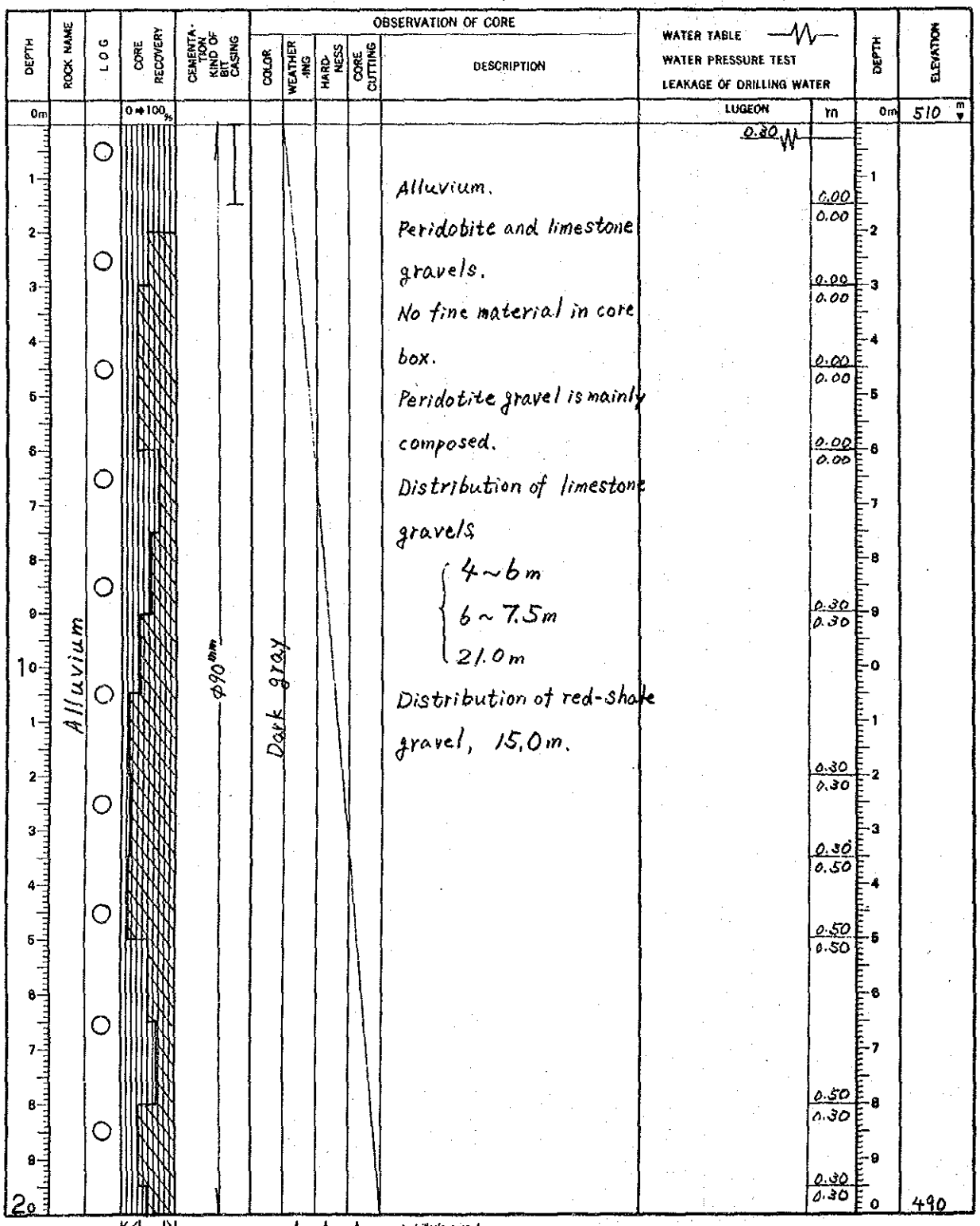
GEOLOGIC LOG OF DRILL HOLE

GOKTAS PROJECT HOLE No. SK-1 (SHEET 1 OF 5)

LOCATION	DAM	DEPTH OF HOLE	100.00 m	COMMENCED	29-8-1987
ELEVATION	510 m	DEPTH OF OVERBURDEN	23.50 m	COMPLETED	29-9-1987
COORDINATE	—	LENGTH OF ROCK DRILLING	77.50 m	DRILLED BY	DSI
ANGLE FROM HOLIZONTAL	90°	TOTAL LENGTH OF CORE	85.17 m	LOGGED BY	JICA
BEARING OF ANGLE HOLE	—	CORE RECOVERY	85.17 %		



