









# BORE HOLE LOG

SHEET 5/12

DRILL HOLE NO.:4

LOCATION: Dam Axis (L/B)

Depth, m	Run Depth, m	Log	Description of Rock/Soil	Alteration/Weathering	Description of Discontinuities				Core Recovery % RQD %					Permeability (Lugeon)	Other Tests	Rock Mass Classification						
					Orientation	Roughness	Filling Material	Joints/m	REC %	RQD %	20	40	60			80	100	Remarks/Test results	Classification	Weathering	Hardness	Joint spacing
			Hard, strong, grey dolomite	F	60°	R, Pl	none	2	100	63				Lu = 2.00					3	41		
41.00	41.00		Hard, strong, grey dolomite	F	45	R, Pl	none	3	100	56				Lu = 2.57				2 2 3	42			
42.00																						
	42.60		Hard, strong, grey dolomite	F	40°,50°	R, Pl	none		100	72						CH	1 2	2		43		
43.00																						
44.00	44.20		Hard, strong, grey dolomite	F	25°	R, Pl	FeO	3	100	65				Lu = 6.45				3	44			
45.00			Hard, strong, grey dolomite	F	50°,40°	R, Pl	FeO	4	100	88								2 2 3	45			
46.00	45.85		Hard, strong, grey dolomite	F	70°,30°	R, Pl	Cl	3	100	79				Lu = 1.57		B	1 2	2		46		
47.00			Hard, strong, grey dolomite	F	40°,60°	R, Pl	none	5	100	50										47		
48.00	47.25		Hard, strong, grey dolomite	F																48		
49.00	48.75		Hard, strong, grey dolomite	F																49		
50.00			Hard, strong, grey dolomite	F																50		

ABBREVIATIONS: F- Fresh, SW-Slightly Weathered, MW-Moderately Weathered, HW-Highly Weathered, CW-Completely Weathered, MB-Mechanical Break, Pl-Planar, Sm-Smooth, R-Rough, St-Stepped, FeO-Iron Oxide, Cl-Clay, Sl-Silt

SRC Lab, NEA

Started: 2060/12/13

Completed: 2061/01/20

Drilled by: S.R.Timilasina, T.Neupane, D.Siwakoti    Logged by: S.K.Karmacharya    Reviewed by: J. M. Tamrakar





# BORE HOLE LOG

SHEET 8/12

DRILL HOLE NO.: B-4

LOCATION: Dam Axis (L/B)

Depth, m	Run Depth, m	Log	Description of Rock/Soil	Alteration/We	Description of Discontinuities			Core Recovery %					Permeability (Lu/sec)	Other Tests	Classification						
					Orientation	Rough	Fillin	Joint	REC	RQD	RQD %				Remarks/Tests	Classification	Weatherin	Hardness	Joint spacing		
											20	40								60	80
			Fresh, hard, strong, fine to medium grained, grey coloured dolomite. 69.60 to 69.95 is MB.	F	50°	R, PL	none	5+MB	100	69				LU = 2.38		B	1	2	2	71	
71.00	71.17																				
			Fresh, hard, strong, fine to medium grained, grey coloured dolomite.	F	60° 55°	R, PI	none	9	100	59									3	72	
72.00																					
			Fresh, hard, strong, fine to medium grained, grey coloured dolomite. From 73.30 to 74.07m, joint is 3° and 10°	F	3° 10° 40° 60°	R, PI	none	13	100	25				LU = 1.05		CH	1	2	2 3	73	
73.00	72.70																				
			Fresh, hard, strong, fine to medium grained, grey coloured dolomite.	F	55°	R, PI	none	1	100	100						B	1	2	2	74	
74.00	74.25																				
			Fresh, hard, strong, fine to medium grained, grey coloured dolomite.	F	55°	R, PI	none	5	100	85						CH	1	2	3	75	
75.00	75.80																				
			Fresh, hard, strong, fine to medium grained, grey coloured dolomite.	F	55°	R, PI	none	5	100	85						B	1	2	1 2	76	
76.00	77.30																				
			Fresh, hard, strong, fine to medium grained, grey coloured dolomite. 78.04 - 78.08 - shear zone. 78.08 - 78.50 - shear affected zone.	F	60° 70° 20°	R, PI	calc	9	100	58				LU = 1.27		CM	2	3	3 4	77	
77.00																					
			Fresh, hard, strong, fine to medium grained, grey coloured dolomite.	F	30° 50° 60°	R, PI, S	none	11	100	40						CH	1	2	3	78	
78.00	78.90																				
79.00																					
80.00																					

ABBREVIATIONS: F- Fresh, SW-Slightly Weathered, MW-Moderately Weathered, HW-Highly Weathered, CW-Completely Weathered, MB-Mechanical Break, PI-Planar, Sm-Smooth, R-Rough, St-Stepped, FeO-Iron Oxide, Cl-Clay, Sl-Silt

SRC Lab, NEA

Started: 2060/12/13

Completed: 2061/01/20

Drilled by: S.R.Timilasinga, T.Neupane, D.Siwakoti    Logged by: S.K.Kamacharya    Reviewed by: J. M. Tamrakar



# BORE HOLE LOG

SHEET 9/12

DRILL HOLE NO.: B-4

LOCATION: Dam Axis (L/B)

Depth, m	Run Depth, m	Log	Description of Rock/Soil	Alteration/We	Description of Discontinuities				Core Recovery %					Permeability (Lu) (µg/cm)	Other Tests	Remarks/Tests	Classification						
					Orient	Rough	Filling	Joint	REC	RQD	20	40	60				80	100	Classical	Weatherf	Hardness	Joint spacing	
	80.15	[Cross-hatched pattern]	Fractured dolomite.	F-SW	40°	R,PL,S	none	>20	100	9						Lu = 1.27							
	81.70		Fractured Dolomite.	F	60°	R,PI	none	>20	100	0													
	81.00																						
	82.00																						
	82.40																						
	83.00			Fresh, hard, strong, fine to medium grained, grey coloured dolomite	F	60°	R,PI	none	17	100	37												
	83.00			Fresh, hard, strong, fine to medium grained, grey coloured dolomite. 83.12 - 83.38 - MB 83.75 - 83.95 - core loss	F	60°	R,PI	none	8	79	41												
	84.00			Fractured Dolomite.	F		R,PI	none	>20	71	0						Lu = 2.00						
	84.30			Fresh, hard, strong, fine to medium grained, grey coloured dolomite	F	55°	R,PI	none	8	100	63												
	85.00																						
	85.65		Fresh, hard, strong, fine to medium grained, grey coloured dolomite. 85.65 - 85.90 - MB.	F	25°	R,PI	none	9	100	31													
	86.00																						
	87.00		Hard, Strong, fresh, grey coloured dolomite.	F	55°	R,PI	none	5	100	95													
	87.25		Fresh, hard, strong, fine to medium grained, grey coloured dolomite with laminae of limestone.	F	60°	R,PI,S	none	3	100	95													
	87.65																						
	88.00																						
	88.95		Fresh, hard, strong, fine to medium grained, grey coloured dolomite. 90.30 - 90.55m - joint of 2°.	F	2°	R,PI	none	10	100	47						Lu = 1.30							
	90.00																						

**ABBREVIATIONS:** F-Fresh, SW-Slightly Weathered, MW-Moderately Weathered, HW-Highly Weathered, CW-Completely Weathered, MB-Mechanical Break, PI-Planar, Sm-Smooth, R-Rough, St-Stepped, FeO-Iron Oxide, Cl-Clay, Sl-Silt  
 SRC Lab, NEA Started: 2060/12/13 Completed: 2061/01/20  
 Drilled by: S.R.Timlasina, T.Neupane, D.Siwakoti Logged by: S.K.Karmacharya Reviewed by: J. M. Tamrakar





# BORE HOLE LOG

SHEET 12/12

DRILL HOLE NO.: B-4

LOCATION: Dam Axis (L/B)

Depth, m	Run Depth, m	Log	Description of Rock/Soil	Alteration/We	Description of Discontinuities				Core Recovery %					Other Tests	Remarks/Test	Classification				
					Orient	Rough	Filling	Joint	RQD %							Permeability (Lu)	Classificat	Weathering	Hardness	Joint spacing
									REC	RQD	20	40	60							
	110.15		110.00 - 110.15m - FZ	F	60°	R,Pl	none	8	100	50										
	111.00		Hard, strong, fresh, grey coloured dolomite. 110.15 - 110.25 = FZ 110.68 - 110.75 = MB	F	35° 50° 60°	R,Pl	none	10	100	52				CH	1	2	3	111		
	112.00		Hard, strong, fresh, grey coloured dolomite. 112.50 - 112.75 = FZ/MB	F	50° 60°	R,Pl	none	7	100	43								112		
	113.00		Hard, strong, fresh, grey coloured dolomite. 112.75 - 112.94 = FZ/MB	F	50° 60°	R,Pl	none	>20	100	15			CM	1	2	3	4	113		
	114.00		Grey coloured, fractured dolomite.	F	45°	R,Pl	none	>20	100	0								114		
	115.00		Hard, strong, fresh, grey coloured dolomite. 115.75 - 115.95 = FZ	F	35° 60°	R,Pl	none	13	100	26			CH	1	2	3		115		
	116.00		116.05 - 116.30 = coreloss	F	60°	R,Pl	none	9	29	0			CM	1	3	4		116		
	117.00		Hard, strong, fresh, grey coloured, fractured dolomite. 116.30 - 116.80m = coreloss	F			none	>20	44	0								117		
	118.00		Hard, strong, fresh, grey coloured dolomite. 117.20 - 117.65 = FZ	F			none	11	100	25			LU = 3.39	CH	1	2	3	118		
	119.00		Hard, strong, fresh, grey coloured dolomite.	F	40° 60°	R,Pl	none	16	100	0								119		
	120.00		Hard, strong, fresh, grey coloured dolomite.	F	30°	R,Pl	none	15	100	26										
	120.50		Hard, strong, fresh, fractured, grey coloured dolomite with frequent mechanical breakages.	F	60° 40°	R,Pl	none	>20	100	0				CM	1	3	4	120		
	120.50		End of hole at 120.50m																	

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SRC Lab, NEA

Started: 2060/12/13

Completed: 2061/01/20

Drilled by: S.R. Timlasina, T. Neupane, D. Siwakoti    Logged by: S.K. Karmacharya    Reviewed by: J. M. Tamrakar



# BORE HOLE LOG

SHEET 2/10

DRILL HOLE NO.: B-5

LOCATION: Dam Axis (L/B)

Depth, m	Run Depth, m	Log	Description of Rock/Soil	Joints/m	Discontinuity Characteristics				Recovery %	RQD %	Core Rec. RQD				Permeability (Luigeons)	Other tests	Rock Mass Classification			
					Weathering	orientation	Roughness	Filling Materials			20	40	60	80			100	Classification	Weathering	Hardness
			<b>DOLOMITE</b> Grey, hard to medium hard, fresh fine grained & fractured Coreless due to fracture zone mechanical grinding and closely spaced joints. Most of the cores are broken into small fragments from	>20	F	75° 40°,60°	r, pl	Calc.	100	0						CH	2	2	3	
	10.50																			
	11.00			>20	F-SW	50°	r, pl	Calc Feo	35	0						CM	2	3	4	
	11.80																			
	12.00		10.50 m - 12.10 m	>20	F	70°	r, pl	none	23	0						B	1-2	2	2	
	12.10		12.31 m - 12.80 m																	
			14.95 m - 15.50 m																	
			16.25 m - 16.95 m	>20	F	75°	r, pl, st	none	57	23						CM	1-2	3	4	
	12.80		18.80 m - 20.00 m																	
	13.00			19	F	70°	r, pl	none	100	37										
	13.10		Low core recovery is due to mechanical grinding within fractured zones and closely spaced joints.																	
	14.00			16	F	50°,60° 05°	r, pl	none	100	31						CH	1	2	3	
			The actual depth of lost zones could not be traced because of its broken nature.																	
	14.75																			
	15.00			>20	F	50°,10°	r, pl	none	73	0						CM	1 2	2 3	4	
	15.50																			
	16.00			19	F	20°-60°	r, pl	none	100	15						CH	1	2	3	
	16.50																			
	16.80			>20	F				93	0						CM	2	3	4	
	17.00																			
	17.60			>20	F	50°-60° 80°	r, pl	none	88	0										
	18.00			15	F	30°,50° 60°	r, pl, st	none	100	29						CH	1 2	2	3	
	18.40																			
	19.00			>20	F	15°,50° 70°	r, pl	none	92	0										
	19.80			>20	F		r, pl, st	none	56	0						CM	2	2 3	4	
	20.00																			

