

# GEOLOGIC LOG OF DRILL HOLE

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AYVALI PROJECT

HOLE No. SG-105

( SHEET 3 of 7 )

LOCATION DAM SITE (RIVER BED)  
 ELEVATION 868.2 m  
 COORDINATE X:4514706.14  
Y:493597.07

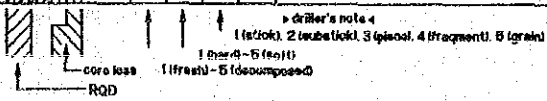
DEPTH OF HOLE 125.00 m  
 DIRECTION OF HOLE 90°  
 CORE RECOVERY \_\_\_\_\_ %  
 DRILLING MACHINE \_\_\_\_\_

COMMENCED 83-10-01  
 COMPLETED 83-11-30  
 DRILLED BY I. Teke  
 LOGGED BY Sukru Bay

ELEVATION	DEPTH	ROCK NAME	L C G	CORE RECOVERY	OBSERVATION OF CORE					DESCRIPTION	TESTING			BIT TYPE	CASING	CEMENTATION	DRILL WATER RETURN	G. W. L. (Opt. H)	DEPTH
					COLOR	WEATHERING	HARDNESS	CRACK SPACING	ROCK EVALUATION		LUGEON	Pmax	Pc						
828.20	40m			0 → 100%															40m
	1									Crack surfaces are oxidized. 45.6-46.0m Vertical joint	Lus1.3	10							1
	2																		33.00m (42.00m)
	3					2	2				Lus1	10							3
	4																		4
	5					1	1			46.0-46.6m, 48.0-48.1m, 48.4-48.6m Cracky C=3-4	Lus1.5	10							33.00m (45.00m)
	6																		6
	7					3	3	1			Lus2.6	10							7
	8							3											8
	9										Lus1.6	10							9
	50																		50
	1									Fresh and hard stick core	Lus2.9	10							1
	2							1											2
	3					2	2	1			Lus6.2	10							53.00m (Final)
	4							2											50.00m (54.00m)
	5																		5
	6																		6
	7							2		Joint surfaces are oxidized and frequently sulphur stained between 56.00-55.00m; cavities.	Lus2.2	10							7
	8					3	1	2											50.00m (58.00m)
	9						3	1			Lus4.4	10							9
808.20	60							3											60

Rhyolite

Volcanic Breccia



# GEOLOGIC LOG OF DRILL HOLE

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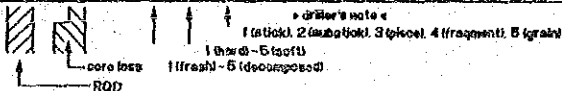
AYVALI PROJECT

HOLE No. SG-105

( SHEET 4 of 7

LOCATION	DAM SITE(RIVER BED)	DEPTH OF HOLE	125.00	m	COMMENCED	83-10-01
ELEVATION	868.2	DIRECTION OF HOLE	90°		COMPLETED	83-11-30
COORDINATE	X:4514706.14	CORE RECOVERY	%		DRILLED BY	I.Teke
	Y:493597.07	DRILLING MACHINE			LOGGED BY	Sukru Bay

ELEVATION	DEPTH	ROCK NAME	LOG	CORE RECOVERY	OBSERVATION OF CORE				TESTING			BIT TYPE	CASING	CEMENTATION	DRILL WATER RETURN	G.W.L (Dpt. H)	DEPTH	
					COLOR	WEATHERING	HARDNESS	CRACK SPACING	ROCK EVALUATION	LUCEON	Pmax							Pc
808.20	60m			0 → 100%													60m	
	1	Volcanic Breccia	X							Lu<1	10						1	
	2		X								Lu<1	10					38.00m (62.00m)	2
	3		X								Lu<1	10						3
	4		X								Lu=6.4	10						4
	5		X								Lu=1.2	10						5
	6		X								Lu=1.2	10						54.50m (66.00m)
	7	Greenish Grey	X							Lu=1.2	10						7	
	8		X								Lu=5.4	10					8	
	9		X								Lu=5.4	10					9	
	10		X								Lu=3.7	10						10
	11	Tuff-Lappili tuff.	X							Lu=3.7	10						11	
	12		X								Lu=7.6	10						12
	13		X								Lu=7.6	10						13
	14	72.1-72.3 Cracky C=3-4	L							Lu=10.2	10						14	
	15		L								Lu=10.2	10						15
	16	Vertical joints	L							Lu=9	10						16	
	17		L								Lu=9	10						17
	18		L								Lu=5.1	10						18
	19	Vertical joint between 76.00-78.60m. Cores are broken into fragments, because of vertical and cross joints	L							Lu=5.1	10						19	
	20		L								Lu=5.1	10						20
788.20	80	Rhyolite	L							Lu=5.1	10						80	



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ELECTRIC POWER DEVELOPMENT CO., LTD.

# GEOLOGIC LOG OF DRILL HOLE

AYVALI PROJECT

HOLE No. SG-105

( SHEET 5 of 7 )

LOCATION	DAM SITE(RIVER BED)	DEPTH OF HOLE	125.00	m	COMMENCED	83-10-01
ELEVATION	868.2	DIRECTION OF HOLE	90°		COMPLETED	83-11-30
COORDINATE	X:4514706.14	CORE RECOVERY		%	DRILLED BY	I.Teke
	Y:493597.07	DRILLING MACHINE			LOGGED BY	Sukru Bay

ELEVATION	DEPTH	ROCK NAME	LOG	CORE RECOVERY	OBSERVATION OF CORE					DESCRIPTION	TESTING			BIT TYPE	CASING	CEMENTATION	DRILL WATER RETURN	F.W.L. (Opt.H)	DEPTH
					COLOR	WEATHERING	HARDNESS	CRACK SPACING	ROCK EVALUATION		LUCEON	Pmax	PC						
788.20	80m			0 → 100%															80m
	1					2	2	1	2		Lu18.3	10							1
	2										Lu18.3	10							2
	3										Lu18.3	10							3
	4					2		1			Lu18.3	10						52.00m (84.00m)	4
	6										Lu1	10							5
	6										Lu1	10							6
	7										Lu1	10							7
	8					1					Lu1	10						52.00m (89.00m)	8
	9					3		2			Lu1	10							9
	90	Rhyolite									Lu1	10							90
	1										Lu1	10							1
	2										Lu1	10						52.00m (92.00m)	2
	3										Lu1	10							3
	4					2					Lu1	10							4
	5										Lu1	10							5
	6										Lu1	10						52.00m (96.00m)	6
	7										Lu1	10							7
	8										Lu1	10						52.00m (98.00m)	8
	9										Lu1	10							9
768.20	100										Lu1	10							100

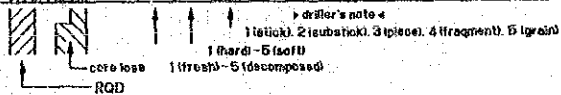
NOTE: Gypsum and pyrite inclusions varying from 2mm to 8mm have been observed in all of the joints after the depth of 86.00m.

Vertical joint between 86.00-86.90m with gypsum (1-5mm) and pyrite infilling.

Fault (89.00-89.55m): 10mm gypsum and pyrite infilling, slickensided surfaces.

Shear zone with 3-4cm gypsum and pyrite infilling. (40deg)

Vertical joint between 96.30-97.30m with pyrite and gypsum infilling.



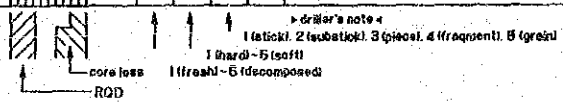


# GEOLOGIC LOG OF DRILL HOLE

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AYVALI PROJECT		HOLE No. SG-105	( SHEET 7 of 7 )
LOCATION	DAM SITE (RIVER BED)	DEPTH OF HOLE	125.00 m COMMENCED 83-10-01
ELEVATION	868.2 m	DIRECTION OF HOLE	90° COMPLETED 83-11-30
COORDINATE	X:4514706.14	CORE RECOVERY	% DRILLED BY I.Teke
	Y:493597.07	DRILLING MACHINE	LOGGED BY Sukru Bay

ELEVATION	DEPTH	ROCK NAME	LOG	CORE RECOVERY	OBSERVATION OF CORE					TESTING			BIT TYPE	CASING	CEMENTATION	DRILL WATER RETURN	G.W.L. (Opt.H)	DEPTH
					COLOR	WEATHER-ING	HARD-NESS	CRACK SPACING	ROCK EVALUATION	DESCRIPTION	LUCEON	Pmax						
748.20	120m			0 * 100%														120m
	1	Rhyolite		[Hatched Pattern]	Pinkish Grey	1	2	2	1	122.8-123.1 Cracky	Lu=0	10					53.00m (122.00m)	1
	2				1	1	1	Lu=0	10			2						
	3				2	2	2	Lu=0	10			3						
	4				2	2	2	Lu=0	10			4						
743.20	5									End of the Borehole								5
	6																	6
	7																	7
	8																	8
	9																	9
	130																	130
	1																	1
	2																	2
	3																	3
	4																	4
	5																	5
	6																	6
	7																	7
	8																	8
	9																	9
720.20	140																	140

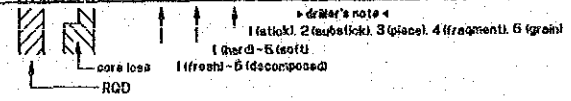


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# GEOLOGIC LOG OF DRILL HOLE

AYVALI PROJECT		HOLE No. SGE-106	( SHEET 1 of 5 )
LOCATION <u>DAM SITE (RIVER BED)</u>	DEPTH OF HOLE <u>100.00</u> m	COMMENCED <u>83-07-30</u>	
ELEVATION <u>864.14</u> m	DIRECTION OF HOLE <u>45°</u>	COMPLETED <u>83-09-29</u>	
COORDINATE <u>X:4514707.15</u>	CORE RECOVERY _____ %	DRILLED BY <u>I. Teke</u>	
<u>Y:493596.94</u>	DRILLING MACHINE _____	LOGGED BY <u>Sukru Bay</u>	

ELEVATION	DEPTH	ROCK NAME	LOG	CORE RECOVERY	OBSERVATION OF CORE				TESTING				BIT TYPE	CASING	CEMENTATION	DRILL WATER RETURN	G.W.L. (Dpt.H)	DEPTH
					COLOR	WEATHERING	HARDNESS	CRACK SPACING	ROCK EVALUATION	LUCEON	Pmax	Pc						
864.14	0m			0 → 100%														0m
	1				Brown													1
	2																	2
	3																	3
	4																	4
	5																	5
	6																	6
	7																	7
	8																	8
	9																	9
	10	Rhyolite																10
	11				Greenish Grey													11
	12																	12
	13																	13
	14																	14
	15																	15
	16																	16
	17																	17
	18																	18
	19																	19
844.14	20																	20



# GEOLOGIC LOG OF DRILL HOLE

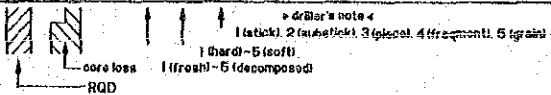
AYVALI PROJECT

HOLE No. SGE-106

( SHEET 2 of 5 )

LOCATION	DAM SITE(RIVER BED)	DEPTH OF HOLE	100.00	m	COMMENCED	83-07-30
ELEVATION	864.14	DIRECTION OF HOLE	45°		COMPLETED	83-09-29
COORDINATE	X:4514707.15	CORE RECOVERY	%		DRILLED BY	I. Teke
	Y:493596.94	DRILLING MACHINE			LOGGED BY	Sukru Bay

ELEVATION	DEPTH	ROCK NAME	LOG	CORE RECOVERY	OBSERVATION OF CORE					TESTING				BIT TYPE	CASING	CEMENTATION	DRILL WATER RETURN	G.W.L. (Dpt.H)	DEPTH					
					COLOR	WEATHERING	HARDNESS	CRACK SPACING	ROCK EVALUATION	DESCRIPTION	LUCEON	Pmax	Pc							DEPTH RESULT				
844.14	20m			0 → 100%															20m					
	1	Rhyolite	[Hatched Pattern]	Greenish Grey						<p>Sulphur stains, oxidized joint surfaces, 1-2mm pyrite inclusions in joints.</p> <p>Joint surfaces are oxidized and brown in colour between 0.00-46.00m.</p>	Lu=2.2	10							1					
	2																						2	
	3																							3
	4										2	2												4
	5																							5
	6								3		3	3												6
	7																							7
	8																							8
	9																							9
	30																							30
	1																			1				
	2																			2				
	3																			3				
	4																			4				
	5																			5				
	6																			6				
	7																			7				
	8																			8				
	9																			9				
824.14	40																			40				



# GEOLOGIC LOG OF DRILL HOLE

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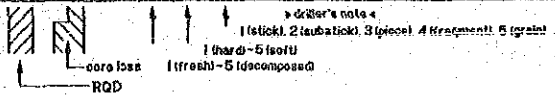
AYVALI PROJECT

HOLE No. SGE-106

( SHEET 3 of 5 )

LOCATION	DAM SITE(RIVER BED)	DEPTH OF HOLE	100.00 m	COMMENCED	83-07-30
ELEVATION	864.14 m	DIRECTION OF HOLE	45°	COMPLETED	83-09-29
COORDINATE	X:4514707.15	CORE RECOVERY	%	DRILLED BY	I.Teke
	Y:493596.94	DRILLING MACHINE		LOGGED BY	Sukru Bay

ELEVATION	DEPTH	ROCK NAME	LOG	CORE RECOVERY	OBSERVATION OF CORE				TESTING				BIT TYPE	CASING	CEMENTATION	DRILL WATER RETURN	G.W.L. (Opt.H)	DEPTH		
					COLOR	WEATHERING	HARDNESS	CRACK SPACING	ROCK EVALUATION	DESCRIPTION	LUCEON	Pmax							Pc	DEPTH RESULT
824.14	40m			0 → 100%														40m		
	1	Rhyolite	[Hatched Pattern]	Greenish Grey							Lu=7	10						1		
	2					2	2							Lu=3.5	10					2
	3					3	1	1						Lu=7.8	10					3
	4					3	3							Lu=6.6	10					4
	5					2	2							Lu=4.3	10					5
	6					2	1							Lu=5.4	10					6
	7	Volcanic Breccia	[X Pattern]	Greenish Grey														7		
	8					2	1							Lu=2.6	10					8
	9					3	3							Lu=6.7	10					9
	50					2	1							Lu=1.7	10					50
	1					3								Lu=1.7	10					1
	2					2								Lu=1.5	10					2
	3					2	1													3
	4					3	3													4
	5					1	2													5
	6		1	1													6			
	7		1	2													7			
	8		1	1													8			
	9		1	1													9			
804.14	60																	60		



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# GEOLOGIC LOG OF DRILL HOLE

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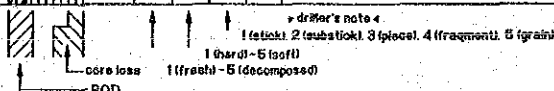
AYVALI PROJECT