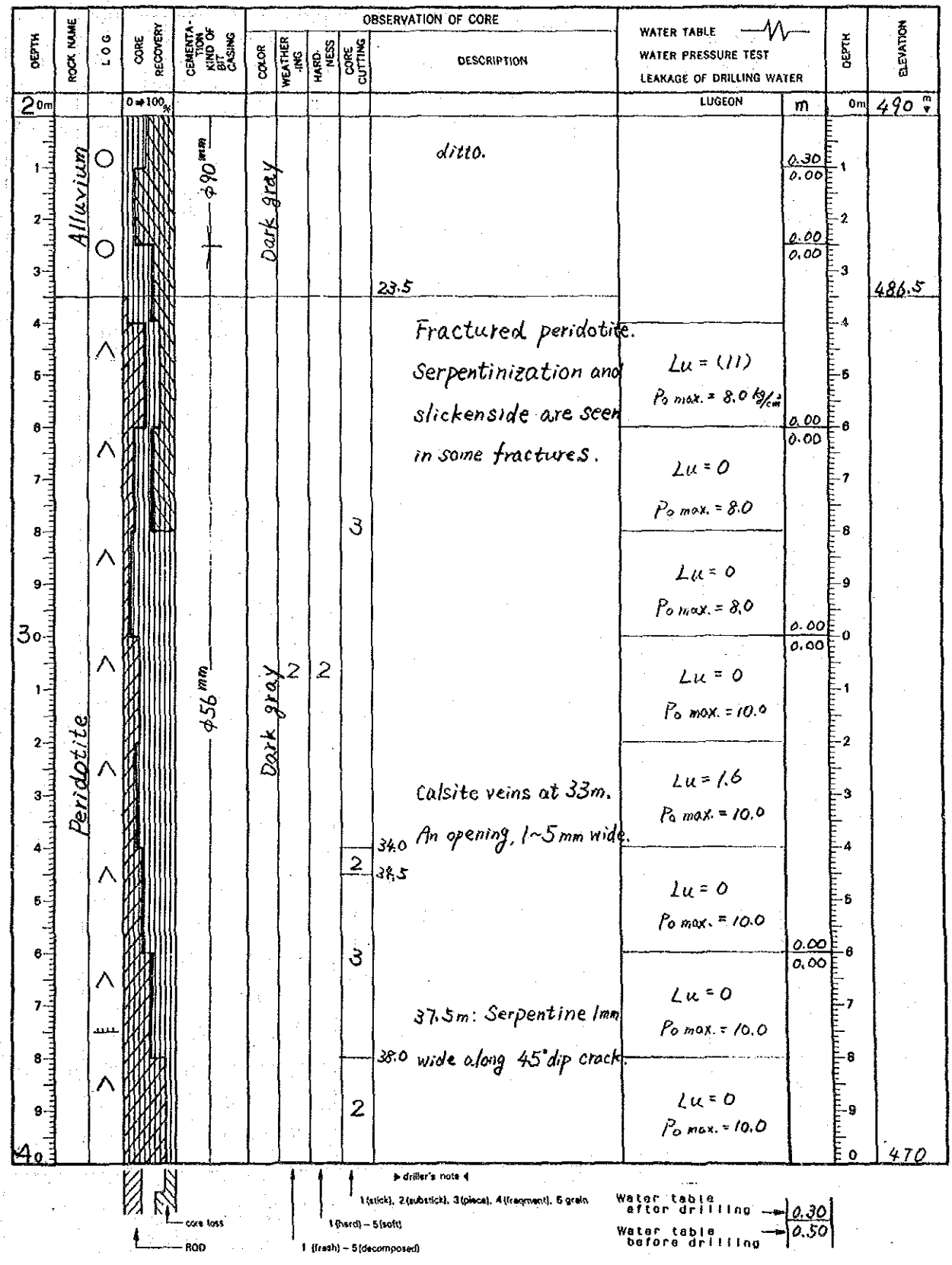
core loss
ROD
driller's note
1 (stick), 2 (substick), 3 (piece), 4 (fragment), 5 grain
1 (hard) ~ 5 (soft)
1 (fresh) ~ 5 (decomposed)

Water table after drilling → 0.30
Water table before drilling → 0.50

GEOLOGIC LOG OF DRILL HOLE

GOKTAS PROJECT HOLE No. SK-1 (SHEET 2 OF 5)

LOCATION	DAM	DEPTH OF HOLE	100.00 m	COMMENCED	29-8-1987
ELEVATION	510 m	DEPTH OF OVERBURDEN	23.50 m	COMPLETED	29-9-1987
COORDINATE	—	LENGTH OF ROCK DRILLING	77.50 m	DRILLED BY	DSI
ANGLE FROM HOLIZONTAL	90°	TOTAL LENGTH OF CORE	85.17 m	LOGGED BY	JICA
BEARING OF ANGLE HOLE	—	CORE RECOVERY	85.17 %		



GEOLOGIC LOG OF DRILL HOLE

GOKTAS PROJECT HOLE No. SK-1 (SHEET 3 OF 5)

