FEATURES
FLOOR 323.63 MTS-----SEAM IX-A							THICKNESS	.42 MTS		
*****										
					.10	.10	323.73	CSH		
					1.60	1.67	325.40	SH AREN	GREY	
325.40	327.40	2.00	1.90	95.00	1.90	2.00	327.40	SH AREN	GREY	
327.40	330.20	2.80	2.80	100.00	2.80	2.80	330.20	SH/SST INTERCAL		
330.20	333.20	3.00	3.00	100.00	2.10	2.10	332.30	SH/SST INTERCAL		
					.90	.90	333.20	SST FGD-MGD+SH BD	WHITE	
333.20	336.20	3.00	2.85	95.00	.20	.21	333.41	SST FGD-MGD+SH BD	WHITE	
*****										
SEAM IX-B							ROOF	333.41 MTS-----		
					1.45	1.53	334.94	COAL		FR BR
FLOOR 334.94 MTS-----SEAM IX-B							THICKNESS	1.53 MTS		
*****										
					1.20	1.26	336.20	SH/SST INTERCAL		
336.20	339.20	3.00	3.00	100.00	.80	.80	337.00	SH/SST INTERCAL		
					1.60	1.60	338.60	SH AREN	GREY	
					.60	.60	339.20	SH/SST INTERCAL		
339.20	342.20	3.00	2.70	90.00	.80	.89	340.09	SH/SST INTERCAL		
					1.90	2.11	342.20	SH AREN	DARK GREY	
342.20	345.00	2.80	2.80	100.00	2.80	2.80	345.00	SH/SST INTERCAL		
345.00	347.80	2.80	2.80	100.00	2.80	2.80	347.80	SH/SST INTERCAL		
347.80	350.60	2.80	2.55	91.07	1.40	1.54	349.34	SH/SST INTERCAL		
					.40	.44	349.78	SH	DARK GREY	
					.10	.11	349.89	COAL		FR BR
					.65	.71	350.60	SH/SST INTERCAL		
350.60	352.60	2.00	2.00	100.00	2.00	2.00	352.60	SH/SST INTERCAL		
352.60	355.40	2.80	2.80	100.00	2.80	2.80	355.40	SH/SST INTERCAL		
355.40	358.40	3.00	2.80	93.33	.60	.64	356.04	SH/SST INTERCAL		
					.60	.64	356.68	SH AREN	DARK GREY	COAL STREAKS
					.20	.21	356.89	COAL		FR BR
					.40	.43	357.32	SH/SST INTERCAL		



! R U N	! TOTAL	! TOTAL	! RECO-	! THICKNESS	! FLOOR	! D E S C R I P T I O N			! OTHER DETAILS	
! FROM	! TO	! LENGTH	! RECOV	! VERY	! RECOV	! EXTRA	! DEPTH	! LITHOLOGY	! COLOUR	! STRUCTURAL
! (M)	! (M)	! (M)	! (M)	! (%)	! (M)	! POLATED	! (M)	!	!	! FEATURES
*****										
		1.05 1.05		398.95		COAL		FR BR		
FLOOR		398.95		MTS-----		SEAM VIII-B		THICKNESS		1.05
*****										
		.10 .10		399.05		SH		DARK GREY		
		1.35 1.35		400.40		SH/SST INTERCAL				
400.40	401.40	1.00	1.00	100.00	1.00	1.00	401.40	SH/SST INTERCAL		
401.40	403.80	2.40	2.40	100.00	2.40	2.40	403.80	SH/SST INTERCAL		
403.80	406.80	3.00	3.00	100.00	3.00	3.00	406.80	SH/SST INTERCAL		
406.80	409.80	3.00	3.00	100.00	.95	.95	407.75	SH/SST INTERCAL		
		.20 .20		407.95		COAL		FR BR		
		.65 .65		408.60		SH AREN		GREY		
		.35 .35		408.95		CSH				
*****										
SEAM VIII-C				ROOF		408.95		MTS-----		
*****										
		.25 .25		409.20		COAL		FR BR		
FLOOR		409.20		MTS-----		SEAM VIII-C		THICKNESS		.25
*****										
		.50 .50		409.70		SH WITH C BANDS		DARK GREY		
		.10 .10		409.80		SH AREN		GREY		
409.80	412.80	3.00	3.00	100.00	3.00	3.00	412.80	SH AREN		COAL STREAKS
412.80	415.80	3.00	3.00	100.00	.45	.45	413.25	SH AREN		
		2.55 2.55		415.80		SH/SST INTERCAL				
415.80	416.80	1.00	1.00	100.00	1.00	1.00	416.80	SH/SST INTERCAL		
416.80	418.80	2.00	2.00	100.00	2.00	2.00	418.80	SH/SST INTERCAL		
418.80	421.80	3.00	3.00	100.00	1.80	1.80	420.60	SH AREN		GREY
		.75 .75		421.35		SH WITH C BANDS		DARK GREY		
		.45 .45		421.80		SH AREN		GREY		
421.80	422.80	1.00	1.00	100.00	1.00	1.00	422.80	SH/SST INTERCAL		
422.80	424.80	2.00	2.00	100.00	.60	.60	423.40	SH/SST INTERCAL		
		1.40 1.40		424.80		SH AREN		GREY		
424.80	427.60	2.80	2.80	100.00	1.80	1.80	426.60	SH/SST INTERCAL		GREY
		1.00 1.00		427.60		SH AREN		GREY		

R U N		TOTAL	TOTAL	RECO-	THICKNESS		FLOOR	D E S C R I P T I O N			OTHER DETAILS
FROM	TO	LENGTH	RECOV	VERY	RECOV	EXTRA	DEPTH	LITHOLOGY	COLOUR	STRUCTURAL	
(M)	(M)	(M)	(M)	(%)	(M)	(M)	(M)			FEATURES	
427.60	430.40	2.80	2.80	100.00	2.80	2.80	430.40	SH/SST INTERCAL			
430.40	433.20	2.80	2.80	100.00	1.25	1.25	431.65	SH/SST INTERCAL			
					.35	.35	432.00	SH AREN	GREY		
					.10	.10	432.10	COAL		FR BR	
					1.10	1.10	433.20	SH AREN	GREY		
433.20	436.00	2.80	2.80	100.00	2.10	2.10	435.30	SH/SST INTERCAL			
					.70	.70	436.00	SH AREN	GREY		
436.00	438.80	2.80	2.55	91.07	.05	.05	436.05	COAL		FR BR	
					1.80	2.01	438.06	SH/SST INTERCAL			
					.20	.21	438.27	SH AREN	GREY		
					.05	.05	438.32	COAL		FR BR	
					.45	.48	438.80	SH/SST INTERCAL			
438.80	441.80	3.00	3.00	100.00	1.80	1.80	440.60	SH AREN	GREY		
					1.20	1.20	441.80	SH/SST INTERCAL			
441.80	444.60	2.80	2.80	100.00	.20	.20	442.00	SH/SST INTERCAL			
					.90	.90	442.90	SH AREN	GREY		
					.70	.70	443.60	SH	DARK GREY		
					.30	.30	443.90	SH/SST INTERCAL			
					.10	.10	444.00	SH	GREY		
					.20	.20	444.20	COAL		FR BR	
					.40	.40	444.60	SH/SST INTERCAL			
444.60	447.60	3.00	3.00	100.00	3.00	3.00	447.60	SH/SST INTERCAL			
447.60	450.60	3.00	3.00	100.00	2.30	2.30	449.90	SST FGD-MGD	WHITE		
					.70	.70	450.60	SH/SST INTERCAL			
450.60	453.40	2.80	2.80	100.00	.50	.50	451.10	SH AREN	GREY		
					.20	.20	451.30	SHALY COAL			
					1.30	1.30	452.60	SH AREN	GREY		
					.15	.15	452.75	COAL		FR BR	
					.65	.65	453.40	SH AREN	GREY		
453.40	456.20	2.80	2.80	100.00	2.80	2.80	456.20	SH/SST INTERCAL			
456.20	457.20	1.00	1.00	100.00	1.00	1.00	457.20	SH/SST INTERCAL			
457.20	458.00	.80	.80	100.00	.80	.80	458.00	SH/SST INTERCAL			
458.00	459.00	1.00	1.00	100.00	1.00	1.00	459.00	SH AREN	GREY		
459.00	461.80	2.80	2.80	100.00	1.00	1.00	460.00	SH AREN	GREY		
					1.35	1.35	461.35	SH/SST INTERCAL	GREY		
					.45	.45	461.80	SST FGD-MGD	WHITE		

R U N		TOTAL	TOTAL	RECO-	THICKNESS		FLOOR	D E S C R I P T I O N			OTHER DETAILS
FROM	TO	LENGTH	RECOV	VERY	RECOV	EXTRA	DEPTH	LITHOLOGY	COLOUR	STRUCTURAL	FEATURES
(M)	(M)	(M)	(M)	(%)	(M)	(M)	(M)				
461.80	462.80	1.00	1.00	100.00	1.00	1.00	462.80	SST FGD-MGD	WHITE		
462.80	464.80	2.00	2.00	100.00	2.00	2.00	464.80	SST FGD-MGD	WHITE		
464.80	467.60	2.80	2.80	100.00	2.80	2.80	467.60	SST FGD-MGD	WHITE		
467.60	470.40	2.80	2.80	100.00	2.80	2.80	470.40	SST FGD-MGD	WHITE		
470.40	473.40	3.00	3.00	100.00	1.00	1.00	471.40	SST FGD-MGD	WHITE		
					2.00	2.00	473.40	SH/SST INTERCAL			
473.40	476.40	3.00	3.00	100.00	2.00	2.00	475.40	SH/SST INTERCAL			
					.05	.05	475.45	SH	DARK GREY		
*****											
SEAM V							ROOF	475.45	MTS-----		
					.95	.95	476.40	COAL		FR BR	
476.40	479.40	3.00	3.00	100.00	.10	.10	476.50	COAL		FR BR	
					FLOOR		476.50	MTS-----	SEAM V	THICKNESS	1.05 MTS
*****											
					.30	.30	476.80	SH AREN	GREY		
					2.60	2.60	479.40	SH/SST INTERCAL			
479.40	482.40	3.00	2.90	96.67	.90	.93	480.33	SH AREN	GREY		
					2.00	2.07	482.40	SH/SST INTERCAL			
482.40	485.40	3.00	3.00	100.00	3.00	3.00	485.40	SST FGD-MGD	WHITE		
485.40	487.80	2.40	2.40	100.00	2.40	2.40	487.80	SST FGD-MGD	WHITE		
487.80	490.80	3.00	3.00	100.00	3.00	3.00	490.80	SST FGD-MGD	WHITE		
490.80	493.80	3.00	3.00	100.00	3.00	3.00	493.80	SST FGD-MGD	WHITE		
493.80	496.80	3.00	3.00	100.00	3.00	3.00	496.80	SST FGD-MGD	WHITE		
496.80	499.80	3.00	3.00	100.00	3.00	3.00	499.80	SST FGD-MGD	WHITE		
499.80	502.80	3.00	3.00	100.00	3.00	3.00	502.80	SST FGD-MGD	WHITE		
502.80	505.80	3.00	2.90	96.67	2.10	2.17	504.97	SST FGD-MGD	WHITE		
					.50	.52	505.49	SH AREN	GREY		
					.30	.31	505.80	SH	DARK GREY	FR BR	
505.80	508.40	2.60	2.50	96.15	.30	.31	506.11	CSH		FR BR	
					2.20	2.29	508.40	SH AREN	GREY		
508.40	511.20	2.80	2.80	100.00	2.80	2.80	511.20	SH AREN	GREY		
511.20	513.40	2.20	2.20	100.00	2.20	2.20	513.40	SH AREN	GREY		
513.40	516.40	3.00	3.00	100.00	1.10	1.10	514.50	SH/SST INTERCAL			
					1.90	1.90	516.40	SH AREN	GREY		

R U N		TOTAL	TOTAL	RECO-	THICKNESS		FLOOR	D E S C R I P T I O N			OTHER DETAILS
FROM	TO	LENGTH	RECOV	VERY	RECOV	EXTRA	DEPTH	LITHOLOGY	COLOUR	STRUCTURAL	FEATURES
(M)	(M)	(M)	(M)	(%)	(M)	(M)	(M)				
516.40	518.60	2.20	2.20	100.00	.70	.70	517.10	SH/SST INTERCAL			
					.20	.20	517.30	SH AREN	GREY		
					.10	.10	517.40	COAL		FR BR	
					1.20	1.20	518.60	SH/SST INTERCAL			
518.60	519.60	1.00	1.00	100.00	.40	.40	519.00	SH/SST INTERCAL			
					.60	.60	519.60	SST FGD-MGD	WHITE		
519.60	522.40	2.80	2.60	92.86	2.60	2.80	522.40	SH/SST INTERCAL			
522.40	523.60	1.20	1.20	100.00	.30	.30	522.70	SH AREN	GREY	COAL STREAKS	
					.90	.90	523.60	SH/SST INTERCAL			
523.60	525.20	1.60	1.60	100.00	1.60	1.60	525.20	SH/SST INTERCAL			
525.20	528.00	2.80	2.80	100.00	.70	.70	525.90	SH AREN	GREY		
					2.10	2.10	528.00	SH/SST INTERCAL			
528.00	530.80	2.80	2.80	100.00	2.00	2.00	530.00	SH AREN	GREY		
					.20	.20	530.20	SH	DARK GREY		
*****											
SEAM IV					ROOF		530.20 MTS-----				
					.60	.60	530.80	COAL		FR BR	
530.80	533.60	2.80	2.80	100.00	.10	.10	530.90	COAL		FR BR	
					FLOOR		530.90 MTS-----SEAM IV				
										THICKNESS	.70 MTS
*****											
					.30	.30	531.20	CSH			
					.10	.10	531.30	COAL		FR BR	
					.10	.10	531.40	SH	GREY		
					2.20	2.20	533.60	SH/SST INTERCAL			
533.60	536.40	2.80	2.80	100.00	2.80	2.80	536.40	SH/SST INTERCAL			
536.40	537.80	1.40	1.40	100.00	1.40	1.40	537.80	SH/SST INTERCAL			
537.80	539.20	1.40	1.40	100.00	1.40	1.40	539.20	SH/SST INTERCAL			
539.20	542.00	2.80	2.80	100.00	2.80	2.80	542.00	SH/SST INTERCAL			
542.00	544.80	2.80	2.75	98.21	1.20	1.22	543.22	ALTER SST & SH BD			
					1.55	1.58	544.80	SST FGD-MGD	WHITE		
544.80	545.80	1.00	1.00	100.00	.40	.40	545.20	SH/SST INTERCAL			
					.60	.60	545.80	SST FGD-MGD	WHITE		
545.80	547.60	1.80	1.80	100.00	1.80	1.80	547.60	SST FGD-MGD	WHITE		
547.60	550.60	3.00	3.00	100.00	.60	.60	548.20	SH/SST INTERCAL			
					2.00	2.00	550.20	SST FGD-MGD	WHITE		

! R U N	! TOTAL	! TOTAL	! RECO-	! THICKNESS	! FLOOR	! D E S C R I P T I O N			! OTHER DETAILS	
! FROM	! TO	! LENGTH	! RECOV	! VERY	! RECOV	! EXTRA	! DEPTH	! LITHOLOGY	! COLOUR	! STRUCTURAL
! (M)	! (M)	! (M)	! (M)	! (%)	! (M)	! (M)	! (M)	!	!	! FEATURES
					.40	.40	550.60	SH/SST INTERCAL		
550.60	553.60	3.00	3.00	100.00	2.10	2.10	552.70	SST FGD-MGD	WHITE	
					.90	.90	553.60	SH	DARK GREY	
553.60	556.60	3.00	3.00	100.00	3.00	3.00	556.60	SH	DARK GREY	
556.60	559.60	3.00	3.00	100.00	.10	.10	556.70	SH	DARK GREY	
*****										
SEAM III							ROOF	556.70	MTS-----	
					2.90	2.90	559.60	COAL	FR BR	
559.60	562.60	3.00	3.00	100.00	.60	.60	560.20	COAL	FR BR	
FLOOR							560.20	MTS-----SEAM III		THICKNESS 3.50 MTS
*****										
					.15	.15	560.35	SH AREN	GREY	
					2.25	2.25	562.60	SH/SST INTERCAL		
562.60	565.60	3.00	3.00	100.00	3.00	3.00	565.60	SH/SST INTERCAL		
565.60	568.60	3.00	3.00	100.00	3.00	3.00	568.60	SH/SST INTERCAL		
568.60	571.60	3.00	3.00	100.00	3.00	3.00	571.60	SH/SST INTERCAL		
571.60	572.60	1.00	1.00	100.00	1.00	1.00	572.60	SH/SST INTERCAL		
572.60	574.60	2.00	2.00	100.00	1.60	1.60	574.20	SST FGD-MGD	WHITE	
					.40	.40	574.60	SH AREN	GREY	
574.60	577.60	3.00	3.00	100.00	3.00	3.00	577.60	SH AREN	GREY	
577.60	580.60	3.00	3.00	100.00	1.90	1.90	579.50	SH AREN	GREY	
*****										
SEAM LOCAL							ROOF	579.50	MTS-----	
					1.00	1.00	580.50	COAL	FR BR	
FLOOR							580.50	MTS-----SEAM LOCAL		THICKNESS 1.00 MTS
*****										
					.10	.10	580.60	SH AREN	GREY	
580.60	583.60	3.00	3.00	100.00	.40	.40	581.00	SH AREN	GREY	
					2.60	2.60	583.60	SST FGD-MGD	WHITE	
583.60	586.60	3.00	3.00	100.00	3.00	3.00	586.60	SST FGD-MGD	WHITE	

R U N FROM (M)	TO (M)	TOTAL LENGTH (M)	TOTAL RECOV (M)	RECO- VERY (%)	THICKNESS		FLOOR DEPTH (M)	D E S C R I P T I O N			OTHER DETAILS
					RECOV ERED (M)	EXTRA POLATED (M)		LITHOLOGY	COLOUR	STRUCTURAL FEATURES	
586.60	589.10	2.50	2.50	100.00	2.50	2.50	589.10	SST FGD-MGD	WHITE		
589.10	592.10	3.00	3.00	100.00	2.50	2.50	591.60	SST FGD-MGD	WHITE	COAL STREAKS	
					.50	.50	592.10	SH AREN	GREY		
592.10	594.60	2.50	2.50	100.00	.55	.55	592.65	SH AREN	GREY		
					.85	.85	593.50	SH/SST INTERCAL			
					1.10	1.10	594.60	SH AREN	GREY		
594.60	595.60	1.00	1.00	100.00	.50	.50	595.10	SH AREN	GREY		
					.50	.50	595.60	COAL		FR BR	
595.60	598.60	3.00	3.00	100.00	.55	.55	596.15	SH	DARK GREY		
*****											
SEAM II											
							ROOF	596.15	MTS	-----	
					.70	.70	596.85	COAL		FR BR	
					FLOOR 596.85		MTS-----SEAM II		THICKNESS	.70 MTS	
*****											
					.50	.50	597.35	SH	DARK GREY		
					.30	.30	597.65	COAL		FR BR	
					.20	.20	597.85	SH AREN	GREY		
					.75	.75	598.60	SH/SST INTERCAL			
598.60	601.60	3.00	3.00	100.00	1.80	1.80	600.40	SST FGD-MGD	WHITE		
					.10	.10	600.50	COAL		FR BR	
					1.10	1.10	601.60	SH AREN	GREY		
601.60	604.60	3.00	3.00	100.00	.95	.95	602.55	SH/SST INTERCAL			
					1.80	1.80	604.35	SH AREN	GREY		
*****											
SEAM I											
							ROOF	604.35	MTS	-----	
					.25	.25	604.60	COAL		FR BR	
					.75	.75	605.35	COAL		FR BR	
					FLOOR 605.35		MTS-----SEAM I		THICKNESS	1.00 MTS	
*****											
					.10	.10	605.45	SH	DARK GREY		
					2.15	2.15	607.60	SST FGD-MGD	WHITE		

R U N		TOTAL	TOTAL	RECO-	THICKNESS		FLOOR	D E S C R I P T I O N			OTHER DETAILS
FROM	TO	LENGTH	RECOV	VERY	RECOV	EXTRA	DEPTH	LITHOLOGY	COLOUR	STRUCTURAL	
(M)	(M)	(M)	(M)	(%)	(M)	(M)	(M)			FEATURES	
607.60	610.60	3.00	2.95	98.33	1.75	1.78	609.38	SST FGD-MGD	WHITE		
					.35	.35	609.73	SH AREN	GREY		
					.85	.87	610.60	SH/SST INTERCAL			
610.60	613.60	3.00	3.00	100.00	.80	.80	611.40	SH/SST INTERCAL			
					2.20	2.20	613.60	SST FGD-MGD	WHITE		
613.60	614.60	1.00	1.00	100.00	1.00	1.00	614.60	SST FGD-MGD	WHITE		
614.60	616.60	2.00	2.00	100.00	2.00	2.00	616.60	SST FGD-MGD	WHITE		
616.60	619.60	3.00	3.00	100.00	3.00	3.00	619.60	SST FGD-MGD	WHITE		
619.60	620.60	1.00	1.00	100.00	1.00	1.00	620.60	SST FGD-MGD	WHITE		
620.60	622.60	2.00	2.00	100.00	2.00	2.00	622.60	SST FGD-MGD	WHITE		
622.60	625.60	3.00	3.00	100.00	3.00	3.00	625.60	SST FGD-MGD	WHITE		
625.60	628.60	3.00	3.00	100.00	1.35	1.35	626.95	SST FGD-MGD	WHITE		
*****											
							SEAM '0'	ROOF	626.95	MTS-----	
					.20	.20	627.15	JHAMA			
					.85	.85	628.00	JHAMA			
					.05	.05	628.05	MP			
					.55	.55	628.60	JHAMA			
628.60	630.40	1.80	1.80	100.00	.65	.65	629.25	JHAMA			
							FLOOR	629.25	MTS-----	SEAM '0'	
									THICKNESS	2.30	MTS
*****											
					1.15	1.15	630.40	SH AREN	GREY		
630.40	632.20	1.80	1.80	100.00	1.10	1.10	631.50	SH/SST INTERCAL			
					.70	.70	632.20	SST FGD-MGD	WHITE		

-----B O R E H O L E C L O S E D A T : 632.20 MTS.-----

**ANNEXURE-III**  
**[ p A-III/ 1 to A-III/ 17 ]**

ANNEXURE-III

STATEMENT SHOWING BAND BY BAND ANALYSIS OF BOREHOLES DRILLED IN  
LOHAPATTI (EAST) BLOCK; JHARIA COALFIELD; DISTRICT: DHANBAD; JHARKHAND

(ON AIR DRIED BASIS)  
(AS RECEIVED FROM :CFRI, DHANBAD )  
BOREHOLE NO :MLE-1

A-III/ 1

DEPTH FROM SURFACE FROM (M)	DEPTH TO TO (M)	RUN (M)	RECOVERY %	FLOOR DEPTH (M)	THICKNESS RECOV (M)	THICKNESS EXT (M)	LITHOLOGY	OTHER DETAILS	SAMPLE NO	WT (GMS)	M%	ASH%	VM%	FC%	R/ F
*****															
SEAM : XIV		STARTING DEPTH OF SEAM : 21.65(m)													
21.65	22.93	1.28	1.27	99.2	22.61	.95	.96	COAL	C1	3834.	3.30	27.10			R
					22.73	.12	.12	CSH	D1	497.	2.90	53.20			
					22.93	.20	.20	COAL	C2	800.	3.00	26.00			F
SEAM : XIV		ENDING DEPTH OF SEAM : 22.93(m)													
										THICKNESS (m) : 1.28					
*****															
SEAM : XIII		STARTING DEPTH OF SEAM : 61.50(m)													
61.50	62.57	1.07	1.07	100.0	61.90	.40	.40	COAL	C3	1517.	2.80	28.90			R
					61.97	.07	.07	CSH	D2	562.	2.50	55.80			
					62.57	.60	.60	COAL	C4	2197.	2.90	28.00			F
SEAM : XIII		ENDING DEPTH OF SEAM : 62.57(m)													
										THICKNESS (m) : 1.07					
*****															
SEAM : XII		STARTING DEPTH OF SEAM : 74.90(m)													
74.90	75.50	.60	.60	100.0	75.50	.60	.60	COAL	C5	5000.	3.00	29.40	26.80	40.80	R
75.50	76.10	.60	.60	100.0	76.10	.60	.60	COAL	C5		3.00	29.40	26.80	40.80	F
SEAM : XII		ENDING DEPTH OF SEAM : 76.10(m)													
										THICKNESS (m) : 1.20					
*****															