HOLE No. SGE-106

( SHEET 4 of 5 )

LOCATION	DAM SITE(RIVER BED)	DEPTH OF HOLE	100.00	m	COMMENCED	83-07-30
ELEVATION	864.14	DIRECTION OF HOLE	45'		COMPLETED	83-09-29
COORDINATE	X:4514707.15	CORE RECOVERY	%		DRILLED BY	I.Teke
	Y:493596.94	DRILLING MACHINE			LOGGED BY	Sukru Bay

ELEVATION	DEPTH	ROCK NAME	LOG	CORE RECOVERY	OBSERVATION OF CORE				DESCRIPTION	TESTING			BIT TYPE	CASING	CEMENTATION	DRILL WATER RETURN	G.W.L (Opt.H)	DEPTH			
					COLOR	WEATHERING	HARDNESS	CRACK SPACING		ROCK EVALUATION	LUCEON	Pmax							Pc	DEPTH RESULT	
804.14	60m			0 → 100%														60m			
	1	Rhyolite	[Hatched Pattern]		53.27	1	2	2	Fractured zone; joint surfaces are fresh.	Lu=2.4	10							1			
	2				2	3					Lu=9.9	10								2	
	3				3	3					Lu=18.3	10									3
	4				2	2					Lu=2.3	10									4
	5				1	1					Lu=34	4									5
	6				3	3					Lu=0	10									6
	7				2	2					Lu=1.6	10									7
	8				1	1					Lu=4.2	10									8
	9				3	2					Lu=25	10									9
	70																				70
	1	Volcanic Breccia	[X Pattern]			3	2		Sulphur stains and occasional solution cavities	Lu=0	10							1			
	2				3	2					Lu=1.6	10								2	
	3				3	2					Lu=4.2	10									3
	4				3	3					Lu=3.7	10									4
	5				2	2															5
	6				1	2															6
	7				1	1															7
	8				2	3															8
	9				3	3															9
784.14	80																				80



# GEOLOGIC LOG OF DRILL HOLE

AYVALI PROJECT

HOLE No. SGE-106

( SHEET 5 of 5 )

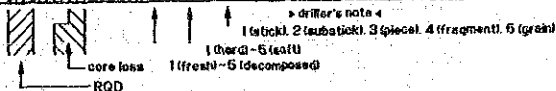
LOCATION	DAM SITE (RIVER BED)	DEPTH OF HOLE	100.00	m	COMMENCED	83-07-30
ELEVATION	864.14	DIRECTION OF HOLE	45°		COMPLETED	83-09-29
COORDINATE	X:4514707.15	CORE RECOVERY	%		DRILLED BY	I. Teke
	Y:493596.94	DRILLING MACHINE			LOGGED BY	Sukru Bay

ELEVATION	DEPTH	ROCK NAME	LOG	CORE RECOVERY	OBSERVATION OF CORE					TESTING				BIT TYPE	CASING	CEMENTATION	DRILL WATER RETURN	G.W.L. (Opt.H)	DEPTH
					COLOR	WEATHERING	HARDNESS	CRACK SPACING	ROCK EVALUATION	DESCRIPTION	LUCEON	Pmax	PC						
784.14	80m			0 → 100%															80m
	1	Volcanic Breccia	X		Greenish Grey	1	2	2	3	3	Lu=5.6	10	10						1
	2																		
	3																		
	4																		
	5																		
	6																		
	7																		
	8																		
	9																		
	90	Rhyolite	L		Greenish Grey	2	3	3	3	3	Lu=1.1	10	10						7
	1																		
	2																		
	3																		
	4																		
	5																		
	6																		
	7																		
	8																		
	100	End of the borehole.																	

Sulphur stains on rock core, fresh joint surfaces

Fractured zone

Feather joints with calcite infilling



# GEOLOGIC LOG OF DRILL HOLE

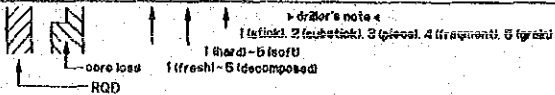
AYVALI PROJECT

HOLE No. SGE-107

( SHEET 1 of 5 )

LOCATION	DAM SITE (RIVER BED)	DEPTH OF HOLE	100.00	m	COMMENCED	83-12-12
ELEVATION	817.67	DIRECTION OF HOLE	45°		COMPLETED	84-01-28
COORDINATE	X:4514636.75	CORE RECOVERY		%	DRILLED BY	I.Teke
	Y:493575.91	DRILLING MACHINE			LOGGED BY	Sukru Bay

ELEVATION	DEPTH	ROCK NAME	LOG	CORE RECOVERY	OBSERVATION OF CORE				DESCRIPTION	TESTING			BIT TYPE	CASING	CEMENTATION	DRILL WATER RETURN	G.W.L (Opt.H)	DEPTH
					COLOR	WEATHERING	HARDNESS	CRACK SPACING		ROCK EVALUATION	LUCEON	P <sub>max</sub>						
817.67	0m			0 → 100%					Open excavation									0m
	1					4	4	5										1
	2					3	3	4										2
	3							1										3
	4							2										4
	5							2	Sulphur stained and oxidized joint surfaces between 0.5-15.5m.									5
	6					2		1										6
	7	Rhyolite						3										7
	8							1										8
	9							2										9
	10							3										10
	11							3	Fractured zone, oxidized joint surfaces									11
	12							2										12
	13							2										13
	14							3										14
	15							1										15
	16							3										16
	17							2										17
	18							1										18
	19							3										19
	20							3	Oxidized joint surfaces, 1-2mm clay infillings									20



# GEOLOGIC LOG OF DRILL HOLE

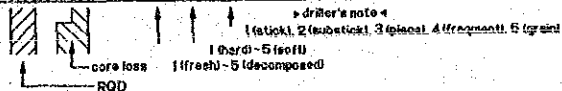
AYVALI PROJECT

HOLE No. SGE-107

( SHEET 2 of 5 )

LOCATION	DAM SITE(RIVER BED)	DEPTH OF HOLE	100.00	m	COMMENCED	83-12-12
ELEVATION	817.67	DIRECTION OF HOLE	45°		COMPLETED	84-01-28
COORDINATE	X: 4514636.75	CORE RECOVERY		%	DRILLED BY	I. Teke
	Y: 493575.91	DRILLING MACHINE			LOGGED BY	Sukru Bay

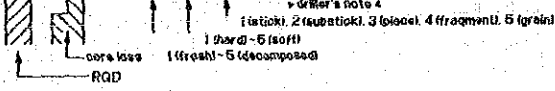
ELEVATION	DEPTH	ROCK NAME	LOG	CORE RECOVERY	OBSERVATION OF CORE				TESTING			BIT TYPE	CASING	CEMENTATION	DRILL WATER RETURN	G.W.L. (Opt.H)	DEPTH		
					COLOR	WEATHERING	HARDNESS	CRACK SPACING	ROCK EVALUATION	DESCRIPTION	LUCEON							Pmax	Pc
797.67	20m			0 → 100%														20m	
	1	Rhyolite	L		Greenish Grey	2	2	3			Lu=38	6						1	
	2	Volcanic Breccia	X		Greenish Grey	2	1	2			Lu=0	10						2	
	3		X	2		3		Lu=0	10										3
	4		X	2		3		Lu=0	10										4
	5		X	2		3		Lu=0	10										5
	6		X	2		3		Lu=0	10										6
	7		X	2		3		Lu=0	10										7
	8		X	2		3		Lu=0	10										8
	9		X	2		3		Lu=0	10										9
	30		X			1	3				Lu=0	10						30	
	1		X			2					Lu=0	10						1	
	2		X			3					Lu=0	10						2	
	3		L			1	1				Lu=0	10						3	
	4		L			1					Lu=0	10						4	
	5		L			2	1				Lu=0	10						5	
	6	Rhyolite	L			2	2				Lu=0	10						6	
	7		L			2					Lu=0	10						7	
	8		L			1	1				Lu=0	10						8	
	9		L			1	1				Lu=0	10						9	
777.67	40		L			2	2				Lu=0	10						40	



# GEOLOGIC LOG OF DRILL HOLE

PROJECT	AYVALI	HOLE No.	SGE-107	( SHEET 3 of 5 )	
LOCATION	DAM SITE(RIVER BED)	DEPTH OF HOLE	100.00 m	COMMENCED	83-12-12
ELEVATION	817.67 m	DIRECTION OF HOLE	45'	COMPLETED	84-01-28
COORDINATE	X:4514636.75	CORE RECOVERY	%	DRILLED BY	I.Teke
	Y:493575.91	DRILLING MACHINE		LOGGED BY	Sukru Bay

ELEVATION	DEPTH	ROCK NAME	LOG	CORE RECOVERY	OBSERVATION OF CORE						TESTING			BIT TYPE	CASING	CEMENTATION	DRILL WATER RETURN	G.W.L (Opt.H)	DEPTH			
					COLOR	WEATHERING	HARDNESS	CRACK SPACING	ROCK EVALUATION	DESCRIPTION	LUCEON	Pmax	Pc							DEPTH RESULT		
777.67	40m			0 → 100%															40m			
	1	Rhyolite	[Hatched Pattern]	Greenish Grey								Lu=0	10						1			
	2														Lu=0	10					2	
	3															Lu=0	10					3
	4															Lu=0	10					4
	5															Lu=0	10					5
	6															Lu=0	10					6
	7															Lu=0	10					7
	8															Lu=0	10					8
	9															Lu=0	10					9
	50												Lu=0	10					50			
	1												Lu=0	10					1			
	2												Lu=0	10					2			
	3												Lu=0	10					3			
	4												Lu=0	10					4			
	5												Lu=0	10					5			
	6												Lu=0	10					6			
	7												Lu=0	10					7			
	8	Vb	[X]										Lu=0	10					8			
	9	Rhyolite	[L]										Lu=0	10					9			
787.67	60												Lu=0	10					60			

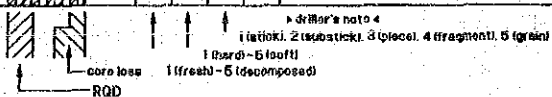


# GEOLOGIC LOG OF DRILL HOLE

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AYVALI PROJECT		HOLE No. SGE-107	( SHEET 4 of 5 )
LOCATION <u>DAM SITE(RIVER BED)</u>	DEPTH OF HOLE <u>100.00</u> m	COMMENCED <u>83-12-12</u>	
ELEVATION <u>817.67</u> m	DIRECTION OF HOLE <u>45°</u>	COMPLETED <u>84-01-28</u>	
COORDINATE <u>X:4514636.75</u>	CORE RECOVERY _____ %	DRILLED BY <u>I. Teke</u>	
<u>Y:493575.91</u>	DRILLING MACHINE _____	LOGGED BY <u>Sukru Bay</u>	

ELEVATION	DEPTH	ROCK NAME	LOG	CORE RECOVERY	OBSERVATION OF CORE					TESTING				BIT TYPE	CASING	CEMENTATION	DRILL WATER RETURN	G.W.L. (Dpt. II)	DEPTH
					COLOR	WEATHERING	HARDNESS	CRACK SPACING	ROCK EVALUATION	DESCRIPTION	LUCEON	Pmax	Pc						
757.67	60m			0 → 100%															60m
	1	Rhyolite	[Hatched Pattern]		Greenish Grey	1	1	2	1	2-3mm gypsum infillings in joints. Occasional feather joints with gypsum infilling.	Lu=0	10							1
	2										Lu=0	10					2		
	3										Lu=0	10					1		
	4										Lu=0	10					2		
	5										Lu=0	10					1		
	6										Lu=0	10					2		
	7										Lu=0	10					1		
	8										Lu=0	10					2		
	9	Volcanic Breccia	[X Pattern]		Greenish Grey	1	2	1		Lu=0	10							9	
	70									Lu=0	10					1			
	1	Rhyolite	[Hatched Pattern]		Greenish Grey	1	2	1		Lu=0	10							1	
	2									Lu=0	10					2			
	3									Lu=0	10					1			
	4									Lu=0	10					2			
	5									Lu=0	10					1			
	6									Lu=0	10					2			
	7									Lu=0	10					1			
	8									Lu=0	10					2			
737.87	80									Lu=0	10							80	



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# GEOLOGIC LOG OF DRILL HOLE

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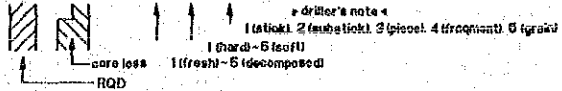
AYVALI PROJECT

HOLE No. SGE-107

( SHEET 5 of 5 )

LOCATION <u>DAM SITE (RIVER BED)</u>	DEPTH OF HOLE <u>100.00</u> m	COMMENCED <u>83-12-12</u>
ELEVATION <u>817.67</u> m	DIRECTION OF HOLE <u>45°</u>	COMPLETED <u>84-01-28</u>
COORDINATE X: <u>4514636.75</u>	CORE RECOVERY <u>    </u> %	DRILLED BY <u>I. Teke</u>
Y: <u>493575.91</u>	DRILLING MACHINE <u>    </u>	LOGGED BY <u>Sukru Bay</u>

ELEVATION	DEPTH	ROCK NAME	LOG	CORE RECOVERY	OBSERVATION OF CORE				TESTING			BIT TYPE	CASING	CEMENTATION	DRILL WATER RETURN	G.W.L. (Dpt. H)	DEPTH								
					COLOR	WEATHERING	HARDNESS	CRACK SPACING	ROCK EVALUATION	LUCEON	Pmax							PC	DEPTH RESULT						
737.67	80m			0 → 100%													80m								
	1	Rhyolite	[Hatched Pattern]	[Hatched Pattern]	Greenish Grey	1	1	1	Lu=C	10	Kg/cm <sup>2</sup>	[Blank]	[Blank]	[Blank]	[Blank]	[Blank]	1								
	2																2	2	Lu=C	10					2
	3																1	2	Lu=C	10					3
	4																1	1	Lu=C	10					4
	5																1	1	Lu=C	10					5
	6																1	1	Lu=C	10					6
	7	Volcanic Breccia	[X Pattern]	[X Pattern]	Greenish Grey	2	2	2	Lu<1	10	Kg/cm <sup>2</sup>	[Blank]	[Blank]	[Blank]	[Blank]	[Blank]	7								
	8																1	1	Lu=C	10					8
	9																1	1	Lu=C	10					9
	10	Rhyolite	[Hatched Pattern]	[Hatched Pattern]	Greenish Grey	1	1	1	Lu=C	10	Kg/cm <sup>2</sup>	[Blank]	[Blank]	[Blank]	[Blank]	[Blank]	10								
	11																1	1	Lu=C	10					11
	12																1	1	Lu=C	10					12
	13	1	1	Lu=C	10					13															
	14	1	1	Lu=C	10					14															
	15	1	1	Lu=C	10					15															
	16	1	1	Lu=C	10					16															
	17	1	1	Lu<1	10					17															
	18	1	1	Lu=C	10					18															
	19	1	1	Lu=C	10					19															
717.67	100																100								