LOCATION	DAM	DEPTH OF HOLE	100.00 m	COMMENCED	29-8-1987
ELEVATION	510 m	DEPTH OF OVERBURDEN	23.50 m	COMPLETED	29-9-1987
COORDINATE	—	LENGTH OF ROCK DRILLING	77.50 m	DRILLED BY	DSI
ANGLE FROM HOLIZONTAL	90°	TOTAL LENGTH OF CORE	85.17 m	LOGGED BY	JICA
BEARING OF ANGLE HOLE	—	CORE RECOVERY	85.17 %		

DEPTH	ROCK NAME	LOG	CORE RECOVERY	CEMENTATION KIND OF BIT CASING	OBSERVATION OF CORE: COLOR	WEATHERING	HARDNESS	CORE CUTTING	DESCRIPTION	WATER TABLE / WATER PRESSURE TEST / LEAKAGE OF DRILLING WATER: LUGEON	m	DEPTH	ELEVATION
40m			0 ➡ 100%									0m	470 m
1		>						2		Lu = 0 Po max. = 10.0 kg/cm²	0.00	1	
2		>							42.5 45° dip cracks main.		0.00	2	
3		>						3	43.0	Lu = 0 Po max. = 10.0		3	
4		>										4	
5		>								Lu = 0 Po max. = 10.0		5	
6		>										6	
7		>						2		Lu = 0 Po max. = 10.0		7	
8		>										8	
9		>								Lu = 0 Po max. = 10.0		9	
50	Peridotite	>		φ56 mm	Dark gray	2	2				0.00	0	
1		>								Lu = 0 Po max. = 10.0		1	
2		>							52.0			2	
3		>						3	53.5	Lu = 0 Po max. = 10.0	0.00	3	
4		>						3 ≤ 4	53.5 ~ 55.0 m : Serpentine 1~2 mm wide along 45°, 70° and 90° dip cracks.		0.00	4	
5		>							55.0	Lu = 0 Po max. = 10.0		5	
6		>						1 1 2	56.4m : Serpentine 1mm wide.	Lu = 0 Po max. = 10.0		6	
7		>										7	
8		>								Lu = 0 Po max. = 10.0		8	
9		>										9	
60												0	450

core loss
RQD
driller's note
1(stick), 2(substick), 3(piece), 4(fragment), 5 grain
1(hard) ~ 5(soft)
1(fresh) ~ 5(decomposed)
Water table after drilling → 0.30
Water table before drilling → 0.50

GEOLOGIC LOG OF DRILL HOLE

GOKTAS PROJECT — HOLE No. SK-1 (SHEET 4 OF 5)

LOCATION	DAM	DEPTH OF HOLE	100.00 m	COMMENCED	29-8-1987
ELEVATION	510 m	DEPTH OF OVERBURDEN	23.50 m	COMPLETED	29-9-1987
COORDINATE	—	LENGTH OF ROCK DRILLING	77.50 m	DRILLED BY	DSI
ANGLE FROM HOLIZONTAL	90°	TOTAL LENGTH OF CORE	85.17 m	LOGGED BY	JICA
BEARING OF ANGLE HOLE	—	CORE RECOVERY	85.17 %		

DEPTH	ROCK NAME	LOG	CORE RECOVERY	CEMENTATION KIND OF BIT CASING	OBSERVATION OF CORE: COLOR	WEATHERING	HARDNESS	CORE CUTTING	DESCRIPTION	WATER TABLE / WATER PRESSURE TEST / LEAKAGE OF DRILLING WATER: LUGEON	m	DEPTH	ELEVATION
60m			0 → 100%									0m	450 m
1		V						1 1 2	61.0	Lu = 0, Po max. = 10.0 kg/cm²	0.00	1	
2											0.00	2	
3		V						3	63.5m : Serpentine 0.1~1mm wide along 40° dip crack.	Lu = 0, Po max. = 10.0		3	
4									64.5			4	
5		V						2		Lu = 0, Po max. = 10.0		5	
6												6	
7		V						4	67.2 / 67.4 67.2~67.4m : Fragment core. Serpentine 1mm wide along 65° dip crack.	Lu = 0, Po max. = 10.0		7	
8								2	68.0			8	
9		V						3	68.5	Lu = 0, Po max. = 10.0		9	
70	Peridotite			456 mm	Dark grey	2	2	1 1 2			0.00	0	
1								4	70.1 / 70.3 70.1~70.3m : Fragment core. Serpentinization	Lu = 0, Po max. = 10.0	0.00	1	
2		V										2	
3								1 1 2		Lu = 0, Po max. = 10.0		3	
4		V									0.00	4	
5										Lu = 0, Po max. = 10.0	0.00	5	
6												6	
7		V								Lu = 0, Po max. = 10.0		7	
8								4	77.5 / 78.2 77.5~78.2m : 80° dip crack.			8	
9		V						2		Lu = 0, Po max. = 10.0		9	
80											0.00	0	430

core loss / RQD

1 (fresh) – 5 (decomposed) | 1 (hard) – 5 (soft) | driller's note: 1 (stick), 2 (substick), 3 (piece), 4 (fragment), 5 grain