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STATEMENT SHOWING BAND BY BAND ANALYSIS OF BOREHOLES DRILLED IN  
LOHAPATTI (EAST) BLOCK; JHARIA COALFIELD; DISTRICT: DHANBAD; JHARKHAND

(ON AIR DRIED BASIS)  
(AS RECEIVED FROM :CFRI, DHANBAD )  
BOREHOLE NO :MLE-2

A-III/ 2

DEPTH FROM SURFACE		RUN (M)	RECOVERY %	FLOOR DEPTH (M)	THICKNESS		LITHOLOGY	OTHER DETAILS	SAMPLE NO	WT (GMS)	M%	ASH%	VM%	FC%	R/F	
FROM (M)	TO (M)				RECOV (M)	EXT (M)										
31.35	33.00	1.65	1.65	100.0	31.45	.10	.10	COAL	C1	384.	2.70	28.60				
					31.80	.35	.35	CSH	D1	1591.	2.90	65.70				
*****																
SEAM : XIV		STARTING DEPTH OF SEAM : 31.80(m)														
					33.00	1.20	1.20	COAL	C2	6600.	3.00	34.30	28.00	34.70	R	
33.00	33.35	.35	.35	100.0	33.35	.35	.35	COAL	C2		3.00	34.30	28.00	34.70	F	
SEAM : XIV		ENDING DEPTH OF SEAM : 33.35(m)														
										THICKNESS (m) : 1.55						
*****																
SEAM : XIII		STARTING DEPTH OF SEAM : 76.30(m)														
76.30	77.40	1.10	1.10	100.0	77.40	1.10	1.10	COAL	C3	3147.	3.10	22.10	30.90	43.90	*	
SEAM : XIII		ENDING DEPTH OF SEAM : 77.40(m)														
										THICKNESS (m) : 1.10						
*****																
87.55	88.20	.65	.65	100.0	87.75	.20	.20	CSH	D2	1387.	2.60	64.70				
					87.80	.05	.05	CSH	C4	536.	2.80	50.20				
					87.90	.10	.10	CSH	D3	491.	2.40	63.20				
					88.00	.10	.10	CSH	C5	243.	2.50	50.50				
					88.05	.05	.05	CSH	D4	221.	2.80	50.70				
*****																
SEAM : LOCAL		STARTING DEPTH OF SEAM : 88.05(m)														
					88.15	.10	.10	COAL	C6	390.	3.00	29.20				*
SEAM : LOCAL		ENDING DEPTH OF SEAM : 88.15(m)														
										THICKNESS (m) : .10						
*****																
					88.20	.05	.05	CSH	D5	301.	2.60	69.30				
*****																
SEAM : XII		STARTING DEPTH OF SEAM : 90.30(m)														
90.30	91.80	1.50	1.50	100.0	90.45	.15	.15	COAL	C7	683.	3.00	22.70				R
					90.55	.10	.10	SHALY COAL	D6	509.	2.50	49.70				
					91.80	1.25	1.25	COAL	C8	4100.	2.70	23.10	30.50	43.70	F	
SEAM : XII		ENDING DEPTH OF SEAM : 91.80(m)														
										THICKNESS (m) : 1.50						
*****																

STATEMENT SHOWING BAND BY BAND ANALYSIS OF BOREHOLES DRILLED IN  
LOHAPATTI (EAST) BLOCK; JHARIA COALFIELD; DISTRICT: DHANBAD; JHARKHAND

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(ON AIR DRIED BASIS)  
(AS RECEIVED FROM :CFRI, DHANBAD )  
BOREHOLE NO :MLE-3

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A-III/ 3

DEPTH FROM SURFACE FROM (M)	TO (M)	RUN (M)	RECOVERY %	FLOOR DEPTH (M)	THICKNESS RECOV (M)	EXT (M)	LITHOLOGY	OTHER DETAILS	SAMPLE NO	WT (GMS)	M%	ASH%	VM%	FC%	R/F
*****															
SEAM : XIV		STARTING DEPTH OF SEAM : 53.00(m)													
53.00	55.50	2.50	2.50	100.0	53.25	.25	.25	COAL	C1	918.	3.20	23.50			R
					53.40	.15	.15	CSH	C2	747.	2.90	68.10			
					53.50	.10	.10	CSH	C3	562.	3.00	56.70			
					53.90	.40	.40	SHALY COAL	D1	1839.	2.90	49.90			
					54.70	.80	.80	COAL	C4	2925.	3.10	29.00			
					54.95	.25	.25	SHALY COAL	D2	906.	3.20	42.40			
					55.50	.55	.55	COAL	C5	2055.	3.30	25.60			F
SEAM : XIV		ENDING DEPTH OF SEAM : 55.50(m)													
										THICKNESS (m) : 2.50					
*****															
*****															
SEAM : XIII		STARTING DEPTH OF SEAM : 94.85(m)													
94.85	95.90	1.05	1.05	100.0	95.90	1.05	1.05	COAL	C6	4225.	3.10	21.60	28.90	46.40	*
SEAM : XIII		ENDING DEPTH OF SEAM : 95.90(m)													
										THICKNESS (m) : 1.05					
*****															
*****															
SEAM : XII		STARTING DEPTH OF SEAM : 107.65(m)													
107.65	108.85	1.20	1.20	100.0	108.85	1.20	1.20	COAL	C7	4762.	2.70	25.90	27.60	43.80	*
SEAM : XII		ENDING DEPTH OF SEAM : 108.85(m)													
										THICKNESS (m) : 1.20					
*****															
*****															
SEAM : XI-B		STARTING DEPTH OF SEAM : 271.95(m)													
271.95	272.60	.65	.60	92.3	272.50	.50	.55	COAL	C8	1106.	2.30	31.50			*
SEAM : XI-B		ENDING DEPTH OF SEAM : 272.50(m)													
										THICKNESS (m) : .55					
*****															
					272.55	.05	.05	CSH	D3	138.	2.40	57.60			
					272.60	.05	.05	CSH	C9	156.	2.30	69.30			

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STATEMENT SHOWING BAND BY BAND ANALYSIS OF BOREHOLES DRILLED IN  
LOHAPATTI (EAST) BLOCK; JHARIA COALFIELD; DISTRICT: DHANBAD; JHARKHAND

(ON AIR DRIED BASIS)  
(AS RECEIVED FROM :MECL,NAGPUR )  
BOREHOLE NO :MLE-4

A-III/ 4

DEPTH FROM SURFACE FROM (M) TO (M)	RUN (M)	RECOVERY %	FLOOR DEPTH (M)	THICKNESS RECOV (M)	EXT (M)	LITHOLOGY	OTHER DETAILS	SAMPLE NO	WT (GMS)	M%	ASH%	VM%	FC%	R/ F
*****														
SEAM : XIV		STARTING DEPTH OF SEAM : 15.20(m)												
15.20	16.70	1.50	1.50	100.0	15.30	.10	.10	COAL	C1	270.	2.30	33.80		R
					15.45	.15	.15	COAL	B1	450.	2.60	19.70		
					15.75	.30	.30	COAL	C2	550.	2.50	33.70		
					15.85	.10	.10	SHALY COAL	B2	250.	2.00	48.40		F
SEAM : XIV		ENDING DEPTH OF SEAM : 15.85(m)												
									THICKNESS (m) : .65					
*****														
					16.70	.85	.85	CSH	C3	1350.	2.20	51.90		
*****														
SEAM : XIII		STARTING DEPTH OF SEAM : 62.30(m)												
62.30	63.80	1.50	1.50	100.0	63.80	1.50	1.50	COAL	C4	3025.	2.60	19.90		*
SEAM : XIII		ENDING DEPTH OF SEAM : 63.80(m)												
									THICKNESS (m) : 1.50					
*****														
SEAM : XII		STARTING DEPTH OF SEAM : 75.50(m)												
75.50	77.00	1.50	1.50	100.0	75.60	.10	.10	COAL	C5	425.	2.20	24.20		R
					75.70	.10	.10	SHALY COAL	B3	510.	2.00	35.40		
					77.00	1.30	1.30	COAL	C6	2225.	2.50	13.00		F
SEAM : XII		ENDING DEPTH OF SEAM : 77.00(m)												
									THICKNESS (m) : 1.50					
*****														





DEPTH FROM SURFACE		RUN (M)	RECOVERY %	FLOOR DEPTH		THICKNESS RECOV EXT		LITHOLOGY	OTHER DETAILS	SAMPLE NO	WT (GMS)	M%	ASH%	VM% FC%	R/F
FROM (M)	TO (M)			(M)	(M)	(M)	(M)								

\*\*\*\*\*

SEAM : UNCORRELATED      STARTING DEPTH OF SEAM : 299.45(m)

299.45	300.20	.75	.75	100.0	300.15	.70	.70	COAL		C6	1150.	1.50	13.20		R
					300.20	.05	.05	SH(SID)		NTA					
300.20	300.90	.70	.70	100.0	300.90	.70	.70	COAL		C7	1260.	1.90	13.80		F

SEAM :                      UNCORRELATED      ENDING DEPTH OF SEAM : 300.90(m)

THICKNESS (m) : 1.45

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\*\*\*\*\*

SEAM : IX-A                      STARTING DEPTH OF SEAM : 320.70(m)

320.70	321.50	.80	.80	100.0	321.35	.65	.65	COAL		C8	990.	1.90	32.80		R
					321.40	.05	.05	GREY SH		NTA					
					321.50	.10	.10	SHALY COAL		C9	285.	1.90	37.80		F

SEAM :                      IX-A                      ENDING DEPTH OF SEAM : 321.50(m)

THICKNESS (m) : .80

\*\*\*\*\*

\*\*\*\*\*

SEAM : VIII-A                      STARTING DEPTH OF SEAM : 375.00(m)

375.00	375.90	.90	.90	100.0	375.90	.90	.90	COAL		C10	1650.	1.60	15.40		*
--------	--------	-----	-----	-------	--------	-----	-----	------	--	-----	-------	------	-------	--	---

SEAM :                      VIII-A                      ENDING DEPTH OF SEAM : 375.90(m)

THICKNESS (m) : .90

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SEAM : VIII-B                      STARTING DEPTH OF SEAM : 383.00(m)

383.00	384.30	1.30	1.30	100.0	384.30	1.30	1.30	COAL		C11	2910.	1.70	25.50		*
--------	--------	------	------	-------	--------	------	------	------	--	-----	-------	------	-------	--	---

SEAM :                      VIII-B                      ENDING DEPTH OF SEAM : 384.30(m)

THICKNESS (m) : 1.30

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SEAM : VIII-C                      STARTING DEPTH OF SEAM : 399.50(m)

399.50	400.45	.95	.95	100.0	400.45	.95	.95	COAL		C12	715.	1.70	25.00		*
--------	--------	-----	-----	-------	--------	-----	-----	------	--	-----	------	------	-------	--	---

SEAM :                      VIII-C                      ENDING DEPTH OF SEAM : 400.45(m)

THICKNESS (m) : .95

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SEAM : VI-A                      STARTING DEPTH OF SEAM : 430.20(m)

430.20	430.90	.70	.70	100.0	430.50	.30	.30	COAL		C13	660.	2.10	16.50		R
					430.60	.10	.10	SH		NTA					
					430.90	.30	.30	COAL		C14	590.	1.60	29.70		F

SEAM :                      VI-A                      ENDING DEPTH OF SEAM : 430.90(m)

THICKNESS (m) : .70

\*\*\*\*\*



DEPTH FROM SURFACE		RUN	RECOVERY	FLOOR DEPTH	THICKNESS RECOV	EXT	LITHOLOGY	OTHER DETAILS	SAMPLE NO	WT (GMS)	M%	ASH%	VM%	FC%	R/F
FROM (M)	TO (M)	(M)	%	(M)	(M)	(M)									
557.60	558.00	.40	.40	100.0	558.00	.40	.40	COAL	C24		1.50	17.40			F
SEAM : II				ENDING DEPTH OF SEAM : 558.00(m)				THICKNESS (m) :	.60						
*****															
*****															
SEAM : I				STARTING DEPTH OF SEAM : 571.10(m)											
571.10	571.60	.50	.50	100.0	571.60	.50	.50	COAL	C25	970.	1.50	19.20			*
SEAM : I				ENDING DEPTH OF SEAM : 571.60(m)				THICKNESS (m) :	.50						
*****															
*****															
SEAM : '0'				STARTING DEPTH OF SEAM : 574.40(m)											
574.40	575.95	1.55	1.55	100.0	574.60	.20	.20	COAL	C26	415.	1.40	20.40			R
					574.80	.20	.20	SH	NTA						
					575.20	.40	.40	COAL	C27	690.	1.60	18.40			
					575.40	.20	.20	SH	NTA						
					575.55	.15	.15	SHALY COAL	B2	530.	1.10	44.00			
					575.95	.40	.40	COAL	C28	975.	1.40	21.70			F
SEAM : '0'				ENDING DEPTH OF SEAM : 575.95(m)				THICKNESS (m) :	1.55						
*****															
*****															
SEAM : UNCORRELATED				STARTING DEPTH OF SEAM : 582.30(m)											
582.30	583.10	.80	.80	100.0	583.10	.80	.80	COAL	C29	1120.	1.60	15.40			*
SEAM : UNCORRELATED				ENDING DEPTH OF SEAM : 583.10(m)				THICKNESS (m) :	.80						
*****															

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STATEMENT SHOWING BAND BY BAND ANALYSIS OF BOREHOLES DRILLED IN  
 LOHAPATTI (EAST) BLOCK; JHARIA COALFIELD; DISTRICT: DHANBAD; JHARKHAND

(ON AIR DRIED BASIS)  
 (AS RECEIVED FROM :MECL,NAGPUR )  
 BOREHOLE NO :MLE-7

A-III/ 10

DEPTH FROM SURFACE FROM (M) TO (M)	RUN (M)	RECOVERY %	FLOOR DEPTH (M)	THICKNESS RECOV (M)	EXT (M)	LITHOLOGY	OTHER DETAILS	SAMPLE NO	WT (GMS)	M%	ASH%	VM%	FC%	R/F
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 SEAM : XIII STARTING DEPTH OF SEAM : 41.50(m)  
 41.50 42.70 1.20 1.20 100.0 42.70 1.20 1.20 COAL C1 1880. 1.60 15.40 \*  
 SEAM : XIII ENDING DEPTH OF SEAM : 42.70(m) THICKNESS (m) : 1.20  
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 SEAM : XII STARTING DEPTH OF SEAM : 53.25(m)  
 53.25 54.75 1.50 1.50 100.0 54.75 1.50 1.50 COAL C2 2425. 2.80 15.10 \*  
 SEAM : XII ENDING DEPTH OF SEAM : 54.75(m) THICKNESS (m) : 1.50  
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STATEMENT SHOWING BAND BY BAND ANALYSIS OF BOREHOLES DRILLED IN  
 LOHAPATTI (EAST) BLOCK; JHARIA COALFIELD; DISTRICT: DHANBAD; JHARKHAND

(ON AIR DRIED BASIS)  
 (AS RECEIVED FROM :MECL,NAGPUR )  
 BOREHOLE NO :MLE-8

A-III/ 11

DEPTH FROM SURFACE	TO	RUN	RECOVERY	FLOOR DEPTH	THICKNESS RECOV	EXT	LITHOLOGY	OTHER DETAILS	SAMPLE NO	WT (GMS)	M%	ASH%	VM%	FC%	R/F
(M)	(M)	(M)	(M)	(M)	(M)	(M)									

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SEAM : XIII		STARTING DEPTH OF SEAM : 38.25(m)															
38.25	39.50	1.25	1.25	100.0	39.50	1.25	1.25	COAL	C1	2670.	3.20	12.20			*		
SEAM :		XIII		ENDING DEPTH OF SEAM : 39.50(m)													
										THICKNESS (m) : 1.25							

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SEAM : XII		STARTING DEPTH OF SEAM : 50.30(m)															
50.30	51.70	1.40	1.40	100.0	51.70	1.40	1.40	COAL	C2	2695.	2.90	15.90			*		
SEAM :		XII		ENDING DEPTH OF SEAM : 51.70(m)													
										THICKNESS (m) : 1.40							

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STATEMENT SHOWING BAND BY BAND ANALYSIS OF BOREHOLES DRILLED IN  
LOHAPATTI (EAST) BLOCK; JHARIA COALFIELD; DISTRICT: DHANBAD; JHARKHAND

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(ON AIR DRIED BASIS)  
(AS RECEIVED FROM :MECL,NAGPUR )  
BOREHOLE NO :MLE-10

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A-III/ 13

DEPTH FROM SURFACE FROM (M)	TO (M)	RUN (M)	RECOVERY %	FLOOR DEPTH (M)	THICKNESS RECOV (M)	EXT (M)	LITHOLOGY	OTHER DETAILS	SAMPLE NO	WT (GMS)	M%	ASH%	VM%	FC%	R/ F
*****															
SEAM : XIV		STARTING DEPTH OF SEAM : 69.50(m)													
69.50	70.20	.70	.70	100.0	69.90	.40	.40	COAL	C1	1030.	3.00	20.50			R
					70.20	.30	.30	SHALY COAL	B1	1470.	2.70	47.00			
70.20	71.80	1.60	1.60	100.0	70.25	.05	.05	SHALY COAL	B1		2.70	47.00			
					71.80	1.55	1.55	COAL	C2	2480.	3.30	21.70			F
SEAM : XIV		ENDING DEPTH OF SEAM : 71.80(m)													
										THICKNESS (m) : 2.30					
*****															
*****															
SEAM : XIII		STARTING DEPTH OF SEAM : 113.00(m)													
113.00	114.30	1.30	1.30	100.0	114.30	1.30	1.30	COAL	C3	1670.	2.70	13.10			*
SEAM : XIII		ENDING DEPTH OF SEAM : 114.30(m)													
										THICKNESS (m) : 1.30					
*****															
*****															
SEAM : XII		STARTING DEPTH OF SEAM : 128.85(m)													
128.85	129.00	.15	.15	100.0	129.00	.15	.15	COAL	C4	2450.	2.70	17.10			R
129.00	130.20	1.20	1.20	100.0	130.20	1.20	1.20	COAL	C4		2.70	17.10			F
SEAM : XII		ENDING DEPTH OF SEAM : 130.20(m)													
										THICKNESS (m) : 1.35					
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STATEMENT SHOWING BAND BY BAND ANALYSIS OF BOREHOLES DRILLED IN  
 LOHAPATTI (EAST) BLOCK; JHARIA COALFIELD; DISTRICT: DHANBAD; JHARKHAND

(ON AIR DRIED BASIS)  
 (AS RECEIVED FROM :MECL,NAGPUR )  
 BOREHOLE NO :MLE-11

A-III/ 14

DEPTH FROM SURFACE FROM (M)	TO (M)	RUN (M)	RECOVERY %	FLOOR DEPTH (M)	THICKNESS RECOV (M)	EXT (M)	LITHOLOGY	OTHER DETAILS	SAMPLE NO	WT (GMS)	M%	ASH%	VM%	FC%	R/F
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SEAM : XIII STARTING DEPTH OF SEAM : 60.80(m)

60.80	61.90	1.10	1.10	100.0	61.90	1.10	1.10	COAL	C1	2560.	2.60	10.60			R
61.90	62.10	.20	.20	100.0	62.10	.20	.20	COAL	C1		2.60	10.60			F

SEAM : XIII ENDING DEPTH OF SEAM : 62.10(m) THICKNESS (m) : 1.30

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SEAM : XII STARTING DEPTH OF SEAM : 75.00(m)

75.00	75.90	.90	.90	100.0	75.90	.90	.90	COAL	C2	2340.	2.80	17.50			R
75.90	76.25	.35	.35	100.0	76.25	.35	.35	COAL	C2		2.80	17.50			F

SEAM : XII ENDING DEPTH OF SEAM : 76.25(m) THICKNESS (m) : 1.25

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STATEMENT SHOWING BAND BY BAND ANALYSIS OF BOREHOLES DRILLED IN  
 LOHAPATTI (EAST) BLOCK; JHARIA COALFIELD; DISTRICT: DHANBAD; JHARKHAND

(ON AIR DRIED BASIS)  
 (AS RECEIVED FROM :MECL,NAGPUR )  
 BOREHOLE NO :MLE-13

A-III/ 16

DEPTH FROM SURFACE	RUN	RECOVERY	FLOOR DEPTH	THICKNESS RECOV	EXT	LITHOLOGY	OTHER DETAILS	SAMPLE NO	WT (GMS)	M%	ASH%	VM%	FC%	R/F
FROM (M)	TO (M)	(M)	(M)	(M)	(M)									

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SEAM : XIV                      STARTING DEPTH OF SEAM : 40.20(m)

40.20	41.00	.80	.80	100.0	40.30	.10	.10	COAL	C1	260.	2.20	29.40		R
					40.40	.10	.10	CSH	B1	410.	2.40	53.70		
					40.65	.25	.25	COAL	C2	660.	2.30	23.50		
					40.85	.20	.20	CSH	B2	740.	2.50	70.00		
					41.00	.15	.15	COAL	C3	290.	2.00	29.50		
41.00	42.40	1.40	1.40	100.0	41.10	.10	.10	COAL	C3		2.00	29.50		
					41.30	.20	.20	CSH	B3	180.	2.30	50.60		
					42.40	1.10	1.10	COAL	C4	1760.	2.40	19.40		F

SEAM :                      XIV                      ENDING DEPTH OF SEAM : 42.40(m)                      THICKNESS (m) : 2.20

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SEAM : XIII                      STARTING DEPTH OF SEAM : 84.00(m)

84.00	84.20	.20	.20	100.0	84.20	.20	.20	COAL	C5	2850.	2.10	16.40		R
84.20	85.40	1.20	1.20	100.0	85.40	1.20	1.20	COAL	C5		2.10	16.40		F

SEAM :                      XIII                      ENDING DEPTH OF SEAM : 85.40(m)                      THICKNESS (m) : 1.40

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SEAM : XII                      STARTING DEPTH OF SEAM : 98.25(m)

98.25	99.55	1.30	1.30	100.0	99.55	1.30	1.30	COAL	C6	2975.	2.10	15.10		*
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SEAM :                      XII                      ENDING DEPTH OF SEAM : 99.55(m)                      THICKNESS (m) : 1.30

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STATEMENT SHOWING BAND BY BAND ANALYSIS OF BOREHOLES DRILLED IN  
 LOHAPATTI (EAST) BLOCK; JHARIA COALFIELD; DISTRICT: DHANBAD; JHARKHAND

(ON AIR DRIED BASIS)  
 (AS RECEIVED FROM :MECL,NAGPUR )  
 BOREHOLE NO :MLE-14

A-III/ 17

DEPTH FROM SURFACE FROM (M) TO (M)	RUN (M)	RECOVERY %	FLOOR DEPTH (M)	THICKNESS RECOV (M)	EXT (M)	LITHOLOGY	OTHER DETAILS	SAMPLE NO	WT (GMS)	M%	ASH%	VM%	FC%	R/ F
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SEAM : XIII		STARTING DEPTH OF SEAM : 43.35(m)												
43.35	44.50	1.15	1.15	100.0	44.50	1.15	1.15	COAL	C1	1835.	2.80	11.00		*
SEAM : XIII		ENDING DEPTH OF SEAM : 44.50(m)							THICKNESS (m) :	1.15				

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SEAM : XII		STARTING DEPTH OF SEAM : 54.75(m)												
54.75	55.20	.45	.45	100.0	55.20	.45	.45	COAL	C2	1780.	2.70	12.20		R
55.20	56.20	1.00	1.00	100.0	56.20	1.00	1.00	COAL	C2		2.70	12.20		F
SEAM : XII		ENDING DEPTH OF SEAM : 56.20(m)							THICKNESS (m) :	1.45				

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**ANNEXURE-IV**  
**[ p A-IV/ 1 to A-IV/30 ]**