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# GEOLOGIC LOG OF DRILL HOLE

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AYVALI PROJECT

HOLE No. SL-110

( SHEET 1 of 5 )

LOCATION DAM SITE (RIVER BED)

DEPTH OF HOLE 100.00 m

COMMENCED 91-05-25

ELEVATION 852.03 m

DIRECTION OF HOLE 90°

COMPLETED 91-08-07

COORDINATE X:4514465.24  
Y:493681.98

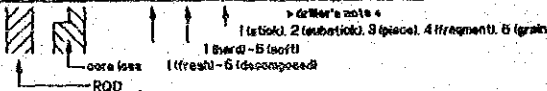
CORE RECOVERY \_\_\_\_\_ %  
DRILLING MACHINE \_\_\_\_\_

DRILLED BY S.Kaya  
LOGGED BY Sukru Bay

ELEVATION	DEPTH	ROCK NAME	LOG	CORE RECOVERY	OBSERVATION OF CORE				DESCRIPTION	TESTING			BIT TYPE	CASING	CEMENTATION	DRILL WATER RETURN	G.W.L. (Opt.H)	DEPTH
					COLOR	WEATHERING	HARDNESS	CRACK SPACING		ROCK EVALUATION	LUSEON	Pmax						
852.03	0m			0 → 100%														0m
	1				Brown-Brownish Grey	3				Small fragments, surfaces of fragments are brown.								1
	2					5	4	4										2
	3					4												3
	4																	4
	5					3	3	3		Crack surfaces are brownish in color.								5
	6									Fairly fresh, stick-substick core 6.4m-6.5m Fragments								6
	7					2	2	1										7
	8					5	4-5	5		Sheared zone, many pyrite (30deg)								8
	9																	9
	10					2	2	1										10
	11																	11
	12					2	2	2		10.9-12.2m Vertical Joints. Crack surface is brown								12
	13					1	2	1										13
	14					3		3										14
	15									Crack surfaces are slightly weathered. Flow structure is obvious								15
	16																	16
	17																	17
	18									15.9-16.0 Cracky								18
	19									16.5-17.6 Cracky								19
	20									Chloritization in some places.								20

Rhyolite

Light Greenish Grey-Grey



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# GEOLOGIC LOG OF DRILL HOLE

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AYVALI PROJECT

HOLE No. SL-110

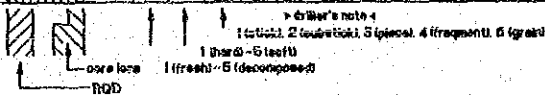
( SHEET 2 of 5 )

LOCATION DAM SITE(RIVER BED)  
 ELEVATION 852.03 m  
 COORDINATE X:4514465.24  
Y:493681.98

DEPTH OF HOLE 100.00 m  
 DIRECTION OF HOLE 90°  
 CORE RECOVERY \_\_\_\_\_ %  
 DRILLING MACHINE \_\_\_\_\_

COMMENCED 91-05-25  
 COMPLETED 91-08-07  
 DRILLED BY S.Kaya  
 LOGGED BY Sukru Bay

ELEVATION	DEPTH	ROCK NAME	LOG	CORE RECOVERY	OBSERVATION OF CORE					DESCRIPTION	TESTING			BIT TYPE	CASING	CEMENTATION	DRILL WATER RETURN	G.W.L. (Opt. II)	DEPTH
					COLOR	WEATHERING	HARDNESS	CRACK SPACING	ROCK EVALUATION		LUGEON	Pmax	Pc						
832.03	20m			0 → 100%															20m
	1																		1
	2																		2
	3					2	2												3
	4																		4
	5																		5
	6					4	4-5	5											6
	7																		7
	8																		8
	9																		9
	30																		30
	1																		1
	2																		2
	3																		3
	4																		4
	5																		5
	6																		6
	7																		7
	8																		8
	9																		9
	30																		30
	1																		1
	2																		2
	3																		3
	4																		4
	5																		5
	6																		6
	7																		7
	8																		8
	9																		9
	40																		40





# GEOLOGIC LOG OF DRILL HOLE

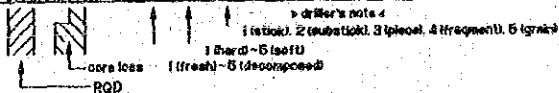
AYVALI PROJECT

HOLE No. SL-110

( SHEET 4 of 5 )

LOCATION	DAM SITE(RIVER BED)	DEPTH OF HOLE	100.00	m	COMMENCED	91-05-25
ELEVATION	852.03	DIRECTION OF HOLE	90°		COMPLETED	91-08-07
COORDINATE	X:4514465.24	CORE RECOVERY		%	DRILLED BY	S.Kaya
	Y:493681.98	DRILLING MACHINE			LOGGED BY	Sukru Bay

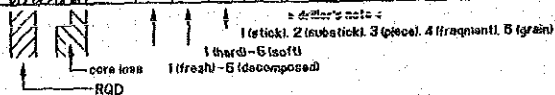
ELEVATION	DEPTH	ROCK NAME	LOG	CORE RECOVERY	OBSERVATION OF CORE					TESTING			BIT TYPE	CASING	CEMENTATION	DRILL WATER RETURN	G.W.L. (Opt.H)	DEPTH				
					COLOR	WEATHERING	HARDNESS	CRACK SPACING	ROCK EVALUATION	DESCRIPTION	LUCEON	Pmax							Pc	DEPTH RESULT		
792.03	60m			0 → 100%														60m				
	1	Rhyolite	Light Greenish Grey-Grey	2				3		Stick core. Flow structure is predominant. 62.6-62.7m Cracky	Lu=50	7.2						1				
	2					1															42.00m (62.00m)	
	3																					
	4																					
	5												Crack surface is oxidated	Lu=14	7.1							
	6																					42.00m (66.00m)
	7												Core length is 5 to 10cm.	Lu=8.6	14.2							
	8																					
	9																					
	70																					
	1									Crack surfaces are brown. Cracky	Lu=0	14.2										
	2									Fairly fresh and hard. stick to substick core. Crack surfaces are slightly oxidated.	Lu=10	14										
	3																					
	4																					
	5																					
	6																		42.00m (76.00m)			
	7																					
	8																					
	9																					
	80																		42.00m			
772.03	80									79.2-79.3m Fragments	Lu=14	14.3										



# GEOLOGIC LOG OF DRILL HOLE

AYVALI PROJECT	HOLE No. SL-110	( SHEET 5 of 5 )
LOCATION <u>DAM SITE (RIVER BED)</u>	DEPTH OF HOLE <u>100.00</u> m	COMMENCED <u>91-05-25</u>
ELEVATION <u>852.03</u> m	DIRECTION OF HOLE <u>90°</u>	COMPLETED <u>91-08-07</u>
COORDINATE X: <u>4514465.24</u>	CORE RECOVERY _____ %	DRILLED BY <u>S.Kaya</u>
Y: <u>493681.98</u>	DRILLING MACHINE _____	LOGGED BY <u>Sukru Bay</u>

ELEVATION	DEPTH	ROCK NAME	LOG	CORE RECOVERY	OBSERVATION OF CORE					TESTING			BIT TYPE	CASING	CEMENTATION	DRILL WATER RETURN	G.W.L. (Opt. H)	DEPTH
					COLOR	WEATHERING	HARDNESS	CRACK SPACING	ROCK EVALUATION	DESCRIPTION	LUCEON	Pmax						
772.03	80m			0 → 100%														80m
	1									80.5-80.9m C=3	Lu=7.1	14.9						
	2					2	2			Vertical Joints, partially fragments	Lu=32	10.2					42.00m (82.00m)	
	3							2										
	4							3										
	5									Fresh and hard stick core Core length is more than 1m. Crack surfaces are not oxidated.	Lu=10	14.2						
	6																42.00m (83.00m)	
	7					1	1				Lu=1.5	14.1						
	8																	
	9					5	5	1			Lu=0.9	14.1						
	10																42.40m (80.00m)	
	1					2	2				Lu'=47	7.1						
	2																42.00m (82.00m)	
	3										Lu=9.7	14.1						
	4																	
	5									Chloritization in some places. Crack surface is not oxidated.								
	6							1									42.50m (85.00m)	
	7					2	2	5			Lu=8.4	14.1						
	8																	
	9							2		99.0-99.2m Cracky, C=3-4	Lu=6.4	14.2						
752.03	100									End of the Borehole							42.45m (80.20m)	



# GEOLOGIC LOG OF DRILL HOLE

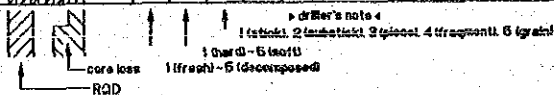
AYVALI PROJECT

HOLE No. SL-111

( SHEET 1 of 5 )

LOCATION	DAM SITE (LEFT BANK)	DEPTH OF HOLE	100.00	m	COMMENCED	
ELEVATION	926.12	DIRECTION OF HOLE	90°		COMPLETED	
COORDINATE X:		CORE RECOVERY		%	DRILLED BY	
Y:		DRILLING MACHINE			LOGGED BY	

ELEVATION	DEPTH	ROCK NAME	LOG	CORE RECOVERY	OBSERVATION OF CORE					TESTING			BIT TYPE	CASING	CEMENTATION	DRILL WATER RETURN	G.W.L. (Opt.H)	DEPTH																		
					COLOR	WEATHERING	HARDNESS	CRACK SPACING	ROCK EVALUATION	DESCRIPTION	LUGEON	Pmax							P.C.	DEPTH RESULT																
926.12	0m			0 → 100%														0m																		
	1	Volcanic Breccia	X		Greenish Grey	3	2	3	3		Oxidized joint surfaces : hard and sound.							1																		
	2																																	2		
	3																																			3
	4																																			4
	5	Rhyolite	L		Grey	3	2	3	3		Oxidized joint surfaces	Lu=13.2	10					5																		
	6																																		6	
	7																																			7
	8																																			8
	9	Volcanic Breccia	X		Greenish Grey	3	2	3	3		Oxidized joint surfaces : occasional chloritization in the rock.	Lu=24.4	10					6																		
	10																																		10	
	11																																			11
	12																																			12
	13	Rhyolite	L		Grey	3	2	3	3		Oxidized joint surfaces : hard and sound.	Lu=13.3	10					7																		
	14																																		14	
	15																																			15
	16																																			16
	17	Volcanic Breccia	X		Greenish Grey	3	2	3	3		Oxidized joint surfaces : occasional chloritization in the rock.	Lu=11.2	10					8																		
	18																																		18	
	19																																			19
	20																																			20
906.12	20																		11.50m (12.00m)																	



# GEOLOGIC LOG OF DRILL HOLE

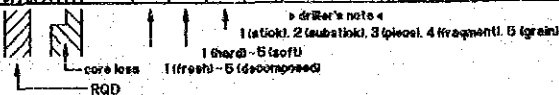
AYVALI PROJECT

HOLE No. SL-111

( SHEET 2 of 5 )

LOCATION	DAM SITE (LEFT BANK)	DEPTH OF HOLE	100.00 m	COMMENCED
ELEVATION	926.12 m	DIRECTION OF HOLE	90°	COMPLETED
COORDINATE X:		CORE RECOVERY	%	DRILLED BY
Y:		DRILLING MACHINE		LOGGED BY

ELEVATION	DEPTH	ROCK NAME	LOG	CORE RECOVERY	OBSERVATION OF CORE					TESTING			BIT TYPE	CASING	CEMENTATION	DRILL WATER RETURN	G.W.L. (Dpt. H)	DEPTH
					COLOR	WEATHERING	HARDNESS	CRACK SPACING	ROCK EVALUATION	DESCRIPTION	LUCEON	Pmax						
906.12	20m			0 → 100%														20m
	1	Rhyolite	L		Grey	2	1	1	1									1
	2		A			3	2	1	2									2
	3		A				2	2	3									3
	4		A			3	1	3	4	Fractured zone: oxidized joint surfaces							24.00m (24.00m)	4
	5		A				1	2	3									5
	6		A				2	3	3									6
	7		A				1	1	3	Hard and sound								7
	8	Volcanic Breccia	A		Greenish Grey		1	1	1									8
	9		A			2	2	2	2									9
	30		A				2	2	3	Oxidized joint surfaces								30
	1		A				1	1	1									1
	2		A			3	2											2
	3		A				2	2	3									3
	4		A				1	1										4
	5		A				1	1										5
	6		A				2	2	3	Oxidized joint surfaces								6
	7		L				1	1										7
	8	Rhyolite	L		Grey	3	1	2		Oxidized and occasionally pyritized (2-3mm) joint surfaces; hard and sound.								8
	9		L				2	2	3									9
886.12	40		L				1	1										40



# GEOLOGIC LOG OF DRILL HOLE

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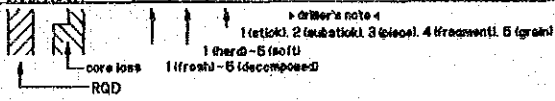
AVVALI PROJECT

HOLE No. SL-111

( SHEET 3 of 5 )

LOCATION	DAM SITE (LEFT BANK)	DEPTH OF HOLE	100.00 m	COMMENCED	
ELEVATION	926.12 m	DIRECTION OF HOLE	90°	COMPLETED	
COORDINATE X:		CORE RECOVERY	%	DRILLED BY	
Y:		DRILLING MACHINE		LOGGED BY	

ELEVATION	DEPTH	ROCK NAME	LOG	CORE RECOVERY	OBSERVATION OF CORE				DESCRIPTION	TESTING			BIT TYPE	CASING	CEMENTATION	DRILL WATER RETURN	G.W.L. (Opt.H)	DEPTH															
					COLOR	WEATHERING	HARDNESS	CRACK SPACING		ROCK EVALUATION	LUCEON	Pmax							Pc	DEPTH RESULT													
886.12	40m			0 → 100%														40m															
	1	Volcanic Breccia	X	[Hatched]	Grey	2	1	1	41.50m Fault: 1-2mm gouge	Lu=4.0	10		φ86mm					1															
	2				Greenish Grey	2	1	2		Lu=11.6	10										2												
	3					3	2	1		Lu=4.9	10											3											
	4					3	2	2		Lu=2.8	10											4											
	5	Rhyolite	L	[Hatched]	Grey	1	1	1	Hard and sound	Lu=7.4	10							5															
	6																		1	1	1	Lu=2.4	10									6	
	7																		1	1	1	Lu=2.8	10										7
	8																		2	2	2	Lu=7.4	10										8
	9	Volcanic Breccia	X	[Hatched]	Greenish Grey	3	3	3	Oxidized joint surfaces	Lu=2.4	10							9															
	10																		3	3	3	Lu=0.9	10									10	
	11																		3	3	3	Lu=1.8	10										11
	12																		3	3	3	Lu=2.6	10										12
	13	Volcanic Breccia	X	[Hatched]	Greenish Grey	1	1	1	Occasional chloritization in the rock	Lu=0.9	10							13															
	14																		1	1	1	Lu=1.8	10									14	
	15																		1	1	1	Lu=1.8	10										15
	16																		2	2	2	Lu=0.9	10										16
	17	Volcanic Breccia	X	[Hatched]	Greenish Grey	1	1	1	Occasional chloritization in the rock	Lu=2.6	10							17															
	18																		1	1	1	Lu=1.8	10									18	
	19																		1	1	1	Lu=1.8	10										19
	20																		2	2	2	Lu=2.6	10										20
866.12	60																	60															