ABBREVIATIONS: F-Fresh, SW-Slightly Weathered, MW-Moderately Weathered, HW-Highly Weathered, CW-Completely Weathered

MB-Mechanical Break, CL-Coreloss, PI-Planar, Sm-Smooth, R-Rough, Ir-Irregular, FeO-Iron Oxide, Cl-Clay, Sl-Silt, Calc-calcic

SRC Lab, NEA

Started: 2061.08.30

Completed: 2061.10.04

Drilled by: S.R. Timlishina/T.Neupane

Logged by: S.K.Karmacharya

Reviewed by: J. M. Tamrakar



# BORE HOLE LOG

SHEET 4/10

DRILL HOLE NO.: B-5

LOCATION: Dam Axis (L/B)

Depth, m	Run Depth, m	Log	Description of Rock/Soil	Joints/m	Discontinuity Characteristics				Recovery %	RQD %	Core Rec. RQD				Permeability (Lugeons)	Other tests	Rock Mass Classification						
					Weathering	orientation	Roughness	Filling Materials			20	40	60	80			100	Classification	Weathering	Hardness	Joint spacing		
																						1	2
			<p><b>DOLOMITE</b></p> <p>Grey, hard to medium hard, fresh fine grained &amp; fractured. Cores are broken due to mechanical grinding in fractured zones and closely spaced joints. Most of the cores are broken into small fragments from</p> <p>29.55 m - 32.00 m 33.75 m - 34.00 m 38.37 m - 39.20 m</p> <p>Low core recovery is due to mechanical grinding within fractured zones and closely spaced joints.</p> <p>The actual depth of lost zones could not be traced because of its broken nature.</p>	>20	F		r, pl	none	56	0													
	31.00 - 30.50			>20	F		r, pl	none	42	0								CM	1	2	3	4	31
	31.50																						
	32.00				16	F	50°,70°	r, pl	none	93	17							CH	1	2	3		32
	33.00																	CM	1	3	4		33
	34.00				16	F	50°,70° 30°,40°	r, pl	none	100	30							CH	1	2	3		34
	34.50																						
	35.00				20	F	70° 20°,40°	r, pl	none	100	14							CH	1	2	3		35
	35.50																						
	36.00				11	F	75° 30°,50°	r, pl	none	100	64												36
	37.00																					37	
	37.15																						
	38.00			7	F	30°,40°	r, pl	none	100	80							B	1	2	2		38	
	38.37																						
	39.00			>20	F	30°,70° 80°	r, pl	none	100	17							CH	CM	1	2	3	3	39
	40.00			14	F	50°,60°	r, pl	none	100	58							B	B	1	2	2		40

ABBREVIATIONS: F-Fresh, SW-Slightly Weathered, MW-Moderately Weathered, HW-Highly Weathered, CW-Completely Weathered

MB-Mechanical Break, CL-Coreloss, PI-Planar, Sm-Smooth, R-Rough, Ir-Irregular, FeO-Iron Oxide, CI-Clay, SI-Silt, calc-calcic

SRC Lab, NEA

Started: 2061.08.30

Completed: 2061.10.04

Drilled by: S.R. Tilmishina/T. Neupane

Logged by: S.K. Karmacharya

Reviewed by: J. M. Tamrakar





# BORE HOLE LOG

SHEET 6/10

DRILL HOLE NO.: B-5

LOCATION: Dam Axis (L/B)

Depth, m	Run Depth, m	Log	Description of Rock/Soil	Joints/m	Discontinuity Characteristics				Recovery %	ROD %	Core					Permeability (Lugeons)	Other tests	Rock Mass Classification			
					Weathering	orientation	Roughness	Filling Materials			Rec. ROD	20	40	60	80			100	Classification	Weathering	Hardness
51.00	51.15	DOLOMITE Grey, hard to medium hard, fresh fine grained & fractured Cores are broken due to mechanical grinding in fractured zones and closely spaced joints. Most of the cores are broken into small fragments which are observed from  53.50 m - 60.60 m  Low core recovery is due to mechanical grinding within fractured zones and closely spaced joints.  The actual depth of lost zones could not be traced because of its broken nature.		>20	F	60°, 20° 70°	r, pl	none	100	0	Lugeon Value 4.33					CH	1	2	3	51	
52.00																				52	
53.00	52.65				>20	F	40°, 70°	r, pl	none	100	0										53
54.00	53.50				>20	F	30°, 70°	r, pl	none	100	0										54
55.00	54.15				>20	F		r, pl	none	80	0										55
56.00	54.65				>20	F	30°, 50° 80°	r, pl	none	90	11										56
57.00	55.65				>20	F	30°, 70°		none	67	0										57
58.00	57.15				>20	F				88	0										58
59.00	58.00				>20	F	20°, 40° 70°	r, pl st	none	100	0										59
60.00	58.60				>20	F	40°, 70°	r, pl	none	94	0										60

ABBREVIATIONS: F-Fresh, SW-Slightly Weathered, MW-Moderately Weathered, HW-Highly Weathered, CW-Completely Weathered

MB-Mechanical Break, CL-Coreloss, PI-Planar, Sm-Smooth, R-Rough, Ir-Irregular, FeO-Iron Oxide, Cl-Clay, Sl-Silt, calc-calcic

SRC Lab, NEA

Started: 2061.08.30

Completed: 2061.10.04

Drilled by: S.R. Tilmishina/T. Neupane

Logged by: S.K. Karmacharya

Reviewed by: J. M. Tamrakar

# BORE HOLE LOG

SHEET 7/10

DRILL HOLE NO.: B-5

LOCATION: Dam Axis (L/B)

Depth, m	Run Depth, m	Log	Description of Rock/Soil	Joints/m	Discontinuity Characteristics				Recovery %	RQD %	Core Rec. RQD				Permeability (Lugeons)	Other tests	Rock Mass Classification						
					Weathering	orientation	Roughness	Filling Materials			20	40	60	80			100	Classification	Weathering	Hardness	Joint spacing		
	60.20	DOLOMITE	Grey, hard to medium hard, fresh, fine grained & fractured	>20	F				75	0	Lugeon Value 1.46				CM	2	3	4					
	60.80		Cores are broken due to mechanical grinding in fractured zones and closely spaced joints.																				
61.00	61.20		Most of the cores are broken into small fragments from	11	F	60°	r, pl	none	100	0													
	61.55		60.90 m - 61.35 m	>20	F	40°, 60°	r, pl	none	100	0													
62.00			63.45 m - 63.65 m																				
	63.00		66.30 m - 66.85 m	18	F	40°, 70°	r, pl	none	100	33										CH	1	2	3
63.00	63.15		67.65 m - 70.10 m																				
	63.65		Low core recovery is due to mechanical grinding within fractured zones and closely spaced joints.	16	F	30°, 50° 60°	r, pl	none	80	24													
64.00			The actual depth of lost zones could not be traced because of its broken nature.	8	F	20°, 40°	r, pl	none	100	82													
	64.65		DOLOMITE													Lugeon Value 0.90							
65.00				13	F	30°, 40° 60°	r, pl lr	none	93	30					B					1	2	2	
	66.00																						
	66.15			13	F	50°, 60°	r, pl	none	62	14					CH					1	2	3	
67.00	67.20			>20	F	60°	r, pl	none	100	0													
	66.85																						
68.00		Highly fragmented cores		>20	F				60	0					CM					1	3	4	
	68.68																						
69.00	69.15	Highly fragmented cores		>20	F				70	0													
	69.45																						
70.00		Highly fragmented cores	>20	F	20°, 60°	r, pl	none	85	0					CM	1	2 3	3 4						

ABBREVIATIONS: F-Fresh, SW-Slightly Weathered, MW-Moderately Weathered, HW-Highly Weathered, CW-Completely Weathered

MB-Mechanical Break, CL-Coreless, PI-Planar, Sm-Smooth, R-Rough, Ir-Irregular, FeO-Iron Oxide, Cl-Clay, Si-Silt, calc-calcic

SRC Lab, NEA

Started: 2061.08.30

Completed: 2061.10.04

Drilled by: S.R. Timilshina/T. Neupane

Logged by: S.K. Karmacharya

Reviewed by: J. M. Tamrakar

# BORE HOLE LOG

SHEET 8/10

DRILL HOLE NO.: B-5

LOCATION: Dam Axis (L/B)

Depth, m	Run Depth, m	Log	Description of Rock/Soil	Joints/m	Discontinuity Characteristics				Recovery %	RQD %	Core					Permeability (Lugeons)	Other tests	Rock Mass Classification					
					Weathering	orientation	Roughness	Filling Materials			Rec.	RQD	20	40	60			80	100	Classification	Weathering	Hardness	Joint spacing
	70.10	DOLOMITE	Grey, hard to medium hard, fresh fine grained & fractured Cores are broken due to mechanical grinding in fractured zones and closely spaced joints. Most of the cores are broken into small fragments from  70.10 m - 71.00 m 71.45 m - 76.05 m 76.30 m - 78.45 m 78.65 m - 79.40 m  Low core recovery is due to mechanical grinding within fractured zones and closely spaced joints.  The actual depth of lost zones could not be traced because of its broken nature.	>20	F	40°	r, pl, st	none	82	0						Lugeon Value 1.26		CM	1	2	3		
	70.65			>20	F	40°, 60°	r, pl	none	100	0										71			
	71.00			19	F	40°, 60°	r, pl	none	88	30								72					
	71.40						ir												73				
	72.00					>20	F		r, pl	none								73		0	74		
	72.45																			75			
	73.00					>20	F	40°	r, ir	none								96	0		76		
	73.35																			77			
	73.65					>20	F		r, pl, sm	none								83	0		78		
	74.00																			79			
	74.25			>20	F				86	0	80												
	75.00											81											
	75.20			>20	F		r, pl		100	0	82												
	76.00											83											
	76.05			>20	F	40°, 60°	r, pl	none	100	0	84												
	76.65											85											
	77.00			>20	F	50°, 60°	r, pl	none	92	33	86												
	77.05											87											
	77.25			>20	F	50°, 20°	r, pl	none	88	0	88												
	78.00											89											
	78.15			>20	F	40°, 60°	r, pl, ir	none	75	0	90												
	78.65											91											
	79.00			>20	F	50°, 40°	r, pl	none	94	0	92												
	79.40											93											
	79.45			>20	F	60°	r, pl	none	80	22	94												
	79.85											95											
	79.90			>20	F	40°, 50°	r, pl, ir	none	100	0	96												
	79.95											97											
	80.00			16	F	30°, 50°	r, pl	calc	100	34	98												
												99											

ABBREVIATIONS: F-Fresh, SW-Slightly Weathered, MW-Moderately Weathered, HW-Highly Weathered, CW-Completely Weathered

MB-Mechanical Break, CL-Coreloss, Pl-Planar, Sm-Smooth, R-Rough, Ir-Irregular, FeO-Iron Oxide, Cl-Clay, Sl-Silt, calc-calcic

SRC Lab, NEA

Started: 2061.08.30

Completed: 2061.10.04

Drilled by: S.R. Timilshina/T. Neupane

Logged by: S.K. Karmacharya

Reviewed by: J. M. Tamrakar



# BORE HOLE LOG

SHEET 10/10

DRILL HOLE NO.: B-5

LOCATION: Dam Axis (L/B)

