

APPENDIX C

CLAUSES 3.1 AND 3.4

PROFORMA FOR PRESENTING DRILLING INFORMATION AS PER IS4464:1985

PROJECT : NTPC RAMAGUNDAM

BORE HOLE NO. : 51

SHEET NO. : 02

LOCATION STAGE IV MAIN PLANT AREA

CO - ORDINATES : 28A+55,11B+12

FEATURE : Plain area besides the BH small water pool present

BEARING OF HOLE

ANGLE WITH HORIZONTAL NIL

TOTAL DEPTH : 20.00 mtr

COLLAR ELEVATION :

GROUND ELEVATION : 148.710 mtr

TYPE(S) OF CORE BARREL: NX

STARTED :

COMPLETED :

DRILLING AGENCY M/S GEO TECHNICAL SERVICES

ELEV.	IN M	LITHOLOGY		SIZE OF CORE PIECES					STRUCTURAL CONDITIONS		% CORE RECOVERY					TYPE OF BIT	R.Q.D	FRACT FREQ/M	SIZE OF HOLE	CASING	WATER LEVEL	WATER LOSS		PERMEABILITY		PENETRATION RATE MM/MIN	SPECIAL OBSVS				
		DESCRIPTION	LOG	<10MM	10 - 25 MM	25 - 75 MM	75 - 150 MM	>150 MM	DESCRIPTION	LOG	0 - 20	20 - 40	40 - 60	60 - 80	80 100							Diamond Core Bit	42%	15 to 8	NX			3.00 mtr	PARTIAL	COMPLETE	TEST SECTION
8.00	9.00	Fractured Ferrogeneous sand stone rock	>>>>		60 30 50 50 60	90 80	>150 MM					42%																			
9.00	10.00	Fractured Ferrogeneous sand stone rock	>>>>		20 20 20 20 30	30 40 30 30 30 30						30%																			
10.00	11.00		&&&&&& &&&&&&		20	150 80 110	160					52%																			
11.00	12.00		&&&&&& &&&&&&			120 120 120 80							65%																		
12.00	13.00		&&&&&& &&&&&&			70 70	180 160																								
13.00	14.00		&&&&&& &&&&&&			140 130 80	220																								
14.00	15.00	Medium grained Ferrogeneous sand stone rock	&&&&&& &&&&&&			80 110 130	160																								
15.00	16.00	Medium grained Ferrogeneous sand stone rock	&&&&&& &&&&&&			50 50 60 100 100																									
16.00	17.00		&&&&&& &&&&&&			70	170																								
17.00	18.00		&&&&&& &&&&&&		20	40 70 70	220																								
18.00	19.00		&&&&&& &&&&&&			70	200 230																								
19.00	20.00		&&&&&& &&&&&&			120 100 100 100 90																									

Total Depth of Bore Hole : 20.00 m

APPENDIX C

PROFORMA FOR PRESENTING DRILLING INFORMATION AS PER IS4464:1985
 CLAUSES 3.1 AND 3.4

PROJECT : NTPC RAMAGUNDAM
 LOCATION : STAGE IV MAIN PLANT AREA
 SHEET NO. : 02
 BORE HOLE NO. : 55
 CO - ORDINATES : 27A+15 11B+5
 BEARING OF HOLE :
 ANGLE WITH HORIZONTAL : NIL
 TOTAL DEPTH : 20.00 mtr
 COLLAR ELEVATION :
 GROUND ELEVATION : 147.269
 TYPE(S) OF CORE BARREL : NX
 DRILLING AGENCY M/S GEO TECHNICAL SERVICES
 STARTED : 08-04-2011
 COMPLETED : 09-04-2011

ELEV.	IN M	LITHOLOGY		SIZE OF CORE PIECES					STRUCTURAL CONDITIONS					% CORE RECOVERY	TYPE OF BIT	R.Q.D	FRACT FREQ/M	SIZE OF HOLE	CASING	WATER LEVEL	PERMEABILITY		PENETRATION RATE MM/MIN	SPECIAL OBSVS																										
				<10MM	10 - 25 MM	25 - 75 MM	75 - 150 MM	> 150 MM	DESCRIPTION	LOG	0 - 20	20 - 40	40 - 60								60 - 80	80 100			PARTIAL	COMPLETE	TEST SECTION	MM/S OR LUGEON																						
9.00	10.00							90 70					LOG																	30.30																				
10.00	11.00							90 100							31%				over 15												30.30																			
11.00	12.00		Medium grained Fractured					100							29%				over 15												30.30																			
12.00	13.00		Ferrigenous sand stone rock					130 90							25%				over 15												33.33																			
13.00	14.00							70 60 30 70 50 30							34%				over 15												33.33																			
14.00	15.00							70 60											over 15												33.33																			
15.00	16.00							140 130 120											over 15												30.30																			
16.00	17.00							110 120											15 to 8												30.30																			
17.00	18.00		Medium grained Ferrigenous sand stone rock					110 120 120 150											over 15													33.33																		
18.00	19.00							70 60											15 to 8													33.33																		
19.00	20.00							290 250 200											15 to 8													33.33																		

Total Depth of Bore Hole : 20.00 m 113

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CLAUSES 3.1 AND 3.4

PROFORMA FOR PRESENTING DRILLING INFORMATION AS PER IS4464:1985

PROJECT : NTPC RAMAGUNDAM

BORE HOLE NO. : 56

SHEET NO. : 01

LOCATION STAGE IV MAIN PLANT AREA

CO - ORDINATES : 27A+16 11B+08

FEATURE : Plain area besides the BH small water pool present

BEARING OF HOLE

ANGLE WITH HORIZONTAL NIL

TOTAL DEPTH : 20.00 mtr

COLLAR ELEVATION :

GROUND ELEVATION : 147.451

TYPE(S) OF CORE BARREL: NX

STARTED : 06-04-2011

COMPLETED : 07-04-2011

DRILLING AGENCY M/S GEO TECHNICAL SERVICES

ELEV.	IN M	LITHOLOGY		SIZE OF CORE PIECES					STRUCTURAL CONDITIONS		% CORE RECOVERY					TYPE OF BIT	R.Q.D	FRACT FREQ/M	SIZE OF HOLE	CASING	WATER LEVEL	WATER LOSS		PERMEABILITY		PENETRATION RATE MM/MIN	SPECIAL OBSVS																															
		DESCRIPTION	LOG	<10MM	10 - 25 MM	25 - 75 MM	75 - 150 MM	>150 MM	DESCRIPTION	LOG	0 - 20	20 - 40	40 - 60	60 - 80	80 100							Diamond Core Bit	PARTIAL	COMPLETE	TEST SECTION			MM/S OR LUGEON																														
0.00	0.50		Silty clay																																					D/S																		
0.50	1.50		SDR																																					SPT 50 Refusal																		
1.50	3.00																																								SPT 50 Refusal																	
3.00	4.00		Medium grained Fractured ferrogenous sand stone rock	20	50 50 40 30 40																																																					
4.00	5.00			30	70 70 50 40 30 30																																																					
5.00	6.00				40 70 70	140																																																				
6.00	7.00				20 20 30	60 40 50																																																				
7.00	8.00				70	120 100																																																				
8.00	9.00					120 90	250																																																			

PROJECT : NTPC RAMAGUNDAM
 LOCATION STAGE IV MAIN PLANT AREA
 BORE HOLE NO. : 56
 SHEET NO. : 02
 BEARING OF HOLE
 CO-ORDINATES : 27A+16 11B+08
 FEATURE : Plain area besides the BH small water pool present
 TOTAL DEPTH : 20.00 mtr
 COLLAR ELEVATION :
 GROUND ELEVATION : 147.451
 TYPE(S) OF CORE BARREL: NX
 DRILLING AGENCY M/S GEO TECHNICAL SERVICES
 COMPLETED : 07-04-2011

ELEV.	IN M	LITHOLOGY		SIZE OF CORE PIECES						STRUCTURAL CONDITIONS		% CORE RECOVERY	TYPE OF BIT	R.Q.D	FRACT FREQ/M	SIZE OF HOLE	CASING	WATER LEVEL	WATER LOSS		PERMEABILITY		PENETRATION RATE MM/MIN	SPECIAL OBSVS				
		DESCRIPTION	LOG	<10MM	10 - 25 MM	25 - 75 MM	75 - 150 MM	> 150 MM	DESCRIPTION	LOG	PARTIAL								COMPLETE	TEST SECTION	MM/S OR LUGEON							
				0 - 20	20 - 40	40 - 60	60 - 80	80 100																				
9.00	10.00						150 120	160			43%		Diamond Core Bit	43%	15 to 8	NX	3.00 mtr											
10.00	11.00	#####				50 30		290			37%				over 15													
11.00	12.00	#####				30 60	130 130				35%				over 15													
12.00	13.00	#####					90	190 190			47%				15 to 8													
13.00	14.00	#####					110 130	160			40%				15 to 8													
14.00	15.00	#####					130 100	160			39%				15 to 8													
15.00	16.00	#####					130 90	160			45%				over 15													
16.00	17.00	&&&&&				70	90 130 120 60 100				50%				15 to 8													
17.00	18.00	&&&&&					120 140 100 150 120				63%				8 to 5													
18.00	19.00	&&&&&				70	100 150 120 100 80				62%				8 to 5													
19.00	20.00	&&&&&					80 140 140 100	200			66%				8 to 5													

Total Depth of Bore Hole : 20.00 m

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CLAUSES 3.1 AND 3.4

PROFORMA FOR PRESENTING DRILLING INFORMATION

AS PER IS4464:1985

PROJECT : NTPC RAMAGUNDAM
LOCATION : STAGE IV MAIN PLANT AREA
BEARING OF HOLE
COLLAR ELEVATION :
STARTED : 19-04-2011

BORE HOLE NO. : 57
CO - ORDINATES : 27A+69, 12B+06
ANGLE WITH HORIZONTAL : NIL
GROUND ELEVATION : 146.384 mtr
COMPLETED : 20-04-2011

SHEET NO. : 01
FEATURE : Plain area besides the BH small water pool present
TOTAL DEPTH : 20.00 mtr
TYPE(S) OF CORE BARREL: NX
DRILLING AGENCY M/S GEO TECHNICAL SERVICES

ELEV.	LITHOLOGY		SIZE OF CORE PIECES					STRUCTURAL CONDITIONS		% CORE RECOVERY	TYPE OF BIT	R.Q.D	SIZE OF HOLE		CASING	WATER LEVEL	PERMEABILITY		PENETRATION RATE	SPECIAL OBSVS	
	DESCRIPTION	LOG	<10MM	10 - 25 MM	25 - 75 MM	75 - 150 MM	>150 MM	DESCRIPTION	LOG				PARTIAL	COMPLETE			TEST SECTION	MM/S OR LUGEON			
0.00	0.50	Ash						LOG		0 - 20	20 - 40	40 - 60	60 - 80	80 - 100							D/S
0.50	1.50	SDR																			SPT 12-14+16=30
1.50	3.00	SDR																			SPT Refusal 18-50
3.00	4.00				40 60 30 50	80				26%											
4.00	5.00				50 70	100 120				34%											
5.00	6.00	Medium grained Fractured ferrogenous sand stone rock			30 40 50	200				32%											
6.00	7.00				50 60 70	120				30%											
7.00	8.00				40 30	80 100				25%											
8.00	9.00				50 70 60	80				26%											