**EPDC**  
ELECTRIC POWER DEVELOPMENT CO., LTD.

# GEOLOGIC LOG OF DRILL HOLE

AYVALI PROJECT

HOLE No. SL-111

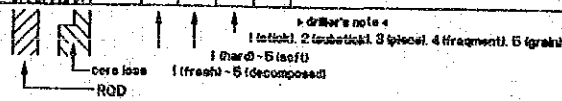
LOCATION	DAM SITE (LEFT BANK)	DEPTH OF HOLE	100.00 m	COMMENCED	
ELEVATION	926.12 m	DIRECTION OF HOLE	90°	COMPLETED	
COORDINATE X:		CORE RECOVERY	%	DRILLED BY	
Y:		DRILLING MACHINE		LOGGED BY	

ELEVATION	DEPTH	ROCK NAME	LOG	CORE RECOVERY	OBSERVATION OF CORE					DESCRIPTION	TESTING			BIT TYPE	CASING	CEMENTATION	DRILL WATER RETURN	G.W.L. (Opt.H)	DEPTH			
					COLOR	WEATHERING	HARDNESS	CRACK SPACING	ROCK EVALUATION		LUCEON	Pmax	Pc							DEPTH RESULT		
868.12	60m			0 → 100%															60m			
	1	Volcanic Breccia	X	X	X	1	1	1														
	2					1	1	2														
	3					2	2	1														
	4					1	2	3														
	5					3	2	3														
	6					2	1	1														
	7					1	2	1														
	8					1	2	1														
	9					1	2	1														
	70					Greenish Grey	X	X	X	2	1	2	1									
	1	2	1	2	1																	
	2	2	1	2	1																	
	3	1	2	1																		
	4	1	2	1																		
	5	1	2	1																		
	6	1	2	1																		
	7	1	2	1																		
	8	1	2	1																		
	9	1	2	1																		
848.12	80																		80			

Fractured zone; joint surfaces are oxidized.

Fractured zone

Fresh rock; occasional chloritization.





# GEOLOGIC LOG OF DRILL HOLE

AYVALI PROJECT

HOLE No. SL-111

( SHEET 5 of 5 )

LOCATION	DAM SITE (LEFT BANK)	DEPTH OF HOLE	100.00 m	COMMENCED
ELEVATION	926.12 m	DIRECTION OF HOLE	90°	COMPLETED
COORDINATE X:		CORE RECOVERY	%	DRILLED BY
Y:		DRILLING MACHINE		LOGGED BY

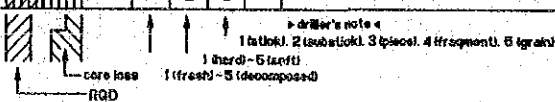
ELEVATION	DEPTH	ROCK NAME	LOG	CORE RECOVERY	OBSERVATION OF CORE					TESTING				BIT TYPE	CASING	CEMENTATION	DRILL WATER RETURN	G.W.L. (Dpt.H)	DEPTH
					COLOR	WEATHERING	HARDNESS	CRACK SPACING	ROCK EVALUATION	DESCRIPTION	LUGEON	Pmax	PC						
846.12	80m			0 → 100%															80m
	1		▲						1										1
	2		▲						3										2
	3		▲						1										3
	4		▲																4
	5		▲																5
	6		▲						1										6
	7		▲						2										7
	8		▲						5										8
	9		▲						2										9
	90		▲						1										90
	1		▲						2										1
	2		▲						3										2
	3		▲						1										3
	4		▲						1										4
	5		▲						1										5
	6		▲						2										6
	7		▲						3										7
	8		▲						1										8
	9		▲						2										9
	100		▲						1										100

Volcanic Breccia

Greenish Grey

48.90m (95.00m)

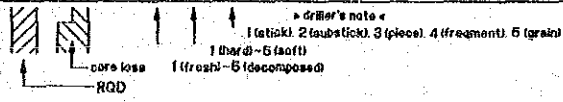
ø86mm



# GEOLOGIC LOG OF DRILL HOLE

AYVALI PROJECT	HOLE No. SL-103	( SHEET 1 of 10 )
LOCATION DAM SITE (RIGHT BANK)	DEPTH OF HOLE 185.20 m	COMMENCED 82-06-28
ELEVATION 997.41 m	DIRECTION OF HOLE 90°	COMPLETED 82-11-20
COORDINATE X:4514286.44	CORE RECOVERY %	DRILLED BY C.Taskir
Y:493454.63	DRILLING MACHINE	LOGGED BY Sukru Bay

ELEVATION	DEPTH	ROCK NAME	LOG	CORE RECOVERY	OBSERVATION OF CORE					DESCRIPTION	TESTING				BIT TYPE	CASING	CEMENTATION	DRILL WATER RETURN	G.W.L. (Opt.H)	DEPTH
					COLOR	WEATHER-ING	HARD-NESS	CRACK SPACING	ROCK EVALUATION		LUGEN	Pmax	Pc	DEPTH RESULT						
997.41	0m			0 → 100%																0m
	1				Greenish Grey	4	4	5		Highly weathered										1
	2				Greenish Grey	3		4		Fragments Crack surface is oxidized										2
	3				Greenish Grey	3		4												3
	4				Greenish Grey	3	6	3												4
	5				Greenish Grey	4		4												5
	6				Greenish Grey			4												6
	7				Greenish Grey			2	2	Crack surface is strongly oxidized										7
	8				Greenish Grey	3	2	3												8
	9				Greenish Grey	3	3	3		Some vertical joints										9
	10				Greenish Grey	3	3	4												10
	11				Greenish Grey	3	2	3												11
	12				Greenish Grey	3	2	3		Fragments and pieces	Lu=44	6								12
	13				Greenish Grey	3	3	4												13
	14				Greenish Grey	3	3	4												14
	15				Greenish Grey	2	3	3												15
	16				Greenish Grey	3	3	4		Fragment only	Lu>25	10								16
	17				Brownish Grey	2	1	2		Crack surface is oxidized	Lu>25	10								17
	18				Brownish Grey	3	3	3												18
	19				Brownish Grey	2	1	3		Piece and large fragments	Lu>25	10								19
977.41	20					3	3	3												20



# GEOLOGIC LOG OF DRILL HOLE

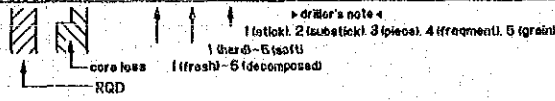
AYVALI PROJECT

HOLE No. SL-103

( SHEET 2 of 10 )

LOCATION	DAM SITE (RIGHT BANK)	DEPTH OF HOLE	185.20	m	COMMENCED	82-06-28
ELEVATION	997.41	DIRECTION OF HOLE	90°		COMPLETED	82-11-20
COORDINATE	X: 4514286.44	CORE RECOVERY		%	DRILLED BY	C.Taskir
	Y: 493454.63	DRILLING MACHINE			LOGGED BY	Sukru Bay

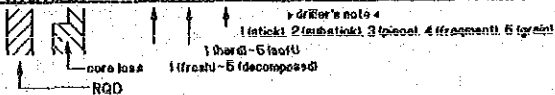
ELEVATION	DEPTH	ROCK NAME	LOG	CORE RECOVERY	OBSERVATION OF CORE				TESTING			DEPTH										
					COLOR	WEATHERING	HARDNESS	CRACK SPACING	ROCK EVALUATION	DESCRIPTION	LUCEON		Pmax	Pc	DEPTH RESULT	BIT TYPE	CASING	CEMENTATION	DRILL WATER RETURN	(C.W.R.) (Opt.H)		
977.41	20m			0 → 100%																		20m
	1				Brownish Grey	3	2	2		22.25-22.40 Sheared zone Core surface and cracks are brown.	Lu<1	10										1
	2																					2
	3																					3
	4									22.00-23.00 Vertical joint												4
	5																					5
	6																					6
	7																					7
	8																					8
	9																					9
	30	Rhyolite			Light Grey to Brownish Grey	3	2	3		Many brownish hair cracks	Lu=4.5	10										30
	1																					28.00m (30.00m)
	2																					1
	3																					2
	4									Generally crack surface is oxidized.												23.40m (32.90m)
	5																					3
	6																					4
	7																					5
	8																					6
	9																					7
	10				Grey	3	3	3		37.60-38.00 Small fragment, slit and small grains along crack surface.	Lu=2	10										28.10m (36.00m)
	11																					8
	12																					9
957.41	40																					40



# GEOLOGIC LOG OF DRILL HOLE

AYVALI PROJECT	HOLE No. SL-103	( SHEET 3 of 10 )
LOCATION DAM SITE (RIGHT BANK)	DEPTH OF HOLE 185.20 m	COMMENCED 82-06-28
ELEVATION 997.41 m	DIRECTION OF HOLE 90°	COMPLETED 82-11-20
COORDINATE X: 4514286.44	CORE RECOVERY %	DRILLED BY C.Taskir
Y: 493454.63	DRILLING MACHINE	LOGGED BY Sukru Bay

ELEVATION	DEPTH	ROCK NAME	LOG	CORE RECOVERY	OBSERVATION OF CORE					TESTING			BIT TYPE	CASING	CEMENTATION	DRILL WATER RETURN	G.W.L. (Dpt.H)	DEPTH
					COLOR	WEATHERING	HARDNESS	CRACK SPACING	ROCK EVALUATION	DESCRIPTION	LUGED	Pmax						
997.41	40m			0 → 100%														40m
	1				Grey			4		Sheared zone Mainly small fragments Easily broken into small grains	Lu<1	10						
	2							4										
	3							5										
	4				Grey			3			Lu<1	10					26.00m (43.30m)	
	5							4										
	6							5			Lu<1	10					25.00m (46.00m)	
	7							4			Lu=1.6	10						
	8							2		Many brownish hair cracks							25.00m (48.00m)	
	9							3										
	50	Rhyolite			Brownish Grey			3										
	1							4			Lu>25	10						
	2							2		Crack surface is oxidized							50.00m (52.00m)	
	3							3			Lu>25	10						
	4							3										
	5							2			Lu>25	10						
	6				Greenish Grey			2									32.00m (56.00m)	
	7							2		Crack surface is slightly weathered.	Lu<1	10						
	8							1										
	9							3			Lu<1	10						
997.41	60							3										35.00m 60



# GEOLOGIC LOG OF DRILL HOLE

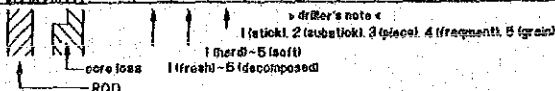
AYVALI PROJECT

HOLE No. SL-103

( SHEET 4 of 10 )

LOCATION	DAM SITE (RIGHT BANK)	DEPTH OF HOLE	185.20 m	COMMENCED	82-06-28
ELEVATION	997.41 m	DIRECTION OF HOLE	90°	COMPLETED	82-11-20
COORDINATE	X: 4514286.44	CORE RECOVERY	%	DRILLED BY	C.Taskir
	Y: 493454.63	DRILLING MACHINE		LOGGED BY	Sukru Bay

ELEVATION	DEPTH	ROCK NAME	LOG	CORE RECOVERY	OBSERVATION OF CORE					TESTING			BIT TYPE	CASING	CEMENTATION	DRILL WATER RETURN	G.W.L (Opt.H)	DEPTH
					COLOR	WEATHERING	HARDNESS	CRACK SPACING	ROCK EVALUATION	DESCRIPTION	LUGEON	Pmax						
937.41	60m			0 → 100%														60m
	1						2	2		61.20-61.60m Cracky	LU=20	10						
	2					2	2	2			LU<1	10						
	3									Cracky	LU<1	10					36.00m (63.00m)	
	4						3	4			LU<1	10						
	5	Rhyolite									LU<1	10						36.00m (61.45m)
	6									Crack surface is not oxidized.	LU<1	10						
	7										LU<1	10						
	8										LU<1	10						36.00m (65.00m)
	9					1				Light Grey	LU<1	10						
	10										LU<1	10						
	11						2				LU<1	10						
	12	vb	X							Contact is adherent. Volcanic breccia	LU=3.7	10						36.00m (72.00m)
	13										LU=3	10						
	14										LU=4.1	10						
	15	Rhyolite									LU=3	10						
	16										LU=2	10						
	17									Fragments								
	18						3	3	4									
	19						2	2	2									
	20	vb	X				2	2	3									
917.41	80						3											80



# GEOLOGIC LOG OF DRILL HOLE

AYVALI PROJECT

HOLE No. SL-103

( SHEET 5 of 10 )

LOCATION DAM SITE (RIGHT BANK)  
 ELEVATION 997.41 m  
 COORDINATE X:4514286.44  
Y:493454.63

DEPTH OF HOLE 185.20 m  
 DIRECTION OF HOLE 90°  
 CORE RECOVERY \_\_\_\_\_ %  
 DRILLING MACHINE \_\_\_\_\_

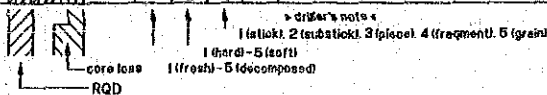
COMMENCED 82-06-28  
 COMPLETED 82-11-20  
 DRILLED BY C.Taskir  
 LOGGED BY Sukru Bay

ELEVATION	DEPTH	ROCK NAME	LOG	CORE RECOVERY	OBSERVATION OF CORE				DESCRIPTION	TESTING			BIT TYPE	CASING	CEMENTATION	DRILL WATER RETURN	G.W.L. (Opt.H)	DEPTH
					COLOR	WEATHERING	HARDNESS	CRACK SPACING		ROCK EVALUATION	LOGEON	Pmax						
917.41	80m			0 → 100%														80m
	1		X							Lu=13.5	10							1
	2		X						82.00-82.20m Fragments 83.30-83.50m Fragments	Lu=10	10							2
	3		X							Lu=10	10							3
	4		X							Lu=23	10							4
	5		X						Crack surface is oxidized	Lu=19	10							5
	6		X							Lu=0	10							6
	7		X							Lu<1	10							7
	8		X						Many sulphur spots in core. Some pyrite	Lu=0	10							8
	9		X							Lu<1	10							9
	10		X							Lu<1	10							10
	11		X							Lu<1	10							11
	12		X							Lu<1	10							12
	13		X							Lu<1	10							13
	14		X							Lu<1	10							14
	15		X							Lu<1	10							15
	16		X							Lu<1	10							16
	17		X							Lu<1	10							17
	18		X							Lu=2	10							18
	19		X							Lu<1	10							19
897.41	100		X							Lu<1	10							100