Water table after drilling → 0.30
Water table before drilling → 0.50

GEOLOGIC LOG OF DRILL HOLE

GOKTAS PROJECT HOLE No. SK-1 (SHEET 5 OF 5)

LOCATION	DAM	DEPTH OF HOLE	100.00 m	COMMENCED	29-8-1987
ELEVATION	510 m	DEPTH OF OVERBURDEN	23.50 m	COMPLETED	29-9-1987
COORDINATE	—	LENGTH OF ROCK DRILLING	77.50 m	DRILLED BY	DSI
ANGLE FROM HOLIZONTAL	90°	TOTAL LENGTH OF CORE	85.17 m	LOGGED BY	JICA
BEARING OF ANGLE HOLE	—	CORE RECOVERY	85.17 %		

DEPTH	ROCK NAME	LOG	CORE RECOVERY 0→100%	CEMENTATION KIND OF BIT CASING	OBSERVATION OF CORE: COLOR	WEATHERING	HARDNESS	CORE CUTTING	DESCRIPTION	WATER TABLE / WATER PRESSURE TEST / LEAKAGE OF DRILLING WATER: LUGEON	m	DEPTH	ELEVATION
80m											0.00	0m	430 m
1		V						2	81.0	Lu = 0, Po max. = 10.0 kg/cm²		1	
2								1	81.8			2	
3		V								Lu = 0, Po max. = 10.0		3	
4												4	
5		V								Lu = 0, Po max. = 10.0		5	
6											0.00	6	
7		V								Lu = 0, Po max. = 10.0	0.00	7	
8												8	
9		V			Dark gray	2	2	1	89.0 m: 45° dip crack, no serpentine.	Lu = 0, Po max. = 10.0		9	
90	Peridotite			φ56 mm				s	89.4 m: Partly serpentinization less than 1mm wide.			0	
1		V						2		Lu = 0, Po max. = 10.0		1	
2											0.00	2	
3		V								Lu = 0, Po max. = 10.0		3	
4												4	
5		V							No Serpentinization.	Lu = 0, Po max. = 10.0		5	
6												6	
7		V								Lu = 0, Po max. = 10.0		7	
8												8	
9		V							R·Q·D (Av.) = 67%	Lu = 0, Po max. = 10.0		9	
100									End of drill hole		0.30	0	410

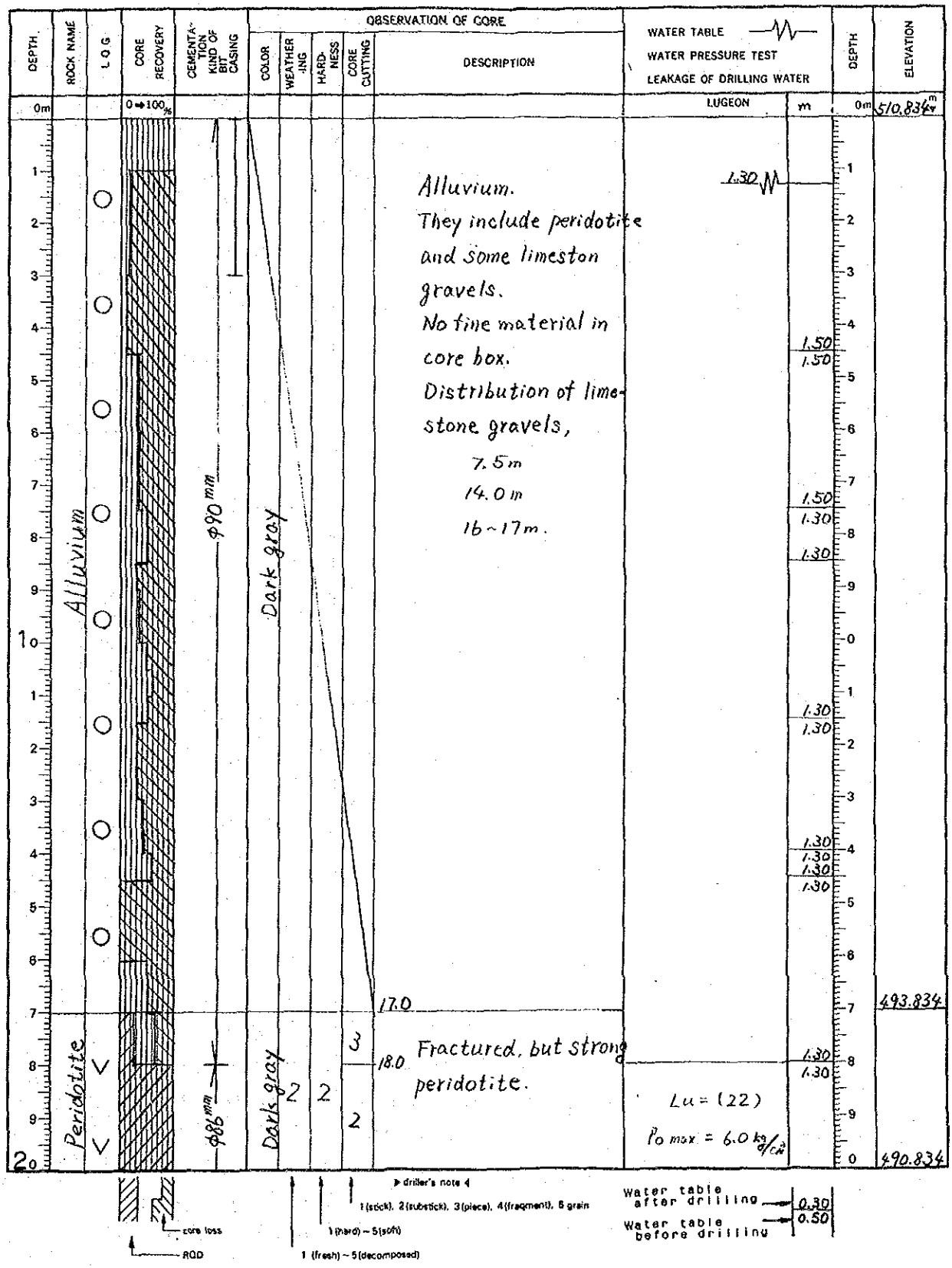
core loss
ROD
▶ driller's note ◀
1 (stick), 2 (substick), 3 (piece), 4 (fragment), 5 grain
1 (hard) – 5 (soft)
1 (fresh) – 5 (decomposed)