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CLAUSES 3.1 AND 3.4

PROFORMA FOR PRESENTING DRILLING INFORMATION

AS PER IS4464:1985

PROJECT : NTPC RAMAGUNDAM

BORE HOLE NO. : 58

SHEET NO. : 02

LOCATION : STAGE IV MAIN PLANT AREA

CO - ORDINATES : 28A+02, 11B+92

FEATURE : Plain area besides the BH small water pool present

BEARING OF HOLE

ANGLE WITH HORIZONTAL : NIL

TOTAL DEPTH : 20.00 mtr

COLLAR ELEVATION : 30 cms

GROUND ELEVATION : 146.977 mtr

TYPE(S) OF CORE BARREL : NX

STARTED :

COMPLETED :

DRILLING AGENCY M/S GEO TECHNICAL SERVICES

ELEV.	IN M	LITHOLOGY		SIZE OF CORE PIECES					STRUCTURAL CONDITIONS					TYPE OF BIT	R.O.D	FRACT FREQ/M	SIZE OF HOLE	CASING	WATER LEVEL	WATER LOSS		PERMEABILITY		PENETRATION RATE MM/MIN	SPECIAL OBSVS														
		DESCRIPTION	LOG	<10MM	10 - 25 MM	25 - 75 MM	75 - 150 MM	> 150 MM	DESCRIPTION	LOG	0 - 20	20 - 40	40 - 60							60 - 80	80 100	PARTIAL	COMPLETE			TEST SECTION	LUGEN												
9.00	10.00		#####		40 30	70 40 30 30 30		> 150 MM																															
10.00	11.00		#####			30 40 60 40	90																																
11.00	12.00		#####	Medium grained Fractured ferrogenous sand stone rock		60 60	110 80																																
12.00	13.00		#####			30 40	90 110																																
13.00	14.00		#####			70	100 140																																
14.00	15.00		#####				120	180 160																															
15.00	16.00		#####					160 200																															
16.00	17.00		#####				130 110 80	160																															
17.00	18.00		#####			60	130 100 130	170																															
18.00	19.00		#####			50		210 170 180																															
19.00	20.00		#####					220 180 280																															

Total Depth of Bore Hole : 20.00 m

APPENDIX C

CLAUSES 3.1 AND 3.4

PROFORMA FOR PRESENTING DRILLING INFORMATION

AS PER IS4464:1985

PROJECT : NTPC RAMAGUNDAM

BORE HOLE NO. : 59

SHEET NO. : 01

LOCATION STAGE IV MAIN PLANT AREA

CO - ORDINATES : 28A+43 11B+92

FEATURE : Plain area

BEARING OF HOLE

ANGLE WITH HORIZONTAL NIL

toTAL DEPTH : 16.00 mtr

COLLAR ELEVATION

GROUND ELEVATION : 148.549

TYPE(S) OF CORE BARREL: NX

STARTED : 17/12/2010

COMPLETED : 18/12/2010

DRILLING AGENCY M/S GEO TECHNICAL SERVICES

ELEV. IN M	LITHOLOGY		SIZE OF CORE PIECES					STRUCTURAL CONDITIONS		% CORE RECOVERY					TYPE OF BIT	R.Q.D	FRACT FREQ/M	SIZE OF HOLE	CASING	WATER LEVEL	WATER LOSS		PERMEABILITY		PENETRATION RATE	SPECIAL OBSVS											
	DESCRIPTION	LOG	<10MM	10 - 25 MM	25 - 75 MM	75 - 150 MM	>150 MM	DESCRIPTION	LOG	0 - 20	20 - 40	40 - 60	60 - 80	80 100							PARTIAL	COMPLETE	TEST SECTION	MM/S OR LUGEON			Disturbed sample collected	Undisturbed sample collected									
0.00	0.50	*****																																	Disturbed sample collected	125	
0.50	1.00	*****																																	SPT Blows 5-7-9 N=16	125	
1.00	1.50	*****																																	Undisturbed sample collected	111	
1.50	2.00	*****																																	SPT Blows 4-9-11 N=20	83.3	
2.00	2.50	////////																																	Disturbed sample collected	71.4	
2.50	3.00	////////																																		SPT 4 cm N=28	76.9
3.00	4.00	////////								100	110	170																							66.6		
4.00	5.00	////////								130	100																								58.8		
5.00	6.00	////////								120	110																								55.5		

PROJECT : NTPC RAMAGUNDAM

BORE HOLE NO. : 59

SHEET NO. : 02

LOCATION STAGE IV MAIN PLANT AREA

BEARING OF HOLE

COLLAR ELEVATION

STARTED : 17/12/2010

CO - ORDINATES : 28A+43 11B+92

ANGLE WITH HORIZONTAL NIL

GROUND ELEVATION : 148.549

COMPLETED : 18/12/2010

FEATURE : Plain area

TOTAL DEPTH : 16.00 mtr

TYPE(S) OF CORE BARREL: NX

DRILLING AGENCY M/S GEO TECHNICAL SERVICES

ELEV.	IN M	LITHOLOGY		SIZE OF CORE PIECES					STRUCTURAL CONDITIONS		% CORE RECOVERY					TYPE OF BIT	R.Q.D	FRACT FREQ/M	SIZE OF HOLE	CASING	WATER LEVEL	WATER LOSS		PERMEABILITY		PENETRATION RATE MM/MIN	SPECIAL OBSVS				
		DESCRIPTION	LOG	<10MM	10 - 25 MM	25 - 75 MM	75 - 150 MM	>150 MM	DESCRIP TION	LOG	0 - 20	20 - 40	40 - 60	60 - 80	80 100							Diamond Core Bit	11%	>15	NX			3.00 mtr	2.85mtr	PARTIAL	COMPLETE
6.00	7.00		&&&&			110		>150 MM																			50				
7.00	8.00		&&&&			110						39%															43.47				
8.00	9.00		&&&&			110							46%														47.61				
9.00	10.00		&&&&			100 130 100							48%														41.66				
10.00	11.00		&&&&			120 120							50%														45.45				
11.00	12.00		&&&&														180 580										40				
12.00	13.00		^^^^^^			150		590																			38.46				
13.00	14.00		^^^^^^			110		670																			38.46				
14.00	15.00		^^^^^^					230 540																			37.03				
15.00	16.00		^^^^^^					750																			37.03				

APPENDIX C

CLAUSES 3.1 AND 3.4

PROFORMA FOR PRESENTING DRILLING INFORMATION AS PER IS4464:1985

PROJECT : NTPC RAMAGUNDAM

BORE HOLE NO. : 60

SHEET NO. : 01

LOCATION STAGE IV MAIN PLANT AREA

CO - ORDINATES : 28A+70 12B+24

FEATURE : Plain area

BEARING OF HOLE

ANGLE WITH HORIZONTAL NIL

TOTAL DEPTH : 12.00 mtr

COLLAR ELEVATION

GROUND ELEVATION : 147.025

TYPE(S) OF CORE BARREL: NX

STARTED : 13/12/2010

COMPLETED : 14/12/2010

DRILLING AGENCY M/S GEO TECHNICAL SERVICES

ELEV.	LITHOLOGY		SIZE OF CORE PIECES					STRUCTURAL CONDITIONS		% CORE RECOVERY					TYPE OF BIT	R.Q.D	FRACT FREQ/M	SIZE OF HOLE	CASING	WATER LEVEL	WATER LOSS		PERMEABILITY		PENETRATION RATE MM/MIN	SPECIAL OBSVS		
	DESCRIPTION	LOG	<10MM	10 - 25 MM	25 - 75 MM	75 - 150 MM	> 150 MM	DESCRIPTION	LOG	0 - 20	20 - 40	40 - 60	60 - 80	80 100							Diamond Core Bit	63%	63%	72%			59%	84%
7.00	Medium grained Ferrogenous sandstone rock	LOG					300 330						63%												50.00			
8.00							630						70%													52.60		
9.00								720						72%												50.00		
10.00								590						68%												47.61		
11.00								840								84%										40.00		
12.00																												
Total Depth of Bore Hole : 12.00 m																												

PROJECT : NTPC RAMAGUNDAM BORE HOLE NO. : 61 SHEET NO. : 01

LOCATION STAGE IV MAIN PLANT AREA CO - ORDINATES : 28A+77 12B+01
 BEARING OF HOLE ANGLE WITH HORIZONTAL NIL
 COLLAR ELEVATION GROUND ELEVATION : 147.157
 STARTED : 15/12/2010 COMPLETED : 17/12/2010

FEATURE : Plain area
 TOTAL DEPTH : 20.00 mtr
 TYPE(S) OF CORE BARREL: NX
 DRILLING AGENCY M/S GEO TECHNICAL SERVICES

ELEV.	IN M	LITHOLOGY		SIZE OF CORE PIECES					STRUCTURAL CONDITIONS		% CORE RECOVERY					TYPE OF BIT	R.Q.D	FRACT FREOM	SIZE OF HOLE	CASING	WATER LEVEL	WATER LOSS		PERMEABILITY		PENETRATION RATE	SPECIAL OBSVS						
		DESCRIPTION	LOG	<10MM	10 - 25 MM	25 - 75 MM	75 - 150 MM	> 150 MM	DESCRIPTION	LOG	0 - 20	20 - 40	40 - 60	60 - 80	80 100							PARTIAL	COMPLETE	TEST SECTION	MM/S OR LUGENON								
0.00	0.50	Ash	~~~~~ ~~~~~																									111	Distrubed sample collected				
0.50	1.00																													100	SPT blows 2-3-3 N=6		
1.00	2.00																														90.9	SPT blows 2-3-4 N=7	
2.00	3.00	SDR	//////// ////////																											100	SPT blows 8-11-13 N=24		
3.00	4.00																															66.6	SPT 5cm N=28
4.00	5.00	weathered ferrous sandstone rock	^^^^^^ ^^^^^^ ^^^^^^ ^^^^^^ ^^^^^^ ^^^^^^ ^^^^^^ ^^^^^^					110			36%																				58.8		
5.00	6.00									130 130			47%																			52.68	
6.00	7.00									-			49%																			50	
7.00	8.00												48%																			47.61	