Volcanic Breccia

Greenish Grey

ø 78mm



# GEOLOGIC LOG OF DRILL HOLE

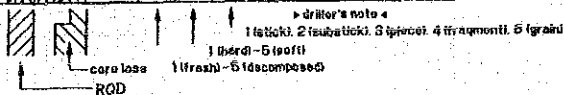
AYVALI PROJECT

HOLE No. SL-103

( SHEET 6 of 10 )

LOCATION	DAM SITE (RIGHT BANK)	DEPTH OF HOLE	185.20	m	COMMENCED	82-06-28
ELEVATION	997.41	DIRECTION OF HOLE	90°		COMPLETED	82-11-20
COORDINATE	X:4514286.44	CORE RECOVERY		%	DRILLED BY	C.Taskir
	Y:493454.63	DRILLING MACHINE			LOGGED BY	Sukru Bay

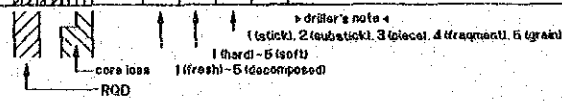
ELEVATION	DEPTH	ROCK NAME	LOG	CORE RECOVERY	OBSERVATION OF CORE					TESTING			BIT TYPE	CASING	CEMENTATION	DRILL WATER RETURN	G.W.L. (Dpt.H)	DEPTH
					COLOR	WEATHERING	HARDNESS	CRACK SPACING	ROCK EVALUATION	DESCRIPTION	LUGGON	Pmax						
897.41	100m			0 → 100%														100m
	1		△		Greenish Grey				4	Sulphur in many spots	Lu<1	10					49.00m (101.00m)	1
	2		△		Greenish Grey	3	3		3		Lu<1	10					49.50m (102.00m)	2
	3		△		Greenish Grey				2		Lu<1	10						3
	4		△		Greenish Grey				2		Lu<1	10					48.50m (104.00m)	4
	5		△		Light Grey				1	No sulphur	Lu<1	10						5
	6		△		Light Grey	2	2		1		Lu<1	10					49.00m (105.00m)	6
	7		△		Light Grey						Lu<1	10						7
	8		△		Light Grey						Lu<1	10						8
	9		△		Light Grey						Lu<1	10						9
	10	Volcanic Breccia	△		Light Grey					Sulphur spots in many places	Lu<1	10					49.00m (110.00m)	10
	11		△		Light Grey						Lu=2.4	10						11
	12		△		Light Grey	3	3		2		Lu<1	10						12
	13		△		Light Grey						Lu<1	10						13
	14		△		Light Grey						Lu<1	10					49.00m (114.00m)	14
	15		△		Light Grey	3	3		3		Lu<1	10						15
	16		△		Light Grey	4	4		4		Lu<1	10						16
	17		△		Light Grey	3	3		3		Lu=1.2	10					48.50m (117.00m)	17
	18		△		Light Grey						Lu<1	10						18
	19		△		Light Grey	2	2		2		Lu<1	10						19
	20		△		Light Grey	3	3		3		Lu<1	10					51.00m (119.00m)	20



# GEOLOGIC LOG OF DRILL HOLE

AYVALI PROJECT	HOLE No. SL-103	( SHEET 7 of 10 )
LOCATION DAM SITE (RIGHT BANK)	DEPTH OF HOLE 185.20 m	COMMENCED 82-06-28
ELEVATION 997.41 m	DIRECTION OF HOLE 90°	COMPLETED 82-11-20
COORDINATE X:4514286.44	CORE RECOVERY %	DRILLED BY C.Taskir
Y:493454.63	DRILLING MACHINE	LOGGED BY Sukru Bay

ELEVATION	DEPTH	ROCK NAME	LOG	CORE RECOVERY	OBSERVATION OF CORE				DESCRIPTION	TESTING			BIT TYPE	CASING	CEMENTATION	DRILL WATER RETURN	G.W.L. (Opt.H)	DEPTH
					COLOR	WEATHERING	HARDNESS	CRACK SPACING		ROCK EVALUATION	LUCEON	Pmax						
877.41	120m			0 → 100%					Crack surface is slightly oxidized, sulphur in some places	Lu=2.1	10						51.00m (120.30m)	120m
	1		△			2	2			Lu=2.1	10							1
	2		△			1	1	2										2
	3		△			3	3			Lu=1.7	10							3
	4		△															4
	5		△					2	Crack surface is oxidized	Lu=1.2	10							5
	6		△			3	3	1		Lu=1.2	10						51.00m (126.00m)	6
	7		△							Lu=1.2	10							7
	8		△				2	3	Crack surface is oxidized									8
	9		△			3	1	3		Lu<1	10							9
	130	Volcanic Breccia	△		Greenish Grey	3	1	1		Lu<1	10						51.00m (130.00m)	130
	1		△			3	3	3	132.00-132.50 Fragments	Lu<1	10							1
	2		△			3	3	3		Lu<1	10						51.50m (132.00m)	2
	3		△							Lu<1	10							3
	4		△			3	3	2	Cracks are oxidized.	Lu<1	10						59.00m (134.00m)	4
	5		△							Lu<1	10							5
	6		△							Lu<1	10						53.70m (135.00m)	6
	7		△							Lu<1	10							7
	8		△			2	2	1		Lu<1	10						55.00m (138.00m)	8
857.41	140		△							Lu<1	10							140

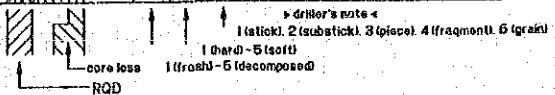




# GEOLOGIC LOG OF DRILL HOLE

AYVALI PROJECT	HOLE No. SL-103	( SHEET 8 of 10 )
LOCATION DAM SITE (RIGHT BANK)	DEPTH OF HOLE 185.20 m	COMMENCED 82-06-28
ELEVATION 997.41 m	DIRECTION OF HOLE 90°	COMPLETED 82-11-20
COORDINATE X:4514286.44	CORE RECOVERY %	DRILLED BY C.Taskir
Y:493454.63	DRILLING MACHINE	LOGGED BY Sukru Bay

ELEVATION	DEPTH	ROCK NAME	LOG	CORE RECOVERY	OBSERVATION OF CORE					TESTING			BIT TYPE	CASING	CEMENTATION	DRILL WATER RETURN	G.W.L (Dpt. II)	DEPTH										
					COLOR	WEATHERING	HARDNESS	CRACK SPACING	ROCK EVALUATION	DESCRIPTION	LUCEON	Pmax							Pc	DEPTH RESULT								
857.41	140m			0 → 100%														140m										
	1	Volcanic Breccia	X	100%	Greenish Grey					Pyrite along crack surfaces, but no sulphur				ø 76mm				62.50m (149.80m)										
	2					2	2	1			Lu<1	10																
	3					2	2	3			Lu=11.5	10																98.30m (143.00m)
	4					1	1				Lu<1	10																
	5					3	3	2			Lu<1	10																
	6							3																				
	7										Lu=15.5	10																94.10m (147.00m)
	8							2			Lu=10.2	10																128.50m (148.40m)
	9							1			Lu=7	10																
150	150							3			Lu=10.2	10																136.50m (150.00m)
	1							3			Lu=7	10																
	2																											
	3							2			Lu<1	10																
	4																											
	5							2			Lu=1.7	10																
	6					Lu=8	10																					
	7			1		Lu=8	10																					
	8			3																								
	9					Lu=3.3	10																					
837.41	160																		79.90m (155.00m)									



# GEOLOGIC LOG OF DRILL HOLE

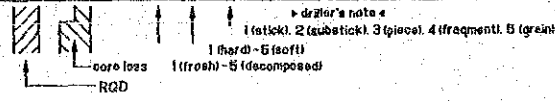
AYVALI PROJECT

HOLE No. SL-103

( SHEET 9 of 10 )

LOCATION	DAM SITE (RIGHT BANK)	DEPTH OF HOLE	185.20 m	COMMENCED	82-06-28
ELEVATION	997.41 m	DIRECTION OF HOLE	90°	COMPLETED	82-11-20
COORDINATE	X: 4514286.44	CORE RECOVERY	%	DRILLED BY	C.Taskir
	Y: 493454.63	DRILLING MACHINE		LOGGED BY	Sokru Bay

ELEVATION	DEPTH	ROCK NAME	LOG	CORE RECOVERY	OBSERVATION OF CORE					DESCRIPTION	TESTING			BIT TYPE	CASING	CEMENTATION	DRILL WATER RETURN	G.W.L. (Opt.H)	DEPTH
					COLOR	WEATHERING	HARDNESS	CRACK SPACING	ROCK EVALUATION		LUGEON	Pmax	Pc						
837.41	160m			0 → 100%															160m
	1		X			2	2				Lu=1	10							1
	2		X			2	2				Lu=2.5	10							2
	3		X			2	1				Lu=3.2	10							3
	4		X			2	3				Lu=2.4	10							4
	5		X			2	3				Lu=3.2	10							5
	6		X			2	2				Lu=2.4	10							6
	7		X			2	1				Lu=1.3	10							7
	8	Volcanic Breccia	X			2	2				Lu=2.4	10						157.40m (160.00m)	8
	9		X			2	1				Lu=1.3	10							9
	170		X			2	1				Lu=1	10						121.00m (170.70m)	170
	1		X			2	1				Lu<1	10							1
	2		X			2	4				Lu=1.2	10						125.50m (172.50m)	2
	3		X			2	4				Lu=1.2	10							3
	4		X			2	4				Lu=1.2	10							4
	5		X			2	3				Lu=2.6	10						125.70m (175.00m)	5
	6		X			2	3				Lu=2.6	10							6
	7		X			2	2				Lu<1	10							7
	8		X			2	2				Lu<1	10						141.00m (177.40m)	8
	9	Rhyolite	X			1	1				Lu<1	10							9
817.41	180		X			1	1				Lu<1	10						126.00m	180



# GEOLOGIC LOG OF DRILL HOLE

Page \_\_\_\_\_

AYVALI PROJECT

HOLE No. SL-103

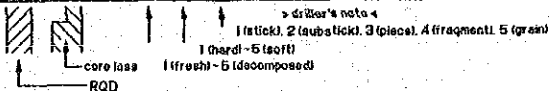
( SHEET 10 of 10 )

LOCATION	DAM SITE (RIGHT BANK)	DEPTH OF HOLE	185.20	m	COMMENCED	82-06-28
ELEVATION	997.41	DIRECTION OF HOLE	90°		COMPLETED	82-11-20
COORDINATE	X:4514286.44	CORE RECOVERY	%		DRILLED BY	C.Taskir
	Y:493454.63	DRILLING MACHINE			LOGGED BY	Sukru Bay

ELEVATION	DEPTH	ROCK NAME	LOG	CORE RECOVERY	OBSERVATION OF CORE					TESTING				DEPTH								
					COLOR	WEATHERING	HARDNESS	CRACK SPACING	ROCK EVALUATION	DESCRIPTION	LUGEON	Pmax	Pc		DEPTH RESULT	BIT TYPE	CASING	CEMENTATION	DRILL WATER RETURN	G.W.L. (Opt. II)		
817.41	180m			0 → 100%																	180m	
	1	Rhyolite			Greenish Grey						Luc1	10										1
	2																					2
	3	Volcanic Breccia	XXX								Luc1	10										3
	4																					4
	5																					5
812.21																						5
	6																					6
	7																					7
	8																					8
	9																					9
	10																					10
	11																					11
	12																					12
	13																					13
	14																					14
	15																					15
	16																					16
	17																					17
	18																					18
	19																					19
	20																					20
797.41	200																					200

124.00m  
(184.00m)

End of borehole



**EPDC**   
ELECTRIC POWER DEVELOPMENT CO., LTD.



# GEOLOGIC LOG OF DRILL HOLE

AYVALI PROJECT

HOLE No. SL-112

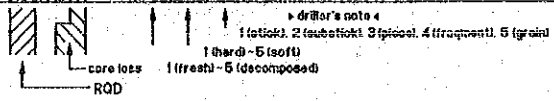
( SHEET 2 of 4 )

LOCATION	ANZAV DERE	DEPTH OF HOLE	70.00	m	COMMENCED	91-07-08
ELEVATION	769.15	DIRECTION OF HOLE	90°		COMPLETED	91-09-18
COORDINATE	X:4512776.30	CORE RECOVERY		%	DRILLED BY	Y.Yilma
	Y:486316.89	DRILLING MACHINE			LOGGED BY	Sukru Bay

ELEVATION	DEPTH	ROCK NAME	LOG	CORE RECOVERY	OBSERVATION OF CORE					TESTING			BIT TYPE	CASING	CEMENTATION	DRILL WATER RETURN	G.W.L (Opt.H)	DEPTH			
					COLOR	WEATHERING	HARDNESS	CRACK SPACING	ROCK EVALUATION	DESCRIPTION	LUCEON	P <sub>max</sub>							P <sub>c</sub>	DEPTH RESULT	
749.15	20m			0 → 100%														20m			
	1	Alluvial Deposit															4.50m (20.50m)	1			
	2																		5.00m (21.00m)	2	
	3																		4.60m (23.00m)	3	
	4																		4.50m (25.00m)	4	
	5																		4.80m (27.00m)	5	
	6																				6
	7																				7
	8																				8
	9																				9
	30																				30
	1																4.60m (31.00m)	1			
	2																4.25m (32.50m)	2			
	3																		3		
	4																		4		
	5																		5		
	6																		6		
	7																		7		
	8				Grey	2	2	1	3								4.00m (37.70m)	8			
	9																		9		
729.15	40																		40		

36.0-70.0m :  
Clayey Limestone  
(Pugey Formation)  
Grey in colour; fine grained; fresh; generally highly strong; moderately strong in clayey levels; regular joints are conformable with the bedding; joints are without infilling; their spacing varies between 20-60cm and their aperture is between 1-2mm; joint surfaces are slightly rough and occasionally polished. Claystone is grey in colour and represented by generally 1-2cm thick beds whose maximum thickness reaches up to 4cm in place.

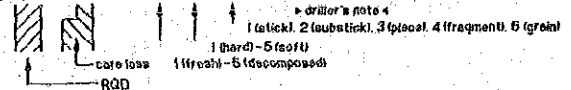
Oxidization on some joint surfaces; generally highly strong.