Water table after drilling → 0.30
Water table before drilling → 0.50

GEOLOGIC LOG OF DRILL HOLE

GOKTAS PROJECT — HOLE No. SK-2 (SHEET 1 OF 4)

LOCATION	DAM	DEPTH OF HOLE	70.00 m	COMMENCED	2 - 9 -1987
ELEVATION	510.834 m	DEPTH OF OVERBURDEN	17.00 m	COMPLETED	17 - 9 -1987
COORDINATE	X: 452.695.19 Y: 4.178.250.45	LENGTH OF ROCK DRILLING	53.00 m	DRILLED BY	DSI
ANGLE FROM HOLIZONTAL	90 °	TOTAL LENGTH OF CORE	58.75 m	LOGGED BY	JICA
BEARING OF ANGLE HOLE	--	CORE RECOVERY	83.9 %		



GEOLOGIC LOG OF DRILL HOLE

GOKTAS PROJECT HOLE No. SK-2 (SHEET 2 OF 4)

LOCATION	DAM	DEPTH OF HOLE	70.00 m	COMMENCED	2 - 9 -1987
ELEVATION	510.834 m	DEPTH OF OVERBURDEN	17.00 m	COMPLETED	17 - 9 -1987
COORDINATE	X: 452,695.19 Y: 4,178,850.45	LENGTH OF ROCK DRILLING	53.00 m	DRILLED BY	DSI
ANGLE FROM HOLIZONTAL	90 °	TOTAL LENGTH OF CORE	58.75 m	LOGGED BY	JICA
BEARING OF ANGLE HOLE	—	CORE RECOVERY	83.9 %		

DEPTH	ROCK NAME	LOG	CORE RECOVERY	CEMENTATION KIND OF BIT CASING	OBSERVATION OF CORE: COLOR	WEATHERING	HARDNESS	CORE CUTTING	DESCRIPTION	WATER TABLE / WATER PRESSURE TEST / LEAKAGE OF DRILLING WATER: LUGEON	m
2 0m			0→100%								0m 490.834m
1		V						2	20.5m: Calsite vein 2mm wide along 25° dip crack.	Lu = (14) Po max. = 8.0 kg/cm²	
								3 21.0 21.3	21.0~21.3m: Serpentine 1mm wide along several cracks.		1.30
2								2		Lu = (34) Po max. = 8.0	1.30
3		V						23.0			
								3	21.9m: Calsite vein 1mm wide.		
4								24.0		Lu = (44) Po max. = 8.0	
5		V						2	23.0m: Calsite vein 1mm wide.		
6								3 26.0 26.3	26.0m: Calsite vein 1mm wide.	Lu = (45) Po max. = 8.0	
7		V							27.6m: 45° dip crack, no serpentine.		1.30
8										Lu = (22) Po max. = 8.0	1.30
9		V									
3 0	Peridotite			φ86 mm	Dark gray	2	2			Lu = 23 Po max. = 10.0	
1		V						1			
								1			
2								2		Lu = 0 Po max. = 10.0	
3		V									1.30
4											1.30
5		V								Lu = 0 Po max. = 10.0	
6											
7		V								Lu = 0 Po max. = 10.0	
								37.5	37.5m: Serpentine 1mm wide along 45° dip crack.		1.30
8								2			1.30
9		V						4 38.8 39.0	38.8~39.0m: Fragment core, no serpentine.	Lu = 0 Po max. = 10.0	
4 0								3			470.834

core loss
ROD

▶ driller's note ◀
1 (stick), 2 (substick), 3 (piece), 4 (fragment), 5 grain

1 (hard) – 5 (soft)