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CLAUSES 3.1 AND 3.4

PROFORMA FOR PRESENTING DRILLING INFORMATION

AS PER IS4464:1985

PROJECT : **NTPC RAMAGUNDAM**

BORE HOLE NO. : 61

SHEET NO. : 02

LOCATION **STAGE IV MAIN PLANT AREA**

CO - ORDINATES : **28A+77 B. 12B+01**

FEATURE : Plain area

BEARING OF HOLE

ANGLE WITH HORIZONTAL NIL

TOTAL DEPTH : 20.00 mtr

COLLAR ELEVATION

GROUND ELEVATION : 147.157

TYPE(S) OF CORE BARREL: NX

STARTED : 15/12/2010

COMPLETED : 17/12/2010

DRILLING AGENCY M/S GEO TECHNICAL SERVICES

ELEV. IN M	LITHOLOGY DESCRIPTION	SIZE OF CORE PIECES					STRUCTURAL CONDITIONS LOG	% CORE RECOVERY					TYPE OF BIT Diamond Core Bit	R.Q.D	FRACT FREQ/M	SIZE OF HOLE NX	CASING 3.00 mtr	WATER LEVEL 1.75 mts	WATER LOSS		PERMEABILITY		PENETRATION RATE MM/MIN	SPECIAL OBSVS
		<10MM	10 - 25 MM	25 - 75 MM	75 - 150 MM	>150 MM		0 - 20	20 - 40	40 - 60	60 - 80	80 100							LOG	DESCRIPTION	LOG	PARTIAL		
8.00 9.00	\$\$\$\$ \$\$\$\$				170					43%													43.47	
9.00 10.00	\$\$\$\$ \$\$\$\$			100 100						50%													41.66	
10.00 11.00	\$\$\$\$ \$\$\$\$			120					39%														40	
11.00 12.00	\$\$\$\$ \$\$\$\$			-						52%													38.46	
12.00 13.00	\$\$\$\$ \$\$\$\$			-						46%													38.46	
13.00 14.00	\$\$\$\$ \$\$\$\$			-						53%													37.03	
14.00 15.00	\$\$\$\$ \$\$\$\$						180			43%													33.3	
15.00 16.00	&&&&& &&&&&			140 140 150	180 170							81%											34.48	
16.00 17.00	&&&&& &&&&&			130								88%											33.3	
17.00 18.00	&&&&& &&&&&	Medium grained Ferrogeneous sandstone rock		150	510 170							92%											34.4	
18.00 19.00	&&&&& &&&&&			100 100 150	170 240							89%											31.25	
19.00 20.00	&&&&& &&&&&				670							67%											30.3	

Total Depth of Bore Hole : 20.00 m

APPENDIX C

CLAUSES 3.1 AND 3.4
 PROFORMA FOR PRESENTING DRILLING INFORMATION
 AS PER IS4464:1985

PROJECT : NTPC RAMAGUNDAM

BORE HOLE NO. : 61A

SHEET NO. : 01

LOCATION STAGE IV MAIN PLANT AREA
 BEARING OF HOLE
 COLLAR ELEVATION
 STARTED : 19/04/2011

CO - ORDINATES : 28A+26 12B+07
 ANGLE WITH HORIZONTAL NIL
 GROUND ELEVATION : 147.157
 COMPLETED : 20/04/2011

FEATURE : Plain area
 toTAL DEPTH : 20.00 mtr
 TYPE(S) OF CORE BARREL: NX
 DRILLING AGENCY M/S GEO TECHNICAL SERVICES

ELEV. IN M	LITHOLOGY		STRUCTURAL CONDITIONS	SIZE OF CORE PIECES					% CORE RECOVERY					TYPE OF BIT	R.Q.D	FRACT FREQ/M	SIZE OF HOLE	CASING	WATER LEVEL	PERMEABILITY		WATER LOSS	PENETRATION RATE MM/MIN	SPECIAL OBSVS			
	DESCRIPTION	LOG		<10MM	10 - 25 MM	25 - 75 MM	75 - 150 MM	>150 MM	DESCRIPTION	LOG	0 - 20	20 - 40	40 - 60							60 - 80	80 - 100				Diamond Core Bit	TEST SECTION	MM/S OR LUGEON
0.00		Ash																							SPT/DS 6-50 Refusal		
1.00		#####		20	30 30												8%										
2.00		#####			70	100 90											26%										
3.00		#####			70 60 60	90 90 140																					
4.00		#####			60 30 30 70 40	90 80																					
5.00		#####			50 70	80 80 80 90																					
6.00		#####			50 50 50 40 40	120 80																					
7.00		#####			60 70	80 130	150 240																				
8.00		#####			70 70 40																						
9.00		#####																									

APPENDIX C

CLAUSES 3.1 AND 3.4

PROFORMA FOR PRESENTING DRILLING INFORMATION AS PER IS4464:1985

PROJECT : NTPC RAMAGUNDAM

BORE HOLE NO. : 61A

SHEET NO. : 02

LOCATION STAGE IV MAIN PLANT AREA

CO - ORDINATES : 28A+26 12B+07

FEATURE : Plain area

BEARING OF HOLE

ANGLE WITH HORIZONTAL NIL

TOTAL DEPTH : 20.00 mtr

COLLAR ELEVATION

GROUND ELEVATION : 147.157

TYPE(S) OF CORE BARREL: NX

STARTED : 19/04/2011

COMPLETED : 20/04/2011

DRILLING AGENCY M/S GEO TECHNICAL SERVICES

ELEV.	IN M	LITHOLOGY		SIZE OF CORE PIECES					STRUCTURAL CONDITIONS					% CORE RECOVERY					TYPE OF BIT	R.O.D	FRACT FREQ/M	SIZE OF HOLE	CASING	WATER LEVEL	WATER LOSS		PERMEABILITY		PENETRATION RATE	SPECIAL OBSVS																															
		DESCRIPTION	LOG	<10MM	10 - 25 MM	25 - 75 MM	75 - 150 MM	>150 MM	DESCRIPTION	LOG	0 - 20	20 - 40	40 - 60	60 - 80	80 100	PARTIAL	COMPLETE	TEST SECTION							MM/S OR LUGEON																																				
9.00	10.00	Medium grained Fractured Ferrogenous sand stone rock	#####				120 110 130 100	>150 MM																										41.66																											
10.00	11.00		#####				130																															40																							
11.00	12.00		#####			70		200 210																																	38.46																				
12.00	13.00		#####			70 40 60 30		130	270																																	38.46																			
13.00	14.00		#####						310																																				37.03																
14.00	15.00		#####					130 80																																							33.3														
15.00	16.00		&&&&&&					80 100																																										34.48											
16.00	17.00		&&&&&&					140 100 80 90																																											33.3										
17.00	18.00		&&&&&&	Medium grained Ferrogenous sandstone rock					200 170 180																																										34.4										
18.00	19.00		&&&&&&					100 130 100 110																																															31.25						
19.00	20.00		&&&&&&					80 120	170 190 170																																																30.3				

Total Depth of Bore Hole : 20.00 m

PROJECT : NTPC RAMAGUNDAM
 LOCATION : STAGE IV MAIN PLANT AREA
 BEARING OF HOLE : 02
 SHEET NO. : 02
 BORE HOLE NO. : 62
 CO - ORDINATES : 28A+07, 12B+13
 FEATURE : Plain area besides the BH small water pool present
 ANGLE WITH HORIZONTAL : NIL
 TOTAL DEPTH : 20.00 mtr
 COLLAR ELEVATION : 147.353
 GROUND ELEVATION : 147.353
 TYPE(S) OF CORE BARREL : NX
 DRILLING AGENCY M/S GEO TECHNICAL SERVICES
 COMPLETED : 17-04-2011

ELEV.	IN M	LITHOLOGY		SIZE OF CORE PIECES					STRUCTURAL CONDITIONS					% CORE RECOVERY					TYPE OF BIT	R.Q.D	FRACT FREQ/M	SIZE OF HOLE	CASING	WATER LEVEL	WATER LOSS		PERMEABILITY		PENETRATION RATE	SPECIAL OBSVS										
		DESCRIPTION	LOG	<10MM	10 - 25 MM	25 - 75 MM	75 - 150 MM	> 150 MM	DESCRIPTION	LOG	0 - 20	20 - 40	40 - 60	60 - 80	80 - 100	PARTIAL	COMPLETE	TEST SECTION							MM/S OR LUGEON															
9.00	10.00		####		30 60 40 40 40	80						29%																												
10.00	11.00		####		60 70 50	110						29%																												
11.00	12.00		####		10 20 60 50 30 20 40							23%																												
12.00	13.00		####		70	90 80 120						36%																												
13.00	14.00		####		50 50 40 40 40	90 110						38%																												
14.00	15.00		####		40 70	100 90 80 100																																		
15.00	16.00		&&&&		70	90		160 210																																
16.00	17.00		&&&&		10	100		240 230																																
17.00	18.00		&&&&			110		230 270																																
18.00	19.00		&&&&					260 240 240																																
19.00	20.00		&&&&			110		290 430																																

Total Depth of Bore Hole : 20.00 m

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APPENDIX C

CLAUSES 3.1 AND 3.4

PROFORMA FOR PRESENTING DRILLING INFORMATION AS PER IS4464:1985

PROJECT : NTPC RAMAGUNDAM

LOCATION : STAGE IV MAIN PLANT AREA

BEARING OF HOLE

COLLAR ELEVATION : 30 cms

STARTED : 16/04/2011

BORE HOLE NO. : 63

CO - ORDINATES : 29A+19,11B+92

ANGLE WITH HORIZONTAL : NIL

GROUND ELEVATION : 147.841

COMPLETED : 17/04/2011

SHEET NO. : 01

FEATURE : Plain area

toTAL DEPTH : 20.00 mtr

TYPE(S) OF CORE BARREL: NX

DRILLING AGENCY M/S GEO TECHNICAL SERVICES

ELEV. IN M	LITHOLOGY DESCRIPTION	LOG	SIZE OF CORE PIECES					STRUCTURAL CONDITIONS		% CORE RECOVERY	TYPE OF BIT	R.Q.D	FRACT FREQM	SIZE OF HOLE NX	CASING 3.00 mtr	WATER LEVEL	WATER LOSS		PERMEABILITY		PENETRATION RATE MM/MIN	SPECIAL OBSVS				
			<10MM	10 - 25 MM	25 - 75 MM	75 - 150 MM	>150 MM	DESCRIPTION	LOG								0 - 20	20 - 40	40 - 60	60 - 80			80 100	PARTIAL	COMPLETE	TEST SECTION
0.00	Ash	~~~~~																								
0.50		~~~~~																								
1.00	Boulders	0000000																								
2.00		0000000																								
3.00	Fractured Ferrogenous and medium grained sandstone rock	>>>>		20 20	30 40 40	80				23%																
4.00		>>>>		10 10	50	110 100				28%																
5.00		>>>>				110 90 90 90				38%																
6.00		>>>>				90 110 100 110						41%														
7.00		>>>>		20	70 60 30	120 80				38%																
8.00		>>>>			70 70 40	130 100						41%														
9.00		Medium grained Fractured ferrogenous	#####				120 80 80	200				48%														

APPENDIX C
 CLAUSES 3.1 AND 3.4
 PROFORMA FOR PRESENTING DRILLING INFORMATION
 AS PER IS4464:1985

PROJECT : **NTPC RAMAGUNDAM** SHEET NO. : 02
 LOCATION **STAGE IV MAIN PLANT AREA**
 BEARING OF HOLE : Plain area
 COLLAR ELEVATION 30 cms : 19.00 mtr
 STARTED : 16/04/2011 COMPLETED : 17/04/2011

ELEV. IN M	LITHOLOGY		SIZE OF CORE PIECES					STRUCTURAL CONDITIONS					% CORE RECOVERY					TYPE OF BIT	R.Q.D	FRACT FREQ/M	SIZE OF HOLE	CASING	WATER LEVEL	PERMEABILITY		PENETRATION RATE	SPECIAL OBSVS												
	DESCRIPTION	LOG	<10MM	10 - 25 MM	25 - 75 MM	75 - 150 MM	>150 MM	DESCRIPTION	LOG	0 - 20	20 - 40	40 - 60	60 - 80	80 100	PARTIAL	COMPLETE	TEST SECTION							M/M/S OR LU GEON															
9.00	10.00	#####				110 70 120	160						46%				39%	15 to 8																					
10.00	11.00	#####			70	140 80	200						49%				34%	15 to 8																					
11.00	12.00	#####			60	100 90 110 110							47%				32%	15 to 8																					
12.00	13.00	#####			40	120 100	200						46%				42%	15 to 8																					
13.00	14.00	#####			40	110 90 120 90							45%				23%	15 to 8																					
14.00	15.00	#####				130 100 80	190						50%				42%	15 to 8																					
15.00	16.00	#####			50	80 150	170						45%				32%	15 to 8																					
16.00	17.00	#####			60 60	100	200						42%				30%	15 to 8																					
17.00	18.00	#####				100 110	180 160						55%				55%	15 to 8																					
18.00	19.00	#####				80 150	190 200 220						84%				76%	15 to 8																					
19.00	20.00	#####				190 220 300 150							86%				86%	15 to 8																					