Depth, m	Run Depth, m	Log	Description of Rock/Soil	Joints/m	Discontinuity Characteristics				Recovery %	ROD %	Core Rec. ROD				Permeability (Lugeons)	Other tests	Rock Mass Classification			
					Weathering	orientation	Roughness	Filling Materials			20	40	60	80			100	Classification	Weathering	Hardness
	90.20	DOLOMITE Grey, hard to medium hard, fresh fine grained & fractured Cores are broken due to mechanical grinding in fractured zones and closely spaced joints. Most of the cores are broken into small fragments from  90.45 m - 91.50 m 91.65 m - 91.95 m 92.40 m - 93.00 m 93.75 m - 94.50 m 94.80 m - 96.30 m 97.00 m - 97.10 m 98.45 m - 99.00 m  Low core recovery is due to mechanical grinding within fractured zones and closely spaced joints.  The actual depth of lost zones could not be traced because of its broken nature.  Highly fractured zone	>20	F	40°,60°	r, pl,ir	none	100	0											
			>20	F	40°,50° 10°	r, pl,ir	calc	93	19					CH	1	2	3			
	91.00			>20	F		r, pl,ir	calc	88					0	CM	1	3	4	91	
	91.30			>20	F	40°,60°	r, pl,ir	calc	100					0						
	91.80																			
	92.00																			
				>20	F	40°,60° 05°	r, pl,ir	calc	94					0	CH	1	2	3	92	
	92.70			>20	F	40°,60°	r, pl	none	100					0						
	93.00																			
	93.45			>20	F	40°,60°	r, pl	none	92					18	CM	1	2	3	94	
	94.00																			
	94.10			>20	F		r, pl	none	63					0						
	94.50			>20	F	40°,60°	r, pl	none	71					0						
	95.00																			
	95.20			>20	F		r, pl	none	26					0						
	95.70																			
	96.00		>20	F	60°	r, pl	none	44	14	CH	1	2	3	96						
	96.50		13	F	60°	r, pl	none	100	42											
	97.00																			
	97.10		19	F	60°	r, pl	none	88	30											
	97.50		13	F	40°,60°	r, pl	calc	100	64	B	1	2	2	98						
	98.00																			
			>20	F	40°,60°	r, pl	calc	93	23	CH	1	2	3	99						
	98.30																			
	99.00									CM	1	2-3	4	99						
			8	F	40°,60°	r, pl	calc	100	77	B	1	2	2	100						
	100.00																			
	100.05		13	F	30°,60°	r, pl,ir	calc	100	58	CH	1	2	3	100.5						
	100.50																			

Lugeon Value 0.88

ABBREVIATIONS: F-Fresh, SW-Slightly Weathered, MW-Moderately Weathered, HW-Highly Weathered, CW-Completely Weathered  
 MB-Mechanical Break, CL-Coreloss, PI-Planar, Sm-Smooth, R-Rough, Ir-Irregular, FeO-Iron Oxide, Cl-Clay, Sl-Silt, calc-calcic

SRC Lab, NEA Started: 2061.08.30 Completed: 2061.10.04  
 Drilled by: S.R. Timishina/T.Neupane Logged by: S.K.Karmacharya Reviewed by: J. M. Tamrakar



# BORE HOLE LOG

SHEET 2/10

DRILL HOLE NO.: B-6

LOCATION: Dam Axis (L/B)

Depth, m	Run Depth, m	Log	Description of Rock/Soil	Joints/m	Discontinuity Characteristics				Recovery %	RQD %	Core Rec. ROD	Permeability (Lugeons)	Other tests	Rock Mass Classification								
					Weathering	orientation	Roughness	Filling Materials						20	40	60	80	100	Classification	Weathering	Hardness	Joint spacing
			<b>DOLOMITE</b> Grey, hard to mod hard, fresh fine grained & fractured Coreless due to fracture zone mechanical grinding and closely spaced joints. Most of the cores are broken into small fragments from																			
	10.25			8	F	75°, 40°	r, pl	none	100	41		Lugeon Value 1.80		B	2	2	2		11			
	11.00															2	2	3				
	11.70															2	2	3				
	12.00		11.30 m - 11.70 m	15	F	40°, 50°	sm, pl	Calc	100	0				CH	2	2	3			12		
	12.20		12.00 m - 12.20 m													3	3	4				
	12.57		13.00 m - 13.80 m	>20	SW	20°	r, pl	Si	100	0												
	13.00		17.00 m - 17.28 m												B	1	2	2				
	13.38		18.65 m - 19.00 m	112	F	30°	r, pl	none	100	48					CM	2	3	4		13		
	13.80																					
	14.00			14	F	40°, 60°	sm, pl	FeO	100	24					CH	1	2	3		14		
	15.00			8	F	40°, 60°	r, pl	Calc	100	47												
	16.00			7	F	30°-60° 50°	r, pl	none	100	33				CH	1	2	3		16			
	17.00			6	F	30°-60°	r, pl	none	100	0				CM	2	3	4		17			
	18.00			6	F	20°, 70°	sm, r, pl	none	100	33				CH	1	2	3		18			
	18.65																					
	19.00			7	F	30°, 60°	r, pl	none	100	14				CM	1	2~3	3~4		19			
	19.95																					
	20.00			9	F	40°, 60°	r, pl	Calc	100	35				CH	1	2	3		20			

ABBREVIATIONS: F-Fresh, SW-Slightly Weathered, MW-Moderately Weathered, HW-Highly Weathered, CW-Completely Weathered

MB-Mechanical Break, CL-Coreless, PI-Planar, Sm-Smooth, R-Rough, Ir-Irregular, FeO-Iron Oxide, Cl-Clay, Si-Silt, calc-calcic

SRC Lab, NEA

Started: 2061.10.09

Completed: 2061.11.07

Drilled by: S.R. Timilshina/T.Neupane    Logged by: S.K.Karmacharya/S.Shrestha    Reviewed by: J. M. Tamrakar



# BORE HOLE LOG

SHEET 3/10

DRILL HOLE NO.: B-6

LOCATION: Dam Axis (L/B)

Depth, m	Run Depth, m	Log	Description of Rock/Soil	Joints/m	Discontinuity Characteristics				Recovery %	RQD %	Core Rec. RQD				Permeability (Lugeons)	Other tests	Rock Mass Classification				
					Weathering	orientation	Roughness	Filling Materials			20	40	60	80			100	Classification	Weathering	Hardness	Joint spacing
			<b>DOLOMITE</b> Grey, hard to mod hard, fresh fine grained & fractured Cores are broken due to mechanical grinding in fractured zones and closely spaced joints. Most of the cores are broken into small fragments from	6	F	20°, 30° 70°	sm, r, pl	none	100	65						B	1 2	2 2	2 2	21	
21.00	21.40		20.50 m - 22.80 m 23.35 m - 23.55 m 25.50 m - 25.70 m 27.05 m - 27.60 m 28.50 m - 28.55 m 29.00 m - 29.35 m	5	F	20° - 50°	sm, r, pl	FeO Calc	100	44						CH	2 2	2 2	3 3	22	
22.00	22.50			8	F	30°, 50°	sm, r, pl	FeO	100	9						CM	2 3	2 3	3 4	23	
23.00	23.55		Low core recovery is due to mechanical grinding within fractured zones and closely spaced joints.	9	F	30°, 40°	sm, pl	FeO	100	34						CH	1 2	2 2	3 3	24	
24.00	24.20		The actual depth of lost zones could not be traced because of its broken nature.	6	F	40°, 30°	sm, r, pl	FeO	100	87						B	1 2	2 2	2 2	25	
25.00	25.00			6	F	40°, 20°	sm, r, pl	FeO	100	30						CH	1 2	2 2	3 3	26	
26.00	26.00			5	F	40°	r, pl	Calc	100	40						CH	1	2	3	27	
27.00	27.00			6	F	50°, 60°	sm, r, pl	Calc	100	10						CM	1 2	2 3	4 3	28	
28.00	28.00			8	F	40°, 50° 70°	r, pl	none	100	30						CH	1	2	3	29	
29.00	29.00			18	F	40°, 50°	r, pl	FeO calc, Si	100	18						CM	1	2	4	30	
30.00	30.00																				

ABBREVIATIONS: F-Fresh, SW-Slightly Weathered, MW-Moderately Weathered, HW-Highly Weathered, CW-Completely Weathered  
 MB-Mechanical Break, CL-Coreless, PI-Planar, Sm-Smooth, R-Rough, Ir-Irregular, FeO-Iron Oxide, Cl-Clay, Si-Silt, calc-calcic

SRC Lab, NEA Started: 2061.10.09 Completed: 2061.11.07

Drilled by: S.R. Timilshina/T.Neupane Logged by: S.K.Karmacharya/S.Shrestha Reviewed by: J. M. Tamrakar

# BORE HOLE LOG

SHEET 4/10

DRILL HOLE NO.: B-6

LOCATION: Dam Axis (L/B)

Depth, m	Run Depth, m	Log	Description of Rock/Soil	Joints/m	Discontinuity Characteristics				Recovery %	RQD %	Core Rec. RQD				Permeability (Lugeons)	Other tests	Rock Mass Classification				
					Weathering	orientation	Roughness	Filling Materials			20	40	60	80			100	Classification	Weathering	Hardness	Joint spacing
			<b>DOLOMITE</b> Grey, hard to mod hard, fresh fine grained & fractured Cores are broken due to mechanical grinding in fractured zones and closely spaced joints. Most of the cores are broken into small fragments from	>20	F	40°, 50° 60°	r, pl	none	100	0	Lugeon Value 27.0				CH	1	2	3	31		
30.50	31.00			>20	F			none	44	0					D	3	3~4	5			
			31.20 m - 31.75 m 32.80 m - 33.00 m 34.75 m - 35.00 m 35.50 m - 35.60 m	12	F	40°-70°	sm, r, pl	FeO	100	8	Lugeon Value 1.48				CH	1	2	3	32		
32.00	33.00																				
			Coreloss is observed from 30.50 m - 31.20 m	6	F	30°, 40° 60°	sm, r, pl	FeO	100	59	Lugeon Value 1.48								34		
33.20	34.00																				
			Low core recovery is due to mechanical grinding within fractured zones and closely spaced joints.	10-15	F		sm, r, pl	Calc	100	20	Lugeon Value 1.48				CM	2	3~4	4	36		
34.00	35.00																				
			The actual depth of lost zones could not be traced because of its broken nature.	10-15	F	10°, 40° 30°, 50°	sm, pl	Calc	100	35	Lugeon Value 1.48				CH	1	2	3	38		
35.00	36.00																				
				14	F	40°, 30° 20°	pl, r	none	100	39	Lugeon Value 1.48								39		
36.00	37.00																				
				14	F	40°, 10° 70°	r, pl-ir	none	100	46	Lugeon Value 1.48				CM	2	2	3	38		
37.00	38.00																				
				>20	F		sm, r, pl	FeO	100	0	Lugeon Value 1.48				CM	2	2	3	38		
38.00	39.00																				
				10	F	20°, 50° 60°	sm, r, pl	none	100	67	Lugeon Value 1.48								39		
39.00	40.00																				
				10	F	40°, 30°	r, pl	FeO calc, Si	100	67	Lugeon Value 1.48				B	1	2	2	39		
39.40																					
				8	F	50°, 40°	sm, r, pl	calc	100	58	Lugeon Value 1.48				CH	1	2	3	40		
40.00																					

ABBREVIATIONS: F-Fresh, SW-Slightly Weathered, MW-Moderately Weathered, HW-Highly Weathered, CW-Completely Weathered

MB-Mechanical Break, CL-Coreless, Pl-Planar, Sm-Smooth, R-Rough, Ir-Irregular, FeO-Iron Oxide, Cl-Clay, Si-Silt, calc-calcic

SRC Lab, NEA

Started: 2061.10.09

Completed: 2061.11.07

Drilled by: S.R. Timishina/T.Neupane    Logged by: S.K.Karmacharya/S.Shrestha    Reviewed by: J. M. Tamrakar

# BORE HOLE LOG

SHEET 5/10

DRILL HOLE NO.: B-6

LOCATION: Dam Axis (L/B)