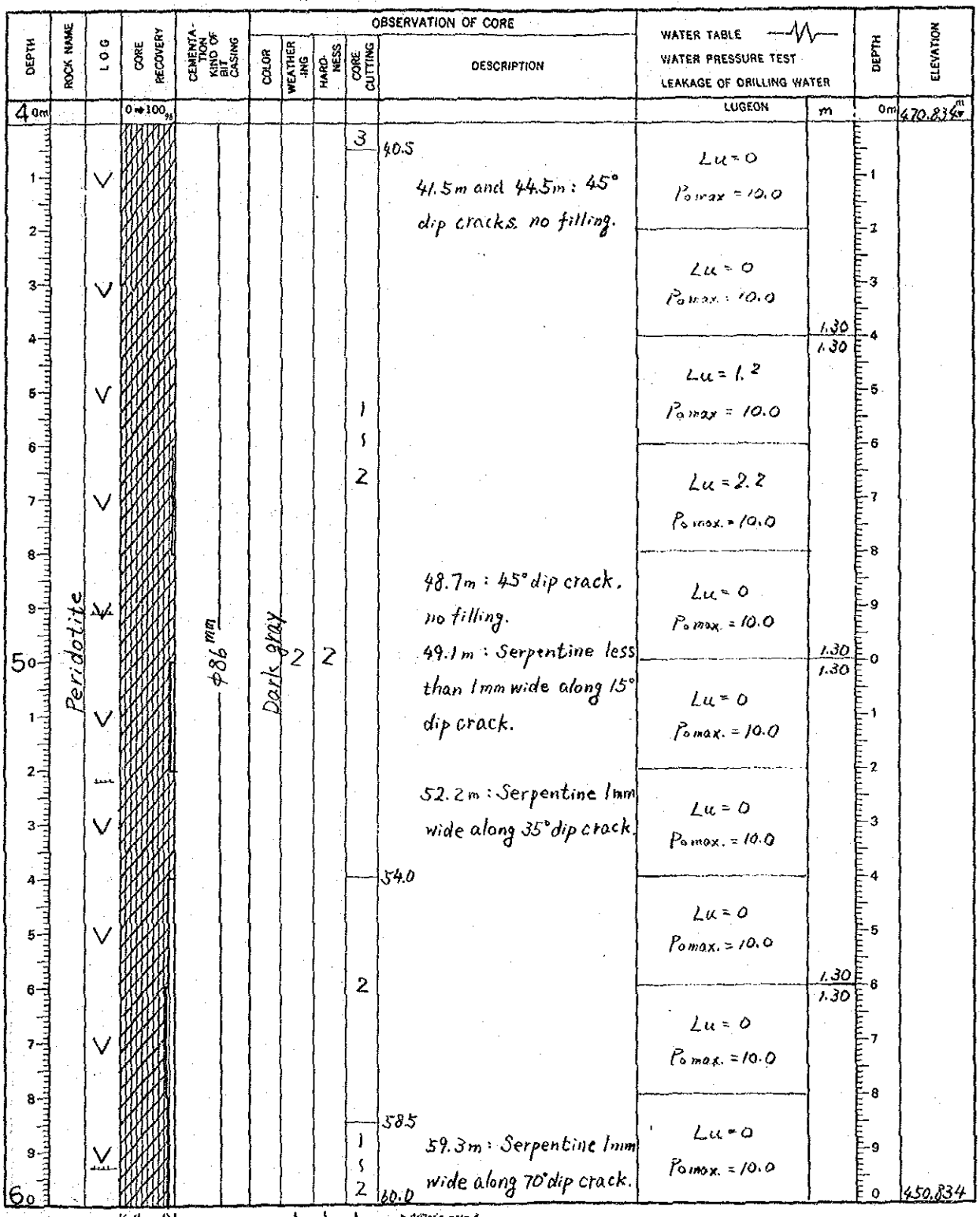
1 (fresh) – 5 (decomposed)

Water table after drilling → 0.30
Water table before drilling → 0.50

GEOLOGIC LOG OF DRILL HOLE

GOKTAS PROJECT HOLE No. SK-2 (SHEET 3 OF 4)

LOCATION	DAM	DEPTH OF HOLE	70.00 m	COMMENCED	2 - 9 -1987
ELEVATION	510.834 m	DEPTH OF OVERBURDEN	17.00 m	COMPLETED	17 - 9 -1987
COORDINATE	X: 452,695.19 Y: 4,178,260.45	LENGTH OF ROCK DRILLING	53.00 m	DRILLED BY	DSI
ANGLE FROM HOLIZONTAL	90 °	TOTAL LENGTH OF CORE	58.75 m	LOGGED BY	JICA
BEARING OF ANGLE HOLE	—	CORE RECOVERY	83.9 %		