## ANNEXURE-IV

STATEMENT SHOWING QUALITY OF COKING COAL SEAMS ENCOUNTERED IN BOREHOLES DRILLED IN  
LOHAPATTI (EAST) BLOCK: JHARIA COALFIELD: DISTRICT: DHANBAD: JHARKHAND

SEAM : LOCAL-1

A-IV/ 1

BOREHOLE NO	DEPTH THICKNESS OF THE SEAM		BCS I30	THICK EXBAND (M)	PROXIMATE ANALYSIS				UVM% KCL/KG	C.V. KCL/KG	U.C.V. KCL/KG	UHV GRADE
	FROM (M)	TO (M)			M%	ASH%	VM%	F.C.				
MLE-1	B.H. BEYOND INCRP											
MLE-2	B.H. BEYOND INCRP											
MLE-3	B.H. BEYOND INCRP											
MLE-4	B.H. BEYOND INCRP											
MLE-5	B.H. BEYOND INCRP											
MLE-6	B.H. BEYOND INCRP											
MLE-7	B.H. BEYOND INCRP											
MLE-8	B.H. BEYOND INCRP											
MLE-9	B.H. BEYOND INCRP											
MLE-10	B.H. BEYOND INCRP											
MLE-11	B.H. BEYOND INCRP											
MLE-12	B.H. BEYOND INCRP											
MLE-13	B.H. BEYOND INCRP											
MLE-14	B.H. BEYOND INCRP											
MLE-15	B.H. BEYOND INCRP											
MLE-16	B.H. BEYOND INCRP											

NOTE : \*\* INDICATES SECTIONAL OVERALL

\* INDICATES BOREHOLE DRILLED ON THE PERIPHERY OF THE BLOCK

A.D.-INDICATES ANALYSIS ON AIR DRIED BASIS

STATEMENT SHOWING QUALITY OF COKING COAL SEAMS ENCOUNTERED IN BOREHOLES DRILLED IN  
LOHAPATTI (EAST) BLOCK: JHARIA COALFIELD: DISTRICT: DHANBAD: JHARKHAND

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SEAM : XIV

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A-IV/ 2

BOREHOLE NO	DEPTH THICKNESS OF THE SEAM			THICKNESS (M)	PROXIMATE ANALYSIS				UVM%	C.V.	U.C.V.	UHV	GRADE	
	FROM (M)	TO (M)	THICKNESS (M)		BCS	I30	EXBAND	M%						ASH%
MLE-1	21.65	22.93	1.28		SEAM OVERALL NOT ADVISED									
				BCS	1.16									
				I30	1.28									
MLE-2	31.80	33.35	1.55		SEAM OVERALL NOT ADVISED									
				BCS	1.55									
				I30	1.55									
MLE-3	53.00	55.50	2.50		SEAM OVERALL NOT ADVISED									
				BCS	2.25									
				I30	2.50									
MLE-4	15.20	15.85	.65		BCS	.65	2.7	26.1	29.0	42.2	38.5	5640	8222	W-III
				I30	.65	2.7	26.1	29.0	42.2	38.5	5640	8222	W-III	
MLE-5	B.H. BEYOND INCROP													
MLE-6	B.H. BEYOND INCROP													
MLE-7	B.H. BEYOND INCROP													
MLE-8	B.H. BEYOND INCROP													
MLE-9	B.H. BEYOND INCROP													
MLE-10	69.50	71.80	2.30		BCS	2.30	2.9	29.4	26.6	41.1	36.5	5360	8276	W-IV
				I30	2.30	2.9	29.4	26.6	41.1	36.5	5360	8276	W-IV	
				EXBAND	1.95	3.0	21.5	29.0	46.5	36.6	6100	8316	W-II	
MLE-11	NOT DEVELOPED													
MLE-12	38.15	39.75	1.60		BCS	1.55	3.2	20.6	29.2	47.0	36.6	6020	8119	W-I
				I30	1.55	3.2	20.6	29.2	47.0	36.6	6020	8119	W-I	
				EXBAND	1.20	3.1	17.8	30.0	49.1	36.5	6350	8212	S-II	
MLE-13	40.20	42.40	2.20		BCS	1.70	2.6	22.0	30.3	45.1	38.4	6040	8251	W-II
				I30	2.20	2.6	36.2	26.6	34.6	39.9	4820	8370	UG	
MLE-14	B.H. BEYOND INCROP													
MLE-15	27.34	29.80	2.46		SENT FOR PETROGRAPHY									
				BCS	1.81									
				I30	1.81									

NOTE : \*\* INDICATES SECTIONAL OVERALL  
\* INDICATES BOREHOLE DRILLED ON THE PERIPHERY OF THE BLOCK  
A.D.-INDICATES ANALYSIS ON AIR DRIED BASIS

STATEMENT SHOWING QUALITY OF COKING COAL SEAMS ENCOUNTERED IN BOREHOLES DRILLED IN  
LOHAPATTI (EAST) BLOCK; JHARIA COALFIELD; DISTRICT: DHANBAD; JHARKHAND

SEAM : XIV

A-IV/ 3

BOREHOLE NO	DEPTH THICKNESS OF THE SEAM			THICK BCS I30	THICK (M)	PROXIMATE ANALYSIS				UVM% KCL/KG	C.V. U.C.V.	UHV KCL/KG	GRADE
	FROM (M)	TO (M)	THICK (M)			M%	ASH%	VM%	F.C.				
MLE-16	33.05	34.80	1.75			SENT FOR GEO. ENGG. TEST							
				BCS	1.75								
				I30	1.75								
LMS-1	58.50	59.85	1.35										
				BCS	1.10	2.8	26.7	28.9	41.6	38.7			W-III
				I30	1.35	2.3	31.3	27.7	38.7	38.8			W-IV
LMS-2	87.04	88.39	1.35										
				BCS	1.10	2.1	30.3	27.3	40.3	37.6			W-IV
				I30	1.35	2.1	32.4	26.4	39.1	37.2			W-IV
LMS-3	56.11	57.41	1.30										
				BCS	1.08	3.0	28.8	28.0	40.2	38.5			W-IV
				I30	1.30	2.4	30.1	27.4	40.1	37.8			W-IV
LMS-4	35.81	37.45	1.64										
				BCS	1.54	3.0	30.9	27.1	39.0	38.1			W-IV
				I30	1.64	2.1	32.0	27.4	38.5	38.6			W-IV
LMS-5	27.68	29.09	1.41										
				BCS	1.19	3.2	27.0	28.0	41.8	37.7			W-III
				I30	1.41	2.5	27.5	27.6	42.4	37.0			W-III
LMS-6	40.50	42.20	1.70										
				BCS	1.39	2.1	29.1	28.7	40.1	39.1			W-IV
				I30	1.70	2.1	36.3	26.2	35.4	38.9			UG
LMS-7	107.60	109.20	1.60										
				BCS	1.36	2.6	31.2	27.5	38.7	38.7			W-IV
				I30	1.60	2.9	33.8	26.6	36.7	38.8			W-IV
LMS-8	55.80	57.80	2.00										
													GOAF
LMS-9	33.84	36.00	2.16										
				BCS	1.39	3.4	23.3	29.8	43.5	38.7			W-II
				I30	2.08	3.2	34.2	27.2	35.4	40.2			W-IV
LMS-10	19.12	20.54	1.42										
				BCS	1.13	2.4	25.8	28.9	42.9	38.0			W-III
				I30	1.42	2.4	29.5	28.2	39.9	38.8			W-IV
LMS-13	B.H. BEYOND INCROP												
LMS-14	B.H. BEYOND INCROP												

NOTE : \*\* INDICATES SECTIONAL OVERALL  
\* INDICATES BOREHOLE DRILLED ON THE PERIPHERY OF THE BLOCK  
A.D. - INDICATES ANALYSIS ON AIR DRIED BASIS

STATEMENT SHOWING QUALITY OF COKING COAL SEAMS ENCOUNTERED IN BOREHOLES DRILLED IN  
LOHAPATTI (EAST) BLOCK; JHARIA COALFIELD; DISTRICT: DHANBAD; JHARKHAND

SEAM : XIV

A-IV/ 4

BOREHOLE NO	DEPTH THICKNESS OF THE SEAM			THICKNESS (M)	PROXIMATE ANALYSIS				UVM% KCL/KG	C.V. U.C.V. KCL/KG	UHV GRADE	
	FROM (M)	TO (M)	THICKNESS (M)		BCS I30	M%	ASH%	VM%				F.C.
LMS-16	8.00	9.40	1.40		BCS	1.40	2.7	31.4	27.9	38.0	39.5	W-IV
					I30	1.40	2.7	31.4	27.9	38.0	39.5	W-IV
LMS-19	52.20	54.63	2.43		BCS	1.46		28.7				W-IV
					I30	2.43		41.0				UG
MH-31	B.H. BEYOND INCROP											
MH-33	23.45	23.85	.40	NOT ANALYSED								
MH-40	45.25	46.25	1.00		BCS	.80	2.7	29.2	28.0	40.1	38.5	W-IV
					I30	1.00		30.2				W-IV
MH-48	B.H. BEYOND INCROP											
MH-55	B.H. BEYOND INCROP											
KLP-9	29.49	30.74	1.25		BCS	.74	2.7	26.6	29.0	41.7	38.7	W-III
					I30	1.25		35.1				UG
KLP-47	23.40	24.86	1.46		BCS	1.03	3.4	26.8	28.7	41.1	38.8	W-III
					I30	1.46		33.8				W-IV
KLP-53	B.H. BEYOND INCROP											
JX-9	83.00	83.75	.75	NOT ANALYSED								

NOTE : \*\* INDICATES SECTIONAL OVERALL

\* INDICATES BOREHOLE DRILLED ON THE PERIPHERY OF THE BLOCK

A.D.-INDICATES ANALYSIS ON AIR DRIED BASIS

STATEMENT SHOWING QUALITY OF COKING COAL SEAMS ENCOUNTERED IN BOREHOLES DRILLED IN  
LOHAPATTI (EAST) BLOCK; JHARIA COALFIELD; DISTRICT: DHANBAD; JHARKHAND

SEAM : XIII

A-IV/ 5

BOREHOLE NO	DEPTH THICKNESS OF THE SEAM			THICK I30 (M)	PROXIMATE ANALYSIS				UVM%	C.V. !KCL/KG!	U.C.V. !KCL/KG!	UHV !GRADE!	
	FROM (M)	TO (M)	THICK (M)		M%	ASH%	VM%	F.C.					
MLE-1	61.50	62.57	1.07		SEAM OVERALL NOT ADVISED								
				BCS	1.00								
				I30	1.07								
MLE-2	76.30	77.40	1.10		SEAM OVERALL NOT ADVISED								
				BCS	1.10								
				I30	1.10								
MLE-3	94.85	95.90	1.05		SEAM OVERALL NOT ADVISED								
				BCS	1.05								
				I30	1.05								
MLE-4	62.30	63.80	1.50										
				BCS	1.50	2.7	19.7	29.8	47.8	36.8	6270	8290	W-I
				I30	1.50	2.7	19.7	29.8	47.8	36.8	6270	8290	W-I
MLE-5	52.10	53.60	1.50										
				BCS	1.50	2.5	21.2	31.0	45.3	38.9	6130	8263	W-II
				I30	1.50	2.5	21.2	31.0	45.3	38.9	6130	8263	W-II
MLE-6	35.95	37.10	1.15										
				BCS	1.15	2.8	12.9	32.9	51.4	38.1	6820	8215	S-I
				I30	1.15	2.8	12.9	32.9	51.4	38.1	6820	8215	S-I
MLE-7	41.50	42.70	1.20										
				BCS	1.20	3.0	11.7	32.1	53.2	36.8	6810	8094	S-I
				I30	1.20	3.0	11.7	32.1	53.2	36.8	6810	8094	S-I
MLE-8	38.25	39.50	1.25										
				BCS	1.25	3.0	12.3	32.2	52.5	37.1	6830	8182	S-I
				I30	1.25	3.0	12.3	32.2	52.5	37.1	6830	8182	S-I
MLE-9	13.60	14.75	1.15										
				BCS	1.15	3.0	20.8	29.3	46.9	36.7	6090	8216	W-I
				I30	1.15	3.0	20.8	29.3	46.9	36.7	6090	8216	W-I
MLE-10	113.00	114.30	1.30										
				BCS	1.30	2.7	13.4	31.2	52.7	36.2	6840	8284	S-I
				I30	1.30	2.7	13.4	31.2	52.7	36.2	6840	8284	S-I
MLE-11	60.80	62.10	1.30										
				BCS	1.30	2.8	10.6	33.2	53.4	37.6	7000	8183	S-I
				I30	1.30	2.8	10.6	33.2	53.4	37.6	7000	8183	S-I

NOTE : \*\* INDICATES SECTIONAL OVERALL

\* INDICATES BOREHOLE DRILLED ON THE PERIPHERY OF THE BLOCK

A.D.-INDICATES ANALYSIS ON AIR DRIED BASIS

STATEMENT SHOWING QUALITY OF COKING COAL SEAMS ENCOUNTERED IN BOREHOLES DRILLED IN  
LOHAPATTI (EAST) BLOCK; JHARIA COALFIELD; DISTRICT: DHANBAD; JHARKHAND

SEAM : XIII

A-IV/ 6

BOREHOLE NO	DEPTH THICKNESS OF THE SEAM			BCS	THICK (M)	PROXIMATE ANALYSIS				UVM%	C.V.	U.C.V.	UHV	GRADE
	FROM (M)	TO (M)	THICK (M)			EXBAND	M%	ASH%	VM%					
MLE-12	78.75	80.05	1.30	BCS	1.30	2.5	16.3	31.6	49.6	37.7	6610	8307	S-II	
				I30	1.30	2.5	16.3	31.6	49.6	37.7	6610	8307	S-II	
MLE-13	84.00	85.40	1.40	BCS	1.40	3.0	16.4	31.3	49.3	37.6	6600	8358	S-II	
				I30	1.40	3.0	16.4	31.3	49.3	37.6	6600	8358	S-II	
MLE-14	43.35	44.50	1.15	BCS	1.15	2.8	11.0	32.7	53.5	37.1	7030	8260	S-I	
				I30	1.15	2.8	11.0	32.7	53.5	37.1	7030	8260	S-I	
MLE-15	74.71	76.27	1.56	SENT FOR PETROGRAPHY										
				BCS	1.56									
MLE-16	76.78	78.00	1.22	SENT FOR GEO. ENGG. TEST										
				BCS	1.22									
				I30	1.22									
LMS-1	BH. NO. UPTO THE SEAM													
LMS-2	BH. NO. UPTO THE SEAM													
LMS-3	BH. NO. UPTO THE SEAM													
LMS-4	BH. NO. UPTO THE SEAM													
LMS-5	BH. NO. UPTO THE SEAM													
LMS-6	84.45	85.90	1.45	BCS	1.37	1.9	24.7	29.9	43.5	38.7			W-III	
				I30	1.45	2.0	25.5	29.4	43.1	38.4			W-III	
LMS-7	151.50	152.79	1.29	BCS	1.19	2.8	23.7	30.4	43.1	39.4			W-II	
				I30	1.29	2.7	25.8	29.4	42.1	38.9			W-III	
LMS-8	94.46	94.73	.27	FLOOR FAULTED										
LMS-9	76.70	78.41	1.71	BCS	1.61	3.0	20.0	33.7	43.3	42.3			W-I	
				I30	1.71	2.9	23.7	29.7	43.7	38.5			W-II	
LMS-10	FAULTED													
LMS-13	38.90	40.10	1.20	BCS	1.13	1.6	22.0	31.2	45.2	39.1			W-II	
				I30	1.20	1.4	22.8	31.2	44.6	39.3			W-II	

NOTE : \*\* INDICATES SECTIONAL OVERALL

\* INDICATES BOREHOLE DRILLED ON THE PERIPHERY OF THE BLOCK

A.D.-INDICATES ANALYSIS ON AIR DRIED BASIS

STATEMENT SHOWING QUALITY OF COKING COAL SEAMS ENCOUNTERED IN BOREHOLES DRILLED IN LOHAPATTI (EAST) BLOCK; JHARIA COALFIELD; DISTRICT: DHANBAD; JHARKHAND

SEAM : XIII

A-IV/ 7

BOREHOLE NO	DEPTH THICKNESS OF THE SEAM			THICK I30	PROXIMATE ANALYSIS				UVM% KCL/KG	C.V. U.C.V.	UHV KCL/KG	GRADE
	FROM (M)	TO (M)	THICK (M)		BCS I30	M%	ASH%	VM%				
LMS-14	27.03	28.15	1.12									
				BCS	.89	2.2	22.8	30.3	44.7	38.5		W-II
				I30	1.12	2.0	27.1	29.1	41.8	38.7		W-III
LMS-16	51.82	53.08	1.26									
				BCS	1.13	2.4	19.5	32.3	45.8	39.9		W-I
				I30	1.26	2.3	21.8	31.0	44.9	39.1		W-II
LMS-19	94.80	96.10	1.30									
				BCS	1.30	1.9	23.0	30.2	44.9	38.3		W-II
				I30	1.30	1.9	23.0	30.2	44.9	38.3		W-II
MH-31	23.10	23.45	.35	NOT ANALYSED								
MH-33	66.05	67.10	1.05									
				BCS	.92	2.2	27.2	29.2	41.4	39.0		W-III
				I30	1.05		29.5					W-IV
MH-40	91.15	91.90	.75									
				BCS	.58	2.5	24.4	29.9	43.2	38.9		W-III
				I30	.75		30.6					W-IV
MH-48	B.H. BEYOND INCRDP											
MH-55	17.50	18.70	1.20									
				BCS	1.10	2.2	20.7	30.4	46.7	37.8		W-I
				I30	1.20		25.5					W-III
KLP-9	72.98	73.69	.71									
				BCS	.71	2.0	28.5	28.2	41.3	38.0		W-IV
				I30	.71	2.0	28.5	28.2	41.3	38.0		W-IV
KLP-47	67.99	69.00	1.01									
				BCS	.95	3.3	21.1	30.1	45.5	38.1		W-II
				I30	1.01		23.4					W-II
KLP-53	26.60	27.76	1.16									
				BCS	1.05	3.1	21.7	29.0	46.2	36.7		W-II
				I30	1.16	2.2	25.4	29.3	43.1	38.3		W-III
JK-9	FAULTED											

NOTE : \*\* INDICATES SECTIONAL OVERALL  
 \* INDICATES BOREHOLE DRILLED ON THE PERIPHERY OF THE BLOCK  
 A.D.-INDICATES ANALYSIS ON AIR DRIED BASIS

STATEMENT SHOWING QUALITY OF COKING COAL SEAMS ENCOUNTERED IN BOREHOLES DRILLED IN  
LOHAPATTI (EAST) BLOCK; JHARIA COALFIELD; DISTRICT: DHANBAD; JHARKHAND

SEAM : XII

A-IV/ 8

BOREHOLE NO	DEPTH THICKNESS OF THE SEAM			THICKNESS (M)	PROXIMATE ANALYSIS				UVM%	C.V.	U.C.V.	UHV	GRADE
	FROM (M)	TO (M)	THICKNESS (M)		M%	ASH%	VM%	F.C.					
MLE-1	74.90	76.10	1.20		SEAM OVERALL NOT ADVISED								
				BCS	1.20								
				I30	1.20								
MLE-2	90.30	91.80	1.50		SEAM OVERALL NOT ADVISED								
				BCS	1.50								
				I30	1.50								
MLE-3	107.65	108.85	1.20		SEAM OVERALL NOT ADVISED								
				BCS	1.20								
				I30	1.20								
MLE-4	75.50	77.00	1.50										
				BCS	1.50	2.6	23.2	30.3	43.9	38.9	6070	8444	W-II
				I30	1.50	2.6	23.2	30.3	43.9	38.9	6070	8444	W-II
				EXBAND	1.40	2.7	16.7	31.3	49.3	37.5	6510	8247	S-II
MLE-5	66.60	68.10	1.50										
				BCS	1.50	2.7	18.2	30.1	49.0	36.6	6350	8216	W-I
				I30	1.50	2.7	18.2	30.1	49.0	36.6	6350	8216	W-I
MLE-6	48.60	50.00	1.40										
				BCS	1.40	2.9	14.5	31.6	51.0	37.2	6570	8096	S-I
				I30	1.40	2.9	14.5	31.6	51.0	37.2	6570	8096	S-I
MLE-7	53.25	54.75	1.50										
				BCS	1.50	2.8	15.2	31.5	50.5	37.3	6600	8200	S-II
				I30	1.50	2.8	15.2	31.5	50.5	37.3	6600	8200	S-II
MLE-8	50.30	51.70	1.40										
				BCS	1.40	3.9	16.0	31.1	49.0	37.6	6430	8191	S-II
				I30	1.40	3.9	16.0	31.1	49.0	37.6	6430	8191	S-II
MLE-9	30.75	31.50	.75										
				BCS	.75	2.6	24.2	28.8	44.4	37.3	5810	8208	W-III
				I30	.75	2.6	24.2	28.8	44.4	37.3	5810	8208	W-III
MLE-10	128.85	130.20	1.35										
				BCS	1.35	2.6	17.2	29.9	50.3	35.9	6510	8295	S-II
				I30	1.35	2.6	17.2	29.9	50.3	35.9	6510	8295	S-II
MLE-11	75.00	76.25	1.25										
				BCS	1.25	2.7	17.5	30.6	49.2	37.0	6440	8251	S-II
				I30	1.25	2.7	17.5	30.6	49.2	37.0	6440	8251	S-II

NOTE : \*\* INDICATES SECTIONAL OVERALL

\* INDICATES BOREHOLE DRILLED ON THE PERIPHERY OF THE BLOCK

A.D.-INDICATES ANALYSIS ON AIR DRIED BASIS

STATEMENT SHOWING QUALITY OF COKING COAL SEAMS ENCOUNTERED IN BOREHOLES DRILLED IN  
LOHAPATTI (EAST) BLOCK; JHARIA COALFIELD; DISTRICT: DHANBAD; JHARKHAND

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SEAM : XII

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A-IV/ 9

BOREHOLE NO	DEPTH THICKNESS OF THE SEAM			BCS	THICKNESS (M)	PROXIMATE ANALYSIS				UVM%	C.V.	U.C.V.	UHV	GRADE
	FROM (M)	TO (M)	THICKNESS (M)			M%	ASH%	VM%	F.C.					
MLE-12	94.00	95.10	1.10	BCS	1.10	2.4	20.3	29.7	47.6	36.8	6260	8316	W-I	
				I30	1.10	2.4	20.3	29.7	47.6	36.8	6260	8316	W-I	
MLE-13	98.25	99.55	1.30	BCS	1.30	2.3	15.3	31.9	50.5	37.5	6730	8321	S-II	
				I30	1.30	2.3	15.3	31.9	50.5	37.5	6730	8321	S-II	
MLE-14	54.75	56.20	1.45	BCS	1.45	3.1	12.2	32.9	51.8	38.0	6900	8265	S-I	
				I30	1.45	3.1	12.2	32.9	51.8	38.0	6900	8265	S-I	
MLE-15	85.20	86.70	1.50	SENT FOR PETROGRAPHY										
				BCS	1.50									
MLE-16	89.20	90.55	1.35	SENT FOR GEO. ENGG. TEST										
				BCS	1.35									
LMS-1	BH. ND. UPTO THE SEAM													
LMS-2	BH. ND. UPTO THE SEAM													
LMS-3	BH. ND. UPTO THE SEAM													
LMS-4	BH. ND. UPTO THE SEAM													
LMS-5	BH. ND. UPTO THE SEAM													
LMS-6	96.25	97.64	1.39	BCS	1.33	1.5	25.3	30.3	42.9	39.3			W-III	
				I30	1.39	1.4	27.0	30.2	41.4	39.9			W-III	
LMS-7	167.81	168.97	1.16	BCS	.89	2.5	31.4	27.0	39.1	37.9			W-IV	
				I30	1.16	2.5	33.0	26.4	38.1	37.8			W-IV	
LMS-8	FAULTED													
LMS-9	90.60	92.00	1.40	BCS	1.08	2.7	21.7	30.0	45.6	37.9			W-II	
				I30	1.40	2.6	27.7	28.9	40.8	39.0			W-III	
LMS-10	45.06	46.67	1.61	BCS	1.50	2.1	24.0	29.9	44.0	38.5			W-III	
				I30	1.61	2.1	25.8	29.4	42.7	38.6			W-III	