Depth, m	Run Depth, m	Log	Description of Rock/Soil	Joints/m	Discontinuity Characteristics				Recovery %	RQD %	Core Rec. RQD				Permeability (Lugeons)	Other tests	Rock Mass Classification							
					Weathering	orientation	Roughness	Filling Materials			20	40	60	80			100	Classification	Weathering	Hardness	Joint spacing			
																						1	2	3
			<b>DOLOMITE</b> Grey, hard to mod hard, fresh fine grained & fractured	9	F	40°	r, pl	none	100	54	Lugeon Value 1.30					CH	1	2	3					
40.50			Cores are broken due to mechanical grinding in fractured zones and closely spaced joints.	7	F	40°,50°	r, pl-ir	FeO, Si	100	37														41
41.00			Most of the cores are broken into small fragments from	>20	F	40°	r, pl-ir	none	100	0										CM	1	3	4	
41.50			43.50 m - 43.57 m	13	F	50°	r, pl-ir	none	100	25														42
42.00			44.40 m - 44.80 m																					
42.25			Low core recovery is due to mechanical grinding within fractured zones and closely spaced joints.	10	F	40°,30°	r, pl-ir	none	100	23										CH	1	2	3	43
43.00			The actual depth of lost zones could not be traced because of its broken nature.	9	F	20°,40°	sm, pl	none	100	44														
43.50																								
44.00				7	F	30°	r, pl	none	100	40										CM	1	2	3	44
44.50																								
45.00	45.00			8	F	40°,60°	sm,r,pl		100	53										45				
45.70																								
46.00				5	F	40°,60°	r, pl	Si	100	77										46				
46.25																								
47.00				4	F	40°	r, pl	none	100	83						B	1	2	2	47				
47.50																								
48.00				6	F	50°,60°	r, pl	none	100	82										48				
48.30																								
49.00	49.00			4	F	40°,50° 20°	r, pl	FeO	100	78										49				
50.00	50.00			5	F	60°,40°	r, pl	none	100	75										50				

ABBREVIATIONS: F-Fresh, SW-Slightly Weathered, MW-Moderately Weathered, HW-Highly Weathered, CW-Completely Weathered

MB-Mechanical Break, CL-Coreless, Pl-Planar, Sm-Smooth, R-Rough, Ir-Irregular, FeO-Iron Oxide, Cl-Clay, Si-Silt, calc-calcic

SRC Lab, NEA

Started: 2061.10.09

Completed: 2061.11.07

Drilled by: S.R. Timilshina/T. Neupane

Logged by: S.K. Karmacharya/S. Shrestha

Reviewed by: J. M. Tamrakar



# BORE HOLE LOG

SHEET 7/10

DRILL HOLE NO.: B-6

LOCATION: Dam Axis (L/B)

Depth, m	Run Depth, m	Log	Description of Rock/Soil	Joints/m	Discontinuity Characteristics				Recovery %	RQD %	Core				Permeability (Lugeons)	Other tests	Rock Mass Classification				
					Weathering	orientation	Roughness	Filling Materials			20	40	60	80			100	Classification	Weathering	Hardness	Joint spacing
			<b>DOLOMITE</b> Grey, hard to mod hard, fresh, fine grained & fractured Cores are broken due to mechanical grinding in fractured zones and closely spaced joints. Most of the cores are broken into small fragments from	5	F	40°, 50° 70°	none	100	47	Lugeon Value 1.40				CM	1	2	3	61			
61.00			60.00 m - 60.20 m 61.65 m - 61.70 m 65.00 m - 65.50 m 68.00 m - 68.25 m 68.50 m - 69.00 m 69.00 m - 69.50 m	5	F	40°	r, pl	none	100					81	62						
62.00															63						
62.65															64						
63.00															65						
64.00	64.00		Low core recovery is due to mechanical grinding within fractured zones and closely spaced joints.	10	F	20°, 40° 75°	sm, r, pl	none	100					30	66						
65.00	65.00		The actual depth of lost zones could not be traced because of its broken nature.	8	F	30°, 60°	r, pl	none	100					48	67						
66.00	66.00														68						
66.65															69						
67.00															70						
67.30																					
68.00	68.00																				
69.00	69.00																				
70.00	70.00																				

ABBREVIATIONS: F-Fresh, SW-Slightly Weathered, MW-Moderately Weathered, HW-Highly Weathered, CW-Completely Weathered

MB-Mechanical Break, CL-Coreless, PI-Planar, Sm-Smooth, R-Rough, Ir-Irregular, FeO-Iron Oxide, CI-Clay, SI-Silt, calc-calcic

SRC Lab, NEA

Started: 2061.10.09

Completed: 2061.11.07

Drilled by: S.R. Timlishina/T.Neupane

Logged by: S.K.Karmacharya/S.Shrestha

Reviewed by: J. M. Tamrakar

# BORE HOLE LOG

SHEET 8/10

DRILL HOLE NO.: B-6

LOCATION: Dam Axis (L/B)

Depth, m	Run Depth, m	Log	Description of Rock/Soil	Joints/m	Discontinuity Characteristics				Recovery %	RQD %	Core Rec.	Permeability (Lugeons)	Other tests	Rock Mass Classification			
					Weathering	orientation	Roughness	Filling Materials						Classification	Weathering	Hardness	Joint spacing
70.25			<p><b>DOLOMITE</b></p> <p>Grey, hard to mod hard, fresh fine grained &amp; fractured. Cores are broken due to mechanical grinding in fractured zones and closely spaced joints. Most of the cores are broken into small fragments from 71.70 m - 72.00 m, 73.00 m - 80.00 m.</p> <p>Corelosses are observed between fractured zones which are as follows:</p> <ul style="list-style-type: none"> <li>73.75 m - 74.00 m</li> <li>74.30 m - 75.00 m</li> <li>75.35 m - 75.75 m</li> <li>76.00 m - 76.40 m</li> <li>76.65 m - 77.00 m</li> <li>77.20 m - 77.75 m</li> <li>77.75 m - 78.20 m</li> <li>73.00 m - 80.00 m</li> </ul> <p>Low core recovery is due to mechanical grinding within fractured zones and closely spaced joints.</p> <p>The actual depth of lost zones could not be traced because of its broken nature.</p>	14	F	40°, 50°	none	100	58	Lugeon Value 2.35							
71.00				13	F	40°, 50°	none	100	0				CH	1	2	3	71
71.50				20	F	40°	none	100	0								
72.00	72.00			>20	F	40°	none	100	0								72
73.00	73.00			>20	F		none	100	0				CM	1	2	4	
73.40				>20	F		none	100	0								73
74.00	74.00			>20	F		none	58	0								74
75.00	75.00			>20	F		none	30	0								75
75.75				>20	F		none	47	0								76
76.00				>20	F		none	38	0								76
76.40				>20	F		none	42	0								77
77.00	77.00			4	F	40°	none	27	13								77
77.75				>20	F		none	47	0								78
78.00				5	F	40°	none	100	18								79
79.00	79.20			>20	F		none	100	22								80
79.53			15	F	40°	none	100	0							80		

ABBREVIATIONS: F-Fresh, SW-Slightly Weathered, MW-Moderately Weathered, HW-Highly Weathered, CW-Completely Weathered

MB-Mechanical Break, CL-Coreloss, PI-Planar, Sm-Smooth, R-Rough, Ir-Irregular, FeO-Iron Oxide, Cl-Clay, Si-Silt, calc-calcite

SRC Lab, NEA

Started: 2061.10.09

Completed: 2061.11.07

Drilled by: S.R. Timlishina/T. Neupane    Logged by: S.K. Karmacharya/S. Shrestha    Reviewed by: J. M. Tamrakar

# BORE HOLE LOG

SHEET 9/10

DRILL HOLE NO.: B-6

LOCATION: Dam Axis (L/B)

Depth, m	Run Depth, m	Log	Description of Rock/Soil	Joints/m	Discontinuity Characteristics				Recovery %	RQD %	Core Rec. RQD	Permeability (Lugeons)	Other tests	Rock Mass Classification								
					Weathering	orientation	Roughness	Filling Materials						20	40	60	80	100	Classification	Weathering	Hardness	Joint spacing
			<b>DOLOMITE</b> Grey, hard to mod hard, fresh fine grained & fractured Cores are broken due to mechanical grinding in fractured zones and closely spaced joints. Most of the cores are broken into small fragments from	>20	F			none	55	0			CM	1	3	4						
81.00	81.00																					
				>20	F			none	43	0			CM	1	2	(3)						
	81.70																					
82.00			80.00 m - 83.30 m																			
			83.45 m - 83.90 m	>20	F	40°	pl,sm	calc	100	0												
			83.90 m - 88.00 m																			
	82.50		88.40 m - 90.00 m																			
83.00			Coreloss is observed from	>20	F	40°		none	100	12			CM	1	2	(3)						
			80.55 m - 81.00 m																			
	83.30		81.30 m - 81.75 m																			
			85.25 m - 85.67 m																			
			86.00 m - 86.60 m	>20	F	50°		none	100	20												
84.00	83.90		87.00 m - 87.75 m																			
			Low core recovery is due to mechanical grinding within fractured zones and closely spaced joints.	>20	F			none	100	0												
	84.50			>20	F			none	100	0												
85.00	85.00																					
			The actual depth of lost zones could not be traced because of its broken nature.	>20	F	40°		none	37	0												
	85.67																					
86.00				>20	F			none	35	0			CM	1	3	4						
				>20	F			none	100	0												
	86.50																					
87.00	87.00			>20	F			none	100	0			CM	1	2-3	4						
				>20	F			none	25	0												
	88.00																					
				10	F	40°,50°	sm-r, pl	none	100	22			CM	1	2	3						
	89.00																					
	89.15																					
				13	F			none	100	0												
90.00	90.00																					

ABBREVIATIONS: F-Fresh, SW-Slightly Weathered, MW-Moderately Weathered, HW-Highly Weathered, CW-Completely Weathered

MB-Mechanical Break, CL-Coreloss, Pl-Planar, Sm-Smooth, R-Rough, Ir-Irregular, FeO-Iron Oxide, Cl-Clay, Sl-Silt, calc-calcic

SRC Lab, NEA

Started: 2061.10.09

Completed: 2061.11.07

Drilled by: S.R. Timilshina/T.Neupane    Logged by: S.K.Karmacharya/S.Shrestha    Reviewed by: J. M. Tamrakar

# BORE HOLE LOG

SHEET 10/10

DRILL HOLE NO.: B-6

LOCATION: Dam Axis (L/B)

Depth, m	Run Depth, m	Log	Description of Rock/Soil	Joints/m	Discontinuity Characteristics				Recovery %	RQD %	Core Rec. RQD	Permeability (Lugeons)	Other tests	Rock Mass Classification								
					Weathering	orientation	Roughness	Filling Materials						20	40	60	80	100	Classification	Weathering	Hardness	Joint spacing
			<b>DOLOMITE</b> Grey, hard to mod hard, fresh fine grained & fractured Cores are broken due to mechanical grinding in fractured zones and closely spaced joints. Most of the cores are broken into small fragments from	>20	F		none	100	0	▨			CL	2	3	4~5						
	90.50			>20	F		none	100	0	▨				CM	2	3	3					
	91.00			>20	F	40°	none	100	17	▨						3	4					
	91.75																					
	92.00		91.20 m - 91.75 m  Low core recovery is due to mechanical grinding within fractured zones and closely spaced joints.  The actual depth of lost zones could not be traced because of its broken nature.  Hole terminated at 91.75 m																			

ABBREVIATIONS: F-Fresh, SW-Slightly Weathered, MW-Moderately Weathered, HW-Highly Weathered, CW-Completely Weathered

MB-Mechanical Break, CL-Coreloss, PI-Planar, Sm-Smooth, R-Rough, Ir-Irregular, FeO-Iron Oxide, CI-Clay, Si-Silt, calc-calcic

SRC Lab, NEA Started: 2061.10.09 Completed: 2061.11.07

Drilled by: S.R. Timilshina/T. Neupane Logged by: S.K. Karmacharya/S. Shrestha Reviewed by: J. M. Tamrakar









# BORE HOLE LOG

SHEET 4/5

DRILL HOLE NO.: B-7

LOCATION: Dam Axis (L/B)