GEOLOGIC LOG OF DRILL HOLE

GOKTAS PROJECT HOLE No. SK-2 (SHEET 4 OF 4)

LOCATION	DAM	DEPTH OF HOLE	70.00 m	COMMENCED	2 - 9 -1987
ELEVATION	510.834 m	DEPTH OF OVERBURDEN	17.00 m	COMPLETED	17 - 9 -1987
COORDINATE	X: 452,695.19 Y: 4,178,050.95	LENGTH OF ROCK DRILLING	53.00 m	DRILLED BY	DSI
ANGLE FROM HOLIZONTAL	90 °	TOTAL LENGTH OF CORE	58.75 m	LOGGED BY	JICA
BEARING OF ANGLE HOLE	—	CORE RECOVERY	83.9 %		

DEPTH	ROCK NAME	LOG	CORE RECOVERY	CEMENTATION KIND OF BIT CASING	OBSERVATION OF CORE: COLOR	WEATHERING	HARDNESS	CORE CUTTING	DESCRIPTION	WATER TABLE / WATER PRESSURE TEST / LEAKAGE OF DRILLING WATER: LUGEON	m	DEPTH	ELEVATION
60m			0 ⇒ 100 %									0m	450.834m
	Peridotite			φ86 mm	Dark gray	2	2	2	60.8 60.8~63.0m : Serpentine 1~2mm wide along many cracks.	Lu = 0 Po max. = 10.0	1.30		
								3	61.0				
								2					
								2	63.0	Lu = 0 Po max. = 10.0	1.30		
								2					
								3	64.0				
								1		Lu = 0 Po max. = 10.0			
								1					
								2					
								3	66.0 66.0~66.4 m : Serpentine 1mm wide along several cracks.	Lu = 0 Po max. = 10.0			
								3	66.4				
								1			1.30		
								1			1.30		
								2	R·Q·D (Av.) = 86%	Lu = 0 Po max. = 10.0			
70									End of drill hole		1.30	0	440.834

▶ driller's note 4

1 (rock), 2 (substick), 3 (piece), 4 (fragment), 5 grain

1 (hard) – 5 (soft)

1 (fresh) – 5 (decomposed)