Total Depth of Bore Hole : 20.00 m

APPENDIX C

CLAUSES 3.1 AND 3.4

PROFORMA FOR PRESENTING DRILLING INFORMATION

AS PER IS4464:1985

PROJECT : NTPC RAMAGUNDAM
 LOCATION : STAGE IV MAIN PLANT AREA
 BEARING OF HOLE :
 COLLAR ELEVATION : 35cms
 STARTED : 08-04-2011
 BORE HOLE NO. : 64
 CO - ORDINATES : 27A+26.11B+93
 ANGLE WITH HORIZONTAL : NIL
 GROUND ELEVATION : 146.945
 COMPLETED : 09-04-2011
 SHEET NO. : 02
 FEATURE : Plain area besides the BH small water pool present
 TOTAL DEPTH : 20.00 mtr
 TYPE(S) OF CORE BARREL: NX
 DRILLING AGENCY M/S GEO TECHNICAL SERVICES

ELEV.	IN M	LITHOLOGY		SIZE OF CORE PIECES					STRUCTURAL CONDITIONS	% CORE RECOVERY					TYPE OF BIT	R.Q.D	FRACT FREQ/M	SIZE OF HOLE	CASING	WATER LEVEL	WATER LOSS		PERMEABILITY		PENETRATION RATE MM/MIN	SPECIAL OBSVS		
		DESCRIPTION	LOG	<10MM	10 - 25 MM	25 - 75 MM	75 - 150 MM	>150 MM		DESCRIPTION	LOG	0 - 20	20 - 40	40 - 60							60 - 80	80 100	PARTIAL	COMPLETE			TEST SECTION	MM/S OR LUGEON
9.00	10.00				20	70	100 80 90				36%						10%	over 15									33.33	
10.00	11.00					50 50 60	110				27%						11%	over 15									33.33	
11.00	12.00						120 90 80				29%						12%	over 15									33.33	
12.00	13.00					70 70 60	80 80 100					46%					10%	over 15									30.30	
13.00	14.00					70	150 110 90						42%				26%	15 to 8									30.30	
14.00	15.00					70 60 50 60	120						36%				12%	over 15									30.30	
15.00	16.00						140 140 170						45%				45%	15 to 8									30.30	
16.00	17.00						130 100 150							64%			64%	8 to 5									33.33	
17.00	18.00						80 90 90 100						49%				10%	over 15									30.30	
18.00	19.00						100 90 90 80						49%				10%	over 15									30.30	
19.00	20.00						150 130 100 140 130							72%			65%	8 to 5									30.30	

Total Depth of Bore Hole : 20.00 m

APPENDIX C

CLAUSES 3.1 AND 3.4

PROFORMA FOR PRESENTING DRILLING INFORMATION

AS PER IS4464:1985

PROJECT : NTPC RAMAGUNDAM	BORE HOLE NO. : 65	SHEET NO. : 02
LOCATION : STAGE IV MAIN PLANT AREA	CO - ORDINATES : 26A+93, 12B+08	FEATURE : Plain area besides the BH small water pool present
BEARING OF HOLE	ANGLE WITH HORIZONTAL : NIL	TOTAL DEPTH : 20.00 mtr
COLLAR ELEVATION :	GROUND ELEVATION : 146.509 mtr	TYPE(S) OF CORE BARREL: NX
STARTED : 16-06-2011	COMPLETED : 17-06-2011	DRILLING AGENCY M/S GEO TECHNICAL SERVICES

ELEV.	IN M	LITHOLOGY		SIZE OF CORE PIECES					STRUCTURAL CONDITIONS		% CORE RECOVERY					TYPE OF BIT	R.Q.D	FRACT FREQ/M				SIZE OF HOLE	CASING	WATER LEVEL	WATER LOSS		PERMEABILITY		PENETRATION RATE MM/MIN	SPECIAL OBSVS										
		DESCRIPTION	LOG	<10MM	10 - 25 MM	25 - 75 MM	75 - 150 MM	>150 MM	DESCRIPTION	LOG	0 - 20	20 - 40	40 - 60	60 - 80	80 100			Diamond Core Bit	11%	over 15	15%				over 15	29%	15 to 8	15%			over 15	26%	15 to 8	11%	over 15	21%	over 15			
0.00	0.50	Silty Sand	!!!!!!																																					
0.50	1.50	-do-	!!!!!!																																					
1.50	2.50	SDR	///////																																					
2.50	3.00		>>>>			20		40 60 60	110																															
3.00	4.00		>>>>					60 60	80 150																															
4.00	5.00	Fractured ferrogenous sand stone rock	>>>>					60 60 40	100	190																														
5.00	6.00		>>>>					50		150 110 90																														
6.00	7.00		>>>>						30 40 70 90	90 110 90																														
7.00	8.00		>>>>						60 70	80 100 110																														
7.00			>>>>																																					

APPENDIX C

CLAUSES 3.1 AND 3.4

PROFORMA FOR PRESENTING DRILLING INFORMATION AS PER IS4464:1985

PROJECT : NTPC RAMAGUNDAM
 LOCATION : STAGE IV MAIN PLANT AREA
 BEARING OF HOLE :
 COLLAR ELEVATION :
 STARTED : 16-06-2011
 BORE HOLE NO. : 65
 CO - ORDINATES : 26A+93, 12B+08
 ANGLE WITH HORIZONTAL : NIL
 GROUND ELEVATION : 146.509 mtr
 COMPLETED : 17-06-2011
 SHEET NO. : 02
 FEATURE : Plain area besides the BH small water pool present
 TOTAL DEPTH : 20.00 mtr
 TYPE(S) OF CORE BARREL: NX
 DRILLING AGENCY M/S GEO TECHNICAL SERVICES

ELEV.	IN M	LITHOLOGY		SIZE OF CORE PIECES					STRUCTURAL CONDITIONS		% CORE RECOVERY					TYPE OF BIT	R.Q.D	FRACT FREQ/M	SIZE OF HOLE	CASING	WATER LEVEL	WATER LOSS		PERMEABILITY		PENETRATION RATE	SPECIAL OBSVS									
		DESCRIPTION	LOG	<10MM	10 - 25 MM	25 - 75 MM	75 - 150 MM	>150 MM	DESCRIPTION	LOG	0 - 20	20 - 40	40 - 60	60 - 80	80 - 100							D/S	PARTIAL	COMPLETE	TEST SECTION			MM/S OR LUGEON								
9.00	10.00		>>>>		50	90 130 120 80							47%																				D/S			
10.00	11.00		>>>>		40 50	90 140 140							46%																				SPT 15-19+33=52			
11.00	12.00	Fractured ferrogenous sand stone rock	>>>>		70	100 150 120							44%																				SPT Refusal 3-50			
12.00	13.00		>>>>		60 70	90				190			41%																							
13.00	14.00		>>>>		60	100				290			45%																							
14.00	15.00		>>>>		70	130 80 140							42%																							
15.00	16.00		^^^^^^			130 120				180			43%																							
16.00	17.00		^^^^^^		70	90 110				190			46%																							
17.00	18.00	ferrogenous sand stone rock	^^^^^^			80 100 140 150				150			62%																							
18.00	19.00		^^^^^^							240 160 180 170			75%																							
19.00	20.00		^^^^^^		60 70					400 200			73%																							

Total Depth of Bore Hole : 20.00 m

APPENDIX C

CLAUSES 3.1 AND 3.4

PROFORMA FOR PRESENTING DRILLING INFORMATION

AS PER IS4464:1985

PROJECT : NTPC RAMAGUNDAM
 LOCATION : STAGE IV MAIN PLANT AREA
 BEARING OF HOLE
 COLLAR ELEVATION :
 STARTED :21-06-2011
 BORE HOLE NO. : 66
 CO - ORDINATES : 24A+85, 13B+37
 ANGLE WITH HORIZONTAL NIL
 GROUND ELEVATION : 147.028 mtr
 COMPLETED :21-06-2011
 SHEET NO. : 01
 FEATURE : Plain area besides the BH small water pool present
 TOTAL DEPTH : 20.00 mtr
 TYPE(S) OF CORE BARREL: NX
 DRILLING AGENCY M/S GEO TECHNICAL SERVICES

ELEV. IN M	LITHOLOGY		SIZE OF CORE PIECES					STRUCTURAL CONDITIONS		% CORE RECOVERY					TYPE OF BIT	R.Q.D	FRACT FREQ/M	SIZE OF HOLE	CASING	WATER LEVEL	WATER LOSS		PERMEABILITY		PENETRATION RATE MM/MIN	SPECIAL OBSVS													
	DESCRIPTION	LOG	<10MM	10 - 25 MM	25 - 75 MM	75 - 150 MM	>150 MM	DESCRIPTION	LOG	0 - 20	20 - 40	40 - 60	60 - 80	80 - 100							PARTIAL	COMPLETE	TEST SECTION	MM/S OR LUGEON															
																											DIAMETER	NO OF CORE PIECES	NO OF CORE PIECES	NO OF CORE PIECES	NO OF CORE PIECES	NO OF CORE PIECES	NO OF CORE PIECES	NO OF CORE PIECES	NO OF CORE PIECES	NO OF CORE PIECES	NO OF CORE PIECES	NO OF CORE PIECES	
0.00	0.50	Silty Clay																																		D/S			
0.50	1.50	SDR																																	SPT 14-19-29=48				
1.50	3.00	SDR																																	SPT Refusal 5-50				
3.00	4.00		20	20	30	30	60	120			28%							over	15																				
4.00	5.00				30	30	100	90 140			30%								over	15																			
5.00	6.00	Fractured ferrogenous sand stone rock		60	60	100	100	100	100				42%					15 to	8																				
6.00	7.00					110	170 160							44%					15 to	8																			
7.00	8.00			70	80	90	80					32%						over	15																				
8.00	9.00				50	90	80	100 130						48%					over	15																			

APPENDIX C

CLAUSES 3.1 AND 3.4

PROFORMA FOR PRESENTING DRILLING INFORMATION AS PER IS4464:1985

PROJECT : NTPC RAMAGUNDAM
 LOCATION : STAGE IV MAIN PLANT AREA
 BEARING OF HOLE :
 COLLAR ELEVATION :
 STARTED :21-06-2011
 BORE HOLE NO. : 66
 CO - ORDINATES : 24A+85, 13B+37
 ANGLE WITH HORIZONTAL : NIL
 GROUND ELEVATION : 147.028 mtr
 COMPLETED : 21-06-2011
 SHEET NO. : 02
 FEATURE : Plain area besides the BH small water pool present
 TOTAL DEPTH : 20.00 mtr
 TYPE(S) OF CORE BARREL : NX
 DRILLING AGENCY M/S GEO TECHNICAL SERVICES