Depth, m	Run Depth, m	Log	Description of Rock/Soil	Joints/m	Discontinuity Characteristics				Recovery %	RQD %	Core				Permeability (Lugeons)	Other tests	Rock Mass Classification								
					Weathering	Orientation	Roughness	Infilling materials			20	40	60	80			100	Classification	Weathering	Hardness	Joint spacing				
	30.60	DOLOMITE	Grey, hard to mod hard, sw to fresh fine grained & fractured with quartz veins  In several runs the cores are broken into small fragments due to mechanical grinding in fractured zones and in closely spaced joints. This has also resulted the coreloss in many sections.  Mechanical breaks are observed from 30.30 m - 30.60 m 36.20m - 36.50 m 37.65 m - 38.00 m 38.00 m - 38.10 m 38.30 m - 38.35 m 39.30m - 39.40 m Coreloss is observed from 30.00 m - 30.30 m 30.60m - 30.70 m 31.10 m - 31.45 m 37.00 m - 37.65 m 38.35m - 38.70 m  Low core recovery is due to mechanical grinding within fractured zones and closely spaced joints.  The actual depth of lost zones could not be traced because of its broken nature.		F-SW	30°	R,ir	FeO	50	0	Lugeon Value 7.75														
	31.00			F-SW	40°,50°	R,ir		100	30																
	31.70			F-SW	40°	R,ir	FeO	46	0																
	31.75			F-SW	40°,35°	R,pl ir	cl	75	17																
	32.25			F-SW	45°	R,ir		100	57																
	32.70			F-SW	35°,45°	R,ir		100	33																
	33.00			F	40°	R,ir		100	86																
	33.70			F	35°	R,ir		100	50																
	34.00			F	50°,35°	R,pl ir		100	78																
	34.85			F	40°	R,ir		100	0																
	35.00	F	45°	R,ir		100	62																		
	35.80	F	45°	R,ir		100	37																		
	36.00	F	50°	R,pl ir		57	0																		
	36.20	F	45°	R,ir		100	0																		
	36.50	F	50°	R,pl ir		57	0																		
	37.00	F	45°	R,ir	FeO cl	100	28																		
	38.00	F	40°	R,pl ir		62	23																		
	38.25	F	40°	R,pl ir		62	23																		
	39.00	F	40°	R,pl ir		100	25																		
	39.40																								
	40.00																								

ABBREVIATIONS: F-Fresh, SW-Slightly Weathered, MW-Moderately Weathered, HW-Highly Weathered, CW-Completely Weathered

MB-Mechanical Break, CL-Coreloss, PI-Planar, Sm-Smooth, R-Rough, Ir-Irregular, FeO-Iron Oxide, Cl-Clay, Sl-Silt, calc-calcic

SRC Lab, NEA

Started: 2061.11.22

Completed: 2061.12.20

Drilled by: S.R. Timilshina/T.Neupane

Logged by: S.Shrestha

Reviewed by: J. M. Tamrakar

# BORE HOLE LOG

SHEET 5/5

DRILL HOLE NO.: B-7

LOCATION: Dam Axis (L/B)

Depth, m	Run Depth, m	Log	Description of Rock/Soil	Joints/m	Discontinuity Characteristics				Recovery %	RQD %	Core Rec. RQD					Permeability (Lugeons)	Other tests	Rock Mass Classification			
					Weathering	Orientation	Roughness	Infilling materials			20	40	60	80	100			Classification	Weathering	Hardness	Joint spacing
			<b>DOLOMITE</b> Grey, strong to mod strong, fresh fine grained & fractured with quartz veins		F	45°	R,pl ir		100	50											
41.00	40.60		In several runs the cores are broken into small fragments due to mechanical grinding in fractured zones and in closely spaced joints. This has also resulted the core loss in many sections.		F	60°,45°	R,pl		100	62							CH	1	2	3	41
42.00	41.30				F	45°	R,ir		100	40											42
42.40	42.00				F	50°,55°	R,pl		100	27											42
43.00	42.40		Mechanical breaks are observed from 42.55 m - 43.00 m 43.55 m - 45.00 m 45.50 m - 45.65 m 45.90 m - 46.50 m 46.70m - 47.15 m 47.30 m - 47.70 m 48.15 m - 48.55 m 49.00m - 50.00 m		F	60°	R,pl		75	0							CM	1	2 3	3 4	43
44.00	43.00				F				62	0							<del>Classification</del>				44
45.00	44.20				F	40°			100	0							CM	1	3	4	44
46.00	45.00		Coreloss is observed from 42.40 m - 42.55 m 43.00 m - 43.55 m 45.00 m - 45.50 m 45.65 m - 45.90 m 47.15 m - 47.30 m		F				23	0							<del>Classification</del>				45
46.50	45.65				F				44	0											46
47.00	46.10		Low core recovery is due to mechanical grinding within fractured zones and closely spaced joints.		F	40°,45°	R,pl		100	0							CM	1	2 3	4	47
48.00	46.50		The actual depth of lost zones could not be traced because of its broken nature.		F	40°,45°			100	21											47
48.45	47.15				F		R,ir		64	0											48
49.00	48.00				F	45°	R,pl ir	cl	100	27									2~3	3~4	48
49.40	48.45				F					0									3	4	48
50.00	49.55				F	40°,45°	R,ir		100	44							CH	1	2	3	49
	49.40				F				100	0											49
	50.00		Hole terminated at 50.00m		F	45°	R,ir		100	0							CM	1	3	4	50

ABBREVIATIONS: F-Fresh, SW-Slightly Weathered, MW-Moderately Weathered, HW-Highly Weathered, CW-Completely Weathered  
 MB-Mechanical Break, CL-Coreloss, PI-Planar, Sm-Smooth, R-Rough, Ir-Irregular, FeO-Iron Oxide, Cl-Clay, Si-Silt, calc-calcic

SRC Lab, NEA Started:2061.11.22 Completed:2061.12.20

Drilled by: S.R. Timilshina/T.Neupane Logged by: S.Shrestha Reviewed by: J. M. Tamraker

# BORE HOLE LOG

SHEET 1/10

DRILL HOLE NO.: B-8

COORDINATES:

X: 3092723.719

Y: 525502.468

Z: 401.6

INCLINATION: 45°

DIRECTION: 107°

DRILLING MACHINE: Long Year

CASING DEPTH : NW: 9.00 m

DRILLING METHOD: Rotary Drilling / Wire line System

WATER TABLE: none

Depth, m	Run Depth, m	Log	Description of Rock/Soil	Joints/m	Discontinuity Characteristics				Recovery %	RQD %	Core Rec. RQD				Permeability (Luigeoms)	Other tests	Rock Mass Classification			
					Weathering	Orientation	Roughness	Infilling materials			20	40	60	80			100	Classification	Weathering	Hardness
			Drilled from the bedrock																	
1.00	1.00		<b>Dolomite</b> Grey, hard, slightly weathered fine grained		SW-MW			40	0							CM	3	3	4	
	1.35				MW	50°	R	Calc	100	0						CH	2	2-3	3	
2.00	2.00		In several runs low core recovery is obtained and cores are broken into small fragments due to mechanical grinding with in fractured zones and closely spaced joints.						0	0										
	3.00			4	SW	50°	R	Calc	50	12						CH	2	2-3	3	
3.00	3.00		The actual depth of lost zones could not be traced because of its broken nature.																	
	4.00			3	SW	50°	R,PI	Calc FeO	60	26						CM	2	3	3	
4.00	4.00		All joint parameters can't be measured because of smaller fragments.																	
	4.80			1	SW		R,PI	Calc	25	0										
5.00	5.00		MB in fractured zones are observed from													CM	2	3	3-4	
	5.50			>20	F-SW		R,PI	FeO	43	0										
6.00	6.00		0.00 m to 0.40 m 1.00 m to 1.35 m 3.78 m to 3.82 m 5.20 m to 5.50 m 6.70 m to 7.00 m 8.00 m to 8.50 m 9.20 m to 9.40 m													CM	2	3	4	
	6.50			>20	F-SW			Calc	53	0										
7.00	7.00		Coreloss is observed from													CM	2-3	3	4	
	8.00			>20	F-SW		R	Calc	33	0										
8.00	8.00		0.40 m to 1.00 m 1.35 m to 2.00 m 2.00 m to 2.50 m 3.00 m to 3.40 m 4.00 m to 4.60 m 4.80 m to 5.20 m 6.00 m to 6.70 m 7.00 m to 8.00 m 8.50 m to 9.20 m 9.40 m to 9.90 m																	
	8.50			>20	SW		R	Calc	22	0						CM	2-3	3	4	
9.00	9.00																			
	9.40			1	SW	40°	R	none	17	0						CM	2	3	4	
10.00	10.00																			

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MB-Mechanical Break, CL-Coreloss, PI-Planar, Sm-Smooth, R-Rough, Ir-Irregular, FeO-Iron Oxide, Cl-Clay, Sl-Silt, calc-calcic

SRC Lab, NEA

Started: 2062.02.23

Completed: 2062.04.27

Drilled by: B. Neupane/ D. Adhikari

Logged by: S. Shrestha

Reviewed by: J. M. Tamrakar











# BORE HOLE LOG

SHEET 6/10

DRILL HOLE NO.: B-8

LOCATION: Dam Axis (L/B)

Depth, m	Run Depth, m	Log	Description of Rock/Soil	Joints/m	Discontinuity Characteristics				Recovery %	RQD %	Core Rec. RQD				Permeability (Lugeons)	Other tests	Rock Mass Classification			
					Weathering	Orientation	Roughness	Infilling materials			20	40	60	80			100	Classification	Weathering	Hardness
			Dolomite with quartz veins Grey, hard, slightly weathered fine grained	6	F	50°,40	R,PI		100	0						CM	2	2-3	4	
	50.80																			
	51.00		In several runs cores are broken into small fragments due to mechanical grinding with in fractured zones and closely spaced joints.	9-15	F	50°,40	R,PI		100	36									51	
	51.50																			
	52.00			10	F	45°,50 70°	R,PI	Cl	100	10						CH	1 2	2 3	52	
	52.45		Mechanica breaks are observed from																	
	53.00		50.00 m to 50.20 m	7	F	50°	R,PI		100	33										
	53.00		50.45 m to 50.65 m																	
	53.20		50.80 m to 51.00 m	15	F	40°	R,PI		100	0									53	
			54.25 m to 54.35 m																	
			54.60 m to 54.85 m	6	F	50°,40	R,PI,lr		100	14										
			55.35 m to 56.00 m																	
	54.00		58.35 m to 58.60 m																54	
			59.20 m to 59.35 m																	
	54.25		59.90 m to 60.00 m	4	F	50°	R,PI		100	13										
	55.00			6	F		R		100	28						CM	1 2	2 3 4	55	
	55.35																			
	55.65			>20	F				100	0										
	56.00			6	F	20°,60 50°	R,PI	FeO	100	9						CH	1 2	2 3	56	
	56.60			10	F	20°,50	R,PI	FeO	100	0										
	57.00																			
	57.30																			
	58.00			8	F	20°,60 50°	R,PI		100	13									58	
	58.60																			
	59.00			7-12	F	20°,40	R,PJ		100	0						CM	1 2	2 3 4	59	
	59.50																			
	60.00			10	F	20°,60	R,PI		100	20						CH	2	2	3	60

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SRC Lab, NEA

Started: 2062.02.23

Completed: 2062.04.27

Drilled by: B.Neupane/ D. Adhikari

Logged by: S.Shrestha

Reviewed by: J. M. Tamrakar

# BORE HOLE LOG

SHEET 7/10

DRILL HOLE NO.: B-8

LOCATION: Dam Axis (L/B)