# GEOLOGIC LOG OF DRILL HOLE

AVVALI PROJECT	HOLE No. SL-112	( SHEET 3 of 4 )
LOCATION ANZAV DERE	DEPTH OF HOLE 70.00 m	COMMENCED 91-07-08
ELEVATION 769.15 m	DIRECTION OF HOLE 90°	COMPLETED 91-09-18
COORDINATE X: 4512776.30	CORE RECOVERY %	DRILLED BY Y. Yilma
Y: 486316.89	DRILLING MACHINE	LOGGED BY Sukru Bay

ELEVATION	DEPTH	ROCK NAME	LOG	CORE RECOVERY	OBSERVATION OF CORE					TESTING			BIT TYPE	CASING	CEMENTATION	DRILL WATER RETURN	G.W.L. (Opt.H)	DEPTH				
					COLOR	WEATHERING	HARDNESS	CRACK SPACING	ROCK EVALUATION	DESCRIPTION	LUGEON	Pmax							Pc	DEPTH RESULT		
	40m			0 → 100%														40m				
729.15	1	Clayey Limestone (Pugey Formation)	Grey	100%		2	2	2	1	Oxidization on some joint surfaces							3.50m (40.40m)	1				
	2																				2	
	3												Several thin calcite veins									3
	4																					4
	5																					5
	6																					6
	7								1													7
	8																					8
	9																					9
	50												2-3cm thick claystone beds with laminae; slightly rough joint surfaces.									50
	1																		1			
	2																		2			
	3																		3			
	4																		4			
	5																		5			
	6																		6			
	7																		7			
	8																		8			
	9																		9			
709.15	60																		60			

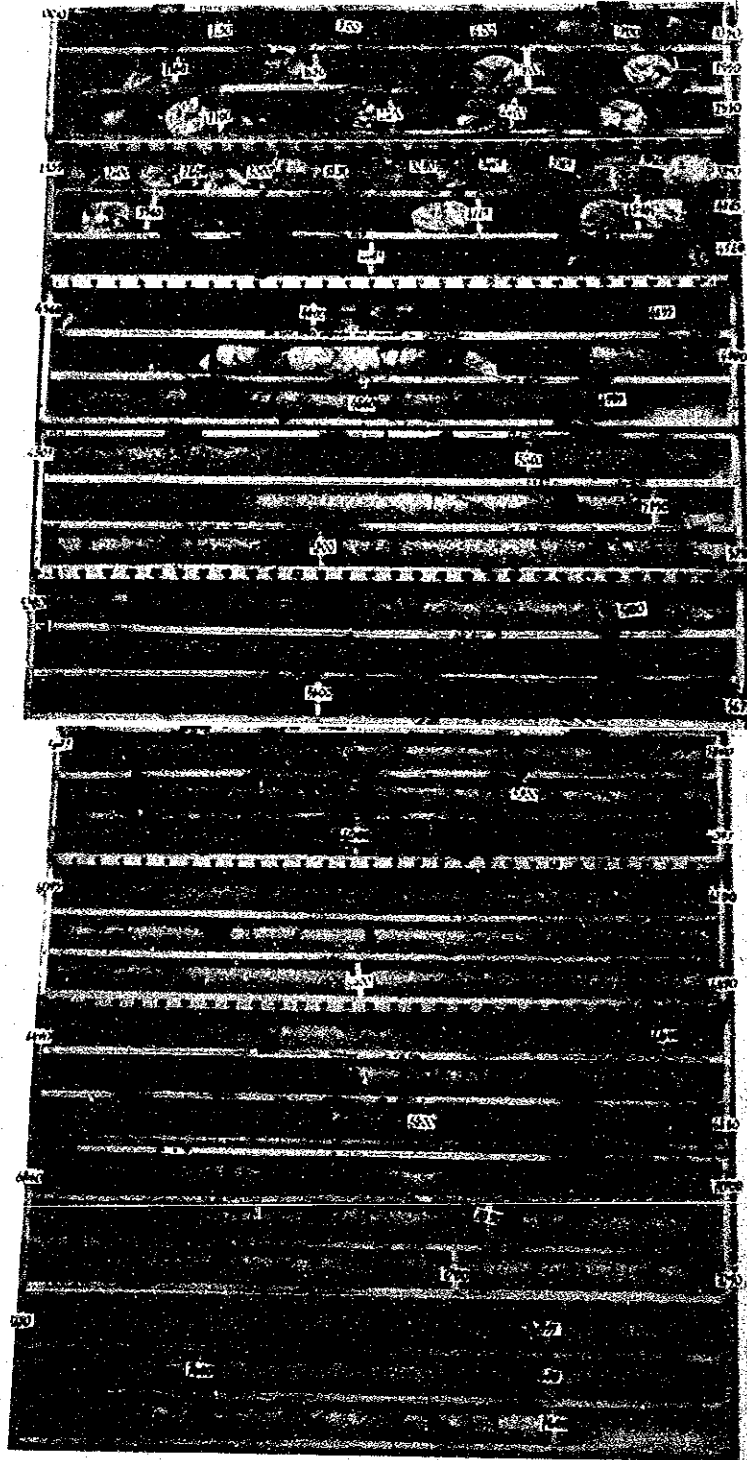




SK-214 ( L= 99.5 m, BL. 1025.08 m)

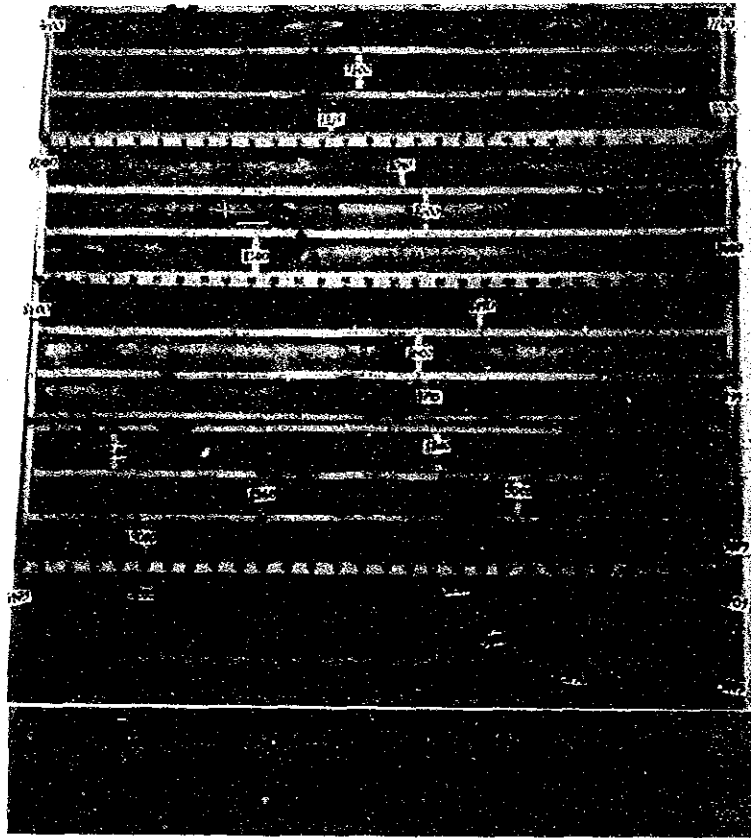
Olur Damsite, river bed

SK-214 ( 0 ~ 76 m )





SK-214 ( 76 ~ 99.5 m )

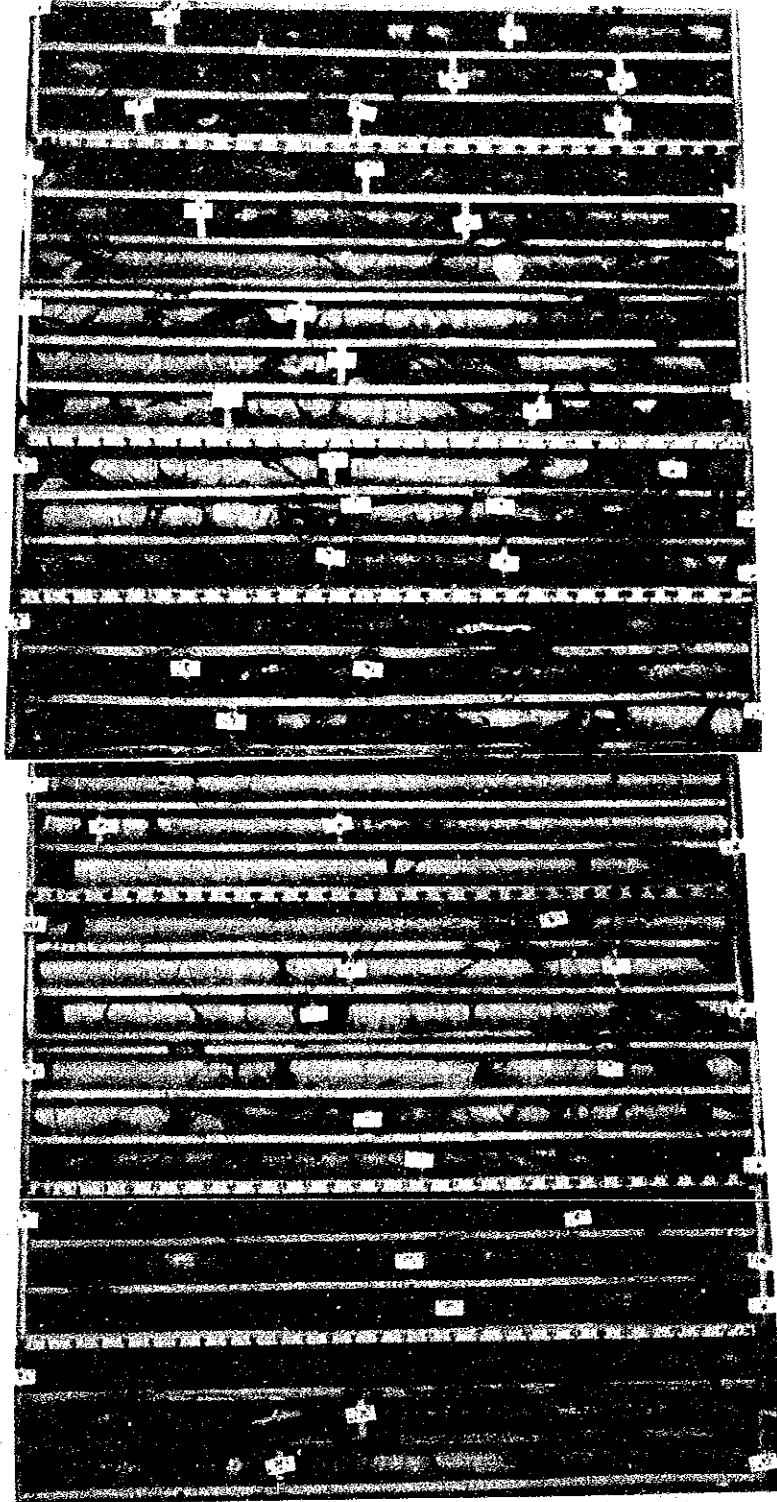


AP-3-123

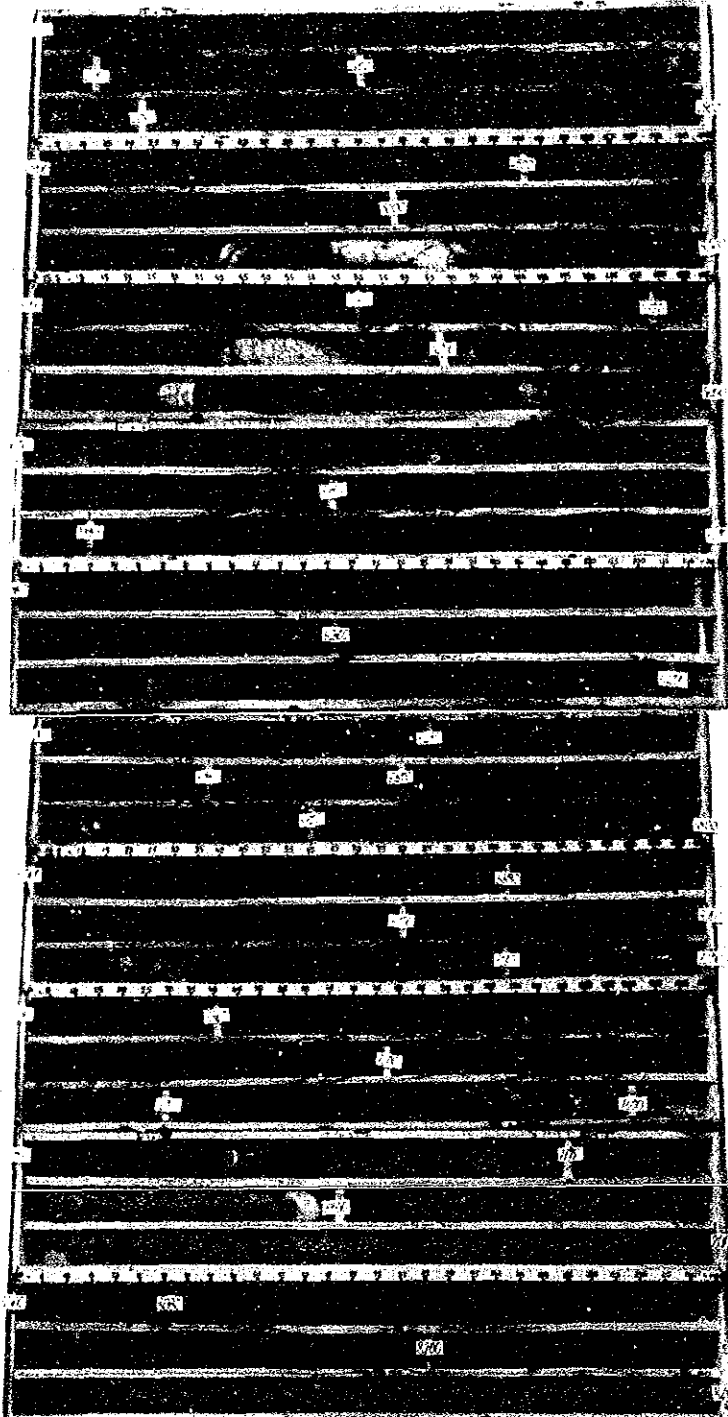
SK-210 ( L= 127 m, BL. 1085.22 m)

Olur Damsite, left bank

SK-210 ( 0 ~ 44 m )