ELEV.	IN M	LITHOLOGY	SIZE OF CORE PIECES					STRUCTURAL CONDITIONS		% CORE RECOVERY	TYPE OF BIT	R.Q.D	FRACT FREQ/M	SIZE OF HOLE	CASING	WATER LEVEL	PERMEABILITY		PENETRATION RATE	SPECIAL OBSVS
			<10MM	10 - 25 MM	25 - 75 MM	75 - 150 MM	> 150 MM	LOG	DESCRIPTION								PARTIAL	COMPLETE		
9.00	10.00	>>>>		90	130	120	> 150 MM	LOG	80 100		25%	over 15						D/S		
10.00	11.00	>>>>			110	100	90	100	40%		31%	15 to 8						SPT	15-19+33=52	
11.00	12.00	>>>>		50	60	70	100	110	39%		21%	over 15						SPT Refusal	3-50	
12.00	13.00	>>>>		70	50	80	160		38%		16%	over 15								
13.00	14.00	>>>>				100	110	180	55%		55%	8 to 5								
14.00	15.00	>>>>				100	130	150	33%		38%	15 to 8								
15.00	16.00	^^^^^^				100	200	200			50%	15 to 8								
16.00	17.00	^^^^^^				140	100	170			41%	15 to 8								
17.00	18.00	^^^^^^				140	140	120	52%		55%	15 to 8								
18.00	19.00	^^^^^^				100	90	240	47%		47%	15 to 8								
19.00	20.00	^^^^^^				130	140	160			77%	5 to 3								

Total Depth of Bore Hole : 20.00 m

PROJECT : **NTPC RAMAGUNDAM**
BORE HOLE NO. : 67
 SHEET NO. : 01

LOCATION **STAGE IV MAIN PLANT AREA**
 BEARING OF HOLE
 COLLAR ELEVATION :40cm
 STARTED : 01/03/2011

CO - ORDINATES : **24B+35 13B+21**
 ANGLE WITH HORIZONTAL NIL
 GROUND ELEVATION 147.580
 COMPLETED : 03/03/2011

FEATURE : Plain area with N-side hole one deep well present
 total DEPTH : 20.00 mtr
 TYPE(S) OF CORE BARREL: NX
 DRILLING AGENCY M/S GEO TECHNICAL SERVICES

ELEV.	LITHOLOGY		SIZE OF CORE PIECES					STRUCTURAL CONDITIONS		% CORE RECOVERY					TYPE OF BIT	R.Q.D	FRACT FREQM	SIZE OF HOLE	CASING	WATER LEVEL	WATER LOSS		PERMEABILITY		PENETRATION RATE MM/MIN	SPECIAL OBSVS											
	DESCRIPTION	LOG	<10MM	10 - 25 MM	25 - 75 MM	75 - 150 MM	>150 MM	DESCRIPTION	LOG	0 - 20	20 - 40	40 - 60	60 - 80	80 100							PARTIAL	COMPLETE	TEST SECTION	MM/S OR LUGEON													
0.00	Silty clay	*****							LOG																												
0.50		*****																																			
1.50		*****																																			
3.00		*****																																			
3.00		//////																																			
4.00	SDR	//////																																			
4.00	Medium grained Fractured Ferrogenous rock	#####	20	20	50	60	50	30																													
5.00		#####						Laminated beddings	++++ +		23%																										
5.00		#####																																			
6.00		#####																																			
6.00		#####																																			
7.00		#####																																			
7.00		#####																																			
8.00		#####																																			
8.00	#####																																				

APPENDIX C

CLAUSES 3.1 AND 3.4

PROFORMA FOR PRESENTING DRILLING INFORMATION AS PER IS4464:1985

PROJECT : NTPC RAMAGUNDAM
 LOCATION STAGE IV MAIN PLANT AREA
 BEARING OF HOLE
 COLLAR ELEVATION :
 STARTED :

BORE HOLE NO. : 68
 CO - ORDINATES : 23A+83, 13B+06
 ANGLE WITH HORIZONTAL NIL
 GROUND ELEVATION : 150.784
 COMPLETED :

SHEET NO. : 02
 FEATURE : Plain area besides the BH small water pool present
 TOTAL DEPTH : 20.00 mtr
 TYPE(S) OF CORE BARREL: NX
 DRILLING AGENCY M/S GEO TECHNICAL SERVICES

ELEV. IN M	LITHOLOGY		SIZE OF CORE PIECES					STRUCTURAL CONDITIONS		% CORE RECOVERY					TYPE OF BIT	R.O.D	FRACT FREQ/M	SIZE OF HOLE	CASING	WATER LEVEL	WATER LOSS		PERMEABILITY		PENETRATION RATE MM/MIN	SPECIAL OBSVS			
	DESCRIPTION	LOG	<10MM	10 - 25 MM	25 - 75 MM	75 - 150 MM	>150 MM	DESCRIPTION	LOG	0 - 20	20 - 40	40 - 60	60 - 80	80 100							PARTIAL	COMPLETE	TEST SECTION	M/M/S OR LUGEON					
9.00		#####		20		150 130 110 110					52%				8 to 5	Diamond Core Bit	NX	3.00 mtr											
10.00		#####		20	40	90 130				28%				over 15															
11.00		##### #####			80 50 50 30	80 140 120				55%				15 to 8															
12.00		##### #####	Medium grained Fractured ferrogenous sand stone rock			120 80	240			44%				8 to 5															
13.00		##### #####			70	120	180			37%				8 to 5															
14.00		##### #####			70 60	90 100 110 140				57%				8 to 5															
15.00		##### #####				140 80 100 90 80				49%				over 15															
16.00		##### #####			50	130 140				32%				15 to 8															
17.00		##### #####	Ferrogenous sand stone rock			80 80 150	160			47%				8 to 5															
18.00		##### #####			30 60 70 50	60				27%				over 15															
19.00		##### #####				80 130	170 270							8 to 5															
20.00		##### #####												57%															

Total Depth of Bore Hole : 20.00 m

APPENDIX C

CLAUSES 3.1 AND 3.4

PROFORMA FOR PRESENTING DRILLING INFORMATION

AS PER IS4464:1985

PROJECT : NTPC RAMAGUNDAM

LOCATION : STAGE IV MAIN PLANT AREA

BEARING OF HOLE

COLLAR ELEVATION :

STARTED :05/08/2011

BORE HOLE NO. : 68

CO - ORDINATES : 23A+83, 13B+06

ANGLE WITH HORIZONTAL : NIL

GROUND ELEVATION : 150.784

COMPLETED : 06/08/2011

SHEET NO. : 01

FEATURE : Plain area besides the BH small water pool present

TOTAL DEPTH : 20.00 mtr

TYPE(S) OF CORE BARREL: NX

DRILLING AGENCY M/S GEO TECHNICAL SERVICES

ELEV.	IN M	LITHOLOGY		SIZE OF CORE PIECES						STRUCTURAL CONDITIONS		% CORE RECOVERY					TYPE OF BIT	R.Q.D	FRACT FREQ/M	SIZE OF HOLE	CASING	WATER LEVEL	WATER LOSS		PERMEABILITY		PENETRATION RATE	SPECIAL OBSVS			
		DESCRIPTION	LOG	<10MM	10 - 25 MM	25 - 75 MM	75 - 150 MM	>150 MM	DESCRIPTION	LOG	0 - 20	20 - 40	40 - 60	60 - 80	80 - 100	80 - 100							PARTIAL	COMPLETE	TEST SECTION	MM/S OR LUGEON					
0.00	1.00	Filled with material)]]]]]]]]]]]]))																												D/S collected
1.00	1.50	Silty Sand	!!!!!!																											D/S collected	
1.50	3.00		!!!!!!																												D/S collected
3.00	4.00		>>>>>>>>>>>>																												D/S collected
4.00	5.00	Fractured ferrogenous sandstone rock	>>>>>>>>>>>>				60 60 60 70 60	80 80							47%																D/S collected
5.00	6.00		>>>>>>>>>>>>		20	40 60 60 60 60 60									36%																D/S collected
6.00	7.00		>>>>>>>>>>>>		20	60 40 60 40									22%																D/S collected
7.00	8.00		>>>>>>>>>>>>			60 40 40	110 100								35%																D/S collected
8.00	9.00		>>>>>>>>>>>>			50 60 40 40	80								27%																D/S collected
																		21%	over 15												D/S collected N>50

APPENDIX C

CLAUSES 3.1 AND 3.4

PROFORMA FOR PRESENTING DRILLING INFORMATION AS PER IS4464:1985

PROJECT : NTPC RAMAGUNDAM
 LOCATION : STAGE IV MAIN PLANT AREA
 BEARING OF HOLE :
 COLLAR ELEVATION :
 STARTED : 05/08/2011
 BORE HOLE NO. : 68
 CO - ORDINATES : 23A+83, 13B+06
 ANGLE WITH HORIZONTAL : NIL
 GROUND ELEVATION : 150.784
 COMPLETED : 06/08/2011
 SHEET NO. : 02
 FEATURE : Plain area besides the BH small water pool present
 TOTAL DEPTH : 20.00 mtr
 TYPE(S) OF CORE BARREL : NX
 DRILLING AGENCY M/S GEO TECHNICAL SERVICES

ELEV.	IN M	LITHOLOGY		SIZE OF CORE PIECES						STRUCTURE		% CORE RECOVERY					TYPE OF BIT	R.Q.D	FRACT FREQ/M	SIZE OF HOLE	CASING	WATER LEVEL	WATER LOSS		PERMEABILITY		PENETRATION RATE	SPECIAL OBSVS			
		DESCRIPTION	LOG	<10MM	10 - 25 MM	25 - 75 MM	75 - 150 MM	>150 MM	DESCRIPTION	LOG	0 - 20	20 - 40	40 - 60	60 - 80	80 - 100	Diamond Core Bit							Diamond Core Bit	PARTIAL	COMPLETE	TEST SECTION			MM/S OR LUGION		
9.00	10.00	&&&&&				130	110	210						45%	45%	15 to 8	NX	3.00 mtr													
10.00	11.00	&&&&&			60	40	30	60	80					27%																	
11.00	12.00	&&&&&				40			100	110	100			35%		15 to 8															
12.00	13.00	&&&&&	Medium grained Ferrogeneous rock		20	20			110	100	80			33%		over 15															
13.00	14.00	&&&&&				40	60	60	40	40	40	100		38%		over 15															
14.00	15.00	&&&&&				60	40	60	60	30	100	80			43%		over 15														
15.00	16.00	&&&&&				40	60	60	40	40	40			32%																	
16.00	17.00	&&&&&				60	60	60	100	120	80	80			64%		over 15														
17.00	18.00	???????	Calcareous sandstone rock		20	20	20	40	30	40	40	200		33%		8 to 5														Calcareous sandstone rock	
18.00	19.00	???????				60	60	60	100	120	110	230		50%		15 to 8															
19.00	20.00	???????			20	20	60	60	110	110	230		59%			15 to 8															