NOTE : \*\* INDICATES SECTIONAL OVERALL

\* INDICATES BOREHOLE DRILLED ON THE PERIPHERY OF THE BLOCK

A.D.-INDICATES ANALYSIS ON AIR DRIED BASIS

STATEMENT SHOWING QUALITY OF COKING COAL SEAMS ENCOUNTERED IN BOREHOLES DRILLED IN  
LOHAPATTI (EAST) BLOCK; JHARIA COALFIELD; DISTRICT: DHANBAD; JHARKHAND

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SEAM : XII

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A-IV/ 10

BOREHOLE NO	DEPTH THICKNESS OF THE SEAM			THICK BCS	PROXIMATE ANALYSIS				UVM% KCL/KG	C.V. U.C.V.	UHV KCL/KG	GRADE
	FROM (M)	TO (M)	THICK (M)		EXBAND	M%	ASH%	VM%				
LMS-13	51.58	52.63	1.05									
				BCS	.86	1.3	21.2	31.5	46.0	39.0		W-II
				I30	1.05	1.5	25.6	29.4	43.5	38.2		W-III
LMS-14	39.45	40.50	1.05									
				BCS	.59	2.1	23.2	29.7	45.0	37.8		W-II
				I30	1.05	1.9	30.7	27.9	39.5	38.6		W-IV
LMS-16	62.95	64.42	1.47									
				BCS	1.47	2.4	23.7	30.9	43.0	39.9		W-II
				I30	1.47	2.4	23.7	30.9	43.0	39.9		W-II
LMS-19	108.36	109.66	1.30									
				BCS	1.21		26.5					W-III
				I30	1.30		27.4					W-III
MH-31	31.95	32.55	.60									
												NOT ANALYSED
				BCS	.60							
				I30	.60							
MH-33	78.47	78.94	.47									
												NOT ANALYSED
				BCS	.47							
				I30	.47							
MH-40	104.45	105.05	.60									
												NOT ANALYSED
MH-48	18.10	19.70	1.60									
				BCS	1.35	2.6	21.4	30.2	45.8	38.0		W-II
				I30	1.60		25.0					W-III
MH-55	34.55	35.90	1.35									
				BCS	.80	2.1	21.7	30.2	46.0	37.9		W-II
				I30	1.35		30.3					W-IV
KLP-9	88.85	89.95	1.10									
				BCS	.86	3.5	26.0	29.1	41.4	39.0		W-III
				I30	1.10	2.0	32.3	27.1	38.6	38.2		W-IV
KLP-47	81.70	83.00	1.30									
				BCS	1.00	2.8	21.5	30.2	45.5	38.1		W-II
				I30	1.30	2.7	27.6	28.4	41.3	38.3		W-III
KLP-53	40.30	41.60	1.30									
				BCS	1.00	2.6	26.6	28.3	42.5	37.6		W-III
				I30	1.30	2.0	30.5	27.8	39.7	38.4		W-IV
JK-9	FAULTED											

NOTE : \*\* INDICATES SECTIONAL OVERALL

\* INDICATES BOREHOLE DRILLED ON THE PERIPHERY OF THE BLOCK

& 0 - INDICATES ANALYSIS ON STD NOTED PARTS

STATEMENT SHOWING QUALITY OF COKING COAL SEAMS ENCOUNTERED IN BOREHOLES DRILLED IN  
LOHAPATTI (EAST) BLOCK; JHARIA COALFIELD; DISTRICT: DHANBAD; JHARKHAND

SEAM : XI-A

A-IV/ 11

BOREHOLE NO	DEPTH THICKNESS OF THE SEAM			THICKNESS (M)	PROXIMATE ANALYSIS				UVM%	C.V.	U.C.V.	UHV	GRADE
	FROM (M)	TO (M)	THICKNESS (M)		M%	ASH%	VM%	F.C.					
MLE-1	BH. ND. UPTO THE SEAM												
MLE-2	BH. ND. UPTO THE SEAM												
MLE-3	267.20	267.55	.35		NOT ANALYSED								
				BCS	.35								
				I30	.35								
MLE-4	BH. ND. UPTO THE SEAM												
MLE-5	BH. ND. UPTO THE SEAM												
MLE-6	211.35	211.95	.60										
				BCS	.60	1.9	16.6	30.8	50.7	36.5	6810	8529	S-II
				I30	.60	1.9	16.6	30.8	50.7	36.5	6810	8529	S-II
MLE-7	BH. ND. UPTO THE SEAM												
MLE-8	BH. ND. UPTO THE SEAM												
MLE-9	BH. ND. UPTO THE SEAM												
MLE-10	BH. ND. UPTO THE SEAM												
MLE-11	BH. ND. UPTO THE SEAM												
MLE-12	BH. ND. UPTO THE SEAM												
MLE-13	BH. ND. UPTO THE SEAM												
MLE-14	BH. ND. UPTO THE SEAM												
MLE-15	244.04	244.40	.36		SENT FOR PETROGRAPHY								
				BCS	.26								
				I30	.36								
MLE-16	248.00	248.90	.90		SENT FOR GEO. ENGG. TEST								
				BCS	.90								
				I30	.90								

NOTE : \*\* INDICATES SECTIONAL OVERALL  
\* INDICATES BOREHOLE DRILLED ON THE PERIPHERY OF THE BLOCK  
A.D.-INDICATES ANALYSIS ON AIR DRIED BASIS

STATEMENT SHOWING QUALITY OF COXING COAL SEAMS ENCOUNTERED IN BOREHOLES DRILLED IN  
LOHAPATTI (EAST) BLOCK; JHARIA COALFIELD; DISTRICT: DHANBAD; JHARKHAND

SEAM : XI-B

A-IV/ 12

BOREHOLE NO	DEPTH THICKNESS OF THE SEAM			THICK I30	PROXIMATE ANALYSIS	UVM%	C.V.	U.C.V.	UHV	KCL/KG	KCL/KG/GRADE
	FROM (M)	TO (M)	THICK (M)								
MLE-1	BH. ND. UPTO THE SEAM										
MLE-2	BH. ND. UPTO THE SEAM										
MLE-3	271.95	272.50	.55	BCS .55 I30 .55	SEAM OVERALL NOT ADVISED						
MLE-4	BH. ND. UPTO THE SEAM										
MLE-5	BH. ND. UPTO THE SEAM										
MLE-6	NOT DEVELOPED										
MLE-7	BH. ND. UPTO THE SEAM										
MLE-8	BH. ND. UPTO THE SEAM										
MLE-9	BH. ND. UPTO THE SEAM										
MLE-10	BH. ND. UPTO THE SEAM										
MLE-11	BH. ND. UPTO THE SEAM										
MLE-12	BH. ND. UPTO THE SEAM										
MLE-13	BH. ND. UPTO THE SEAM										
MLE-14	BH. ND. UPTO THE SEAM										
MLE-15	247.50	248.13	.63	BCS .63 I30 .63	SENT FOR PETROGRAPHY						
MLE-16	251.05	251.55	.50	BCS .50 I30 .50	SENT FOR GEO. ENGG. TEST						

NOTE : \*\* INDICATES SECTIONAL OVERALL  
\* INDICATES BOREHOLE DRILLED ON THE PERIPHERY OF THE BLOCK  
A.D.-INDICATES ANALYSIS ON AIR DRIED BASIS

STATEMENT SHOWING QUALITY OF COKING COAL SEAMS ENCOUNTERED IN BOREHOLES DRILLED IN  
LOHAPATTI (EAST) BLOCK; JHARIA COALFIELD; DISTRICT: DHANBAD; JHARKHAND

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SEAM : XI-C

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A-IV/ 13

BOREHOLE NO	DEPTH THICKNESS OF THE SEAM			THICKNESS (M)	PROXIMATE ANALYSIS	UVM%	C.V.	U.C.V.	UHV	KCL/KG/GRADE
	FROM (M)	TO (M)	EXBAND (M)							
MLE-1	BH. ND. UPTO THE SEAM									
MLE-2	BH. ND. UPTO THE SEAM									
MLE-3	BH. ND. UPTO THE SEAM									
MLE-4	BH. ND. UPTO THE SEAM									
MLE-5	BH. ND. UPTO THE SEAM									
MLE-6	213.70	214.00	.30		NOT ANALYSED					
				BCS	.30					
				I30	.30					
MLE-7	BH. ND. UPTO THE SEAM									
MLE-8	BH. ND. UPTO THE SEAM									
MLE-9	BH. ND. UPTO THE SEAM									
MLE-10	BH. ND. UPTO THE SEAM									
MLE-11	BH. ND. UPTO THE SEAM									
MLE-12	BH. ND. UPTO THE SEAM									
MLE-13	BH. ND. UPTO THE SEAM									
MLE-14	BH. ND. UPTO THE SEAM									
MLE-15	276.30	276.50	.20		SENT FOR PETROGRAPHY					
				BCS	.20					
				I30	.20					
MLE-16	268.75	269.11	.36		SENT FOR GEO. ENGG. TEST					
				BCS	.36					
				I30	.36					

NOTE : \*\* INDICATES SECTIONAL OVERALL  
\* INDICATES BOREHOLE DRILLED ON THE PERIPHERY OF THE BLOCK  
A.D.-INDICATES ANALYSIS ON AIR DRIED BASIS

STATEMENT SHOWING QUALITY OF COKING COAL SEAMS ENCOUNTERED IN BOREHOLES DRILLED IN LOHAPATTI (EAST) BLOCK; JHARIA COALFIELD; DISTRICT: DHANBAD; JHARKHAND

SEAM : X

A-IV/ 14

BOREHOLE NO	DEPTH THICKNESS OF THE SEAM		BCS	THICK (M)	PROXIMATE ANALYSIS				UVM%	C.V.	U.C.V.	UHV	GRADE
	FROM (M)	TO (M)			EXBAND (M)	M%	ASH%	VM%					
MLE-1	BH. ND. UPTO THE SEAM												
MLE-2	BH. ND. UPTO THE SEAM												
MLE-3	BH. ND. UPTO THE SEAM												
MLE-4	BH. ND. UPTO THE SEAM												
MLE-5	BH. ND. UPTO THE SEAM												
MLE-6	285.50	286.00	.50										
			BCS	.50	1.7	16.0	30.9	51.4	36.3	6810	8438		S-II
			I30	.50	1.7	16.0	30.9	51.4	36.3	6810	8438		S-II
MLE-7	BH. ND. UPTO THE SEAM												
MLE-8	BH. ND. UPTO THE SEAM												
MLE-9	BH. ND. UPTO THE SEAM												
MLE-10	BH. ND. UPTO THE SEAM												
MLE-11	BH. ND. UPTO THE SEAM												
MLE-12	BH. ND. UPTO THE SEAM												
MLE-13	BH. ND. UPTO THE SEAM												
MLE-14	BH. ND. UPTO THE SEAM												
MLE-15	NOT DEVELOPED												
MLE-16	NOT DEVELOPED												

NOTE : \*\* INDICATES SECTIONAL OVERALL

\* INDICATES BOREHOLE DRILLED ON THE PERIPHERY OF THE BLOCK

A.D.-INDICATES ANALYSIS ON AIR DRIED BASIS

STATEMENT SHOWING QUALITY OF COKING COAL SEAMS ENCOUNTERED IN BOREHOLES DRILLED IN  
LOHAPATTI (EAST) BLOCK; JHARIA COALFIELD; DISTRICT: DHANBAD; JHARKHAND

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SEAM : IX-A

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A-IV/ 15

BOREHOLE NO	DEPTH THICKNESS OF THE SEAM			THICKNESS (M)	PROXIMATE ANALYSIS				UVM% KCL/KG	C.V. U.C.V. KCL/KG	UHV GRADE		
	FROM (M)	TO (M)	THICK (M)		BCS I30	M% ASH% VM% F.C.							
MLE-1	BH. ND. UPTO THE SEAM												
MLE-2	BH. ND. UPTO THE SEAM												
MLE-3	BH. ND. UPTO THE SEAM												
MLE-4	BH. ND. UPTO THE SEAM												
MLE-5	BH. ND. UPTO THE SEAM												
MLE-6	320.70	321.50	.80										
				BCS	.75	2.1	38.5	23.7	35.7	35.7	4750	8550	UG
				I30	.75	2.1	38.5	23.7	35.7	35.7	4750	8550	UG
				EXBAND	.65	2.2	28.2	26.3	43.3	35.2	5710	8550	W-IV
MLE-7	BH. ND. UPTO THE SEAM												
MLE-8	BH. ND. UPTO THE SEAM												
MLE-9	BH. ND. UPTO THE SEAM												
MLE-10	BH. ND. UPTO THE SEAM												
MLE-11	BH. ND. UPTO THE SEAM												
MLE-12	BH. ND. UPTO THE SEAM												
MLE-13	BH. ND. UPTO THE SEAM												
MLE-14	BH. ND. UPTO THE SEAM												
MLE-15	316.81	317.46	.65										
				BCS	.65								
				I30	.65								
MLE-16	323.21	323.63	.42										
				BCS	.42								
				I30	.42								

NOTE : \*\* INDICATES SECTIONAL OVERALL

\* INDICATES BOREHOLE DRILLED ON THE PERIPHERY OF THE BLOCK

A.D.-INDICATES ANALYSIS ON AIR DRIED BASIS

STATEMENT SHOWING QUALITY OF COKING COAL SEAMS ENCOUNTERED IN BOREHOLES DRILLED IN  
LOHAPATTI (EAST) BLOCK; JHARIA COALFIELD; DISTRICT: DHANBAD; JHARKHAND

SEAM : IX-B

A-IV/ 16

BOREHOLE NO	DEPTH THICKNESS OF THE SEAM			THICKNESS (M)	PROXIMATE ANALYSIS				UVM%	C.V.	U.C.V.	UHV
	FROM (M)	TO (M)	THICKNESS (M)		M%	ASH%	VM%	F.C.				
MLE-1	BH. ND. UPTO THE SEAM											
MLE-2	BH. ND. UPTO THE SEAM											
MLE-3	BH. ND. UPTO THE SEAM											
MLE-4	BH. ND. UPTO THE SEAM											
MLE-5	BH. ND. UPTO THE SEAM											
MLE-6	NOT DEVELOPED											
MLE-7	BH. ND. UPTO THE SEAM											
MLE-8	BH. ND. UPTO THE SEAM											
MLE-9	BH. ND. UPTO THE SEAM											
MLE-10	BH. ND. UPTO THE SEAM											
MLE-11	BH. ND. UPTO THE SEAM											
MLE-12	BH. ND. UPTO THE SEAM											
MLE-13	BH. ND. UPTO THE SEAM											
MLE-14	BH. ND. UPTO THE SEAM											
MLE-15	329.39	329.82	.43		SENT FOR PETROGRAPHY							
				BCS	.43							
				I30	.59							
MLE-16	333.41	334.94	1.53		SENT FOR GEO. ENGG. TEST							
				BCS	1.53							
				I30	1.53							

NOTE : \*\* INDICATES SECTIONAL OVERALL

\* INDICATES BOREHOLE DRILLED ON THE PERIPHERY OF THE BLOCK

A.D.-INDICATES ANALYSIS ON AIR DRIED BASIS

STATEMENT SHOWING QUALITY OF COKING COAL SEAMS ENCOUNTERED IN BOREHOLES DRILLED IN LOHAPATTI (EAST) BLOCK; JHARIA COALFIELD; DISTRICT: DHANBAD; JHARKHAND

SEAM : IX-C

A-IV/ 17

BOREHOLE NO	DEPTH THICKNESS OF THE SEAM		BCS	THICKNESS (M)	PROXIMATE ANALYSIS				UVM%	C.V.	U.C.V.	UHV	GRADE
	FROM (M)	TO (M)			EXBAND (M)	M%	ASH%	VM%					

MLE-1	BH. ND. UPTO THE SEAM												
MLE-2	BH. ND. UPTO THE SEAM												
MLE-3	BH. ND. UPTO THE SEAM												
MLE-4	BH. ND. UPTO THE SEAM												
MLE-5	BH. ND. UPTO THE SEAM												
MLE-6	NOT DEVELOPED												
MLE-7	BH. ND. UPTO THE SEAM												
MLE-8	BH. ND. UPTO THE SEAM												
MLE-9	BH. ND. UPTO THE SEAM												
MLE-10	BH. ND. UPTO THE SEAM												
MLE-11	BH. ND. UPTO THE SEAM												
MLE-12	BH. ND. UPTO THE SEAM												
MLE-13	BH. ND. UPTO THE SEAM												
MLE-14	BH. ND. UPTO THE SEAM												
MLE-15	NOT DEVELOPED												
MLE-16	NOT DEVELOPED												

NOTE : \*\* INDICATES SECTIONAL OVERALL

\* INDICATES BOREHOLE DRILLED ON THE PERIPHERY OF THE BLOCK

A.D.-INDICATES ANALYSIS ON AIR DRIED BASIS

STATEMENT SHOWING QUALITY OF COKING COAL SEAMS ENCOUNTERED IN BOREHOLES DRILLED IN  
LOHAPATTI (EAST) BLOCK; JHARIA COALFIELD; DISTRICT: DHANBAD; JHARKHAND

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SEAM : VIII-A

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A-IV/ 18

BOREHOLE NO	DEPTH THICKNESS OF THE SEAM			THICKNESS (M)	PROXIMATE ANALYSIS				UVM%	C.V.	U.C.V.	UHV	GRADE
	FROM (M)	TO (M)	THICKNESS (M)		BCS	M%	ASH%	VM%					
MLE-1	BH. ND. UPTO THE SEAM												
MLE-2	BH. ND. UPTO THE SEAM												
MLE-3	BH. ND. UPTO THE SEAM												
MLE-4	BH. ND. UPTO THE SEAM												
MLE-5	BH. ND. UPTO THE SEAM												
MLE-6	375.00	375.90	.90										
				8CS	.90	1.8	13.4	29.8	55.0	34.1	7050	8447	S-I
				I30	.90	1.8	13.4	29.8	55.0	34.1	7050	8447	S-I
MLE-7	BH. ND. UPTO THE SEAM												
MLE-8	BH. ND. UPTO THE SEAM												
MLE-9	BH. ND. UPTO THE SEAM												
MLE-10	BH. ND. UPTO THE SEAM												
MLE-11	BH. ND. UPTO THE SEAM												
MLE-12	BH. ND. UPTO THE SEAM												
MLE-13	BH. ND. UPTO THE SEAM												
MLE-14	BH. ND. UPTO THE SEAM												
MLE-16	NOT DEVELOPED												

NOTE : \*\* INDICATES SECTIONAL OVERALL

\* INDICATES BOREHOLE DRILLED ON THE PERIPHERY OF THE BLOCK

A.D.-INDICATES ANALYSIS ON AIR DRIED BASIS

STATEMENT SHOWING QUALITY OF COKING COAL SEAMS ENCOUNTERED IN BOREHOLES DRILLED IN  
LOHAPATTI (EAST) BLOCK; JHARIA COALFIELD; DISTRICT: DHANBAD; JHARKHAND

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SEAM : VIII-B

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A-IV/ 19

BOREHOLE NO	DEPTH THICKNESS OF THE SEAM			THICKNESS (M)	PROXIMATE ANALYSIS				UVM%	C.V.	U.C.V.	UHV	
	FROM (M)	TO (M)	THICKNESS (M)		M%	ASH%	VM%	F.C.					
MLE-1	BH. ND. UPTO THE SEAM												
MLE-2	BH. ND. UPTO THE SEAM												
MLE-3	BH. ND. UPTO THE SEAM												
MLE-4	BH. ND. UPTO THE SEAM												
MLE-5	BH. ND. UPTO THE SEAM												
MLE-6	383.00	384.30	1.30										
				BCS	1.30	1.8	20.7	28.9	48.6	35.6	6390	8471	W-I
				I30	1.30	1.8	20.7	28.9	48.6	35.6	6390	8471	W-I
MLE-7	BH. ND. UPTO THE SEAM												
MLE-8	BH. ND. UPTO THE SEAM												
MLE-9	BH. ND. UPTO THE SEAM												
MLE-10	BH. ND. UPTO THE SEAM												
MLE-11	BH. ND. UPTO THE SEAM												
MLE-12	BH. ND. UPTO THE SEAM												
MLE-13	BH. ND. UPTO THE SEAM												
MLE-14	BH. ND. UPTO THE SEAM												
MLE-15	406.84	407.30	.46										
				BCS	.46								
				I30	.46								
MLE-16	397.90	398.95	1.05										
				BCS	1.05								
				I30	1.05								

NOTE : \*\* INDICATES SECTIONAL OVERALL

\* INDICATES BOREHOLE DRILLED ON THE PERIPHERY OF THE BLOCK

A.D.-INDICATES ANALYSIS ON AIR DRIED BASIS

STATEMENT SHOWING QUALITY OF COXING COAL SEAMS ENCOUNTERED IN BOREHOLES DRILLED IN  
LOHAPATTI (EAST) BLOCK; JHARIA COALFIELD; DISTRICT: DHANBAD; JHARKHAND

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SEAM : VIII-C

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A-IV/ 20

BOREHOLE NO	DEPTH THICKNESS OF THE SEAM			BCS	THICK (M)	PROXIMATE ANALYSIS				UVM%	C.V.	U.C.V.	UHV	KCL/KG: GRADE
	FROM (M)	TO (M)	THICK (M)			M%	ASH%	VM%	F.C.					
MLE-1	BH. ND. UPTO THE SEAM													
MLE-2	BH. ND. UPTO THE SEAM													
MLE-3	BH. ND. UPTO THE SEAM													
MLE-4	BH. ND. UPTO THE SEAM													
MLE-5	BH. ND. UPTO THE SEAM													
MLE-6	399.50	400.45	.95											
				BCS	.95	1.7	20.2	28.2	49.9	34.4	6430	8451		W-I
				I30	.95	1.7	20.2	28.2	49.9	34.4	6430	8451		W-I
MLE-7	BH. ND. UPTO THE SEAM													
MLE-8	BH. ND. UPTO THE SEAM													
MLE-9	BH. ND. UPTO THE SEAM													
MLE-10	BH. ND. UPTO THE SEAM													
MLE-11	BH. ND. UPTO THE SEAM													
MLE-12	BH. ND. UPTO THE SEAM													
MLE-13	BH. ND. UPTO THE SEAM													
MLE-14	BH. ND. UPTO THE SEAM													
MLE-15	417.20	418.00	.80											
				BCS	.80									
				I30	.80									
MLE-16	408.95	409.20	.25											
				BCS	.25									
				I30	.25									

NOTE : \*\* INDICATES SECTIONAL OVERALL  
 † INDICATES BOREHOLE DRILLED ON THE PERIPHERY OF THE BLOCK  
 A.D.-INDICATES ANALYSIS ON AIR DRIED BASIS

STATEMENT SHOWING QUALITY OF COKING COAL SEAMS ENCOUNTERED IN BOREHOLES DRILLED IN  
LOHAPATTI (EAST) BLOCK; JHARIA COALFIELD; DISTRICT: DHANBAD; JHARKHAND

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SEAM : VII

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A-IV/ 21

BOREHOLE NO	DEPTH THICKNESS OF THE SEAM			BCS I30	THICK (M)	PROXIMATE ANALYSIS				UVM%	C.V. KCL/KG	U.C.V. KCL/KG	UHV GRADE
	FROM (M)	TO (M)	THICK (M)			EXBAND	M%	ASH%	VM%				

MLE-1	BH. ND. UPTO THE SEAM													
MLE-2	BH. ND. UPTO THE SEAM													
MLE-3	BH. ND. UPTO THE SEAM													
MLE-4	BH. ND. UPTO THE SEAM													
MLE-5	BH. ND. UPTO THE SEAM													
MLE-6	NOT DEVELOPED													
MLE-7	BH. ND. UPTO THE SEAM													
MLE-8	BH. ND. UPTO THE SEAM													
MLE-9	BH. ND. UPTO THE SEAM													
MLE-10	BH. ND. UPTO THE SEAM													
MLE-11	BH. ND. UPTO THE SEAM													
MLE-12	BH. ND. UPTO THE SEAM													
MLE-13	BH. ND. UPTO THE SEAM													
MLE-14	BH. ND. UPTO THE SEAM													
MLE-15	FAULTED													
MLE-16	NOT DEVELOPED													