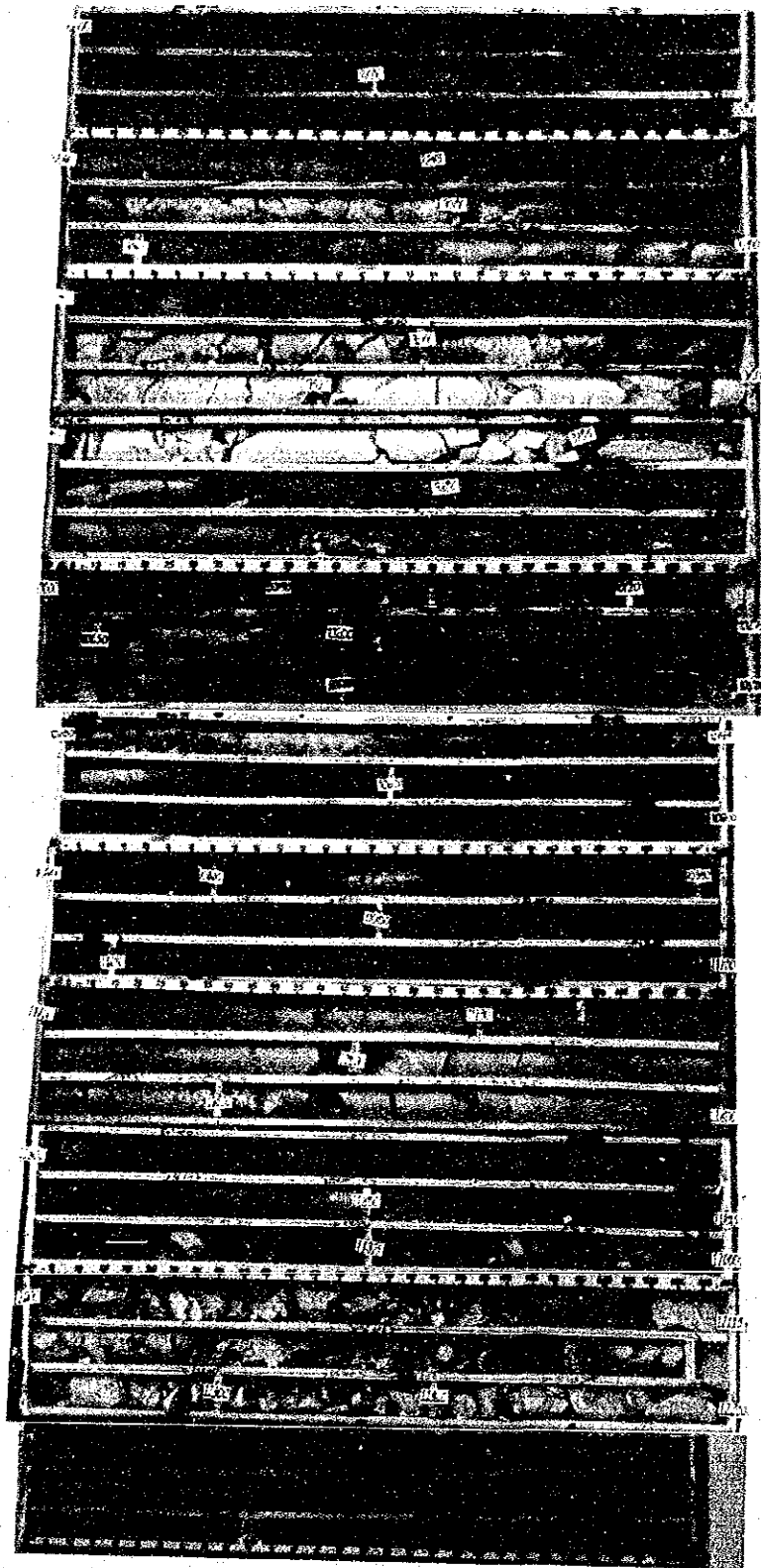


SK-210 ( 44 ~ 84 m )



AP-3-125

SK-210 ( 84 ~ 127 m )

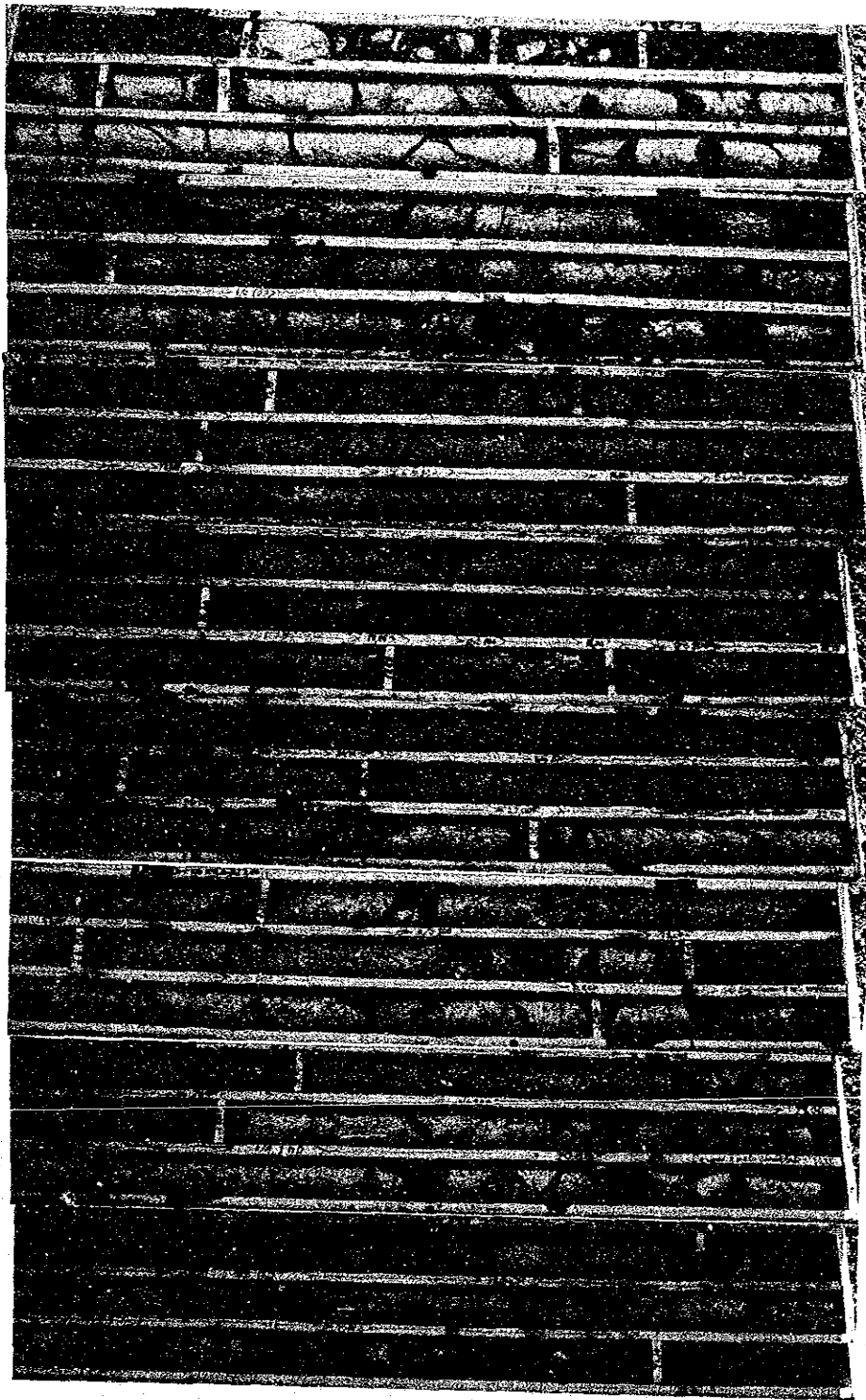


AP-3-126

SKE-213 ( L= 50 m, EL. 1069.72 m )

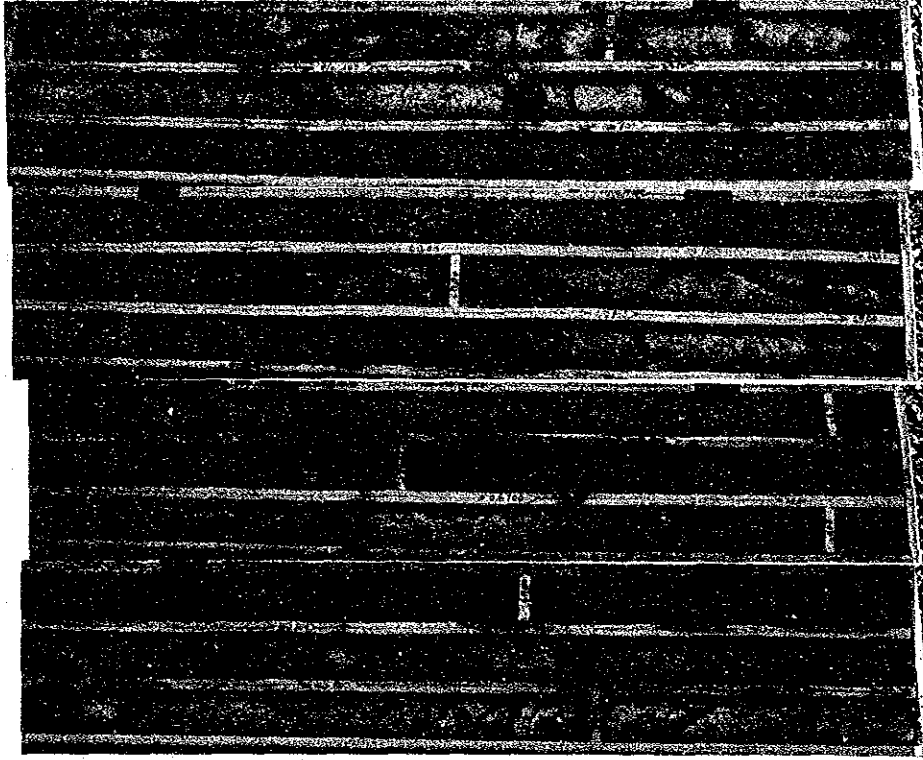
Olur Damsite, right bank

SKE-213 ( 0 ~ 34 m )



AP-3-127

SKE-213 ( 34~ 50 m )



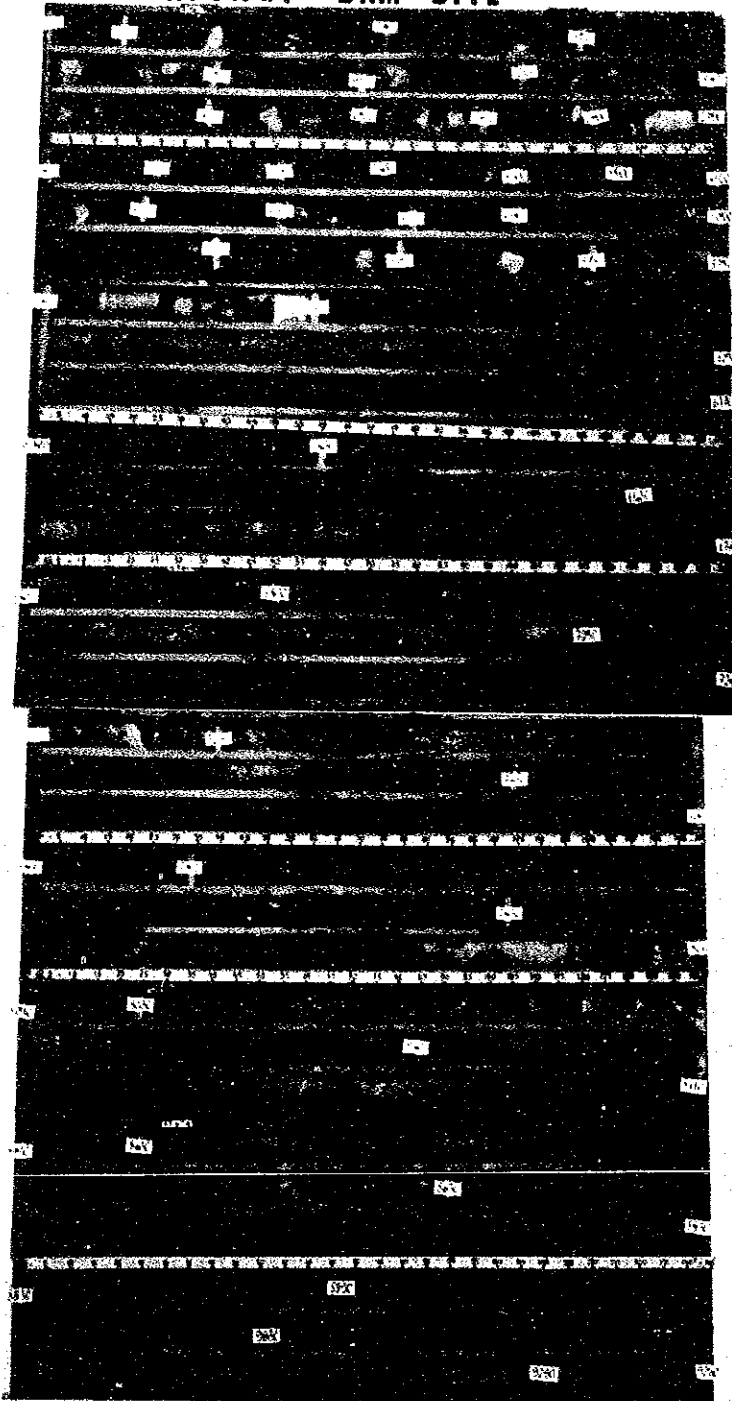
AP-3-128

Ni-101 (L= 160 m, EL. 810.4 m)

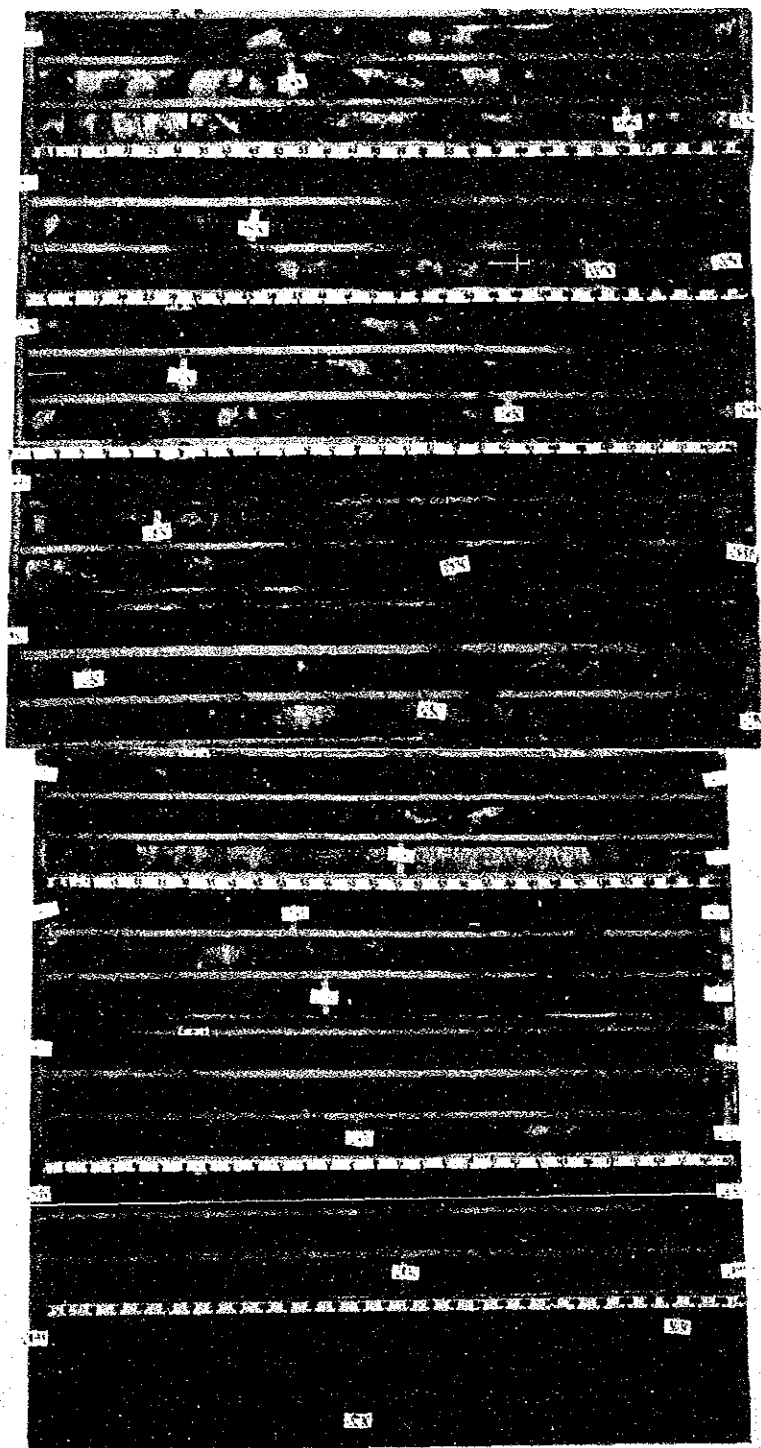
Ayvali Damsite, river bed

Ni-101 (0 ~ 92.6 m)