Total Depth of Bore Hole : 20.00 m

APPENDIX C

CLAUSES 3.1 AND 3.4

PROFORMA FOR PRESENTING DRILLING INFORMATION AS PER IS4464:1985

PROJECT : NTPC RAMAGUNDAM

BORE HOLE NO. : 69

SHEET NO. : 01

LOCATION : STAGE IV MAIN PLANT AREA

BEARING OF HOLE :

COLLAR ELEVATION : 30cm

STARTED : 17/02/2011

CO - ORDINATES : 25A+85 12B+29

ANGLE WITH HORIZONTAL : NIL

GROUND ELEVATION : 147.670

COMPLETED : 18/02/2011

FEATURE : Plain area

TOTAL DEPTH : 18.00 mtr

TYPE(S) OF CORE BARREL : NX

DRILLING AGENCY / M/S GEO TECHNICAL SERVICES

ELEV. IN M	LITHOLOGY		SIZE OF CORE PIECES					STRUCTURAL CONDITIONS		% CORE RECOVERY					TYPE OF BIT	R.Q.D	FRACT FREQ/M	SIZE OF HOLE	CASING	WATER LEVEL	WATER LOSS		PERMEABILITY		PENETRATION RATE MM/MIN	SPECIAL OBSVS							
	DESCRIPTION	LOG	<10MM	10 - 25 MM	25 - 75 MM	75 - 150 MM	> 150 MM	DESCRIPTION	LOG	0 - 20	20 - 40	40 - 60	60 - 80	80 - 100							PARTIAL	COMPLETE	TEST SECTION	MM/S OR LUGEON									
0.00	Silty clay	***** ***** ***** *****																															
0.50			1.00																														
1.00			1.50	/	/	/	/	/	/	/																							
1.50			3.00	/	/	/	/	/	/	/																							
3.00	4.50	/	/	/	/	/	/	/																									
4.50	5.00	>	>	>	>	>	20 10 60	40 60 65 50 40																									
5.00	6.00	>	>	>	>	>	20 30	30 30 60 80 90 30 80																									
6.00	7.00	>	>	>	>	>	10 40 40	60 60 30 30 50 30																									
7.00	8.00	>	>	>	>	>	20 40 20	40 70 50 55 80																									

APPENDIX C

CLAUSES 3.1 AND 3.4

PROFORMA FOR PRESENTING DRILLING INFORMATION AS PER IS4464:1985

PROJECT : NTPC RAMAGUNDAM

BORE HOLE NO. : 69

SHEET NO. : 02

LOCATION STAGE IV MAIN PLANT AREA

CO - ORDINATES : 25A+85 12B+29

FEATURE : Plain area

BEARING OF HOLE

ANGLE WITH HORIZONTAL NIL

toTAL DEPTH : 18.00 mtr

COLLAR ELEVATION

GROUND ELEVATION : 147.670

TYPE(S) OF CORE BARREL: NX

STARTED : 17/02/2011

COMPLETED : 18/02/2011

DRILLING AGENCY M/S GEO TECHNICAL SERVICES

ELEV.	IN M	LITHOLOGY		LOG	SIZE OF CORE PIECES					STRUCTURAL CONDITIONS		% CORE RECOVERY					TYPE OF BIT	R.Q.D	FRACT FREQ/M	SIZE OF HOLE	CASING	WATER LEVEL	WATER LOSS		PERMEABILITY		PENETRATION RATE MM/MIN	SPECIAL OBSVS					
		DESCRIPTION	LOG		<10MM	10 - 25 MM	25 - 75 MM	75 - 150 MM	>150 MM	DESCRIPTION	LOG	0 - 20	20 - 40	40 - 60	60 - 80	80 100							Diamond Core Bit	PARTIAL	COMPLETE	TEST SECTION			MM/S OR LUGEON				
8.00	9.00			>>>	10 20	60 50 40 60 30	80 120	>150 MM																								58.8	
9.00	10.00			>>>	20	50 40	90 90	180																							100		
10.00	11.00			>>>		70 50 40 70 60	140																								33.3		
11.00	12.00			>>>	10 10 20	50 50	80 120 100																									33.3	
12.00	13.00			>>>	10 10	40 40 50 70 60	80 70																									33.3	
13.00	14.00			&&&&			140	350 280 210																								33.3	
14.00	15.00			&&&&			110 90 120 120 130	180 200																								33.3	
15.00	16.00			&&&&		60 100 50	100 100 130 80 80 80 90																									30.3	
16.00	17.00			&&&&		70 70 50	120 100 110 100 190 110																									30.3	
17.00	18.00			&&&&			90 110	310 250 170																								30.3	

Total Depth of Bore Hole : 18.00 m

APPENDIX C

CLAUSES 3.1 AND 3.4

PROFORMA FOR PRESENTING DRILLING INFORMATION AS PER IS4464:1985

PROJECT : NTPC RAMAGUNDAM **BORE HOLE NO. : 70** **SHEET NO. : 01**
LOCATION STAGE IV MAIN PLANT AREA **CO - ORDINATES : 25A+36 12B+29** **FEATURE : Plain area**
BEARING OF HOLE **ANGLE WITH HORIZONTAL NIL** **TOTAL DEPTH : 19.00 mtr**
COLLAR ELEVATION :38cm **GROUND ELEVATION : 148.359** **TYPE(S) OF CORE BARREL: NX**
STARTED : 18/02/2011 **COMPLETED : 19/02/2011** **DRILLING AGENCY M/S GEO TECHNICAL SERVICES**

ELEV.	IN M	LITHOLOGY		SIZE OF CORE PIECES					STRUCTURAL CONDITIONS		% CORE RECOVERY					TYPE OF BIT	R.Q.D	FRACT FREQ/M	SIZE OF HOLE	CASING	WATER LEVEL	WATER LOSS		PERMEABILITY		PENETRATION RATE	SPECIAL OBSVS																	
		DESCRIPTION	LOG	<10MM	10 - 25 MM	25 - 75 MM	75 - 150 MM	> 150 MM	DESCRIPTION	LOG	0 - 20	20 - 40	40 - 60	60 - 80	80 100							PARTIAL	COMPLETE	TEST SECTION	MM/S OR LUGEON																			
0.00	0.50	Silty clay	*****																																									
0.50	1.00		/																																									
1.00	1.50		/																																									
1.50	3.00	SDR	/																																									
3.00	4.50		/																																									
4.50	5.00		/																																									
5.00	6.00		&&&&&&		20	70 60	100 80											33%																										
6.00	7.00		&&&&&&			50 40 50 40	80																																					
7.00	8.00		&&&&&&			70 30 40 50	40																																					
8.00	9.00		&&&&&&			50 30 30 40	100																																					

APPENDIX C

CLAUSES 3.1 AND 3.4

PROFORMA FOR PRESENTING DRILLING INFORMATION AS PER IS4464:1985

PROJECT : NTPC RAMAGUNDAM **BORE HOLE NO. : 71** **SHEET NO. : 01**
LOCATION STAGE IV MAIN PLANT AREA **CO - ORDINATES : 24A+88 12B+01** **FEATURE : Plain area with- N ide of the BH water wall**
BEARING OF HOLE **ANGLE WITH HORIZONTAL NIL** **to TAL DEPTH : 20.00 mtr**
COLLAR ELEVATION :45cm **GROUND ELEVATION : 148.950** **TYPE(S) OF CORE BARREL: NX**
STARTED : 27/02/2011 **COMPLETED : 28/02/2011** **DRILLING AGENCY M/S GEO TECHNICAL SERVICES**

ELEV.	IN M	LITHOLOGY		SIZE OF CORE PIECES					STRUCTURAL CONDITIONS	% CORE RECOVERY					TYPE OF BIT	R.Q.D	FRACT FREQ/M	SIZE OF HOLE	CASING	WATER LEVEL	PERMEABILITY		WATER LOSS	PENETRATION RATE	SPECIAL OBSVS	
		DESCRIPTION	LOG	<10MM	10 - 25 MM	25 - 75 MM	75 - 150 MM	> 150 MM		DESCRIPTION	LOG	0 - 20	20 - 40	40 - 60							60 - 80	80 - 100				TEST SECTION
9.00	10.00		&&&&&	10		60 50 60 40 60 40	80 80 80 70 60		LOG			69%					over 15							22.22		
10.00	11.00		&&&&&			50 60 60 60 30 40 50 30	110 90 80					66%					over 15							22.22		
11.00	12.00		&&&&&			40 70 70 40 60 50	80 110 90					52%					over 15							20.83		
12.00	13.00		&&&&&			70 60 40	130 150 130 80					66%					15 to 8							22.22		
13.00	14.00		&&&&&			50	140 100 100 120 140					65%					8 to 15							20.83		
14.00	15.00		&&&&&			50 40 60 70 30	120					59%					15 to 8							20.83		
15.00	16.00		&&&&&				140 140 120					77%					5 to 1							22.22		
16.00	17.00		&&&&&			60	120					63%					8 to 5							20.83		
17.00	18.00		&&&&&				100					74%					8 to 5							22.22		
18.00	19.00		&&&&&			60 60	90 90 100					85%					8 to 5							22.22		
19.00	20.00		&&&&&				170 240 290 260					96%					Lesst han 1							22.22		

Total Depth of Bore Hole : 20.00 m

PROJECT : NTPC RAMAGUNDAM **BORE HOLE NO. : 72** **SHEET NO. : 01**
LOCATION STAGE IV MAIN PLANT AREA **CO - ORDINATES : 23A+87 10B+74** **FEATURE:Plain area**
 BEARING OF HOLE **ANGLE WITH HORIZONTAL NIL** **TOTAL DEPTH : 20.00 mtr**
 COLLAR ELEVATION :45cm **GROUND ELEVATION : 150.325** **TYPE(S) OF CORE BARREL: NX**
STARTED : **COMPLETED :** **DRILLING AGENCY M/S GEO TECHNICAL SERVICES**

ELEV. IN M	LITHOLOGY DESCRIPTION	LOG	SIZE OF CORE PIECES					% CORE RECOVERY					STRUCTURAL CONDITIONS LOG	R.Q.D	FRACT FREQ/M	SIZE OF HOLE NX	CASING 3.00 mtr	WATER LEVEL	WATER LOSS		PERMEABILITY		PENETRATION RATE MM/MIN	SPECIAL OBSVS					
			<10MM	10 - 25 MM	25 - 75 MM	75 - 150 MM	>150 MM	0 - 20	20 - 40	40 - 60	60 - 80	80 100							LOG	PARTIAL	COMPLETE	TEST SECTION			MM/S OR LUGEON				
0.00	Silty clay	*****																											
1.00	SDR	////// //////																											
3.00	fractured calcareous sandstone rock	@@@@ @@@@ @@@@	10 20 20	40 40 50	50 40 50 60 60			18%																					
4.00		@@@@											26%																calcareous bands seen
5.00		????? ?????											27%																
6.00	calcareous sandstone rock	????? ?????											21%																
7.00		????? ?????	10 20	60 40 40 40 40 40 40				33%																					
8.00	Medium grained Ferrogeneous rock	##### ##### #####											25%	++++ ++++															vertical faults seen
9.00		#####	10	50 50 50 40				20%						==== =====															calcareous bands seen