NOTE : \*\* INDICATES SECTIONAL OVERALL  
\* INDICATES BOREHOLE DRILLED ON THE PERIPHERY OF THE BLOCK  
A.D.-INDICATES ANALYSIS ON AIR DRIED BASIS

STATEMENT SHOWING QUALITY OF COKING COAL SEAMS ENCOUNTERED IN BOREHOLES DRILLED IN  
LOHAPATTI (EAST) BLOCK; JHARIA COALFIELD; DISTRICT: DHANBAD; JHARKHAND

SEAM : VI-A

A-IV/ 22

BOREHOLE NO	DEPTH THICKNESS OF THE SEAM		THICKNESS (M)	BCS	PROXIMATE ANALYSIS				UVM%	C.V.	U.C.V.	UHV	GRADE
	FROM (M)	TO (M)			M%	ASH%	VM%	F.C.					
MLE-1	BH. ND. UPTO THE SEAM												
MLE-2	BH. ND. UPTO THE SEAM												
MLE-3	BH. ND. UPTO THE SEAM												
MLE-4	BH. ND. UPTO THE SEAM												
MLE-5	BH. ND. UPTO THE SEAM												
MLE-6	430.20	430.90	.70										
				BCS	.60	2.0	23.0	27.1	47.9	34.1	6120	8418	W-II
				I30	.60	2.0	23.0	27.1	47.9	34.1	6120	8418	W-II
MLE-7	BH. ND. UPTO THE SEAM												
MLE-8	BH. ND. UPTO THE SEAM												
MLE-9	BH. ND. UPTO THE SEAM												
MLE-10	BH. ND. UPTO THE SEAM												
MLE-11	BH. ND. UPTO THE SEAM												
MLE-12	BH. ND. UPTO THE SEAM												
MLE-13	BH. ND. UPTO THE SEAM												
MLE-14	BH. ND. UPTO THE SEAM												
MLE-15	FAULTED												
MLE-16	NOT DEVELOPED												

NOTE : \*\* INDICATES SECTIONAL OVERALL  
\* INDICATES BOREHOLE DRILLED ON THE PERIPHERY OF THE BLOCK  
A.D.-INDICATES ANALYSIS ON AIR DRIED BASIS

STATEMENT SHOWING QUALITY OF COKING COAL SEAMS ENCOUNTERED IN BOREHOLES DRILLED IN  
LOHAPATTI (EAST) BLOCK; JHARIA COALFIELD; DISTRICT: DHANBAD; JHARKHAND

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SEAM : VI-B

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A-IV/ 23

BOREHOLE NO	DEPTH THICKNESS OF THE SEAM			THICKNESS (M)	PROXIMATE ANALYSIS				UVM%	C.V.	U.C.V.	UHV	GRADE
	FROM (M)	TO (M)	THICKNESS (M)		M%	ASH%	VM%	F.C.					
MLE-1	BH. ND. UPTO THE SEAM												
MLE-2	BH. ND. UPTO THE SEAM												
MLE-3	BH. ND. UPTO THE SEAM												
MLE-4	BH. ND. UPTO THE SEAM												
MLE-5	BH. ND. UPTO THE SEAM												
MLE-6	438.80	439.30	.50										
				BCS	.50	1.9	23.3	26.7	48.1	33.6	6220	8582	W-II
				I30	.50	1.9	23.3	26.7	48.1	33.6	6220	8582	W-II
MLE-7	BH. ND. UPTO THE SEAM												
MLE-8	BH. ND. UPTO THE SEAM												
MLE-9	BH. ND. UPTO THE SEAM												
MLE-10	BH. ND. UPTO THE SEAM												
MLE-11	BH. ND. UPTO THE SEAM												
MLE-12	BH. ND. UPTO THE SEAM												
MLE-13	BH. ND. UPTO THE SEAM												
MLE-14	BH. ND. UPTO THE SEAM												
MLE-15	FAULTED												
MLE-16	NOT DEVELOPED												

NOTE : \*\* INDICATES SECTIONAL OVERALL

\* INDICATES BOREHOLE DRILLED ON THE PERIPHERY OF THE BLOCK

A.D.-INDICATES ANALYSIS ON AIR DRIED BASIS

STATEMENT SHOWING QUALITY OF COKING COAL SEAMS ENCOUNTERED IN BOREHOLES DRILLED IN  
LOHAPATTI (EAST) BLOCK; JHARIA COALFIELD; DISTRICT: DHANBAD; JHARKHAND

SEAM : V

A-IV/ 24

BOREHOLE NO	DEPTH THICKNESS OF THE SEAM			THICKNESS (M)	PROXIMATE ANALYSIS				UVM%	C.V.	U.C.V.	UHV	KCL/KG GRADE
	FROM (M)	TO (M)	THICKNESS (M)		M%	ASH%	VM%	F.C.					
MLE-1	BH. ND. UPTO THE SEAM												
MLE-2	BH. ND. UPTO THE SEAM												
MLE-3	BH. ND. UPTO THE SEAM												
MLE-4	BH. ND. UPTO THE SEAM												
MLE-5	BH. ND. UPTO THE SEAM												
MLE-6	449.20	450.60	1.40										
				BCS	1.15	1.8	28.3	25.1	44.8	33.2	5740	8558	W-IV
				I30	1.15	1.8	28.3	25.1	44.8	33.2	5740	8558	W-IV
MLE-7	BH. ND. UPTO THE SEAM												
MLE-8	BH. ND. UPTO THE SEAM												
MLE-9	BH. ND. UPTO THE SEAM												
MLE-10	BH. ND. UPTO THE SEAM												
MLE-11	BH. ND. UPTO THE SEAM												
MLE-12	BH. ND. UPTO THE SEAM												
MLE-13	BH. ND. UPTO THE SEAM												
MLE-14	BH. ND. UPTO THE SEAM												
MLE-15	FAULTED												
MLE-16	475.45	476.50	1.05										SENT FOR GEO. ENGG. TEST
				BCS	1.05								
				I30	1.05								

NOTE : \*\* INDICATES SECTIONAL OVERALL  
# INDICATES BOREHOLE DRILLED ON THE PERIPHERY OF THE BLOCK  
A.D.-INDICATES ANALYSIS ON AIR DRIED BASIS

STATEMENT SHOWING QUALITY OF COKING COAL SEAMS ENCOUNTERED IN BOREHOLES DRILLED IN  
LOHAPATTI (EAST) BLOCK; JHARIA COALFIELD; DISTRICT: DHANBAD; JHARKHAND

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SEAM : IV

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A-IV/ 25

BOREHOLE NO	DEPTH THICKNESS OF THE SEAM			BCS	THICK (M)	PROXIMATE ANALYSIS				UVM%	C.V.	U.C.V.	UHV	KCL/KG	KCL/KG/GRADE
	FROM (M)	TO (M)	THICK (M)			M%	ASH%	VM%	F.C.						
MLE-1	BH. ND. UPTO THE SEAM														
MLE-2	BH. ND. UPTO THE SEAM														
MLE-3	BH. ND. UPTO THE SEAM														
MLE-4	BH. ND. UPTO THE SEAM														
MLE-5	BH. ND. UPTO THE SEAM														
MLE-6	474.40	475.20	.80												
				BCS	.80	1.6	23.4	26.5	48.5	33.3	6170	8491		W-II	
				I30	.80	1.6	23.4	26.5	48.5	33.3	6170	8491		W-II	
MLE-7	BH. ND. UPTO THE SEAM														
MLE-8	BH. ND. UPTO THE SEAM														
MLE-9	BH. ND. UPTO THE SEAM														
MLE-10	BH. ND. UPTO THE SEAM														
MLE-11	BH. ND. UPTO THE SEAM														
MLE-12	BH. ND. UPTO THE SEAM														
MLE-13	BH. ND. UPTO THE SEAM														
MLE-14	BH. ND. UPTO THE SEAM														
MLE-15	468.80	469.45	.65			SENT FOR PETROGRAPHY									
				BCS	.65										
				I30	.65										
MLE-16	530.20	530.90	.70			SENT FOR GEO. ENGG. TEST									
				BCS	.70										
				I30	.70										

NOTE : \*\* INDICATES SECTIONAL OVERALL  
\* INDICATES BOREHOLE DRILLED ON THE PERIPHERY OF THE BLOCK  
A.D.-INDICATES ANALYSIS ON AIR DRIED BASIS

STATEMENT SHOWING QUALITY OF COKING COAL SEAMS ENCOUNTERED IN BOREHOLES DRILLED IN  
LOHAPATTI (EAST) BLOCK; JHARIA COALFIELD; DISTRICT: DHANBAD; JHARKHAND

SEAM : III

A-IV/ 26

BOREHOLE NO	DEPTH THICKNESS OF THE SEAM		THICKNESS (M)	BCS	PROXIMATE ANALYSIS				UVM%	C.V.	U.C.V.	UHV	GRADE
	FROM (M)	TO (M)			EXBAND (M)	M%	ASH%	VM%					
MLE-1	BH. NO. UPTO THE SEAM												
MLE-2	BH. NO. UPTO THE SEAM												
MLE-3	BH. NO. UPTO THE SEAM												
MLE-4	BH. NO. UPTO THE SEAM												
MLE-5	BH. NO. UPTO THE SEAM												
MLE-6	528.30	532.10	3.80										
				BCS	3.80	1.3	14.3	29.7	54.7	34.1	6860	8268	S-1
				I30	3.80	1.3	14.3	29.7	54.7	34.1	6860	8268	S-1
MLE-7	BH. NO. UPTO THE SEAM												
MLE-8	BH. NO. UPTO THE SEAM												
MLE-9	BH. NO. UPTO THE SEAM												
MLE-10	BH. NO. UPTO THE SEAM												
MLE-11	BH. NO. UPTO THE SEAM												
MLE-12	BH. NO. UPTO THE SEAM												
MLE-13	BH. NO. UPTO THE SEAM												
MLE-14	BH. NO. UPTO THE SEAM												
MLE-15	495.70	499.50	3.80										SENT FOR PETROGRAPHY
				BCS	3.80								
				I30	3.80								
MLE-16	556.70	560.20	3.50										SENT FOR GEO. ENGG. TEST
				BCS	3.50								
				I30	3.50								

NOTE : \*\* INDICATES SECTIONAL OVERALL  
+ INDICATES BOREHOLE DRILLED ON THE PERIPHERY OF THE BLOCK  
A.D.-INDICATES ANALYSIS ON AIR DRIED BASIS

STATEMENT SHOWING QUALITY OF COKING COAL SEAMS ENCOUNTERED IN BOREHOLES DRILLED IN  
LOHAPATTI (EAST) BLOCK; JHARIA COALFIELD; DISTRICT: DHANBAD; JHARKHAND

---

SEAM : II

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A-IV/ 27

BOREHOLE NO	DEPTH THICKNESS OF THE SEAM			THICKNESS (M)	PROXIMATE ANALYSIS				UVM%	C.V.	U.C.V.	UHV	KCL/KG/GRADE
	FROM (M)	TO (M)	THICK (M)		BCS	M%	ASH%	VM%					
MLE-1	BH. ND. UPTO THE SEAM												
MLE-2	BH. ND. UPTO THE SEAM												
MLE-3	BH. ND. UPTO THE SEAM												
MLE-4	BH. ND. UPTO THE SEAM												
MLE-5	BH. ND. UPTO THE SEAM												
MLE-6	557.40	558.00	.60										
				BCS	.60	1.4	17.3	28.0	53.3	33.0	6590	8282	S-II
				I30	.60	1.4	17.3	28.0	53.3	33.0	6590	8282	S-II
MLE-7	BH. ND. UPTO THE SEAM												
MLE-8	BH. ND. UPTO THE SEAM												
MLE-9	BH. ND. UPTO THE SEAM												
MLE-10	BH. ND. UPTO THE SEAM												
MLE-11	BH. ND. UPTO THE SEAM												
MLE-12	BH. ND. UPTO THE SEAM												
MLE-13	BH. ND. UPTO THE SEAM												
MLE-14	BH. ND. UPTO THE SEAM												
MLE-15	530.70	532.20	1.50										
				BCS									
				I30									
													SENT FOR PETROGRAPHY
MLE-16	596.15	596.85	.70										
				BCS	.70								
				I30	.70								
													SENT FOR GEO. ENGG. TEST

NOTE : \*\* INDICATES SECTIONAL OVERALL

\* INDICATES BOREHOLE DRILLED ON THE PERIPHERY OF THE BLOCK

A.D.-INDICATES ANALYSIS ON AIR DRIED BASIS

STATEMENT SHOWING QUALITY OF COKING COAL SEAMS ENCOUNTERED IN BOREHOLES DRILLED IN LOHAPATTI (EAST) BLOCK; JHARIA COALFIELD; DISTRICT: DHANBAD; JHARKHAND

SEAM : I

A-IV/ 28

BOREHOLE NO	DEPTH THICKNESS OF THE SEAM		THICKNESS (M)	BCS	PROXIMATE ANALYSIS				UVM%	C.V.	U.C.V.	UHV	GRADE
	FROM (M)	TO (M)			EXBAND (M)	M%	ASH%	VM%					
MLE-1	BH. ND. UPTO THE SEAM												
MLE-2	BH. ND. UPTO THE SEAM												
MLE-3	BH. ND. UPTO THE SEAM												
MLE-4	BH. ND. UPTO THE SEAM												
MLE-5	BH. ND. UPTO THE SEAM												
MLE-6	571.10	571.60	.50										
				BCS	.50	1.4	19.0	27.9	51.7	33.5	6480	8339	W-I
				I30	.50	1.4	19.0	27.9	51.7	33.5	6480	8339	W-I
MLE-7	BH. ND. UPTO THE SEAM												
MLE-8	BH. ND. UPTO THE SEAM												
MLE-9	BH. ND. UPTO THE SEAM												
MLE-10	BH. ND. UPTO THE SEAM												
MLE-11	BH. ND. UPTO THE SEAM												
MLE-12	BH. ND. UPTO THE SEAM												
MLE-13	BH. ND. UPTO THE SEAM												
MLE-14	BH. ND. UPTO THE SEAM												
MLE-15	549.90	550.45	.55										
				BCS	.55								
				I30	.55								
MLE-16	604.35	605.35	1.00										
				BCS	1.00								
				I30	1.00								

NOTE : \*\* INDICATES SECTIONAL OVERALL

\* INDICATES BOREHOLE DRILLED ON THE PERIPHERY OF THE BLOCK

A.D.-INDICATES ANALYSIS ON AIR DRIED BASIS

STATEMENT SHOWING QUALITY OF COKING COAL SEAMS ENCOUNTERED IN BOREHOLES DRILLED IN LOHAPATTI (EAST) BLOCK; JHARIA COALFIELD; DISTRICT: DHANBAD; JHARKHAND

SEAM : 'O'

A-IV/ 29

BOREHOLE NO	DEPTH THICKNESS OF THE SEAM			THICK (M)	PROXIMATE ANALYSIS				UVM%	C.V.	U.C.V.	UHV	KCL/KG	KCL/KG	GRADE
	FROM (M)	TO (M)	THICK (M)		EXBAND	M%	ASH%	VM%							
MLE-1	BH. ND. UPTO THE SEAM														
MLE-2	BH. ND. UPTO THE SEAM														
MLE-3	BH. ND. UPTO THE SEAM														
MLE-4	BH. ND. UPTO THE SEAM														
MLE-5	BH. ND. UPTO THE SEAM														
MLE-6	574.40	575.95	1.55												
				BCS	1.15	1.6	25.3	25.4	47.7	32.4	5970	8459			WIII
				I30	1.15	1.6	25.3	25.4	47.7	32.4	5970	8459			WIII
				EXBAND	1.00	1.6	20.2	26.7	51.5	32.4	6330	8309			W-I
MLE-7	BH. ND. UPTO THE SEAM														
MLE-8	BH. ND. UPTO THE SEAM														
MLE-9	BH. ND. UPTO THE SEAM														
MLE-10	BH. ND. UPTO THE SEAM														
MLE-11	BH. ND. UPTO THE SEAM														
MLE-12	BH. ND. UPTO THE SEAM														
MLE-13	BH. ND. UPTO THE SEAM														
MLE-14	BH. ND. UPTO THE SEAM														
MLE-15	553.55	556.74	3.19	SENT FOR PETROGRAPHY											
MLE-16	626.95	629.25	2.30	SENT FOR GEO. ENGG. TEST											
				BCS	2.25										
				I30	2.25										

NOTE : \*\* INDICATES SECTIONAL OVERALL  
 \* INDICATES BOREHOLE DRILLED ON THE PERIPHERY OF THE BLOCK.  
 A.D.-INDICATES ANALYSIS ON AIR DRIED BASIS.

STATEMENT SHOWING QUALITY OF COKING COAL SEAMS ENCOUNTERED IN BOREHOLES DRILLED IN LOHAPATTI (EAST) BLOCK; JHARIA COALFIELD; DISTRICT: DHANBAD; JHARKHAND

SEAM : LOCAL

A-IV/ 30

BOREHOLE NO	DEPTH THICKNESS OF THE SEAM			THICKNESS (M)	PROXIMATE ANALYSIS				UVM%	C.V.	U.C.V.	UHV	GRADE
	FROM (M)	TO (M)	THICKNESS (M)		M%	ASH%	VM%	F.C.					
MLE-2	88.05	88.15	.10		NOT ANALYSED								
				BCS	.10								
				I30	.10								
MLE-6	299.45	300.80	1.35										
				BCS	1.30	1.8	12.1	32.3	53.8	36.6	7050	8304	S-I
				I30	1.30	1.8	12.1	32.3	53.8	36.6	7050	8304	S-I
MLE-6	503.65	504.25	.60										
				BCS	.50	1.6	15.2	29.3	53.9	34.0	6930	8484	S-II
				I30	.50	1.6	15.2	29.3	53.9	34.0	6930	8484	S-II
MLE-6	582.30	583.10	.80										
				BCS	.80	1.7	15.3	27.5	55.5	31.9	6880	8444	S-II
				I30	.80	1.7	15.3	27.5	55.5	31.9	6880	8444	S-II
MLE-15	513.90	515.10	1.20		SENT FOR PETROGRAPHY								
				BCS	1.20								
				I30	1.20								
MLE-16	579.50	580.50	1.00		SENT FOR GEO. ENGG. TEST								
				BCS	1.00								
				I30	1.00								

NOTE : \*\* INDICATES SECTIONAL OVERALL

\* INDICATES BOREHOLE DRILLED ON THE PERIPHERY OF THE BLOCK

A.O.=INDICATES ANALYSIS ON AIR DRIED BASIS

**ANNEXURE-V**  
**[ p A-V/ 1 ]**

## ANNEXURE-V

STATEMENT SHOWING THICKNESS OF DIFFERENT FORMATIONS ENCOUNTERED IN THE BOREHOLES DRILLED IN LOHAPATTI (EAST) BLOCK; JHARIA COALFIELD; DISTRICT: DHANBAD; JHARKHAND

A-V/ 1

BOREHOLE NO.	R.L.(M)	SOIL	RANIGANJ				TOTAL DEPTH (M)	
			DEPTH (M)	FROM (M)	TO (M)	THICK (M)		W.ZONE DEPTH(M)
MLE-1	200.805		1.00	1.00	105.50	104.50	6.50	105.50
MLE-2	206.735		3.00	3.00	96.00	93.00	7.35	96.00
MLE-3	200.835		1.00	1.00	276.50	275.50	6.00	276.50
MLE-4	205.900		3.00	3.00	80.00	77.00	7.10	80.00
MLE-5	212.930		6.00	6.00	71.50	65.50	12.10	71.50
MLE-6	194.560		1.00	1.00	588.00	587.00	5.00	588.00
MLE-7	203.470		2.00	2.00	58.40	56.40	4.00	58.40
MLE-8	198.795		3.00	3.00	54.50	51.50	6.00	54.50
MLE-9	191.015		2.90	2.90	34.00	31.10	5.10	34.00
MLE-10	197.305		-	.00	133.30	133.30	1.80	133.30
MLE-11	210.625		.50	.50	78.70	78.20	12.62	78.70
MLE-12	211.080		1.00	1.00	98.00	97.00	8.30	98.00
MLE-13	211.490		3.00	3.00	102.00	99.00	7.00	102.00
MLE-14	196.550		1.00	1.00	59.20	58.20	7.39	59.20
MLE-15	210.025		3.90	3.90	560.00	556.10	7.00	560.00
MLE-16	210.275		1.00	1.00	632.20	631.20	11.00	632.20
LMS-1	213.280		11.50	11.50	62.10	50.60	-	62.10
LMS-2	203.400		10.00	10.00	94.50	84.50	-	94.50
LMS-3	211.420		9.32	9.32	60.00	50.68	-	60.00
LMS-4	201.000		4.00	4.00	40.00	36.00	-	40.00
LMS-5	211.160		14.65	14.65	32.30	17.65	-	32.30
LMS-6	217.620		10.50	10.50	26.60	16.10	-	126.60
LMS-7	206.230		9.43	9.43	172.50	163.07	-	172.50
LMS-8	204.630		8.10	8.10	141.50	133.40	-	141.50
LMS-9	205.740		12.85	12.85	94.60	81.75	-	94.60
LMS-10	208.680		6.70	6.70	62.00	55.30	-	62.00
LMS-13	204.570		9.00	9.00	55.80	46.80	-	55.80
LMS-14	205.920		10.05	10.05	43.20	33.15	-	43.20
LMS-16	209.250		7.45	7.45	68.00	60.55	-	68.00
LMS-19	211.700		9.50	9.50	113.05	103.55	-	113.05
MH-31	215.330		5.00	5.00	515.00	510.00	-	515.00
MH-33	209.810		4.00	4.00	565.70	561.70	-	565.70
MH-40	209.970		7.00	7.00	669.15	662.15	-	669.15
MH-48	197.220		12.20	12.20	571.45	559.25	-	571.45
MH-55	190.200		6.00	6.00	509.80	503.80	-	509.80
KLP-9	191.480		6.20	6.20	600.10	593.90	-	600.10
KLP-47	202.230		10.35	10.35	627.50	617.15	-	627.50
KLP-53	202.230		13.60	13.60	502.70	489.10	-	502.70

**ANNEXURE-VI**  
**[ p A-VI/ 1 to A-VI/ 3 ]**

ANNEXURE VI

STATEMENT SHOWING DETAILS OF DIRT BANDS IN BOREHOLES DRILLED IN  
LOHAPATTI (EAST) BLOCK; JHARIA COALFIELD; DISTRICT: DHANBAD; JHARKHAND

A-VI/ 1

BOREHOLE NO.	DEPTH OF SEAM(m)		THICK (m)	OBVIOUS (NCB) BANDS	CSH UPTO 0.30m		CSH UPTO 1.00m		CSH >1.00m	TOTAL BANDS	BCS THICK (m)	I-30 THICK (m)	I-100 THICK (m)
	FROM	TO			NO.	THICK(m)	NO.	THICK(m)					
SEAM : XIV													
E-1	21.65	22.93	1.28		1	0.12	1	0.12		1	0.12	1.16	1.28
MLE-2	31.80	33.35	1.55									1.55	1.55
E-3	53.00	55.50	2.50		1	0.25	1	0.25		1	0.25	2.25	2.50
MLE-4	15.20	15.85	0.65									0.65	0.65
E-10	69.50	71.80	2.30									2.30	2.30
MLE-12	38.15	39.75	1.60	1	0.05					1	0.05	1.55	1.55
E-13	40.20	42.40	2.20			3	0.50	3	0.50	3	0.50	1.70	2.20
MLE-15	27.34	29.80	2.46					2	0.65	2	0.65	1.81	1.81
E-16	33.05	34.80	1.75									1.75	1.75
SEAM : XIII													
E-1	61.50	62.57	1.07		1	0.07	1	0.07		1	0.07	1.00	1.07
MLE-2	76.30	77.40	1.10									1.10	1.10
E-3	94.85	95.90	1.05									1.05	1.05
MLE-4	62.30	63.80	1.50									1.50	1.50
E-5	52.10	53.60	1.50									1.50	1.50
MLE-6	35.95	37.10	1.15									1.15	1.15
E-7	41.50	42.70	1.20									1.20	1.20
MLE-8	38.25	39.50	1.25									1.25	1.25
E-9	13.60	14.75	1.15									1.15	1.15
MLE-10	113.00	114.30	1.30									1.30	1.30
E-11	60.80	62.10	1.30									1.30	1.30
MLE-12	78.75	80.05	1.30									1.30	1.30
E-13	84.00	85.40	1.40									1.40	1.40
MLE-14	43.35	44.50	1.15									1.15	1.15
E-15	74.71	76.27	1.56									1.56	1.56
MLE-16	76.78	78.00	1.22									1.22	1.22
SEAM : XII													
MLE-1	74.90	76.10	1.20									1.20	1.20
E-2	90.30	91.80	1.50									1.50	1.50
MLE-3	107.65	108.85	1.20									1.20	1.20
MLE-4	75.50	77.00	1.50									1.50	1.50
MLE-5	66.60	68.10	1.50									1.50	1.50
E-6	48.60	50.00	1.40									1.40	1.40
MLE-7	53.25	54.75	1.50									1.50	1.50
E-8	50.30	51.70	1.40									1.40	1.40
MLE-9	30.75	31.50	0.75									0.75	0.75
E-10	128.85	130.20	1.35									1.35	1.35
MLE-11	75.00	76.25	1.25									1.25	1.25