OLTU—AYVALI BARAJ YERI Ni-101  
OLTU—AYVALI DAM SITE



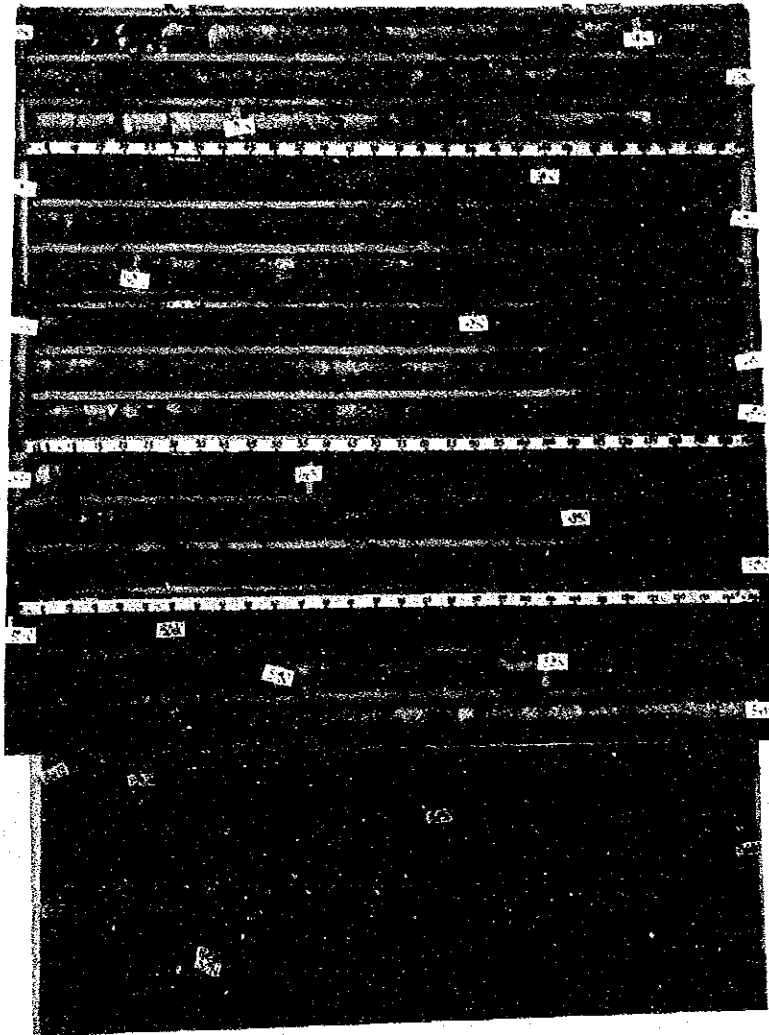
Ni-101 ( 92.6 ~ 133.5 m )



AP-3-130



Ni-101 ( 133.5 ~160 m )

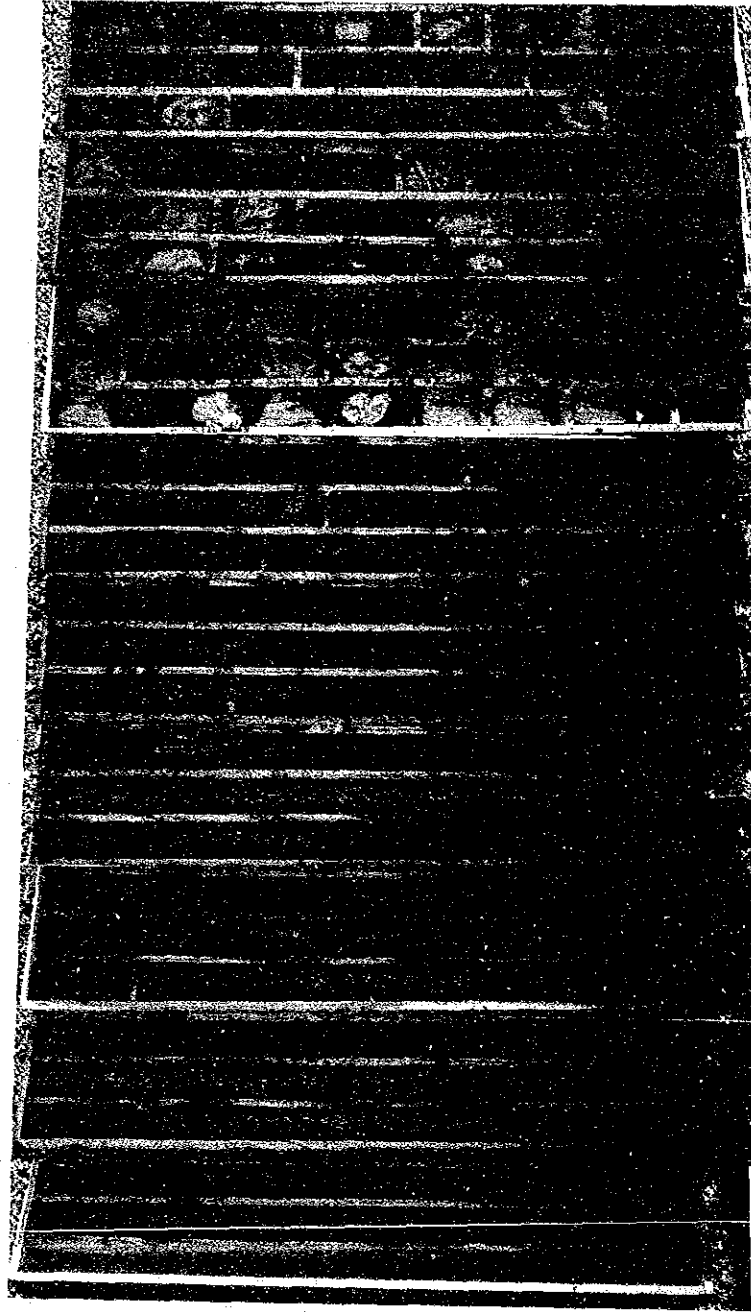


AP-3-131

Ni-109 ( L= 70 m, EL. 811.52 m )

Ayvali Damsite, river bed

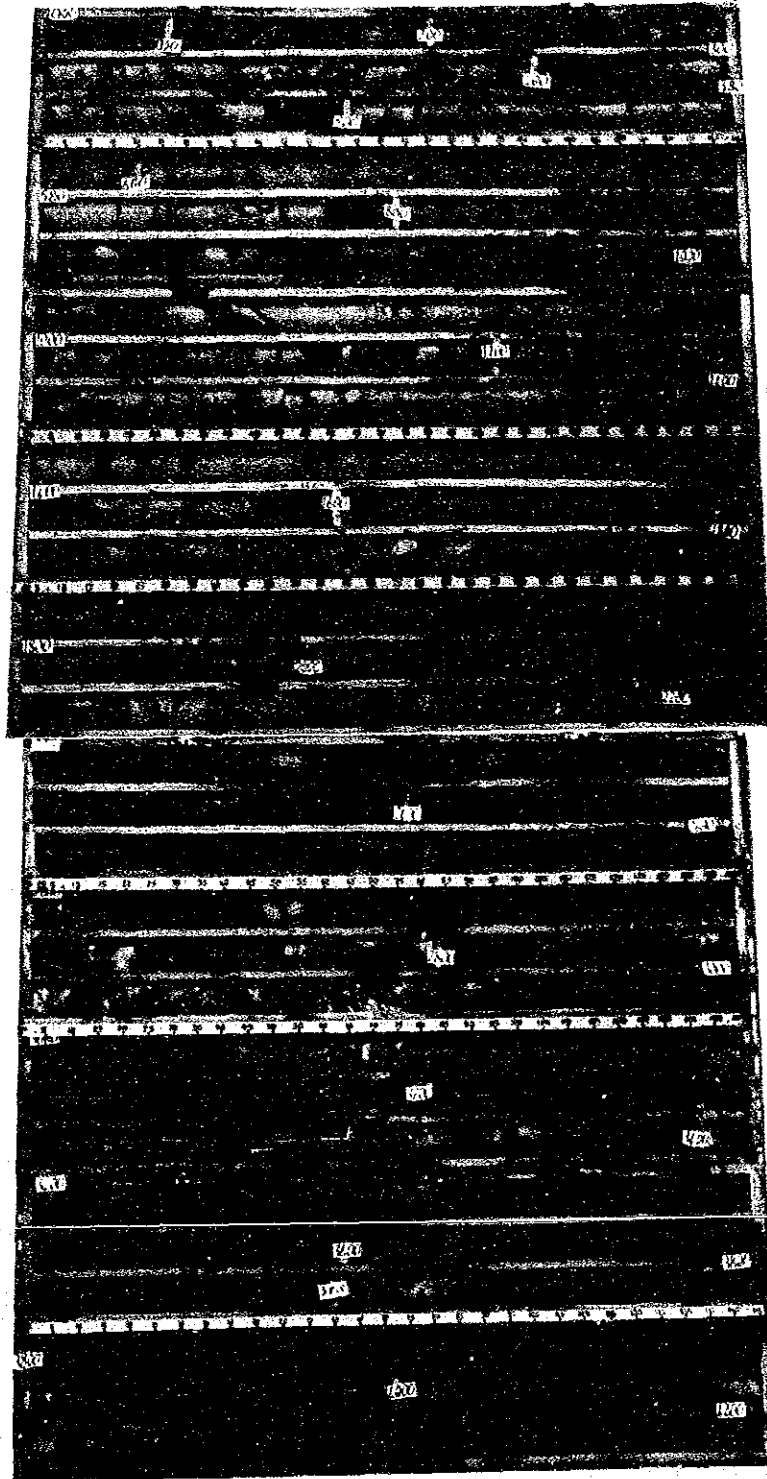
Ni-109 ( 3 ~ 70 m )



SG-102 ( L= 200 m, BL. 928.37 m)

Ayvali Damsite, right bank

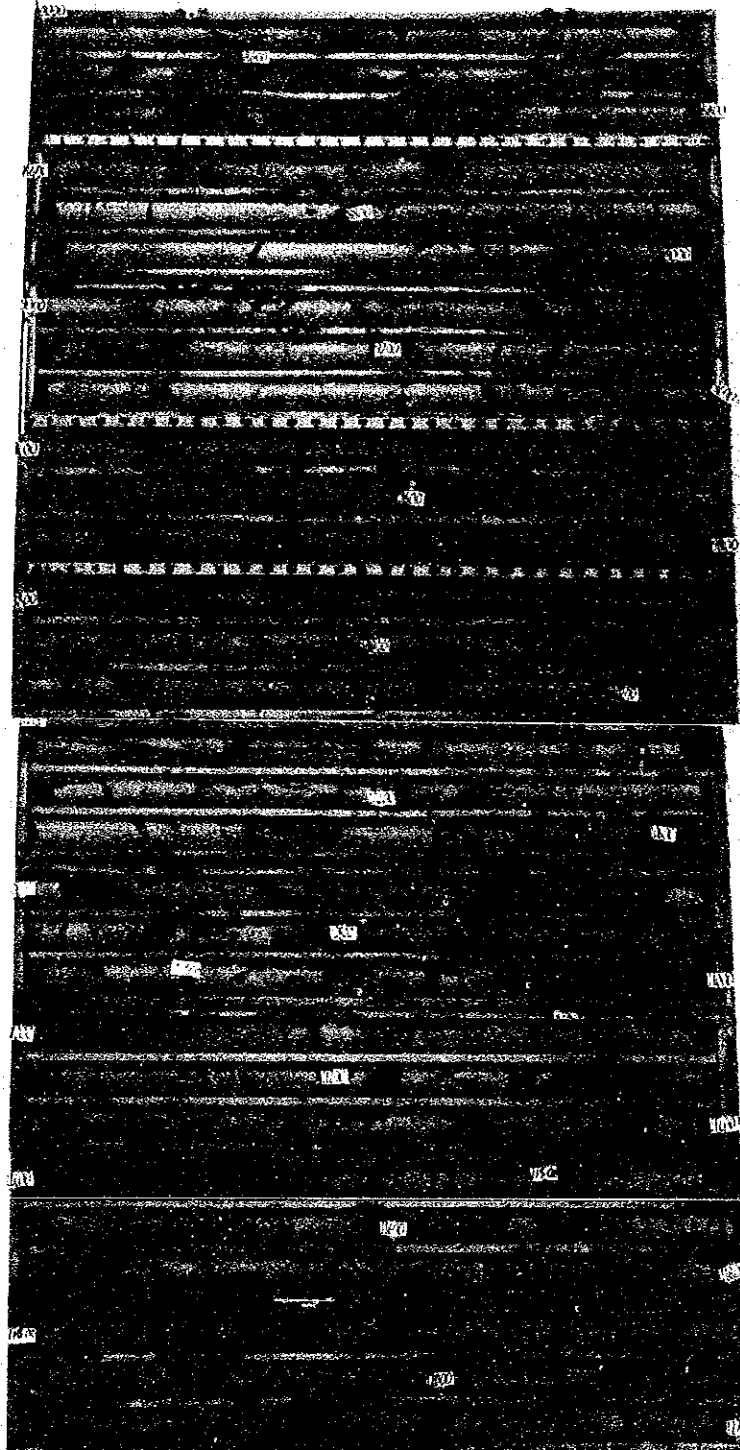
SG-102 ( 0 ~ 42 m )



AP-3-133



SG--102 ( 82 ~ 122 m )



AP-3-135