APPENDIX C

CLAUSES 3.1 AND 3.4

PROFORMA FOR PRESENTING DRILLING INFORMATION AS PER IS4464:1985

PROJECT : NTPC RAMAGUNDAM	BORE HOLE NO. : 73	SHEET NO. : 02
LOCATION STAGE IV MAIN PLANT AREA	CO - ORDINATES : 24A+36,10B+88	FEATURE : Plain area besides the BH small water pool present
BEARING OF HOLE	ANGLE WITH HORIZONTAL NIL	TOTAL DEPTH : 20.00 mtr
COLLAR ELEVATION :	GROUND ELEVATION : 149.653	TYPE(S) OF CORE BARREL: NX
STARTED :18-04-2011	COMPLETED : 19-04-2011	DRILLING AGENCY M/S GEO TECHNICAL SERVICES

ELEV. IN M	LITHOLOGY		SIZE OF CORE PIECES						STRUCTURAL CONDITIONS		% CORE RECOVERY					TYPE OF BIT	R.Q.D	FRACT FREQ/M	SIZE OF HOLE	CASING	WATER LEVEL	WATER LOSS		PERMEABILITY		PENETRATION RATE MM/MIN	SPECIAL OBSVS				
	DESCRIPTION	LOG	<10MM	10 - 25 MM	25 - 75 MM	75 - 150 MM	>150 MM	DESCRIPTION	LOG	0 - 20	20 - 40	40 - 60	60 - 80	80 100	Diamond Core Bit							32%	15 to 8	3.00 mtr	NX			COMPLETE	PARTIAL	TEST SECTION	MM/S OR LUGEON
0.00		Silty Clay ***** *****																							66.6						
0.50																									100						UD but fail to collect
1.00																									90.9						SPT 8-10-11=21
1.50																									100						SPT Refusal 50 N=7 cm
3.00		SDR																							50						SPT 13-14-22=36
4.50																									31.25						SPT Refusal --NO--
6.00																									66.6						SPT Refusal --NO--
7.00																									62.5						
8.50		Fractured ferrogenous sand stone rock >>>> >>>> >>>> >>>>		10	30.30	40	320																		35.11						
9.50				10	30.30	90.100 80																			10%						over 15

APPENDIX C

CLAUSES 3.1 AND 3.4

PROFORMA FOR PRESENTING DRILLING INFORMATION

AS PER IS4464:1985

PROJECT : NTPC RAMAGUNDAM
 LOCATION : STAGE IV MAIN PLANT AREA
 BEARING OF HOLE :
 COLLAR ELEVATION :
 STARTED : 19-04-2011

BORE HOLE NO. : 74
 CO - ORDINATES : 24A+82,11B+02
 ANGLE WITH HORIZONTAL : NIL
 GROUND ELEVATION : 150.290
 COMPLETED : 20-04-2011

SHEET NO. : 02
 FEATURE : Plain area besides the BH small water pool present
 TOTAL DEPTH : 18.00 mtr
 TYPE(S) OF CORE BARREL : NX
 DRILLING AGENCY M/S GEO TECHNICAL SERVICES

ELEV.	LITHOLOGY		SIZE OF CORE PIECES					STRUCTURAL CONDITIONS		% CORE RECOVERY	TYPE OF BIT	R.Q.D	FRACT FREQ/M	SIZE OF HOLE	CASING	WATER LEVEL	WATER LOSS		PERMEABILITY		PENETRATION RATE MM/MIN	SPECIAL OBSVS			
	DESCRIPTION	LOG	<10MM	10 - 25 MM	25 - 75 MM	75 - 150 MM	>150 MM	DESCRIPTION	LOG								PARTIAL	COMPLETE	TEST SECTION	MM/S OR LUGEON					
0.00	Silty Clay	***** *****																					D/S		
1.00	SDR	//////// ////////																						SPT Refusal 6-50	
2.00	Fractured ferrogenous sand stone rock	>>>>			60 50 40	100			25%		10%	over 15													
3.00		>>>>			40 70	90 80			28%		-	over 15													
4.00		>>>>			70 20	100			23%		10%	over 15													
5.00		>>>>			30 70 60	90			25%		-	over 15													
6.00		>>>>			40 30 50	90 100			31%		10%	over 15													
7.00		>>>>			30	140 90 110			37%		25%	over 15													
8.00		>>>>			30 30 40 50 70 30				27%		-	over 15													

APPENDIX C

CLAUSES 3.1 AND 3.4

PROFORMA FOR PRESENTING DRILLING INFORMATION AS PER IS4464:1985

PROJECT : NTPC RAMAGUNDAM
 LOCATION : STAGE IV MAIN PLANT AREA
 BORE HOLE NO. : 74
 SHEET NO. : 02
 BEARING OF HOLE : PLAIN AREA BESIDES THE BH SMALL WATER POOL PRESENT
 FEATURE : PLAIN AREA BESIDES THE BH SMALL WATER POOL PRESENT
 COLLAR ELEVATION : 150.290
 GROUND ELEVATION : 150.290
 ANGLE WITH HORIZONTAL : NIL
 CO - ORDINATES : 24A+82,11B+02
 TOTAL DEPTH : 18.00 mtr
 TYPE(S) OF CORE BARREL: NX
 DRILLING AGENCY M/S GEO TECHNICAL SERVICES
 STARTED : 19-04-2011
 COMPLETED : 20-04-2011

ELEV.	IN M	LITHOLOGY		SIZE OF CORE PIECES					STRUCTURAL CONDITIONS		% CORE RECOVERY					TYPE OF BIT	R.Q.D	FRACT FREQ/M	SIZE OF HOLE	CASING	WATER LEVEL	WATER LOSS		PERMEABILITY		PENETRATION RATE	SPECIAL OBSVS							
		DESCRIPTION	LOG	<10MM	10 - 25 MM	25 - 75 MM	75 - 150 MM	>150 MM	DESCRIPTION	LOG	0 - 20	20 - 40	40 - 60	60 - 80	80 100							PARTIAL	COMPLETE	TEST SECTION	M/S OR LUFEON									
9.00	10.00					50	150	170				39%					34%	15 to 8	6.00 mtr															
10.00	11.00					70	120 100					29%					22%	over 15																
11.00	12.00					30 40 30 30 50	50	130					44%				18%	over 15																
12.00	13.00					40	110 80 100	210					54%				43%	15 to 8																
13.00	14.00						150 150 100	190					51%				59%	8 to 5		3.00 mtr														
14.00	15.00						110 100 150	210 160						73%			73%	5 to 3																
15.00	16.00						150 150 170	190 170						66%			66%	5 to 3																
16.00	17.00						150 80 90 150	270						74%			57%	8 to 5																
17.00	18.00						110 110 150	150 160						61%			67%	8 to 5																

Total Depth of Bore Hole : 18.00 m

APPENDIX C

CLAUSES 3.1 AND 3.4

PROFORMA FOR PRESENTING DRILLING INFORMATION

AS PER IS4464:1985

PROJECT : NTPC RAMAGUNDAM

BORE HOLE NO. : 86

SHEET NO. : 02

LOCATION STAGE IV MAIN PLANT AREA

CO - ORDINATES : 28A+03, 13B+09

FEATURE : Plain area besides the BH small water pool present

BEARING OF HOLE

ANGLE WITH HORIZONTAL NIL

TOTAL DEPTH : 20.00 mtr

COLLAR ELEVATION :

GROUND ELEVATION : 146.928 mtr

TYPE(S) OF CORE BARREL: NX

STARTED :

COMPLETED :

DRILLING AGENCY M/S GEO TECHNICAL SERVICES

ELEV.	IN M	LITHOLOGY		SIZE OF CORE PIECES					STRUCTURAL CONDITIONS		% CORE RECOVERY					TYPE OF BIT	R.Q.D	FRACT FREQ/M	SIZE OF HOLE	CASING	WATER LEVEL	WATER LOSS		PERMEABILITY		PENETRATION RATE MM/MIN	SPECIAL OBSVS								
		DESCRIPTION	LOG	<10MM	10 - 25 MM	25 - 75 MM	75 - 150 MM	>150 MM	DESCRIPTION	LOG	0 - 20	20 - 40	40 - 60	60 - 80	80 - 100							PARTIAL	COMPLETE	TEST SECTION	MM/S OR LUGEON										
0.00	0.50	Ash	~~~~~																													Partial water loss up to 3.0m in ash			
0.50	3.00	Ash	~~~~~																													Dumped Ash up to 3 m			
3.00	4.00	Medium grained Fractured ferrogenous sand stone rock	#####		40 30 30 70	80					25%																								
4.00	5.00		#####		60	150	290						50%																						
5.00	6.00		#####			100	390							49%																					
6.00	7.00		#####		60 70	100 120 110								46%																					
7.00	8.00		#####			90 110 150	190							54%																					
8.00	9.00	#####			150	250							40%																						
9.00	10.00	#####			110 100	260							47%																						

APPENDIX C

CLAUSES 3.1 AND 3.4

PROFORMA FOR PRESENTING DRILLING INFORMATION

AS PER IS4464:1985

PROJECT : NTPC RAMAGUNDAM
 LOCATION STAGE IV MAIN PLANT AREA
 BEARING OF HOLE
 COLLAR ELEVATION :
 STARTED :

BORE HOLE NO. : 87
 CO - ORDINATES : 24A+65, 14B+81
 ANGLE WITH HORIZONTAL NIL
 GROUND ELEVATION : 144.608 mtr
 COMPLETED :

SHEET NO. : 02
 FEATURE : Plain area besides the BH small water pool present
 TOTAL DEPTH : 20.00 mtr
 TYPE(S) OF CORE BARREL: NX
 DRILLING AGENCY M/S GEO TECHNICAL SERVICES

ELEV. IN M	LITHOLOGY		SIZE OF CORE PIECES					STRUCTURAL CONDITIONS					LOG	% CORE RECOVERY					TYPE OF BIT	R.Q.D	FRACT FREQM	SIZE OF HOLE	CASING	WATER LEVEL	WATER LOSS		PERMEABILITY		PENETRATION RATE MM/MIN	SPECIAL OBSVS							
	DESCRIPTION	LOG	<10MM	10 - 25 MM	25 - 75 MM	75 - 150 MM	>150 MM	DESCRIPTION	LOG	0 - 20	20 - 40	40 - 60		60 - 80	80 - 100	Diamond Core Bit	10% 39% - 43% 12% - - - - - -	over 15 15 to 8 over 15 15 to 8 over 15 over 15 over 15 over 15 over 15 over 15 over 15							PARTIAL COMPLETE	TEST SECTION	MM/S OR LUGEON										
9.00		>>>>		10	60 40	100 80																															
10.00		>>>>			50 60	150	240						50%																								
11.00	Fractured ferrogenous sand stone rock	>>>>			60 70 60	90 90							37%																								
12.00		>>>>			40 70	140 100	190						54%																								
13.00		>>>>			60 50 50 70 70 40	120							46%																								
14.00		>>>>		20	40 40 30 30 40 40	70 60 70 60							50%																								
15.00		&&&&&& &&&&&&		30	70 50 60 50 50								34%																								
16.00		&&&&&& &&&&&&		40	60 60 60								22%																								
17.00	Medium grained ferrogenous sand stone rock	&&&&&& &&&&&&			50 60 40								15%																								
18.00		&&&&&& &&&&&&			60 50 60 60	80 90							40%																								
19.00		&&&&&& &&&&&&			50 40 30 40 60 60	70 50 70 40 110 130							77%																								
20.00		&&&&&& &&&&&&																																			