BOREHOLE NO.	DEPTH OF SEAM(m)		THICK (m)	OBVIOUS (NCB) BANDS	CSH UPTO 0.30m		CSH UPTO 1.00m		CSH >1.00m	TOTAL BANDS	BCS THICK (m)	I-30 THICK (m)	I-100 THICK (m)
	FROM	TO		NO.	THICK(m)	NO.	THICK(m)	NO.	THICK(m)	NO.			
MLE-12	94.00	95.10	1.10								1.10	1.10	
E-13	98.25	99.55	1.30								1.30	1.30	
MLE-14	54.75	56.20	1.45								1.45	1.45	
E-15	85.20	86.70	1.50								1.50	1.50	
MLE-16	89.20	90.55	1.35								1.35	1.35	
SEAM : XI-A													
MLE-3	267.20	267.55	0.35								0.35	0.35	
E-6	211.35	211.95	0.60								0.60	0.60	
MLE-15	244.04	244.40	0.36		1	0.10	1	0.10		1	0.10	0.26	0.36
E-16	248.00	248.90	0.90								0.90	0.90	
SEAM : XI-B													
E-3	271.95	272.50	0.55								0.55	0.55	
MLE-15	247.50	248.13	0.63								0.63	0.63	
E-16	251.05	251.55	0.50								0.50	0.50	
SEAM : XI-C													
E-6	213.70	214.00	0.30								0.30	0.30	
MLE-15	276.30	276.50	0.20								0.20	0.20	
E-16	268.75	269.11	0.36								0.36	0.36	
SEAM : X													
E-6	285.50	286.00	0.50								0.50	0.50	
SEAM : IX-A													
MLE-6	320.70	321.50	0.80	1	0.05				1	0.05	0.75	0.75	
MLE-15	316.81	317.46	0.65								0.65	0.65	
E-16	323.21	323.63	0.42								0.42	0.42	
SEAM : IX-B													
MLE-15	329.39	329.82	0.43								0.43	0.43	
MLE-16	333.41	334.94	1.53								1.53	1.53	
SEAM : VIII-A													
MLE-6	375.00	375.90	0.90								0.90	0.90	
SEAM : VIII-B													
MLE-6	383.00	384.30	1.30								1.30	1.30	
E-15	406.84	407.30	0.46								0.46	0.46	
MLE-16	397.90	398.95	1.05								1.05	1.05	

BOREHOLE NO.	DEPTH OF SEAM(m)		THICK (m)	OBVIOUS (NCB)	CSH UPTO 0.30m		CSH UPTO 1.00m		CSH >1.00m	TOTAL BANDS	BCS THICK (m)	I-30 THICK (m)	I-100 THICK (m)
	FROM	TO		BANDS	NO.	THICK(m)	NO.	THICK(m)					
SEAM : VIII-C													
MLE-6	399.50	400.45	0.95								0.95	0.95	
MLE-15	417.20	418.00	0.80								0.80	0.80	
MLE-16	408.95	409.20	0.25								0.25	0.25	
SEAM : VI-A													
MLE-6	430.20	430.90	0.70	1	0.10					1	0.10	0.60	0.60
SEAM : VI-B													
MLE-6	438.80	439.30	0.50								0.50	0.50	
SEAM : V													
MLE-6	449.20	450.60	1.40	2	0.25					2	0.25	1.15	1.15
E-16	475.45	476.50	1.05								1.05	1.05	
SEAM : IV													
E-6	474.40	475.20	0.80								0.80	0.80	
MLE-15	468.80	469.45	0.65								0.65	0.65	
E-16	530.20	530.90	0.70								0.70	0.70	
SEAM : III													
E-6	528.30	532.10	3.80								3.80	3.80	
MLE-15	495.70	499.50	3.80								3.80	3.80	
MLE-16	556.70	560.20	3.50								3.50	3.50	
SEAM : II													
E-6	557.40	558.00	0.60								0.60	0.60	
MLE-15	530.70	532.20	1.50	1	0.15	1	0.15			1	0.15	1.35	1.50
E-16	596.15	596.85	0.70								0.70	0.70	
SEAM : I													
E-6	571.10	571.60	0.50								0.50	0.50	
MLE-15	549.90	550.45	0.55								0.55	0.55	
E-16	604.35	605.35	1.00								1.00	1.00	
SEAM : '0'													
E-6	574.40	575.95	1.55	2	0.40					2	0.40	1.15	1.15
MLE-15	553.55	556.74	3.19									JH + MP	
E-16	626.95	629.25	2.30									JH + MP	

**ANNEXURE-VII**  
**[ p A-VII/ 1 ]**

**ANNEXURE - VII**

**COMPARATIVE STATEMENT OF THE COAL SEAMS AS INTERPRETED FROM THE  
GEOPHYSICAL LOG AND AS PER THE VISUAL / GEOLOGICAL LOG OF  
LOHAPATTI (EAST) BLOCK, JHARIA C.F., DIST.: DHANBAD (JHARKHAND)**

A-VII / 1

COAL SEAMS AS PER GEOPHYSICAL LOG :					COAL SEAMS AS PER GEOLOGICAL LOG :			
BH. NO.	DEPTH (M)		THICK-NESS (M)	LITHOLOGY	DEPTH (M)		THICK-NESS (M)	LITHOLOGY
	FROM	TO			FROM	TO		
MLE-15	26.20	26.80	0.60	C	27.34	29.80	2.46	
	26.80	27.40	0.60	CSH				
	27.40	28.80	1.40	C				
	73.80	75.20	1.40	C	74.71	76.27	1.56	
	76.40	76.80	0.40	SC	77.56	77.86	0.30	BAND
	83.80	84.20	0.40	C	84.55	86.70	2.15	
	84.20	84.60	0.40	SC	104.27	104.52	0.25	CSH
	84.60	86.00	1.40	C	132.47	132.72	0.25	CSH
	160.40	160.80	0.40	C	161.12	161.53	0.41	CSH
	246.60	247.20	0.60	C	244.04	244.40	0.36	C+CSH
					247.50	248.13	0.63	SEAM
	252.00	252.20	0.20	C	255.15	255.55	0.40	C
	254.20	254.60	0.40	C				
	303.40	303.60	0.20	C				
	316.00	317.00	1.00	C	316.81	317.46	0.65	SEAM
	329.00	329.60	0.60	SC	329.39	329.98	0.59	SEAM
	338.40	338.80	0.40	C				
	352.20	352.80	0.60	SC	353.04	353.60	0.56	SEAM
	406.40	406.80	0.40	C	406.84	407.30	0.46	SC
	416.80	417.60	0.80	C	417.20	418.00	0.80	SEAM
	468.40	469.20	0.80	C	468.00	469.45	0.65	SEAM
	494.80	498.80	4.00	C	495.70	499.50	3.80	SEAM-III
					512.30	512.95	0.65	SEAM
	513.00	514.20	1.20	C	513.90	515.10	1.20	SEAM
	529.60	530.20	0.60	C				
	530.20	530.40	0.20	SC	530.70	532.20	1.50	
	530.40	531.00	0.60	C				
	532.60	533.20	0.60	C	533.79	534.36	0.57	
					549.90	550.45	0.55	
					551.05	551.60	0.55	
				553.55	556.74	3.19	J+MP	
LOGGED DEPTH : 548.00 m					DRILLED DEPTH : 560.00 m			

Parameters used:

- 1 SPR Log                      From 21.00m to 548.00m
- 2 Resistivity Log              From 21.00m to 548.00m
- 3 Gamma Log                    From 3.00m to 548.00m
- 4 Density/Caliper Log        From 3.00m to 548.00m

**ANNEXURE-VIII**  
**[ p A-VIII/ 1 to A-VIII/ 23 ]**

**TEST RESULTS ON  
PHYSICO-MECHANICAL PROPERTIES OF  
ROCK AND COAL CORE SAMPLES  
FROM  
BOREHOLE NO. MLE-16  
LOHAPATTI (COLLIERY) EAST BLOCK,  
JHARIA COALFIELDS  
BHARAT COKING COALFIELDS LIMITED  
(Job No. 511412084)**

**MAY- 2013**

**MINING LABOTRATORY, UNDERGROUND MINING DIVISION  
CENTRAL MINE PLANNING & DESIGN INSTITUTE LIMITED  
GONDWANA PLACE, KANKE ROAD  
RANCHI-834008**

Report on physico-mechanical properties of core samples collected from  
Borehole No. MLE-16, Lohapatti (colliery) East Block, Jharia Coalfield, BCCL.

Job No. : 511412084

Customer : Head of Dept., Explo.  
RI-II, CMPDI.

Reference : No. RI-II/Bd4/3575-77  
Dated 29.09/03.10. 2012

Date of submission : MAY-2013

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### Abbreviations Used

SH	Shale
SST	Sandstone
FGD	Fine Grained
MGD	Medium Grained
CGD	Coarse Grained
VCGD	Very Coarse Grained
Ical	Intercalation
Carb.	Carbonaceous

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## 1.0 INTRODUCTION

The drill core encountered in borehole no. MLE-16, Lohapatti (colliery) East Block, Jharia Coalfield, BCCL was received by Mining Laboratory of CMPDI for determination of various physico-mechanical properties. The core received with a core length of 240.43m.

## 2.0 TEST PROCEDURE

Depending upon the availability of suitable length of core samples for preparation of test specimen, most of the lithological units of the borehole have been tested for the following properties.

- 1) *Bulk density*
- 2) *Protodyakov strength index*
- 3) *Unconfined compressive strength*
- 4) *Tensile strength*
- 5) *Shear strength*
- 6) *Young's modulus of elasticity*
- 7) *Triaxial strength*
  - a) *Angle of internal friction*
  - b) *Cohesion*

### 2.1 Bulk Density

Bulk density was determined by water displacement method using the following equation.

$$\text{Bulk density} = \frac{\text{Wt. of dry specimen}}{\text{Volume of specimen}} \text{ (gm/cc)}$$

### 2.2 Protodyakov Strength Index

Five test samples, weighing 50 gm each, comprising irregular pieces of rocks in the size range of 10 to 25mm were crushed separately in a cylinder of 76mm internal diameter by a 2.4 kg drop weight falling through a height of 0.6m. Samples were subjected to 2 to 5 impacts depending upon the strength of the samples.

Fines below 0.5mm size produced by the five samples were combined and the total height of the fines column was measured in a volumeter of 23mm internal diameter.

The protodyakonov strength index (PSI) was determined by the formula :

$$\text{PSI} = \frac{20 \times \text{No. of drops}}{\text{Height of column of fines (mm)}}$$

### 2.3 Unconfined Compressive Strength

Rock cores free from surface irregularities were cut by a diamond saw using water as coolant. The specimens were finished as closely as possible to the tolerances specified by the Commission on Standardization of Laboratory and Field Tests of the International Society for Rock Mechanics (ISRM). To remove the moisture introduced at the time of cutting, specimens were kept at room temperature for about 5 days before testing.

Since it was difficult to obtain unbroken lengths of core suitable for test specimens of 2.5:1 to 3:1 length-diameter ratio, it was normally intended to have all specimens of 2 : 1 ratio only. However, some specimens of slightly less than 2 : 1 ratio were also tested in such cases where the number of specimens were less. The following size-effect correction was employed such that the unconfined compressive strength calculated corresponds as closely as possible to the length-diameter ratio of 2 : 1.

$$C' = \frac{4.F}{\pi D^2}$$

$$C = \frac{0.889 C'}{0.778 + 0.222 (D/L)}$$

Where C = Unconfined compressive strength for L/D = 2

$C'$  = Unconfined compressive strength for  $L/D \neq 2$

$F$  = Failure load

$D$  = Diameter of specimen

$L$  = Length of specimen

To determine the failure load the specimens were loaded upto failure along the core axis in a servo-controlled hydraulic compression testing machine at a stress rate of 0.2 to 0.5 MPa per second.

## 2.4 Tensile Strength

The Brazilian disc method was employed for this test. The specimens with diameter to length ratio of 1:0.5 were tested in the same compression testing machine. Load was applied diametrically at a rate of around 0.2 to 0.5 Mpa per second. The following equation was used for determining tensile strength,  $T$ .

$$T = \frac{2F}{\pi LD}$$

Where  $F$  = Failure load  
 $D$  = Diameter of specimen  
 $L$  = Length of specimen

## 2.5 Shear Strength

The method employed was direct shear test using a double shear box. Cylindrical specimens of not less than 50mm length were loaded by a 20mm thick shear piece. Load was applied by the same compression testing machine at a rate of around 0.2 to 0.5 MPa per second. The following equation was used for determining shear strength,  $S$ .

$$S = \frac{2F}{\pi D^2}$$

Where        F = Failure load  
               D = Diameter of specimen

## 2.6 Young's Modulus of Elasticity

For determining Young's modulus test specimens were prepared similar to those for Uniaxial compressive strength test. Before readings of deformation under compressive load were taken, the specimens were subjected upto 3 cycles of loading and unloading to a level of about 50% of failure load as recommended by ISRM. Strain readings at equally spaced loads were thereafter noted for both axial deformations.

Young's modulus was then calculated as an average modulus of linear segment of the axial stress-strain curve. This segment was located at about midway from the loading point to the point of failure on the curve.

## 2.7 Triaxial Strength (Angle of internal friction and Cohesion)

Test specimens similar to those prepared for unconfined compression test were subjected to a confining pressure of 5 MPa and 10 MPa in a triaxial cell. A compression constituting axial pressure and confining pressure is applied by a compression testing machine. The pressure was slowly increased until the desired confining pressure of 5 or 10 MPa was reached. Thereafter the axial stress was allowed to rise independently. The stress rate followed was 0.5 to 1 MPa per second as specified by the ISRM.

Cohesion and angle of internal friction were obtained by first plotting the Mohr's diagram of stresses and the corresponding envelope. Cohesion was estimated from the intercept of the envelope on the shear axis. The angle of internal friction was obtained from the slope of the envelope as a tangent to the Mohr's circles.

### 3.0 TEST RESULTS

Test results in respect of bulk density, unconfined compressive strength, tensile strength, shear strength, Young's modulus of elasticity and protodyakonov strength index are given in Table-1. Triaxial test results are given in Table-2. Mohr's diagram drawn from triaxial test results are also enclosed for reference.

oOo

TABLE-1

Test Results on Physico-Mechanical Properties of Drill Core Samples of  
Borehole No. MLE-16 of Lohapatti (colliery) East Block,  
Jharia Coalfields, BCCL.

Sample No.	Rock Type	Depth (m)	Density (gm/cc)	PSI	Compressive strength $\sigma_c$ (MPa)	Tensile strength $\sigma_t$ (MPa)	Shear strength $\sigma_s$ (MPa)	Young's modulus E (GPa)
					Mean, std. deviation & no. of specimens tested			
1	2	3	4	5	6	7	8	9
1	FGD-MGD SST	11.00-20.00	2.35	-	17.02 3.25 4	2.71 0.47 5	4.96 1.17 5	1.12 - 1
2	FGD-MGD SST	20.00-25.67	2.42	-	22.05 7.27 5	2.16 0.49 5	5.66 1.15 5	0.98 0.33 2
3	Ical	25.67-26.11	2.41	-	-	-	-	-
4	SH	26.11-26.16	2.37	-	-	-	-	-
5	Carb SH	26.16-26.37	2.38	-	-	-	-	-
6	SH	26.37-27.43	2.42	3.58	-	-	2.74 0.82 3	-
7	Ical	27.43-32.95	2.60	3.27	-	6.39 1.70 5	2.81 1.25 5	-
8	SH	32.95-33.05	2.04	4.33	-	-	-	-
9	Coal	33.05-34.80	1.53	1.28	-	-	1.93 0.41 5	-
10	SH	34.80-34.90	2.75	-	-	-	-	-
11	Coal	34.90-35.30	1.61	-	-	-	1.30 - 1	-
12	SH	35.30-35.45	2.45	-	-	-	5.28 - 1	-
13	Ical	35.45-36.22	2.47	-	36.81 0.99 3	3.72 0.50 3	4.48 0.82 2	1.62 0.18 2
14	FGD-MGD SST	36.22-38.30	2.50	-	46.95 11.49 5	6.36 2.27 5	3.51 1.23 4	3.45 0.07 2

1	2	3	4	5	6	7	8	9
15	SH	62.00-67.60	2.51	-	30.76 5.72 4	5.80 0.62 5	5.34 2.12 5	1.87 0.07 2
16	lcal	67.60-72.34	2.64	-	49.26 9.24 4	4.07 1.52 5	4.12 1.70 5	2.65 0.49 2
17	FGD-MGD SST	72.34-75.07	2.58	-	42.83 7.25 5	3.08 0.40 5	5.45 0.63 5	2.59 0.41 2
18	SH	75.07-75.47	2.47	-	-	-	-	-
19	lcal	75.47-76.78	2.52	-	32.58 10.15 2	5.01 0.47 5	2.99 0.35 2	1.35 - 1
20	Coal	76.78-78.00	1.38	0.81	-	-	2.98 - 1	-
21	SH	78.00-78.05	2.18	-	-	-	-	-
22	lcal	78.05-80.00	2.51	-	35.98 13.77 2	5.73 0.41 2	-	2.10 - 1
23	SH	80.00-80.48	2.54	-	-	-	5.37 - 1	-
24	lcal	80.48-83.00	2.56	-	52.43 15.98 4	5.56 1.06 5	4.49 0.73 5	3.94 0.01 2
25	SH	83.00-86.00	2.57	-	45.51 7.10 2	7.30 1.20 5	8.60 - 1	2.51 1.20 2
26	Coal	86.00-86.21	1.62	-	-	-	2.39 - 1	-
27	SH	86.21-89.20	2.52	-	45.39 - 1	7.04 0.80 5	-	-
28	Coal	89.20-90.55	1.61	1.04	-	-	2.51 1.02 2	-
29	SH	90.55-93.55	2.57	-	36.78 4.59 4	5.27 1.31 5	2.74 0.89 3	1.07 0.24 2
30	FGD-MGD SST	237.80-238.71	2.49	-	42.52 7.91 5	4.42 0.35 4	-	2.59 0.37 2
31	lcal	238.71-245.40	2.58	-	37.90 9.54 4	4.74 0.70 5	6.95 3.49 4	1.21 0.40 2

1	2	3	4	5	6	7	8	9
32	SH	245.40-246.20	2.54	5.33	-	-	2.69 0.26 2	-
33	Coal	246.20-246.80	1.44	-	-	-	-	-
34	SH	246.80-247.23	2.43	-	-	-	1.26 0.08 2	-
35	lcal	247.23-247.90	2.57	-	-	-	4.82 1.85 3	-
36	SH	247.90-248.00	2.48	-	-	-	-	-
37	Coal	248.00-248.90	1.48	0.67	-	-	1.47 0.27 3	-
38	lcal	248.90-251.00	2.60	-	-	-	5.68 2.14 2	-
39	SH	251.00-251.05	2.45	-	-	-	-	-
40	Coal	251.05-251.55	1.57	0.88	-	-	-	-
41	lcal	251.55-252.85	2.58	-	53.92 21.74 4	5.32 0.51 4	6.81 2.01 4	2.90 1.06 2
42	FGD-MGD SST	252.85-254.00	2.52	-	29.16 5.82 5	3.97 0.56 5	8.20 1.94 3	1.67 0.76 2
43	SH	317.90-318.66	2.57	-	-	-	4.89 0.68 3	-
44	lcal	318.66-320.57	2.59	-	51.14 5.04 4	10.72 2.25 5	-	2.49 0.40 2
45	SH	320.57-321.51	2.54	-	-	-	-	-
46	lcal	321.51-323.21	2.53	-	46.90 1.19 3	6.64 0.66 5	3.83 0.71 2	2.73 0.75 2
47	Coal	323.21-323.63	1.39	-	-	-	1.94 0.07 2	-
48	Carb SH	323.63-323.73	1.74	-	-	-	-	-
49	SH	323.73-327.40	2.56	-	47.72 3.11 2	5.04 1.35 4	4.33 0.99 5	2.98 0.27 2
50	lcal	327.40-332.20	2.55	-	51.48 11.72 3	5.16 1.30 4	3.38 1.62 5	4.21 0.10 2
51	FGD-MGD SST	332.20-333.41	2.37	-	57.59 15.75 4	5.57 0.52 3	6.47 3.17 3	2.93 0.50 2

1	2	3	4	5	6	7	8	9
52	Coal	333.41-334.94	1.43	1.13	-	-	-	-
53	Ical	334.94-337.00	2.61	-	46.10 2.76 5	9.19 2.06 5	10.71 1.18 3	3.25 0.04 2
54	SH	337.00-338.00	2.58	-	-	-	-	-
55	Ical	386.80-386.90	2.57	-	-	-	-	-
56	SH	386.90-387.20	2.49	-	-	-	-	-
57	Coal	387.20-387.30	1.47	-	-	-	-	-
58	FGD-MGD SST	387.30-389.60	2.43	-	28.36 10.44 5	3.41 1.07 4	8.07 4.14 5	2.29 1.18 2
59	SH	389.60-391.28	2.61	-	49.14 - 1	6.61 2.45 4	5.12 1.15 5	3.38 - 1
60	Ical	391.28-395.58	2.56	-	40.75 12.91 5	5.37 1.20 5	5.10 1.43 5	3.22 1.06 2
61	SH	395.58-396.35	2.56	-	-	-	4.49 - 1	-
62	Carb SH	396.35-396.45	2.47	-	-	4.93 - 1	3.66 - 1	-
63	Ical	396.45-397.90	2.50	-	40.27 0.98 2	3.87 1.36 3	4.55 1.98 5	2.11 0.72 2
64	Coal	397.90-398.95	1.46	1.02	-	-	2.98 1.59 2	-
65	SH	398.95-399.05	2.51	-	-	-	-	-
66	Ical	399.05-407.80	2.55	-	40.43 17.10 4	6.19 1.22 4	8.31 2.26 3	2.72 - 1
67	Coal	407.80-408.01	1.46	-	-	-	-	-
68	SH	408.01-408.60	2.45	-	27.67 - 1	3.44 0.68 2	1.17 - 1	-
69	Carb SH	408.60-408.95	1.77	-	-	-	1.54 - 1	-
70	Coal	408.95-409.20	1.48	-	-	-	-	-
71	SH	409.20-412.80	2.58	-	31.95 4.75 3	5.73 0.50 4	4.01 1.33 5	2.16 0.07 2
72	FGD-MGD SST	464.80-471.48	2.43	-	42.98 14.22 5	4.72 0.80 5	9.83 1.57 5	3.10 0.57 2