Depth, m	Run Depth, m	Log	Description of Rock/Soil	Joints/m	Discontinuity Characteristics				Recovery %	RQD %	Core Rec. RQD				Permeability (Lugeons)	Other tests	Rock Mass Classification				
					Weathering	Orientation	Roughness	Infilling materials			20	40	60	80			100	Classification	Weathering	Hardness	Joint spacing
			Dolomite with quartz veins light grey to grey, hard, fresh, fine grained.	8	F	20°,60°	R,PI	FeO,C	100	15					Lugeon Value 1.21		CH	2	2	3	61
61.00	61.20		In several runs cores are broken into small fragments due to mechanical grinding with in fractured zones and closely spaced joints.	10	F	20°,40°	R,PI	FeO,C	100	20											
62.00	61.70		Mechanical break is observed from	>20	F	40°	R,PI	none	38	0											
63.00	63.00		60.00 m to 61.20 m	11	F	50°	R,PI,i	FeO,C Calc	100	27											
	63.35		61.70 m to 62.00 m																		
	63.75		63.75 m to 63.85 m																		
	64.50		64.50 m to 65.20 m																		
	65.60		65.60 m to 65.75 m																		
64.00	66.10		66.10 m to 67.60 m	12	F	20°,40°	R,PI,i	FeO,C	100	0											
	66.30		68.30 m to 68.60 m																		
	66.80		68.80 m to 69.00 m																		
	69.40		69.40 m to 70.00 m																		
65.00	65.00		CL is observed between 62.00 m to 62.80 m	7	F	30°,40° 60°	R,PI	none	100	0							CM	2	3	4	65
	65.60																				
66.00	66.00			12	F	50°,40°	sm-r PI	FeO	100	20							CH	1 2	2	3	66
	66.70																				
67.00	67.00			>20	F	40°	sm-r PI		100	0							CM		2 3	4	67
	67.10																				
67.60	67.60			>20	F				100	0								1 2			68
	68.00																				
68.40	68.40			7	F	20°	R,PI,lr		100	0							CH		2	3	69
	69.00																				
69.10	69.10			7	F	50°,40°	R,PI,lr		100	0											70
	69.10																				
70.00	70.00			5	F	50°,30°	R,PI	FeO	100	22							CM		2 3	4	

ABBREVIATIONS: F-Fresh, SW-Slightly Weathered, MW-Moderately Weathered, HW-Highly Weathered, CW-Completely Weathered  
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SRC Lab, NEA

Started: 2062.02.23

Completed: 2062.04.27

Drilled by: B.Neupane/ D. Adhikari

Logged by: S.Shrestha

Reviewed by: J. M. Tamrakar

# BORE HOLE LOG

SHEET 8/10

DRILL HOLE NO.: B-8

LOCATION: Dam Axis (L/B)

Depth, m	Run Depth, m	Log	Description of Rock/Soil	Joints/m	Discontinuity Characteristics				Recovery %	RQD %	Core				Permeability (Lugeons)	Rock Mass Classification				
					Weathering	Orientation	Roughness	Intiling materials			20	40	60	80		100	Classification	Weathering	Hardness	Joint spacing
			Dolomite with quartz veins light grey to grey, hard, fresh, fine grained.	9	F	75°, 40°	R, PI		100	33					Lugeon Value 18.0	CH	1	2	3	71
	70.45			6	F	70°, 40°	R, Ir		100	30										
	71.00		In several runs low core recovery is obtained and cores are broken into small fragments due to mechanical grinding with in fractured zones and closely spaced joints.												Lugeon Value 18.0	B	1	2	2	72
	72.00	72.00		3	F	30°, 40°	R, PI	FeO	77	13										
	73.00		Mechanical breaks are observed from												Lugeon Value 18.0	<del>CM</del>	<del>2</del>	<del>3</del>	<del>4</del>	73
	73.50		70.35 m to 70.45 m 70.45 m to 70.50 m 71.30 m to 71.40 m 72.35 m to 72.60 m 73.00 m to 73.50 m 73.85 m to 74.25 m 74.50 m to 75.00 m 75.25 m to 76.30 m 76.65 m to 77.70 m 79.50 m to 80.00 m	>20	F				53	0										
	74.00														Lugeon Value 18.0	CL	1	3	4	74
	74.25			>20	F			FeO, CI	67	0										
	75.00	75.00													Lugeon Value 18.0	<del>CM</del>	<del>1-2</del>	<del>2</del>	<del>2</del>	75
	75.50		CL is observed between 72.00 m to 72.35 m 73.50 m to 73.85 m 74.25 m to 74.50 m 75.00 m to 75.25 m 76.30 m to 76.50 m	>20	F	40°	R, PI	FeO, CI	75	0										
	76.00	76.00													Lugeon Value 18.0	CM	2	3	4	76
	76.50			>20	F	60°	R, PI	FeO, CI	60	0										
	77.00		The actual depth of lost zones could not be traced because of its broken nature.												Lugeon Value 4.5	<del>CM</del>	<del>2</del>	<del>3</del>	<del>4</del>	77
	77.50			>20	F	20°, 60° 70°	R, PI	FeO, CI	100	0										
	78.00	78.20													Lugeon Value 4.5	CL	2	3	4	78
	78.50			11	F	30°, 40°	R, PI, Ir		100	21										
	79.00	79.00													Lugeon Value 4.5	CH	2	2	3	79
	79.50			12	F	20°, 40° 60°, 70°	R, PI	FeO, CI	100	0										
	80.00	80.00													Lugeon Value 4.5	<del>CM</del>	<del>2</del>	<del>3</del>	<del>4</del>	80
				14	F	10°, 40° 30°, 50°	R, PI	FeO, CI	100	0										

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MB-Mechanical Break, CL-Core loss, PI-Planar, Sm-Smooth, R-Rough, Ir-Irregular, FeO-Iron Oxide, CI-Clay, SI-Silt, calc-calcic

SRC Lab, NEA

Started: 2062.02.23

Completed: 2062.04.27

Drilled by: B. Neupane/ D. Adhikari

Logged by: S. Shrestha

Reviewed by: J. M. Tamrakar

# BORE HOLE LOG

SHEET 9/10

DRILL HOLE NO.: B-8

LOCATION: Dam Axis (L/B)

Depth, m	Run Depth, m	Log	Description of Rock/Soil	Joints/m	Discontinuity Characteristics				Recovery %	RQD %	Core Rec. ROD				Permeability (Lugeons)	Other tests	Rock Mass Classification				
					Weathering	Orientation	Roughness	Infilling materials			20	40	60	80			100	Classification	Weathering	Hardness	Joint spacing
			Dolomite with quartz veins light grey to grey, hard, fresh, fine grained.	4	F	30°, 40° 50°	R, PI	Cl	100	0						CM	1 2 3	2 3 4	3 4	81	
81.00	81.00		In several runs cores are broken into small fragments due to mechanical grinding with in fractured zones and closely spaced joints.	6	F	45°, 40°	R, PI		100	38										82	
82.00	81.85		Mechanical breaks are observed from 80.10 m to 80.35 m 80.50 m to 80.85 m 81.00 m to 81.30 m 81.75 m to 81.85 m 83.15 m to 83.35 m 84.35 m to 84.70 m 85.00 m to 85.40 m 86.00 m to 86.35 m 87.35 m to 87.50 m 88.25 m to 88.35 m 89.45 m to 89.65 m	11	F	30°, 40° 60°, 50°	R, PI	Cl	100	36							CH	1 2	2 3	3 4	83
83.00	83.15			7	F	50°, 40° 70°	R, PI	FeO, Calc	100	47							CM	3	3	3-4	84
84.00	84.00			5	F	0°, 40° 70°	R, PI	FeO	100	40							B	2	2	2	85
85.00	85.00		CL is observed between 88.65 m to 89.45 m	8	F	30°, 60° 50°	R, PI	FeO, Cl	100	10							CM	2 3	2 3 4	3 4	86
86.00	86.00		The actual depth of lost zones could not be traced because of its broken nature.	9	F	30°, 40° 70°	R, PI	FeO, Cl	100	20							CH	2	2	3	87
87.00	86.85			11	F	50°, 40°	R, PI	FeO, Cl	100	17										88	
88.00	87.60			16	F	60°	R, PI	FeO	100	0							CM	2	2 3	3 4	89
89.00	88.15			10-20	F	50°, 40°	R, PI	FeO	100	0										90	
90.00	89.65			>20	F			Calc FeO	100	0										91	

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 MB-Mechanical Break, CL-Coreloss, PI-Planar, Sm-Smooth, R-Rough, Ir-Irregular, FeO-Iron Oxide, Cl-Clay, St-Silt, calc-calcic

SRC Lab, NEA

Started: 2062.02.23

Completed: 2062.04.27

Drilled by: B. Neupane/ D. Adhikari

Logged by: S. Shrestha

Reviewed by: J. M. Tamrakar

# BORE HOLE LOG

SHEET 10/10

DRILL HOLE NO.: B-8

LOCATION: Dam Axis (L/B)

Depth, m	Run Depth, m	Log	Description of Rock/Soil	Joints/m	Discontinuity Characteristics				Recovery %	RQD %	Core Rec. RQD				Permeability (Lugeons)	Other tests	Rock Mass Classification														
					Weathering	Orientation	Roughness	Intiling materials			20	40	60	80			100	Classification	Weathering	Hardness	Joint spacing										
	90.15		Dolomite with quartz veins light grey to grey, hard, fresh, fine grained.	10	F	30°, 40°	R, PI	FeO, Calc	100	0					Lugeon Value 22.4		CM 2 2 3 3 4	91													
	90.75			In several runs low core recovery is obtained and cores are broken into small fragments due to mechanical grinding with in fractured zones and closely spaced joints.	13	F	60°	R, PI	FeO	100									0	Lugeon Value 22.4		CM 2 2 3 3 4	92								
	91.00																														
	91.30																														
	92.00																														
	93.00			Mechanical breaks are observed from 90.00 m to 90.15 m	>20	F				15									0												
	93.00			92.85 m to 93.00 m																											
	93.00			93.65 m to 93.80 m	>20	F				19									0												
	93.80			94.00 m to 94.15 m																											
	94.00			94.70 m to 94.90 m	8	F	40°	R, PI, i	FeO	100									0												
	94.15		95.40 m to 95.60 m																												
	94.15		95.60 m to 95.80 m	>20	F	50°	R, PI	FeO, Calc	47	0																					
	94.15		95.90 m to 96.15 m																												
	94.15		96.60 m to 96.90 m																												
	95.00		97.70 m to 98.00 m																												
	95.00		98.40 m to 99.25 m																												
	95.00		99.70 m to 100.00 m																												
	95.60		Coreloss is observed from	>20	F	70°, 40°	R, PI	Calc FeO	67	0																					
	95.60			>20	F	50°	R	FeO	100	0																					
	96.00			>20	SW		R	FeO	100	0																					
	96.15			>20	F-SW	40°	R, PI, i	FeO, Calc	41	0																					
	97.00																														
	97.00																														
	97.70																														
	98.00			>20	F				100	0																					
	98.40			>20	SW-MW	20°	R, Ir	Calc FeO	100	0																					
	99.00			>20	SW		R, Ir	Calc FeO	100	0																					
	99.25																														
	99.25			>20	SW			FeO	40	0																					
	100.00		Hole terminated at 100.00 m																												

ABBREVIATIONS: F-Fresh, SW-Slightly Weathered, MW-Moderately Weathered, HW-Highly Weathered, CW-Completely Weathered

MB-Mechanical Break, CL-Coreloss, PI-Planar, Sm-Smooth, R-Rough, Ir-Irregular, FeO-Iron Oxide, Cl-Clay, Sl-Silt, calc-calcic

SRC Lab, NEA

Started: 2062.02.23

Completed: 2062.04.27

Drilled by: B. Neupane/ D. Adhikari

Logged by: S. Shrestha

Reviewed by: J. M. Tamrakar







# BORE HOLE LOG

SHEET 3/15

DRILL HOLE NO.: B-9

LOCATION: Dam Axis (L/B)

Depth, m	Run Depth, m	Log	Description of Rock/Soil	Joints/m	Discontinuity Characteristics				Recovery %	RQD %	Core				Permeability (Lugeons)	Other tests	Rock Mass Classification				
					Weathering	Orientation	Roughness	Infilling materials			20	40	60	80			100	Classification	Weathering	Hardness	Joint spacing
			Dolomite with quartz vein Grey, fine grained, mod. Hard calcite leached, numerous perforations due to weathering.																		
21.00	20.85		Red soil on the surface of the cores from 20.85 m to 22.35 m	11	F-SW	60°, 70°	R-ir	FeO calc, cl	100	36							B	2	2	2	
22.00			In few runs low core recovery is observed that is due to mechanical grinding with in highly weathered section, fractured zones and closely spaced joints.	9	F-SW	60°, 50°	sm-R ir	FeO cl	100	9							CM	2	3	3	
23.00			Mechanical breaks are observed from 22.65 m to 23.10 m 25.00 m to 25.15 m 26.55 m to 26.90 m 27.10 m to 27.80 m 28.85 m to 29.25 m	10	F-SW	60°	R,r	calc	100	20							CM	2	3	3	
24.00	23.80		Coreloss is observed from 26.35 m to 26.55 m	7	SW	60°, 70° 40°	R,ir	calc	100	58							B	2	2	2	
25.00	25.00		The actual depth of lost zones could not be traced because of its fractured nature.	15	SW	60°	R,ir	calc Si	100	0							CM		3	4	
26.00	25.40			9	SW MW	50°, 70°	R,ir	calc	100	31							CH	2 3	2	3	
27.00	26.05			>20	SW	40°, 60°	R,ir		86	0							CM	2 3	3	3 4	
28.00	27.80			7	F MW	70° 40°, 60°	R,ir	FeO	100	55							CH	2 3	2	3	
29.00	28.85			10	SW MW	40°, 60°	R,ir	FeO	100	31							CM	3	3	4	
30.00	29.50			8	F	40°	R,ir	calc	100	32							CH	2	2	3	