Total Depth of Bore Hole : 20.00 m

APPENDIX C

CLAUSES 3.1 AND 3.4

PROFORMA FOR PRESENTING DRILLING INFORMATION AS PER IS4464:1985

PROJECT : NTPC RAMAGUNDAM

BORE HOLE NO. : 88

SHEET NO. : 01

LOCATION STAGE IV MAIN PLANT AREA

CO - ORDINATES : 25A+23, 14B+81

FEATURE : Plain area

BEARING OF HOLE

ANGLE WITH HORIZONTAL NIL

TOTAL DEPTH : 20.00 mtr

COLLAR ELEVATION : 34 cms

GROUND ELEVATION : 145.772 mtr

TYPE(S) OF CORE BARREL: NX

STARTED :04/05/2011

COMPLETED : 06/05/2011

DRILLING AGENCY MIS GEO TECHNICAL SERVICES

ELEV.	IN M	LITHOLOGY		SIZE OF CORE PIECES					STRUCTURAL CONDITIONS		% CORE RECOVERY					TYPE OF BIT	R.Q.D	FRACT FREQ/M	SIZE OF HOLE	CASING	WATER LEVEL	WATER LOSS		PERMEABILITY		PENETRATION RATE	SPECIAL OBSVS																			
		DESCRIPTION	LOG	<10MM	10 - 25 MM	25 - 75 MM	75 - 150 MM	>150 MM	DESCRIPTION	LOG	0 - 20	20 - 40	40 - 60	60 - 80	80 - 100							PARTIAL	COMPLETE	TEST SECTION	MM/S OR LUGEON																					
9.00	10.00		>>>>			70 40 80	80 110																																							
10.00	11.00		>>>>			50 30 40	100 90 90																																							
11.00	12.00		>>>>			50 40 50 60	110																																							
12.00	13.00		>>>>			40 60 70 50	110																																							
13.00	14.00		>>>>			30 40	140 80 90	160																																						
14.00	15.00		>>>>			30 50 60	110 130																																							
15.00	16.00		>>>>			60 70 50	120 130	160																																						
16.00	17.00		>>>>				120	190 170																																						
17.00	18.00		>>>>			70 40 30	130 110	160																																						
18.00	19.00		>>>>			60 50 40	140 150	170																																						
19.00	20.00		>>>>			40 70 60	130 140	170 180																																						

Total Depth of Bore Hole : 20.00 m

APPENDIX C

CLAUSES 3.1 AND 3.4

PROFORMA FOR PRESENTING DRILLING INFORMATION

AS PER IS4464:1985

PROJECT : NTPC RAMAGUNDAM

BORE HOLE NO. : 89

SHEET NO. : 01

LOCATION STAGE IV MAIN PLANT AREA

CO - ORDINATES : 25A+24, 14B+06

FEATURE : Plain area besides the BH small water pool present

BEARING OF HOLE

ANGLE WITH HORIZONTAL NIL

TOTAL DEPTH : 20.00 mtr

COLLAR ELEVATION :

GROUND ELEVATION : 144.690 mtr

TYPE(S) OF CORE BARREL: NX

STARTED :

COMPLETED :

DRILLING AGENCY M/S GEO TECHNICAL SERVICES

ELEV. IN M	LITHOLOGY		SIZE OF CORE PIECES					STRUCTURAL CONDITIONS		% CORE RECOVERY	TYPE OF BIT	R.Q.D	FRACT FREQ/M	SIZE OF HOLE	CASING	WATER LEVEL	WATER LOSS		PERMEABILITY		PENETRATION RATE MM/MIN	SPECIAL OBSVS
	DESCRIPTION	LOG	<10MM	10 - 25 MM	25 - 75 MM	75 - 150 MM	>150 MM	DESCRIPTION	LOG								PARTIAL	COMPLETE	TEST SECTION	MM/S OR LUGEON		
0.00	Silty Clay	***** *****																				D/S
0.50	SDR	///////// /////////																				SPT 16-19+32=51
1.50	SDR	///////// /////////																				SPT Refusal 7-50
3.00		>>>>	20	50 40 30 40 70					25%				over 15									
4.00		>>>>		70 60	80 80				29%				over 15									
5.00	Medium grained Fractured ferrogenous sand stone rock	>>>> >>>> >>>> >>>>		30 50 40	80 110				31%				11%									
6.00		>>>>		70	100 100 80				35%				20%									
7.00		>>>>		40 70 60	80				25%				over 15									
8.00		>>>>		70	80 90 100				34%				10%									

APPENDIX C

CLAUSES 3.1 AND 3.4

PROFORMA FOR PRESENTING DRILLING INFORMATION AS PER IS4464:1985

PROJECT : NTPC RAMAGUNDAM	BORE HOLE NO. : 90	SHEET NO. : 01
LOCATION STAGE IV MAIN PLANT AREA	CO - ORDINATES : 25A+24, 16B+05	FEATURE : Plain area besides the BH small water pool present
BEARING OF HOLE	ANGLE WITH HORIZONTAL NIL	TOTAL DEPTH : 20.00 mtr
COLLAR ELEVATION : 37 cms	GROUND ELEVATION : 145.670 mtr	TYPE(S) OF CORE BARREL: NX
STARTED :18-05-2011	COMPLETED : 19-05-2011	DRILLING AGENCY M/S GEO TECHNICAL SERVICES

ELEV.	LITHOLOGY		SIZE OF CORE PIECES					STRUCTURAL CONDITIONS		% CORE RECOVERY	TYPE OF BIT	R.Q.D	FRACT FREQ/M	SIZE OF HOLE	CASING	WATER LEVEL	WATER LOSS		PERMEABILITY		PENETRATION RATE MM/MIN	SPECIAL OBSVS		
	DESCRIPTION	LOG	<10MM	10 - 25 MM	25 - 75 MM	75 - 150 MM	>150 MM	DESCRIPTION	LOG								PARTIAL	COMPLETE	TEST SECTION	MM/S OR LUGEON				
0.00	Ash	~~~~~ ~~~~~																				Ash dumping upto 0.5 m		
1.00	Ash	~~~~~ ~~~~~																					SPT 1-2+4=6	
2.00	SDR	/////																					15- 19+29=48	
3.00	Fractured ferrogenous sand stone rock	>>>	60 50	60 50 40 50 50	90 100	90 100																8-50		
4.00		>>>		50 60 70	80 90 110	80 90 110																		
5.00		>>>			70 70 60 60	90 130	90 130																	
6.00		>>>				100 100 80 90	100 100 80 90																	
7.00		>>>				70 60	80 90 100			37%														
8.00		>>>				40 70	130 80 80 90 110			40%														
9.00		>>>									60%													

APPENDIX C

CLAUSES 3.1 AND 3.4

PROFORMA FOR PRESENTING DRILLING INFORMATION

AS PER IS4464:1985

PROJECT : NTPC RAMAGUNDAM
 LOCATION : STAGE IV MAIN PLANT AREA
 BEARING OF HOLE
 COLLAR ELEVATION : 37 cms
 STARTED :19-05-2011

BORE HOLE NO. : 91
 CO - ORDINATES : 26A+5, 16B+03
 ANGLE WITH HORIZONTAL : NIL
 GROUND ELEVATION : 144.810 mtr
 COMPLETED : 20-05-2011

SHEET NO. : 02
 FEATURE : Plain area besides the BH small water pool present
 TOTAL DEPTH : 20.00 mtr
 TYPE(S) OF CORE BARREL: NX
 DRILLING AGENCY M/S GEO TECHNICAL SERVICES

ELEV.	IN M	LITHOLOGY		SIZE OF CORE PIECES					STRUCTURAL CONDITIONS		% CORE RECOVERY					TYPE OF BIT	R.Q.D	FRACT FREQ/M	SIZE OF HOLE	CASING	WATER LEVEL	WATER LOSS		PERMEABILITY		PENETRATION RATE	MM/MIN	SPECIAL OBSVS														
		DESCRIPTION	LOG	<10MM	10 - 25 MM	25 - 75 MM	75 - 150 MM	>150 MM	DESCRIPTION	LOG	0 - 20	20 - 40	40 - 60	60 - 80	80 - 100							PARTIAL	COMPLETE	TEST SECTION	MM/S OR LUGEON																	
9.00	10.00		>>>>			60 70 30	110 80						35%																													
10.00	11.00		>>>>			70	130	240					44%																													
11.00	12.00		>>>>				130 90	200					42%																													
12.00	13.00		>>>>				80 100 130 140						45%																													
13.00	14.00		>>>>				110 90 80 130						41%																													
14.00	15.00		>>>>				90	170 160					47%																													
15.00	16.00		>>>>				120	170					41%																													
16.00	17.00		>>>>				120	180 160					46%																													
17.00	18.00		>>>>				130 120 80	170					50%																													
18.00	19.00		>>>>				120						37%																													
19.00	20.00		>>>>				80 130 140 110						45%																													

Total Depth of Bore Hole : 20.00 m

APPENDIX C

CLAUSES 3.1 AND 3.4

PROFORMA FOR PRESENTING DRILLING INFORMATION

AS PER IS4464:1985

PROJECT : NTPC RAMAGUNDAM
 LOCATION : STAGE IV MAIN PLANT AREA
 BEARING OF HOLE
 COLLAR ELEVATION : 37 cms
 STARTED : 15-05-2011
 BORE HOLE NO. : 93
 CO - ORDINATES : 26A+5, 14B+79
 ANGLE WITH HORIZONTAL : NIL
 GROUND ELEVATION : 145.595 mtr
 COMPLETED : 16-05-2011
 SHEET NO. : 02
 FEATURE : Plain area besides the BH small water pool present
 TOTAL DEPTH : 20.00 mtr
 TYPE(S) OF CORE BARREL: NX
 DRILLING AGENCY M/S GEO TECHNICAL SERVICES

ELEV.	IN M	LITHOLOGY		SIZE OF CORE PIECES					STRUCTURAL CONDITIONS		% CORE RECOVERY					TYPE OF BIT	R.Q.D	FRACT FREQ/M	SIZE OF HOLE	CASING	WATER LEVEL	WATER LOSS		PERMEABILITY		PENETRATION RATE	SPECIAL OBSVS																												
		DESCRIPTION	LOG	<10MM	10 - 25 MM	25 - 75 MM	75 - 150 MM	>150 MM	DESCRIPTION	LOG	0 - 20	20 - 40	40 - 60	60 - 80	80 - 100							PARTIAL	COMPLETE	TEST SECTION	MM/S OR LUGEON																														
9.00	10.00		>>>>			50 60 60	100 90	>150 MM				36%																																											
10.00	11.00		>>>>			70	100 80 100					35%																																											
11.00	12.00		>>>>			60	110 120 110					40%																																											
12.00	13.00		>>>>	Fractured ferrogenous sand stone rock		70	110 140 90																																																
13.00	14.00		>>>>			60 70		190 160																																															
14.00	15.00		>>>>			70 70	120 80 80 80																																																
15.00	16.00		>>>>			60 70 70 70 60 50																																																	
16.00	17.00		AAAAAAAA			70	100 80 80																																																
17.00	18.00		AAAAAAAA	Ferrogenous sand stone rock		60	110 150	190																																															
18.00	19.00		AAAAAAAA			60 70	90 130 120																																																
19.00	20.00		AAAAAAAA			50 50	110 120 150	170																																															

Total Depth of Bore Hole : 20.00 m