1	2	3	4	5	6	7	8	9
73	Ical	471.48-475.40	2.63	-	44.95 9.24 5	6.62 0.70 5	6.20 2.05 2	3.02 - 1
74	SH	475.40-475.45	2.31	-	-	-	-	-
75	Coal	475.45-476.50	1.45	1.09	-	-	2.24 0.48 4	-
76	SH	476.50-476.83	2.54	-	-	-	-	-
77	Ical	476.83-479.40	2.59	-	47.04 6.31 5	7.53 1.17 5	4.21 1.49 5	3.53 0.41 2
77A	Ical	516.40-517.14	2.59	-	-	-	9.95 - 1	-
78	SH	517.14-517.34	2.58	-	-	-	10.34 3.07 2	-
79	Coal	517.34-517.44	1.47	-	-	-	1.17 - 1	-
80	Ical	517.44-518.99	2.60	-	-	-	5.49 - 1	-
81	FGD-MGD SST	518.99-519.60	2.60	-	37.51 6.48 4	10.49 2.79 5	-	3.72 - 1
82	Ical	519.60-522.40	2.59	-	43.81 7.07 3	5.71 1.09 5	7.78 3.85 3	2.40 0.65 2
83	SH	522.40-522.70	2.47	-	-	-	-	-
84	Ical	522.70-525.20	2.58	-	52.82 11.43 5	6.02 2.22 5	3.34 1.26 3	1.99 0.36 2
85	SH	525.20-525.91	2.55	-	-	-	3.43 0.89 2	-
86	Ical	525.91-528.00	2.54	-	47.43 0.82 2	5.67 0.55 2	4.74 0.92 4	2.32 0.57 2
87	SH	528.00-530.20	2.54	5.64	-	-	3.66 0.92 4	-
88	Coal	530.20-530.90	1.40	-	-	-	4.46 - 1	-
89	Carb SH	530.90-531.20	2.07	-	-	-	-	-
90	Coal	531.20-531.30	1.39	-	-	-	-	-

1	2	3	4	5	6	7	8	9
91	SH	531.30-531.40	2.49	-	-	-	3.16 -	-
92	Ical	531.40-537.80	2.63	-	39.84 5.66 5	7.82 1.47 5	5.30 1.86 4	2.83 1.20 2
93	Ical	537.80-543.24	2.52	-	43.39 11.90 5	5.17 0.78 5	7.83 2.44 5	2.73 0.61 2
94	FGD-MGD SST	543.24-544.80	2.75	-	62.69 27.80 5	7.69 3.51 4	18.98 -	3.22 0.86 2
95	Ical	544.80-545.27	2.62	-	44.50 1.99 2	4.07 1.92 2	-	3.13 0.48 2
96	FGD-MGD SST	545.27-547.60	2.62	-	47.83 6.27 5	6.10 0.81 5	14.35 5.86 5	3.46 1.21 2
97	Ical	547.60-548.23	2.59	-	-	-	4.32 1.26 5	-
98	FGD-MGD SST	548.23-550.14	2.66	-	48.85 10.13 5	5.93 0.63 5	10.63 2.44 5	3.17 0.96 2
99	Ical	550.14-550.60	2.57	-	-	-	3.97 0.41 3	-
100	FGD-MGD SST	550.60-552.70	2.67	-	50.92 8.40 5	5.26 1.57 5	10.96 4.79 3	3.19 0.99 2
101	SH	552.70-556.70	2.31	3.59	-	-	2.44 0.97 5	-
102	Coal	556.70-560.20	1.59	0.87	7.29 0.26 2	-	1.38 0.09 4	0.56 -
103	SH	560.20-560.35	2.57	-	-	-	3.62 -	-
104	Ical	560.35-563.60	2.65	-	36.80 7.75 5	4.70 2.25 5	9.55 3.29 4	3.05 0.72 2
105	Ical	568.60-572.60	2.55	-	47.47 12.89 5	6.20 3.77 5	8.85 2.94 5	5.31 -
106	FGD-MGD SST	572.60-574.16	2.57	-	74.64 8.18 5	7.91 1.37 5	10.74 2.56 3	7.39 0.39 2

1	2	3	4	5	6	7	8	9
107	SH	574.16-577.60	2.28	-	31.29 6.29 4	6.47 1.69 4	6.74 2.05 2	1.41 0.26 2
108	SH	577.60-579.50	2.64	-	39.91 12.97 5	6.35 2.27 4	3.84 1.38 4	2.70 0.19 2
109	Coal	579.50-580.50	1.35	-	-	-	1.43 0.84 5	-
110	SH	580.50-581.02	2.58	-	-	-	4.12 0.86 4	-
111	FGD-MGD SST	581.02-586.60	2.56	-	42.46 10.10 5	3.98 0.90 5	9.32 2.59 5	2.19 1.03 2
112	FGD-MGD SST	586.60-591.57	2.55	-	39.09 10.79 5	9.59 3.92 5	9.06 2.48 5	3.19 - 1
113	SH	591.57-592.62	2.53	-	44.86 6.17 2	9.14 0.43 4	7.94 0.33 2	3.26 0.36 2
114	lcal	592.62-593.49	2.77	-	53.66 21.33 2	8.71 1.08 5	5.78 0.41 2	2.06 0.33 2
115	SH	593.49-595.10	2.53	-	40.25 9.91 5	7.53 1.54 4	5.54 0.48 4	3.07 0.11 2
116	Coal	595.10-595.60	1.40	-	-	-	-	-
117	SH	595.60-596.15	2.06	-	28.27 - 1	9.90 0.63 5	4.54 0.66 2	-
118	Coal	596.15-596.85	1.46	-	-	-	4.47 0.65 2	-
119	SH	596.85-597.35	2.20	-	24.80 - 1	10.06 1.18 2	7.51 - 1	-
120	Coal	597.35-597.65	1.51	-	-	-	4.20 0.82 2	-
121	SH	597.65-597.85	2.59	-	24.79 - 1	9.25 0.80 3	-	-
122	lcal	597.85-598.60	2.62	-	42.31 11.04 4	9.10 0.61 2	-	299 - 1

1	2	3	4	5	6	7	8	9
123	FGD-MGD SST	598.60-600.50	2.64	-	61.27 7.45 5	9.04 0.84 5	4.27 0.25 2	3.82 0.21 2
124	Coal	600.50-600.60	1.45	-	-	-	-	-
125	SH	600.60-601.60	2.57	-	27.58 - 1	7.85 1.36 3	4.36 1.42 3	-
126	lcal	601.60-602.61	2.55	-	37.91 5.80 3	9.79 1.51 4	7.18 0.41 2	1.74 0.27 2
127	SH	602.61-604.35	2.42	-	37.96 10.10 4	3.63 0.45 5	4.67 0.40 4	2.82 0.93 2
128	Coal	604.35-605.35	1.49	1.94	-	-	3.90 0.37 3	-
129	SH	605.35-605.45	2.45	-	-	-	-	-
130	FGD-MGD SST	605.45-609.00	2.54	-	53.75 16.27 5	4.66 0.73 5	9.96 2.53 5	2.45 0.47 2
131	Sidesitic SST	609.00-609.12	2.96	-	-	-	3.05 - 1	-
132	SH	609.12-609.26	2.07	-	-	-	-	-
133	Sidesitic SST	609.26-609.38	2.89	-	-	-	-	-
134	SH	609.38-609.62	2.55	-	-	-	-	-
135	lcal	609.62-611.44	2.59	-	37.33 7.27 4	5.52 1.03 4	5.01 1.86 5	2.03 0.39 2
136	FGD-MGD SST	611.44-619.60	2.52	-	49.17 6.57 5	4.25 0.38 5	13.69 1.88 5	2.88 0.93 2
137	FGD-MGD SST	619.60-626.95	2.64	-	35.78 8.12 5	4.52 0.80 5	13.24 1.52 5	2.45 0.21 2
138	Coal	626.95-628.00	1.52	-	-	-	4.37 1.11 3	-
139	M.P.	628.00-628.05	2.74	-	-	-	-	-
140	Coal	628.05-629.25	1.42	-	-	-	3.97 0.63 5	-
141	SH	629.25-630.40	2.63	-	39.77 11.79 4	8.93 0.64 5	5.95 - 1	1.82 0.30 2

1	2	3	4	5	6	7	8	9
142	Ical	630.40-631.37	2.63	-	44.57 8.97 3	6.60 0.31 5	4.98 - 1	-
143	FGD-MGD SST	631.37-632.20	2.43	-	35.83 7.07 5	3.05 0.63 4	-	2.34 0.51 2

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TABLE 2

Triaxial Test Results on Drill Core Samples of Borehole No. MLE-16 of  
Lohapatti (Colliery) East Block, Jharia Coalfields, BCCL.

Sample No	Rock Type	Depth (m)	Compressive Strength (Mpa) Mean, Std Deviation & No. of specimens tested			Angle of internal friction "φ" (degree)	Cohesion "c" (Mpa)
			At 0 MPa Confining	At 5 MPa Confining	At 10 MPa Confining		
1	2	3	4	5	6	7	8
1	FGD-MGD SST	11.00-20.00	17.02 3.25 4	66.03 12.22 2	111.31 - 1	51	2.68
14	FGD-MGD SST	36.22-38.30	46.95 11.49 5	67.19 - 1	103.35 - 1	42	9.2
72	FGD-MGD SST	464.80-471.48	42.98 14.22 5	74.33 - 1	98.64 - 1	44	7.97
92	Ical	531.40-537.80	39.84 5.66 5	71.78 8.61 2	88.11 2.04 2	38	6.02
93	Ical	537.80-543.24	43.39 11.90 5	85.54 4.26 2	132.83 40.71 2	43	5.37
94	FGD-MGD SST	543.24-544.80	62.69 27.80 5	124.91 - 1	- - -	58	8.89
104	Ical	560.35-563.60	36.80 7.75 5	70.81 - 1	92.18 0.55 2	44	5.83
111	FGD-MGD SST	581.02-586.60	42.46 10.10 5	92.02 3.41 2	103.30 5.76 2	37	3.74

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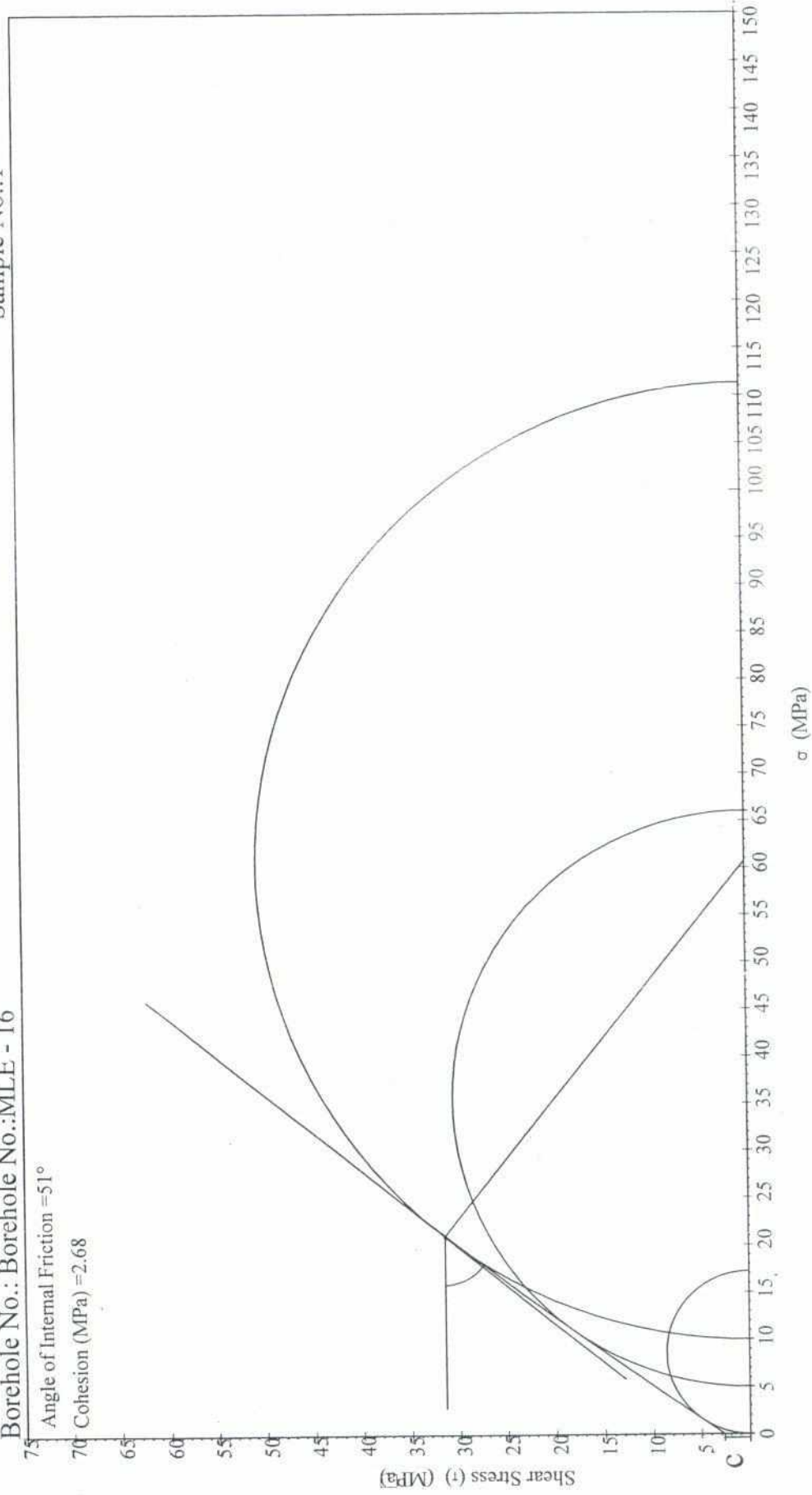
# MOHR'S DIAGRAM