ABBREVIATIONS: F-Fresh, SW-Slightly Weathered, MW-Moderately Weathered, HW-Highly Weathered, CW-Completely Weathered

MB-Mechanical Break, CL-Coreloss, PI-Planar, Sm-Smooth, R-Rough, Ir-Irregular, FeO-Iron Oxide, Cl-Clay, Si-Silt, calc-calcic

SRC Lab, NEA

Started: 2061.11.29

Completed: 2062.01.31

Drilled by: S.R. Timilshina/U.B. Chhetri

Logged by: S.Shrestha

Reviewed by: J. M. Tamrakar

# BORE HOLE LOG

SHEET 4/15

DRILL HOLE NO.: B-9

LOCATION: Dam Axis (L/B)

Depth, m	Run Depth, m	Log	Description of Rock/Soil	Joints/m	Discontinuity Characteristics				Recovery %	RQD %	Core				Permeability (Lugeons)	Other tests	Rock Mass Classification				
					Weathering	Orientation	Roughness	Infilling materials			20	40	60	80			100	Classification	Weathering	Hardness	Joint spacing
			<b>Dolomite with quartz vein</b> Light grey, fine grained, mod. hard, calcite leached, perforated and cracked.													CH	2	2	3		
30.75																					
31.00	31.45		In several runs low core recovery is obtained and cores are broken into small fragments due to mechanical grinding with in highly weathered section, fractured zones and closely spaced joints.	5	F-SW	40°,60°	R,ir	calc	100	81						CM	3	3	4		
32.00																					
32.75			Mechanical breaks are observed from																		
33.00			30.75 m to 31.00 m	13	F-SW	40°	R,ir	calc	100	12											
33.75			30.10 m to 30.20 m																		
34.00	34.40		35.20 m to 35.30 m	8	F-SW	50°,70°	R,ir	calc	100	45						CH	2	2	3		
			37.15 m to 37.35 m																		
			37.55 m to 37.75 m																		
34.40			35.70 m to 35.90 m	7	F-SW	40°,50°	R,ir	calc	100	25											
35.00	35.20		Coreloss is observed from																		
			The actual depth of lost zones could not be traced.																		
			Numerous perforations																		
36.00	33.30		Numerous perforations and cracks on the surface	14	F-SW	40°	R,ir	calc si	71	28						CM	2	3	3		
37.00			Numerous perforations on the surface of the cores	8	F-SW	50°,60°	R,ir	FeO	86	0						CH	2	2	3		
37.00	37.35																				
38.00	37.90																				
38.00	37.90		Numerous perforations on the surface of the cores	11	SW	40°,60°	R,ir	calc si	100	48											
39.00	38.95																				
39.00	38.95		Numerous cracks on the surface of the cores	11	SW	40°	R,ir	calc FeO	100	41											
40.00	39.80																				

ABBREVIATIONS: F-Fresh, SW-Slightly Weathered, MW-Moderately Weathered, HW-Highly Weathered, CW-Completely Weathered  
 MB-Mechanical Break, CL-Coreloss, PI-Planar, Sm-Smooth, R-Rough, Ir-Irregular, FeO-Iron Oxide, Cl-Clay, SI-Silt, calc-calcic

SRC Lab, NEA

Started: 2061.11.29

Completed: 2062.01.31

Drilled by: S.R. Timilshina/U.B. Chhetri

Logged by: S.Shrestha

Reviewed by: J. M. Tamrakar

# BORE HOLE LOG

SHEET 5/15

DRILL HOLE NO.: B-9

LOCATION: Dam Axis (L/B)

Depth, m	Run Depth, m	Log	Description of Rock/Soil	Joints/m	Discontinuity Characteristics				Recovery %	RQD %	Core				Permeability (Lugeons)	Other tests	Rock Mass Classification			
					Weathering	Orientation	Roughness	Infilling materials			Rec.	20	40	60			80	100	Classification	Weathering
	40.45		Dolomite with quartz vein Light grey, fine grained, mod. hard, calcite leached, perforated and cracked.	9	SW		R,ir	calc FeO	100	61						CH	2	2	2	
	41.00			13	SW	40°,50°	R,ir	calc FeO	100	50									3	
	41.45		In several runs low core recovery is obtained and cores are broken into small fragments due to mechanical grinding with in highly weathered section, fractured zones and closely spaced joints.	9	SW	40°-60°	R	calc FeO	100	50						B	2	2	2	
	42.00			>20	SW		R		50	0						CM	2	3	4	
	42.50			>20	SW				100	0										
	42.70			>20	SW	40°,50°	R	calc FeO	50	0										
	43.00		The actual depth of lost zones could not be traced because of its broken nature.	>20	SW															
	43.50		Mechanical breaks are observed from 42.00 m to 42.25 m 42.50 m to 42.60 m 43.10 m to 43.50 m 44.10 m to 44.35 m 44.85 m to 45.00 m 46.10 m to 46.40 m 47.30 m to 48.05 m 49.25 m to 49.50 m	>20	F-SW			calc	29	0										
	44.00			>20	F				23	0										
	44.35			>20	F															
	45.00			>20	F			calc	27	0										
	46.00			Core loss is observed from 42.25 m to 43.00 m 42.70 m to 43.10 m 43.50 m to 44.10 m 44.35 m to 44.85 m 45.00 m to 46.10 m 46.50 m to 47.90 m 48.05 m to 49.25 m 49.50 m to 50.00 m	>20	F-SW		R		10	0						CM	2	3	4
	46.50																			
	47.00			>20	F-SW		R		10	0										
	48.00			>20	F		R		17	0						CM	3	3	4	
	48.05																			
	49.00			>20	F		R		17	0										
	49.50			>20	F		R		10	0						CM	3	3	4	
	50.00			>20	F		R		10	0										

ABBREVIATIONS: F-Fresh, SW-Slightly Weathered, MW-Moderately Weathered, HW-Highly Weathered, CW-Completely Weathered  
 MB-Mechanical Break, CL-Core loss, PI-Planar, Sm-Smooth, R-Rough, Ir-Irregular, FeO-Iron Oxide, Cl-Clay, Si-Silt, calc-calcic

SRC Lab, NEA

Started: 2061.11.29

Completed: 2062.01.31

Drilled by: S.R. Timlishina/U.B. Chhetri

Logged by: S. Shrestha

Reviewed by: J. M. Tamrakar

# BORE HOLE LOG

SHEET 6/15

DRILL HOLE NO.: B-9

LOCATION: Dam Axis (L/B)

Depth, m	Run Depth, m	Log	Description of Rock/Soil	Joints/m	Discontinuity Characteristics				Recovery %	RQD %	Core				Permeability (Lugeons)	Other tests	Rock Mass Classification				
					Weathering	Orientation	Roughness	Infilling materials			Rec. RQD	20	40	60			80	100	Classification	Weathering	Hardness
			Dolomite with quartz vein Light grey, fine grained, mod. hard.																		
51.00	51.05		In several runs low core recovery is obtained and cores are broken into small fragments due to mechanical grinding with in highly weathered section, fractured zones and closely spaced joints.	>20	F-SW		FeO	10	0								CM	2~3	3	4	51
52.00	52.55		The actual depth of lost zones could not be traced because of its broken nature.		F			22	0												52
53.00	54.10		Mechanical breaks are observed from 50.85 m to 51.05 m 52.40 m to 52.55 m 53.75 m to 54.10 m 55.55 m to 55.60 m 56.80 m to 56.95 m 58.25 m to 58.45 m 58.65 m to 58.82 m 58.90 m to 60.00 m	>20	F			3	0												53
54.00	55.60		Coreloss is observed from 50.00 m to 50.85 m 51.05 m to 52.40 m 52.55 m to 53.75 m 54.10 m to 55.55 m 55.60 m to 56.80 m 56.95 m to 58.25 m	>20	F			11	0												54
55.00	56.00				F-SW		FeO calc, cl	23	0												55
56.00	56.45			20	F-SW		calc,cl	100	0												56
57.00	58.65				F		FeO	100	0												57
58.00	58.90				F-SW	40°,60°	R,ir pl	FeO	100	0											58
59.00	59.60			20	F-SW	40°	R,ir pl	calc	100	0											59
60.00	59.85			20	F-SW	40°	R,ir pl	calc	100	0											60

ABBREVIATIONS: F-Fresh, SW-Slightly Weathered, MW-Moderately Weathered, HW-Highly Weathered, CW-Completely Weathered

MB-Mechanical Break, CL-Coreloss, PI-Planar, Sm-Smooth, R-Rough, Ir-Irregular, FeO-Iron Oxide, Cl-Clay, Sl-Silt, calc-calcic

SRC Lab, NEA

Started:2061.11.29

Completed:2062.01.31

Drilled by: S.R. Timilshina/U.B. Chhetri

Logged by: S.Shrestha

Reviewed by: J. M. Tamrakar



# BORE HOLE LOG

SHEET 8/15

DRILL HOLE NO.: B-9

LOCATION: Dam Axis (L/B)

Depth, m	Run Depth, m	Log	Description of Rock/Soil	Joints/m	Discontinuity Characteristics				Recovery %	RQD %	Core					Permeability (Lugeons)	Other tests	Rock Mass Classification			
					Weathering	Orientation	Roughness	Infilling materials			20	40	60	80	100			Classification	Weathering	Hardness	Joint spacing
	70.10		<b>Dolomite with quartz vein</b> Light grey, fine grained, medium hard to hard  In several runs low core recovery is obtained and cores are broken into small fragments due to mechanical grinding with in highly weathered section, fractured zones and closely spaced joints.  The actual depth of lost zones could not be traced because of its broken nature.  Mechanical breaks are observed from 70.70 m to 71.15 m 72.00 m to 72.55 m 73.90 m to 74.00 m 74.80 m to 76.00 m 76.25 m to 76.70 m 46.10 m to 46.40 m 76.65 m to 76.75 m 78.45 m to 78.70 m 79.00 m to 79.25 m 79.65 m to 80.00 m  Coreloss is observed from 71.15 m to 72.00 m 72.55 m to 73.35 m 73.35 m to 73.90 m 74.00 m to 74.80 m 78.00 m to 78.45 m 78.70 m to 79.00 m 79.25 m to 79.65 m	12	F	60°	R,ir	FeO	100	50											
	70.50			18	F	70°	R,ir	FeO	100	25							CH	2	2	3	
71.00	71.10			>20	F		R,ir			23	0						X	X	X	X	71
	72.00			>20	F												X	X	X	X	72
	72.25			>20	F					27	0						X	X	X	X	73
	72.35			>20	F					15	0						X	X	X	X	74
74.00	74.00			>20	F				FeO,cl	20	0						X	X	X	X	75
	75.00			>20	F	75°	R,ir	calc,cl		100	0						X	X	X	X	76
	75.50			>20	F				FeO	100	0						X	X	X	X	77
	75.85			>20	F	75°	R,ir		FeO	100	0						X	X	X	X	78
	76.00			>20	F				FeO	100	0						X	X	X	X	79
	76.25			13	F				FeO	100	44						CH	2	2	3	77
	76.50			>20	F												X	X	X	X	78
	77.00			>20	F				cl	36	0						CM	2~3	3	3~4	79
	77.65			>20	F				R,ir	cl	45	0					X	X	X	X	80
	78.00	>20	F					60	0						X	X	X	X	80		

Lugeon Value 2.0

ABBREVIATIONS: F-Fresh, SW-Slightly Weathered, MW-Moderately Weathered, HW-Highly Weathered, CW-Completely Weathered

MB-Mechanical Break, CL-Coreloss, Pl-Planar, Sm-Smooth, R-Rough, Ir-Irregular, FeO-Iron Oxide, Cl-Clay, Sl-Silt, calc-calcic

SRC Lab, NEA

Started: 2061.11.29

Completed: 2062.01.31

Drilled by: S.R. Timilshina/U.B. Chhetri

Logged by: S.Shrestha

Reviewed by: J. M. Tamrakar

# BORE HOLE LOG

SHEET 9/15

DRILL HOLE NO.: B-9

LOCATION: Dam Axis (L/B)

Depth, m	Run Depth, m	Log	Description of Rock/Soil	Joints/m	Discontinuity Characteristics				Recovery %	RQD %	Core				Permeability (Lugeons)	Other tests	Rock Mass Classification									
					Weathering	Orientation	Roughness	Infilling materials			Rec.	20	40	60			80	100	Classification	Weathering	Hardness	Joint spacing				
	80.25		<b>Dolomite with quartz vein</b> Light grey, fine grained, medium hard to hard	11	F	70°		calc FeO	60	0					Lugeon Value 2.0		CH	2	2	3						
81.00	81.00		In several runs low core recovery is obtained and cores are broken into small fragments due to mechanical grinding with in highly weathered section, fractured zones and closely spaced joints.	>20	SW-MW	40°		cl	30	0						X										
82.00	82.00			13	SW-MW	50°, 70°	R,ir	FeO,cl	100	20													CH	2	2	3
83.00	83.00			>20	SW	60°	R,ir	sm,pl	calc	100										0			CM	2	3	4
	83.60		Mechanical breaks are observed from 80.00 m to 80.10 m 83.00 m to 83.30 m 83.45 m to 83.60 m 84.00 m to 84.20 m 85.80 m to 86.00 m 86.70 m to 86.85 m 88.00 m to 88.25 m 89.80 m to 90.00 m	>20	SW			cl	33	0																
84.00	84.20			3	SW	70°	R,pl	FeO,cl	36	55									X							
85.00	85.00			>20	SW	40°	R,pl	FeO,cl	100	0													CH	2	2	3
	85.80			Coreloss is observed from 80.00 m to 80.25 m 80.70 m to 81.00 m 83.60 m to 84.00 m 84.20 m to 85.00 m 86.85 m to 88.00 m 88.25 m to 89.80 m	18	SW	40°	R,pl	cl	100						0										
86.00	86.20		20		MW	70°, 60°	R,pl	FeO,cl calc	100	28									CM	3	3	4				
87.00	86.85		>20		F-SW					62						0			X							
88.00	88.00													CM	3	3	4									
	88.25		Similarly between 84.20 m and 85.80; 86.20 m and 86.85 m cracks are developed on the surface of core and brown clay deposited on them and also on joint surfaces.	>20	F-SW	50°	R, pl	calc FeO	27	0																
89.00	89.00													X												
90.00	90.00																	CM	3	3	4					

ABBREVIATIONS: F-Fresh, SW-Slightly Weathered, MW-Moderately Weathered, HW-Highly Weathered, CW-Completely Weathered  
 MB-Mechanical Break, CL-Coreloss, PI-Planar, Sm-Smooth, R-Rough, Ir-Irregular, FeO-Iron Oxide, Cl-Clay, Sl-Silt, calc-calcic

SRC Lab, NEA

Started: 2061.11.29

Completed: 2062.01.31

Drilled by: S.R. Timlishina/U.B. Chhetri

Logged by: S.Shrestha

Reviewed by: J. M. Tamrakar



# BORE HOLE LOG

SHEET 10/15

DRILL HOLE NO.: B-9

LOCATION: Dam Axis (L/B)

Depth, m	Run Depth, m	Log	Description of Rock/Soil	Joints/m	Discontinuity Characteristics				Recovery %	RQD %	Core					Permeability (Lugeons)	Other tests	Rock Mass Classification							
					Weathering	Orientation	Roughness	Infilling materials			20	40	60	80	100			Rec. RQD	Classification	Weathering	Hardness	Joint spacing			
91.00		Dolomite with quartz vein Light grey, fine grained, medium hard to hard		>20	F-SW			FeO,cl	38	0															
	91.30		In several runs low core recovery is obtained and cores are broken into small fragments due to mechanical grinding with in highly weathered section, fractured zones and closely spaced joints.	>20	F-SW			FeO,cl	39	0															
92.00	92.20			>20	F-SW	60°	R, pl	cl	50	0															
	92.80		The actual depth of lost zones could not be traced because of its broken nature.	>20	F-SW																				
93.00				>20	F-SW			R, ir	FeO,cl	54						0									
94.00	94.35		Mechanical breaks are observed from 90.80 m to 91.30 m 91.85 m to 92.20 m 92.50 m to 92.80 m 94.00 m to 94.35 m 94.70 m to 94.95 m	>20	F-SW																				
95.00	94.95			>20	F-SW																				
	96.20				17	F-SW	70°	R, ir	calc,cl	100						22									
96.00	96.55			>20	F-SW																				
	97.00		Coreloss is observed from 90.00 m to 90.80 m 91.30 m to 91.85 m 92.20 m to 92.50 m 92.80 m to 94.00 m 94.35 m to 94.70 m 94.95 m to 95.25 m 96.90 m to 97.25 m 97.55 m to 98.20 m 98.70 m to 98.95 m 99.00 m to 99.10 m 99.60 m - 99.75 m	>20	F-SW	60°-80°	R, pl	cl	100	0															
97.00	97.55		>20	F-SW																					
98.00	98.40		>20	F-SW																					
	98.70		>20	F-SW																					
99.00	99.00			17	F-SW	40°	R, pl	cl	17	0															
	99.05	Between 99.00 m and 99.35 m cracks are developed and brown colour clayey materials deposited on these cracks.	>20	F-SW																					
99.50			>20	F-SW	40°, 60°				100	0															
	99.60		>20	F-SW																					
100.00	100.00																								

ABBREVIATIONS: F-Fresh, SW-Slightly Weathered, MW-Moderately Weathered, HW-Highly Weathered, CW-Completely Weathered

MB-Mechanical Break, CL-Coreloss, PI-Planar, Sm-Smooth, R-Rough, Ir-Irregular, FeO-Iron Oxide, Cl-Clay, Si-Silt, calc-calcic

SRC Lab, NEA

Started: 2061.11.29

Completed: 2062.01.31

Drilled by: S.R. Timlishina/U.B. Chhetri

Logged by: S. Shrestha

Reviewed by: J. M. Tamrakar







# BORE HOLE LOG

SHEET 14/15

DRILL HOLE NO.: B-9

LOCATION: Dam Axis (L/B)

Depth, m	Run Depth, m	Log	Description of Rock/Soil	Joints/m	Discontinuity Characteristics				Recovery %	RQD %	Core Rec. RQD				Permeability (Lugeons)	Other tests	Rock Mass Classification				
					Weathering	Orientation	Roughness	Infilling materials			20	40	60	80			100	Classification	Weathering	Hardness	Joint spacing
			Dolomite with quartz vein Light grey, fine grained, medium hard to hard	>20	F			cl	28	0											
131.00	130.70		In several runs low core recovery is obtained and cores are broken into small fragments due to mechanical grinding with in highly weathered section, fractured zones and closely spaced joints.	>20	F				50	0				Lugeon Value 7.0							
	131.30			>20	F	40°, 50°	R,ir		50	0											
132.00	132.00			>20	F	60°, 50°	R,ir		100	22											
	132.45			>20	F	40°, 50°	R,ir		100	18											
133.00	133.00			The actual depth of lost zones could not be traced because of its broken nature.	>20	F	60°, 50°	R,ir		20	0										
134.00	134.00		Mechanical breaks are observed from 130.50 m to 130.70 m 131.00 m to 131.30 m 131.65 m to 131.80 m 132.70 m to 133.20 m 134.00 m to 134.55 m 135.80 m to 136.00 m 136.35 m to 136.50 m 137.85 m to 138.00 m 139.40 m to 139.50 m	>20	F				100	0											
135.00	135.00		Coreloss is observed from 130.00 m to 130.50 m 130.70 m to 131.00 m 131.30 m to 131.65 m 133.20 m to 134.00 m 134.55 m to 135.00 m 135.00 m to 135.80 m 136.00 m to 136.35 m 136.50 m to 137.00 m 137.00 m to 137.85 m 138.00 m to 139.40 m 139.50 m to 140.00 m	>20	F			FeO,cl	30	0											
136.00	136.00			>20	F				0	0											
	136.50			>20	F				15	0											
137.00	137.00			>20	F				20	0											
138.00	138.00			>20	F				10	0											
139.00	139.00																				
140.00	139.00			>20	F				10	0											

ABBREVIATIONS: F-Fresh, SW-Slightly Weathered, MW-Moderately Weathered, HW-Highly Weathered, CW-Completely Weathered  
 MB-Mechanical Break, CL-Coreloss, PI-Planar, Sm-Smooth, R-Rough, Ir-Irregular, FeO-Iron Oxide, Cl-Clay, Sl-Silt, calc-calcic

SRC Lab, NEA

Started: 2061.11.29

Completed: 2062.01.31

Drilled by: S.R. Timishina/U.B. Chhetri

Logged by: S. Shrestha

Reviewed by: J. M. Tamraker

# BORE HOLE LOG

SHEET 15/15

DRILL HOLE NO.: B-9

LOCATION: Dam Axis (L/B)

Depth, m	Run Depth, m	Log	Description of Rock/Soil	Joints/m	Discontinuity Characteristics				Recovery %	ROD %	Core				Permeability (Lugeons)	Other tests	Rock Mass Classification			
					Weathering	Orientation	Roughness	Infilling materials			Rec.	RQD	20	40			60	80	100	Classification
			Dolomite with quartz vein Light grey, fine grained, medium hard to hard	>20	F															
	140.50			>20	F			20	0											
	141.00	141.00		>20	F			20	0											141
	142.00		In several runs low core recovery is obtained and cores are broken into small fragments due to mechanical grinding with in highly weathered section, fractured zones and closely spaced joints.	>20	F															142
	142.50		The actual depth of lost zones could not be traced because of its broken nature.	>20	F			30	0											143
	143.00																			
	144.00	144.15	Mechanical breaks are observed from 140.40 m to 150.50 m 140.90 m to 141.00 m 142.30 m to 142.50 m 144.00 m to 144.15 m 146.40 m to 146.50 m 146.90 m to 147.00 m 147.55 m to 147.85 m																	144
	145.00							0	0											145
	146.00	145.50	Coreloss is observed from 140.00 m to 140.40 m 140.50 m to 140.90 m 141.00 m to 142.30 m 142.50 m to 144.00 m 144.15 m to 145.50 m 147.30 m to 147.55 m 148.90 m to 149.00 m 149.35 m to 149.70 m	>20	F			10	0											146
	147.00	147.00		>20	F			20	0											147
	147.30			>20	F	40°,30°	R,ir,pl	100	0											147
	148.00	148.00		14	F	40°	R,ir,pl	64	27											148
	148.50			14	F	40°		100	47											148
	149.00	149.00		>20	F	40°,60° 70°	R,ir,pl	78	0											149
	150.00	150.00	Hole terminated at 150.00 m	8	F	40°	R,ir	60	37											150

ABBREVIATIONS: F-Fresh, SW-Slightly Weathered, MW-Moderately Weathered, HW-Highly Weathered, CW-Completely Weathered

MB-Mechanical Break, CL-Coreloss, Pl-Planar, Sm-Smooth, R-Rough, Ir-Irregular, FeO-Iron Oxide, Cl-Clay, Sl-Silt, calc-calcic

SRC Lab, NEA

Started: 2061.11.29

Completed: 2062.01.31

Drilled by: S.R. Timilshina/U.B. Chhetri

Logged by: S. Shrestha

Reviewed by: J. M. Tamrakar