Sample No.:1

Borehole No.: Borehole No.:MLE - 16

Angle of Internal Friction =  $51^\circ$

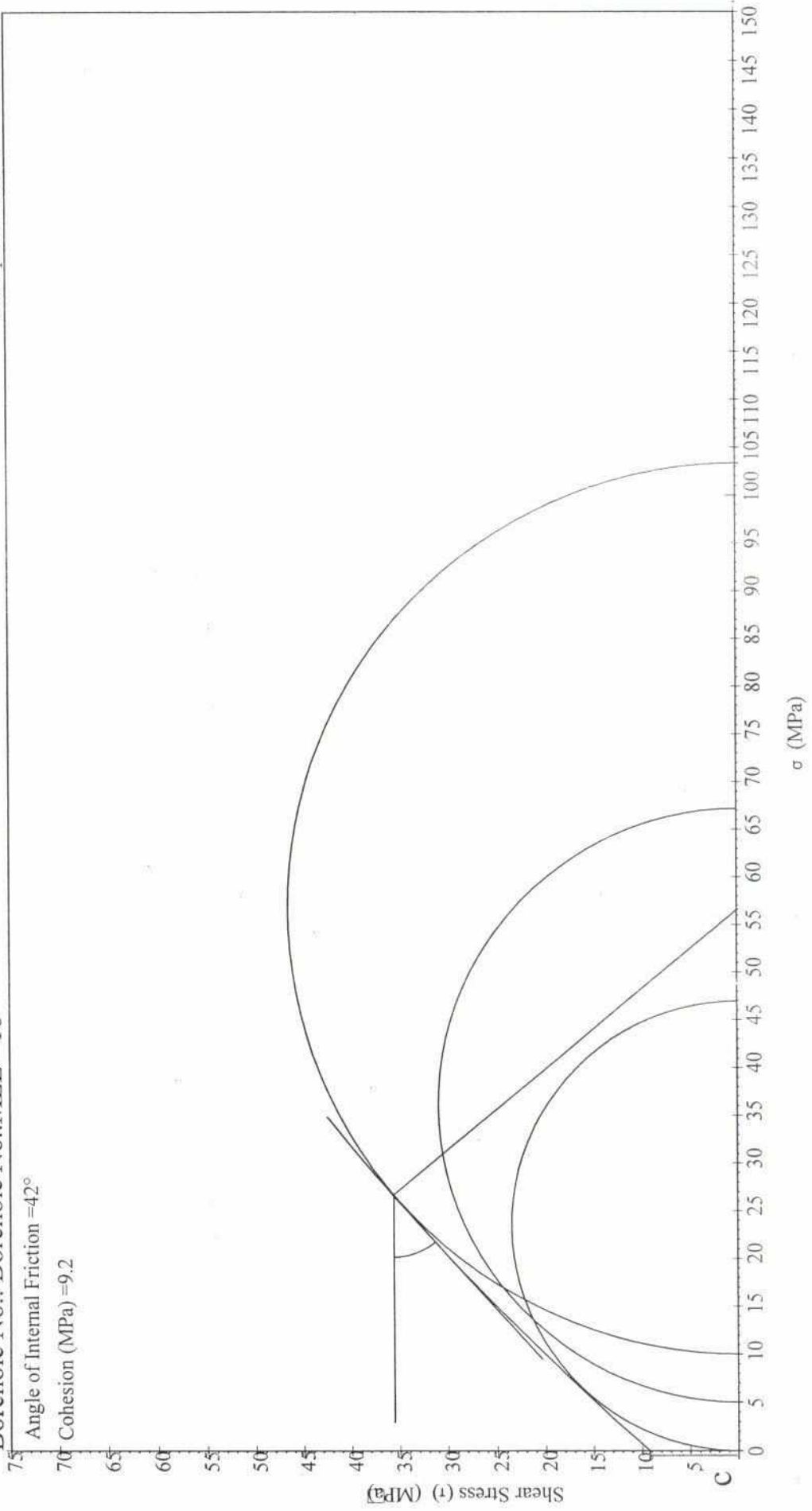
Cohesion (MPa) = 2.68



# MOHR'S DIAGRAM

Sample No.:14

Borehole No.: Borehole No.:MLE - 16



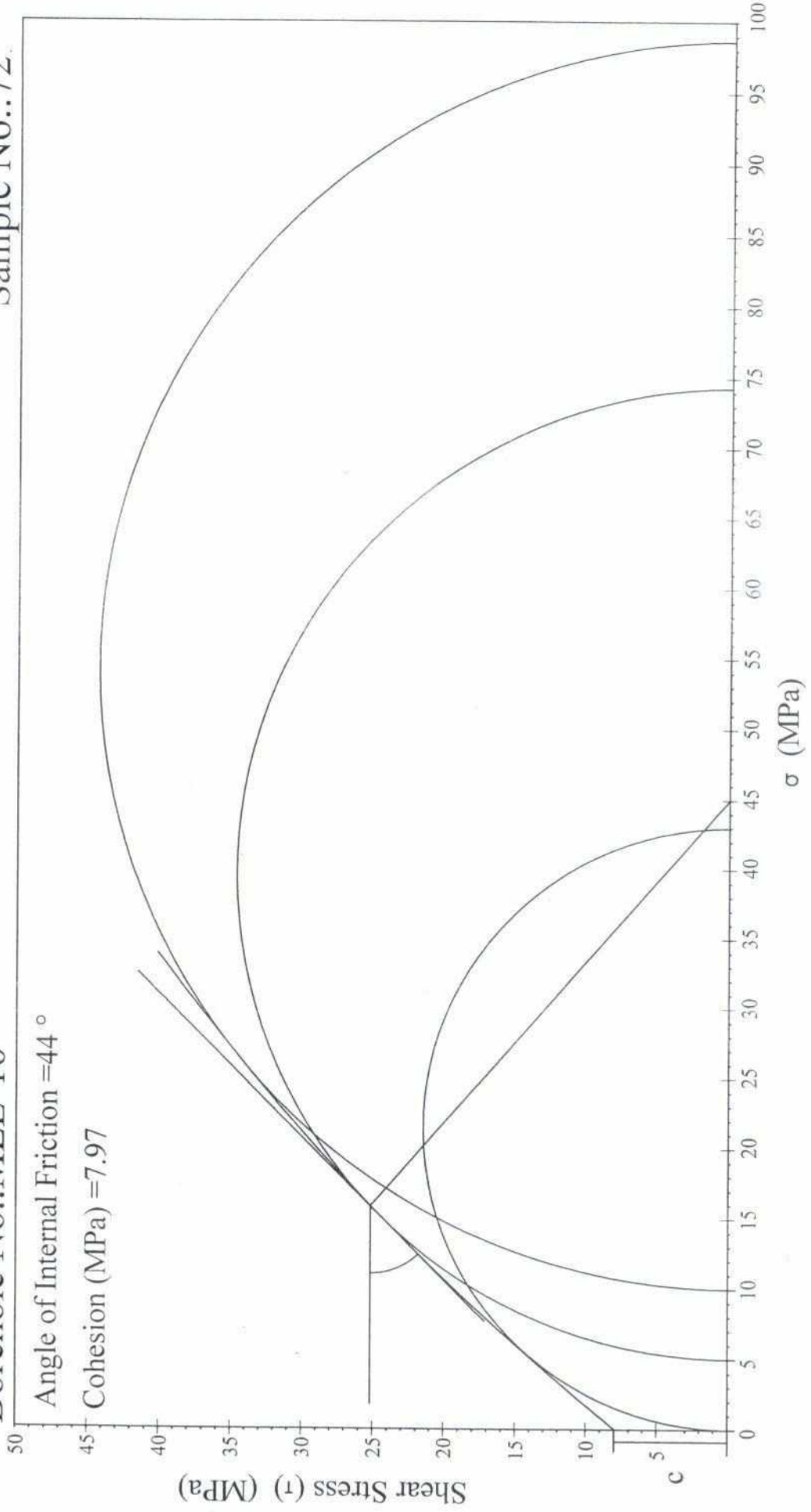
# MOHR'S DIAGRAM

Borehole No.:MLE-16

Sample No.:72

Angle of Internal Friction =  $44^\circ$

Cohesion (MPa) = 7.97



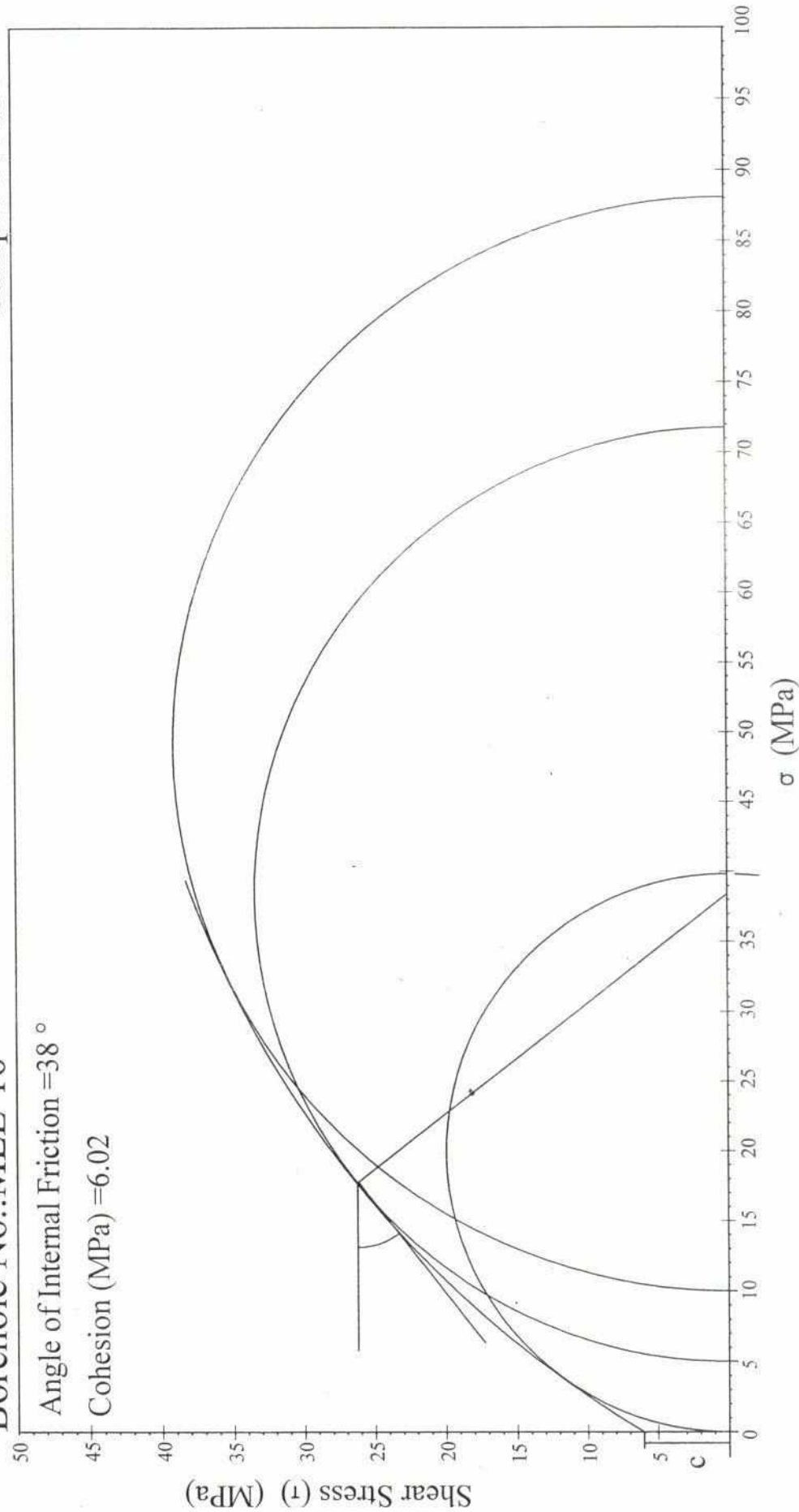
# MOHR'S DIAGRAM

Sample No.:92

Borehole No.:MLE-16

Angle of Internal Friction =  $38^\circ$

Cohesion (MPa) = 6.02



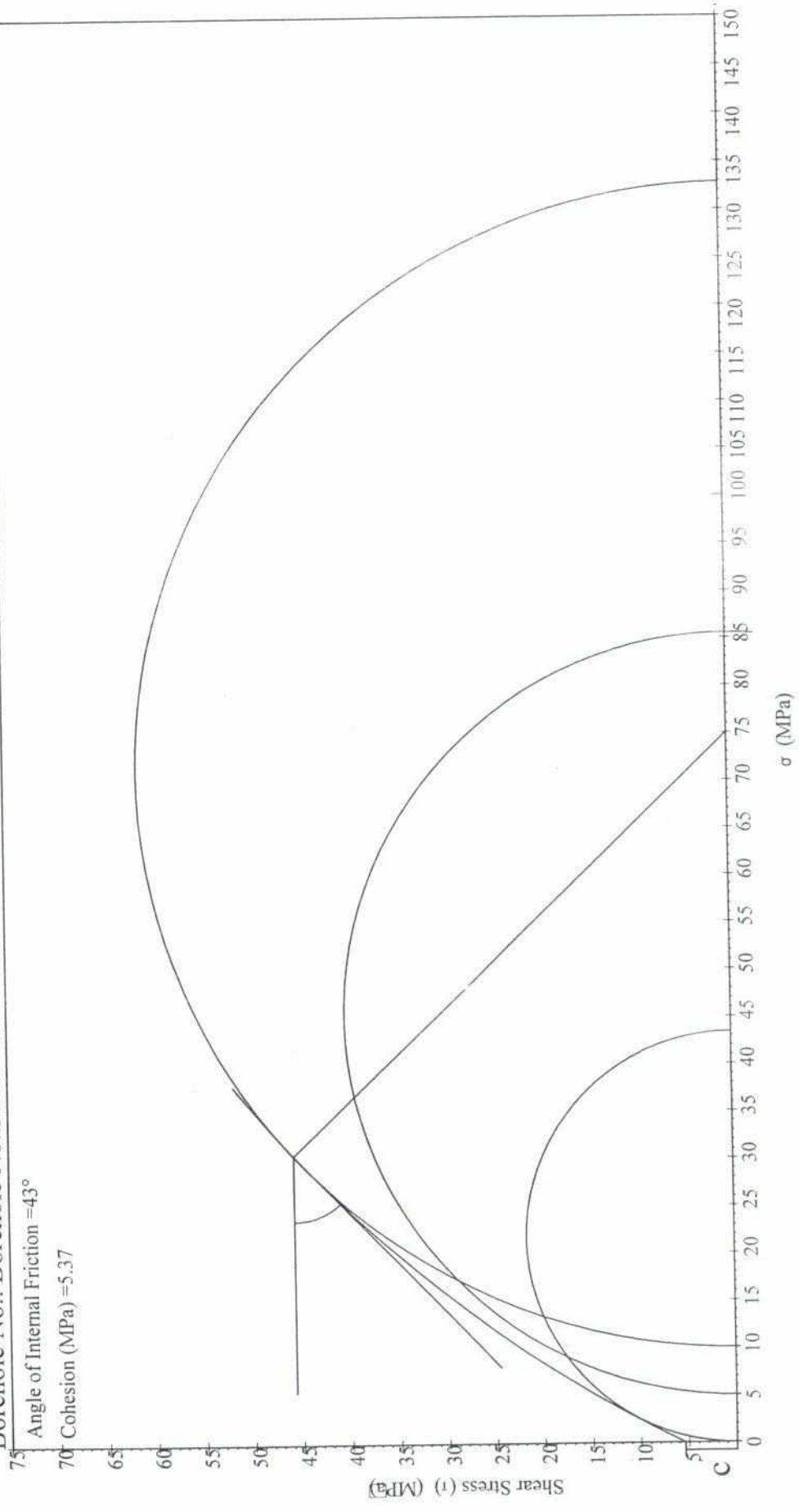
# MOHR'S DIAGRAM

Sample No.:93

Borehole No.: Borehole No.:MLE - 16

Angle of Internal Friction =  $43^\circ$

Cohesion (MPa) = 5.37



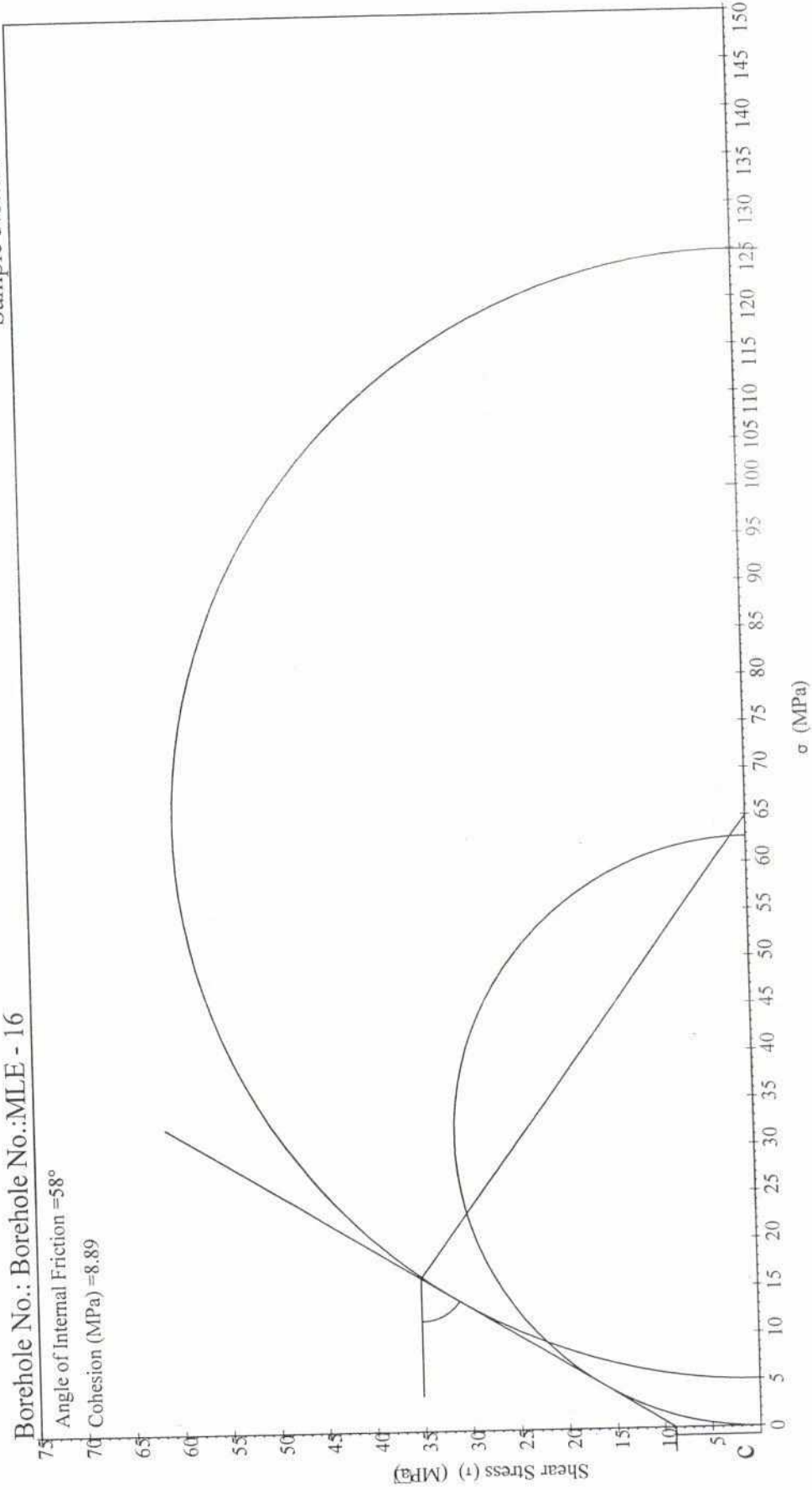
# MOHR'S DIAGRAM

Sample No.:94

Borehole No.: Borehole No.:MLE - 16

Angle of Internal Friction =  $58^\circ$

Cohesion (MPa) = 8.89



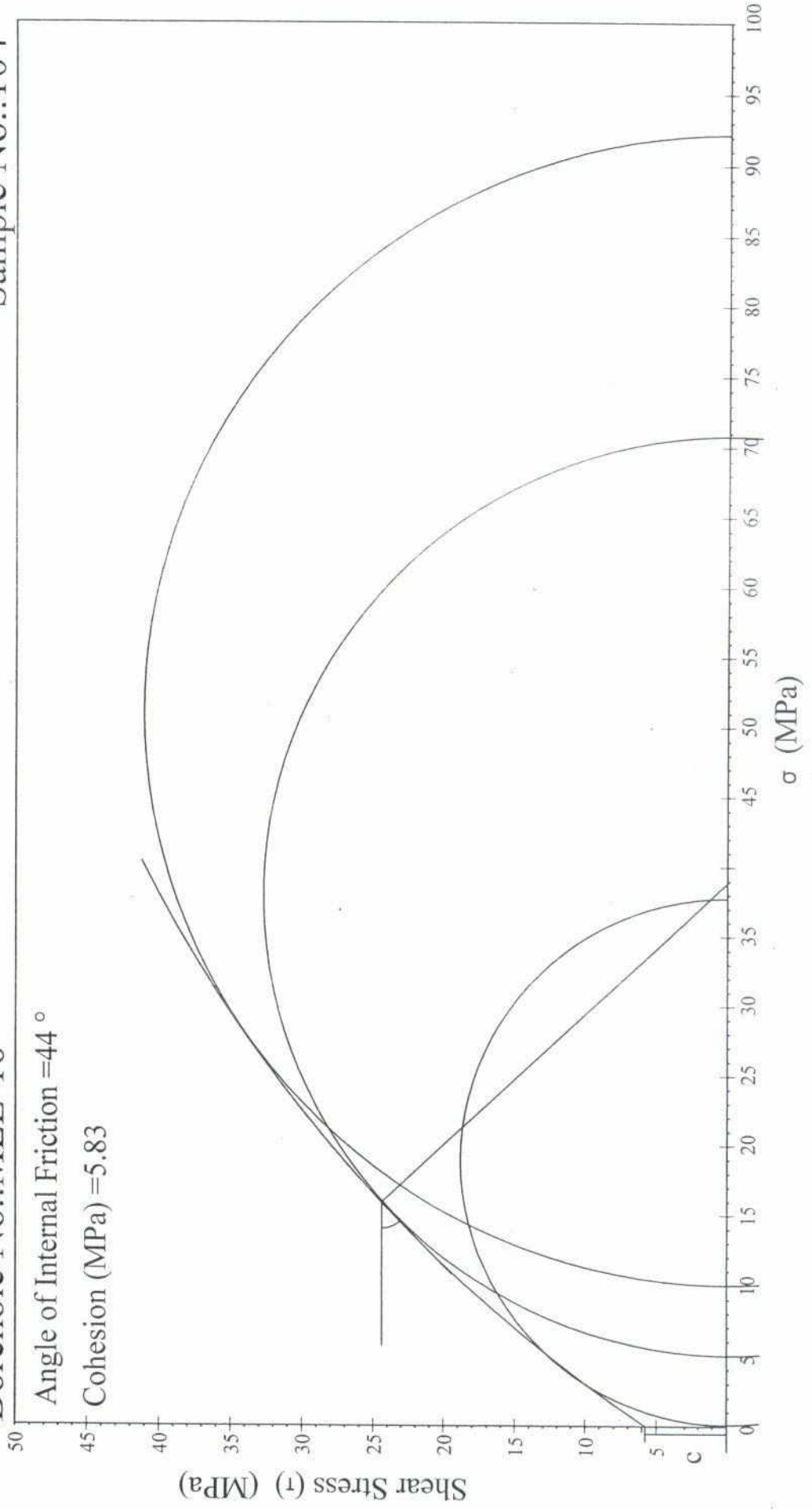
# MOHR'S DIAGRAM

Borehole No.:MLE-16

Sample No.:104

Angle of Internal Friction =  $44^\circ$

Cohesion (MPa) = 5.83



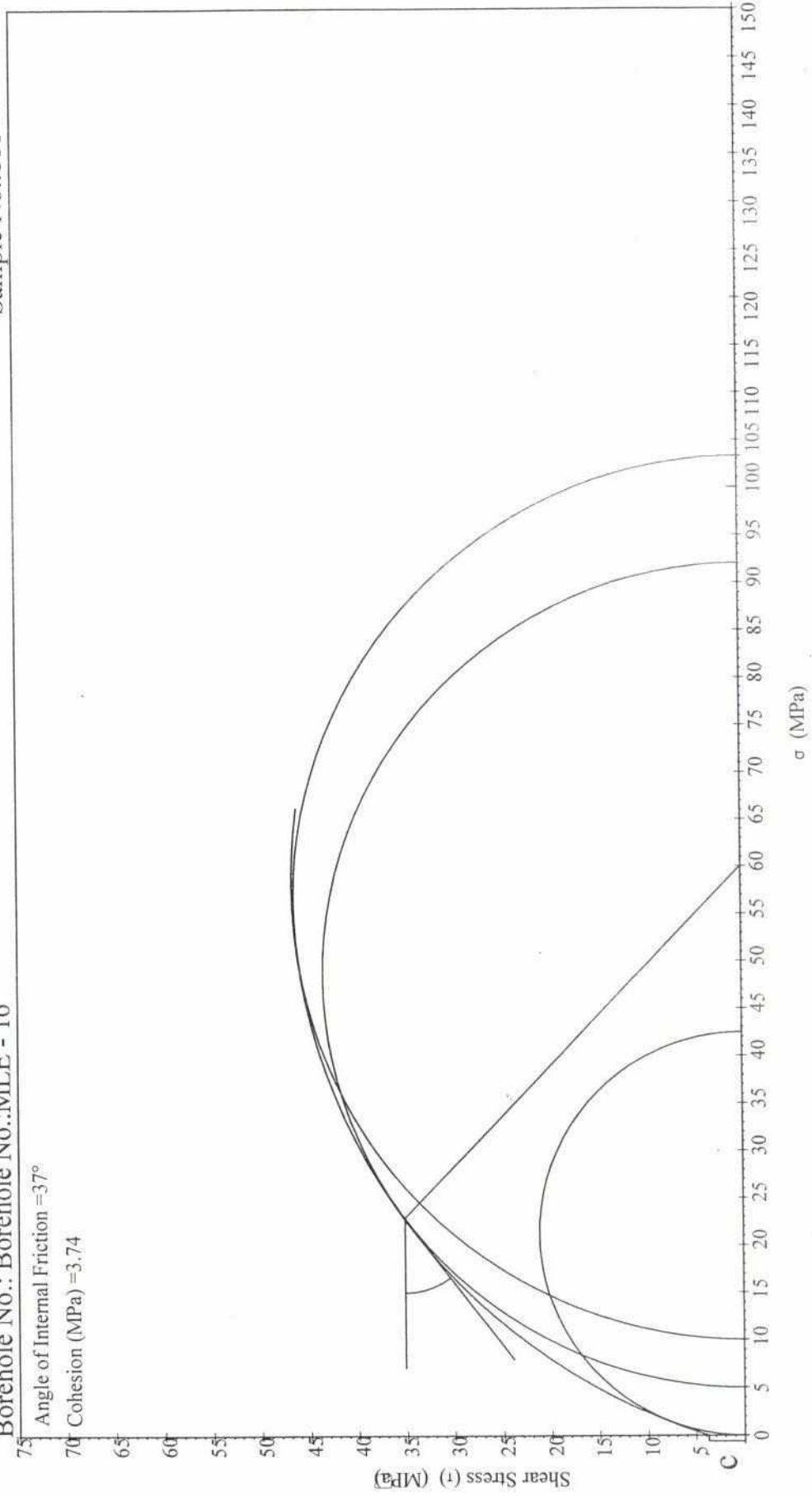
# MOHR'S DIAGRAM

Sample No.:111

Borehole No.: Borehole No.:MLE - 16

Angle of Internal Friction = 37°

Cohesion (MPa) = 3.74



**ANNEXURE-IX A**  
**[ p A-IX A/ 1 to A-IX A/ 3 ]**

ANNEXURE-IX A

SEAM-WISE, SECTOR-WISE, BARRIER-WISE.  
THICKNESS-WISE & GRADE-WISE NET INSITU PROVED RESERVES OF COAL SEAMS  
LOHAPATTI EAST BLOCK, JHARIA COALFIELD, DHANBAD DIST. JHARKHAND

SEAM : XIV

[ UNDERGROUND ]			(MILLION TONNES)							A-IX A / I			
SECTOR	BARRIER	THICKNESS RANGE(m)	GRADE							TOTAL			
			S-I	S-II	W-I	W-II	W-III	W-IV	UG				
I	VIRGIN	0.90 - 1.20						0.0410	0.0592	0.1002			
		1.20 - 1.50						0.0702	0.4749	0.5451			
		1.50 - 2.00						0.2762	0.9991	1.2753			
		2.00 - 2.50						0.0652	0.5530	0.6182			
SECTOR I SUB-TOTAL:							0.4526	2.0862	2.5388				
II	VIRGIN	1.20 - 1.50							0.0491	0.0491			
SECTOR II SUB-TOTAL:								0.0491	0.0491				
IV	VIRGIN	0.90 - 1.20						0.0032	0.0168	0.0200			
		1.20 - 1.50			0.0294	0.0220	0.0750	0.1434		0.2698			
		1.50 - 2.00		0.0029			0.0031	0.1045	0.1285	0.2390			
		2.00 - 2.50						0.0507	0.1115	0.1622			
SECTOR IV SUB-TOTAL:							0.0029	0.0294	0.0220	0.0813	0.3154	0.2400	0.6910
SEAM TOTAL:							0.0029	0.0294	0.0220	0.5339	2.4507	0.2400	3.2789

## SEAM : XIII

(MILLION TONNES)

A-IX A / 2

[ UNDERGROUND ]										TOTAL
SECTOR	BARRIER	THICKNESS RANGE(m)	G R A D E							TOTAL
			S-I	S-II	W-I	W-II	W-III	W-IV	UG	
I	VIRGIN	0.90 - 1.20	0.3545	0.1706	0.1761	0.2252	0.0902	0.0021	1.0187	
		1.20 - 1.50	0.4353	0.4565	0.5583	0.2454	0.0914		1.7869	
		1.50 - 2.00			0.0995	0.2868			0.3863	
SECTOR I SUB-TOTAL:			0.7898	0.6271	0.8339	0.7574	0.1816	0.0021	3.1919	
II	VIRGIN	0.90 - 1.20			0.0036	0.0259	0.0103		0.0398	
		1.20 - 1.50				0.0005	0.0030		0.0035	
SECTOR II SUB-TOTAL:					0.0036	0.0264	0.0133		0.0433	
III	VIRGIN	0.90 - 1.20			0.0010	0.0329	0.0781		0.1120	
		1.20 - 1.50				0.0024			0.0024	
SECTOR III SUB-TOTAL:					0.0010	0.0353	0.0781		0.1144	
IV	VIRGIN	0.90 - 1.20		0.0237	0.0314	0.0431	0.0534	0.0433	0.1949	
		1.20 - 1.50		0.0306	0.0892	0.0893	0.0186		0.2277	
SECTOR IV SUB-TOTAL:				0.0543	0.1206	0.1324	0.0720	0.0433	0.4226	
SEAM TOTAL:			0.7898	0.6814	0.9591	0.9515	0.3450	0.0454	3.7722	

## SEAM : XII

[ UNDERGROUND ]			(MILLION TONNES)							A-IX A / 3
SECTOR	BARRIER	THICKNESS RANGE(m)	G R A D E							TOTAL
			S-I	S-II	W-I	W-II	W-III	W-IV	UG	
I	VIRGIN	0.90 - 1.20			0.2122	0.0608	0.1562	0.1134		0.5426
		1.20 - 1.50	0.2488	1.0663	0.9994	0.4918	0.4923	0.0987		3.3973
		1.50 - 2.00				0.0043	0.1581			0.1624
SECTOR I SUB-TOTAL:			0.2488	1.0663	1.2116	0.5569	0.8066	0.2121		4.1023
II	VIRGIN	0.90 - 1.20					0.0019	0.0206		0.0225
		1.20 - 1.50					0.0243			0.0243
SECTOR II SUB-TOTAL:							0.0262	0.0206		0.0468
III	VIRGIN	0.90 - 1.20			0.0004	0.0066	0.0284	0.0517		0.0871
		1.20 - 1.50					0.0357			0.0357
SECTOR III SUB-TOTAL:					0.0004	0.0066	0.0284	0.0874		0.1228
IV	VIRGIN	0.90 - 1.20		0.0020	0.0831	0.0779	0.0473	0.0145		0.2248
		1.20 - 1.50		0.1167	0.0601	0.0441	0.1069			0.3278
		1.50 - 2.00				0.0102	0.0059			0.0161
SECTOR IV SUB-TOTAL:				0.1187	0.1432	0.1322	0.1601	0.0145		0.5687
SEAM TOTAL:			0.2488	1.1850	1.3552	0.6957	1.0213	0.3346		4.8406

**ANNEXURE-IX B**  
**[ p A-IX B/ 1 to A-IX B/ 3 ]**

ANNEXURE-IX B

SEAM-WISE, SECTOR-WISE, BARRIER-WISE,  
THICKNESS-WISE & GRADE-WISE NET INSITU PROVED RESERVES OF COAL SEAMS  
LOHAPATTI EAST BLOCK, JHARIA COALFIELD, DHANBAD DIST. JHARKHAND

SEAM : XIV

[ UNDERGROUND ]		(MILLION TONNES)								A-IX B / 1
SECTOR	BARRIER	THICKNESS RANGE(m)	G R A D E				UG		TOTAL	
			S-I	S-II	W-I	W-II	W-III	W-IV		
I	DEVELOPED	0.90 - 1.20						0.0213	0.0213	
		1.20 - 1.50						0.1798	0.1798	
		1.50 - 2.00					0.1252	0.4823	0.6075	
		2.00 - 2.50					0.0662	0.6168	0.6830	
SECTOR I SUB-TOTAL:							0.1914	1.3002	1.4916	
SEAM TOTAL:							0.1914	1.3002	1.4916	

## SEAM : XIII

(MILLION TONNES)

A-IX B / 2

[ UNDERGROUND ]

SECTOR	BARRIER	THICKNESS RANGE(m)	G R A D E							TOTAL
			S-I	S-II	W-I	W-II	W-III	W-IV	UG	
I	DEVELOPED	0.90 - 1.20	0.0265	0.0944	0.0749	0.0686	0.0383	0.0002	0.3029	
		1.20 - 1.50	0.1497	0.1141	0.0726	0.0420	0.0064		0.3848	
		1.50 - 2.00			0.0126	0.0637			0.0763	
SECTOR I SUB-TOTAL:			0.1762	0.2085	0.1601	0.1743	0.0447	0.0002	0.7640	
SEAM TOTAL:			0.1762	0.2085	0.1601	0.1743	0.0447	0.0002	0.7640	

## SEAM : XII

(MILLION TONNES)

A-IX B / 3

[ UNDERGROUND ]

SECTOR	BARRIER	THICKNESS RANGE(m)	GRADE							TOTAL
			S-I	S-II	W-I	W-II	W-III	W-IV	UG	
I	DEVELOPED	1.20 - 1.50		0.0361	0.1318		0.1621			0.3300
		1.50 - 2.00				0.0018	0.0065			0.0083
SECTOR I SUB-TOTAL:				0.0361	0.1318		0.1639	0.0065		0.3383
SEAM TOTAL:				0.0361	0.1318		0.1639	0.0065		0.3383