core loss

RQD

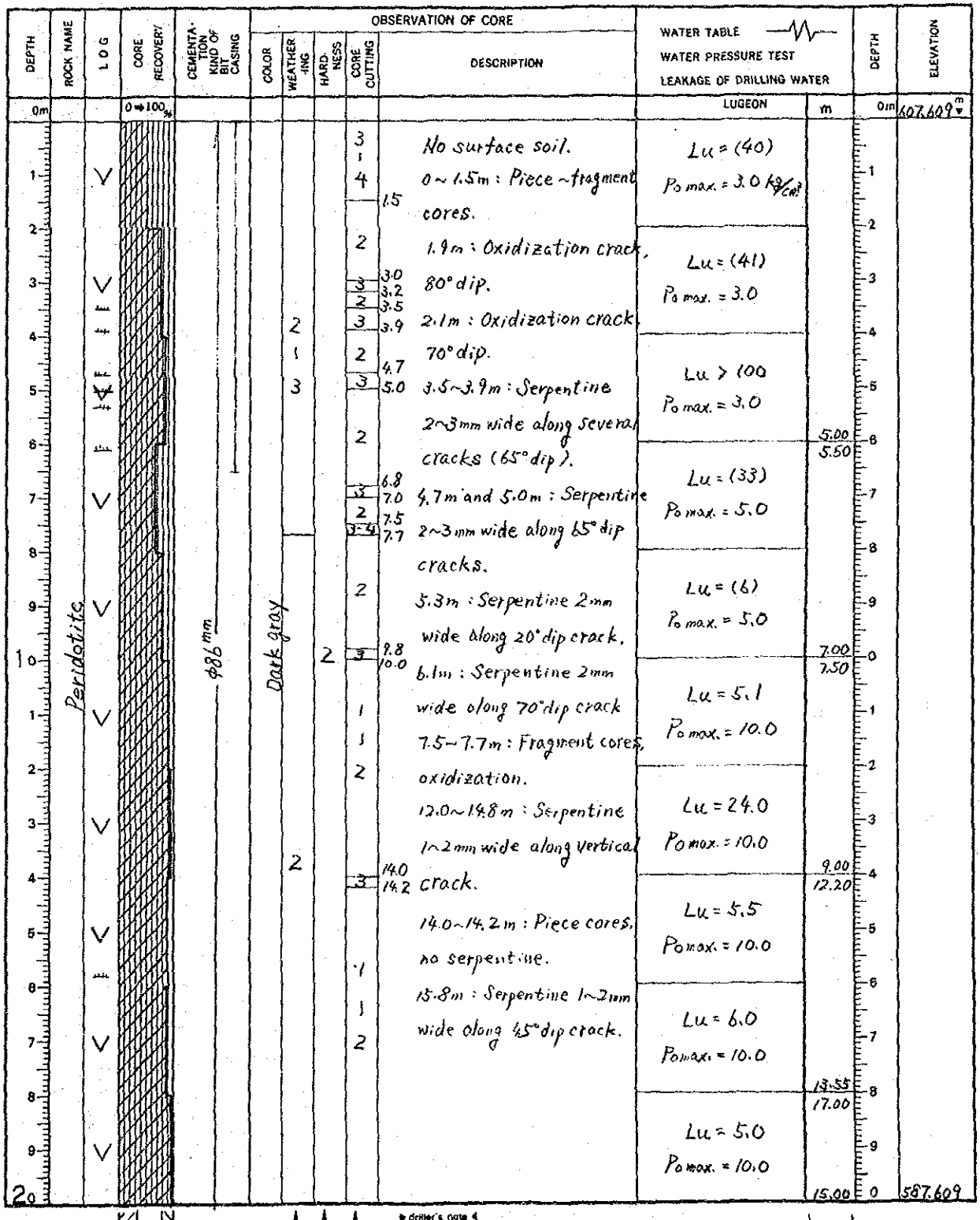
Water table after drilling → 0.30

Water table before drilling → 0.50

GEOLOGIC LOG OF DRILL HOLE

GOKTAS PROJECT — HOLE No. SK - 3 (SHEET 1 OF 5)

LOCATION	DAM	DEPTH OF HOLE	100.00 m	COMMENCED	25 - 8 -1988
ELEVATION	607.609 m	DEPTH OF OVERBURDEN	0 m	COMPLETED	11 - 9 -1988
COORDINATE	X 452,559.74 Y 4,177,956.03	LENGTH OF ROCK DRILLING	100.00 m	DRILLED BY	DSI
ANGLE FROM HOLIZONTAL	90 °	TOTAL LENGTH OF CORE	100.00 m	LOGGED BY	JICA
BEARING OF ANGLE HOLE	—	CORE RECOVERY	100.0 %		



GEOLOGIC LOG OF DRILL HOLE

GOKTAS PROJECT — HOLE No. SK - 3 (SHEET 2 OF 5)

LOCATION	DAM	DEPTH OF HOLE	100.00 m	COMMENCED	25 - 8 -1988
ELEVATION	607.609 m	DEPTH OF OVERBURDEN	0 m	COMPLETED	11 - 9 -1988
COORDINATE	X. 452,559.74 Y. 4,177,956.03	LENGTH OF ROCK DRILLING	100.00 m	DRILLED BY	DSI
ANGLE FROM HOLIZONTAL	90 °	TOTAL LENGTH OF CORE	100.00 m	LOGGED BY	JICA
BEARING OF ANGLE HOLE	-	CORE RECOVERY	100.0 %		

DEPTH	ROCK NAME	LOG	CORE RECOVERY	CEMENTATION KIND OF BIT CASING	OBSERVATION OF CORE: COLOR	WEATHERING	HARDNESS	CORE CUTTING	DESCRIPTION	WATER TABLE / WATER PRESSURE TEST / LEAKAGE OF DRILLING WATER: LUGEON	m	DEPTH	ELEVATION
20m			0→100%									0m	587.609m
1		V						1 1 2		Lu = 5.5 Po max. = 10.0 kg/cm²		1	
2								22.0	22.0~22.7m : Piece cores. Weak serpentinization.			2	
								3 22.7		Lu = 2.9 Po max. = 10.0			
3		V										3	
4								2			15.20 21.16	4	
5		V							25.0m : Weathered calcite vein less than 1mm wide (60° dip).	Lu = 0 Po max. = 10.0		5	
6												6	
7		V						27.0		Lu = 0 Po max. = 10.0		7	
8											15.00 15.00	8	
9		V								Lu = 0 Po max. = 10.0		9	
30	Peridotite			φ86 mm	Dark gray	2	2		29.8~30.6m : Serpentine less than 1mm wide along several cracks.			0	
1		V						1		Lu = 3.4 Po max. = 10.0		1	
2								1	33.5m : Calcite vein 5mm wide (30° dip)		22.45 16.70	2	
								2		Lu = 2.9 Po max. = 10.0			
3		V							33.6~34.0m core : Laboratory test.			3	
4												4	
5		V								Lu = 5.2 Po max. = 10.0		5	
6											32.45 28.95	6	
7		V								Lu = 6.2 Po max. = 10.0		7	
8												8	
9		V						39.0	39.0~40.0m : Piece cores. no serpentine.	Lu = 7.4 Po max. = 10.0		9	
40								3 40.0			16.70	0	567.609

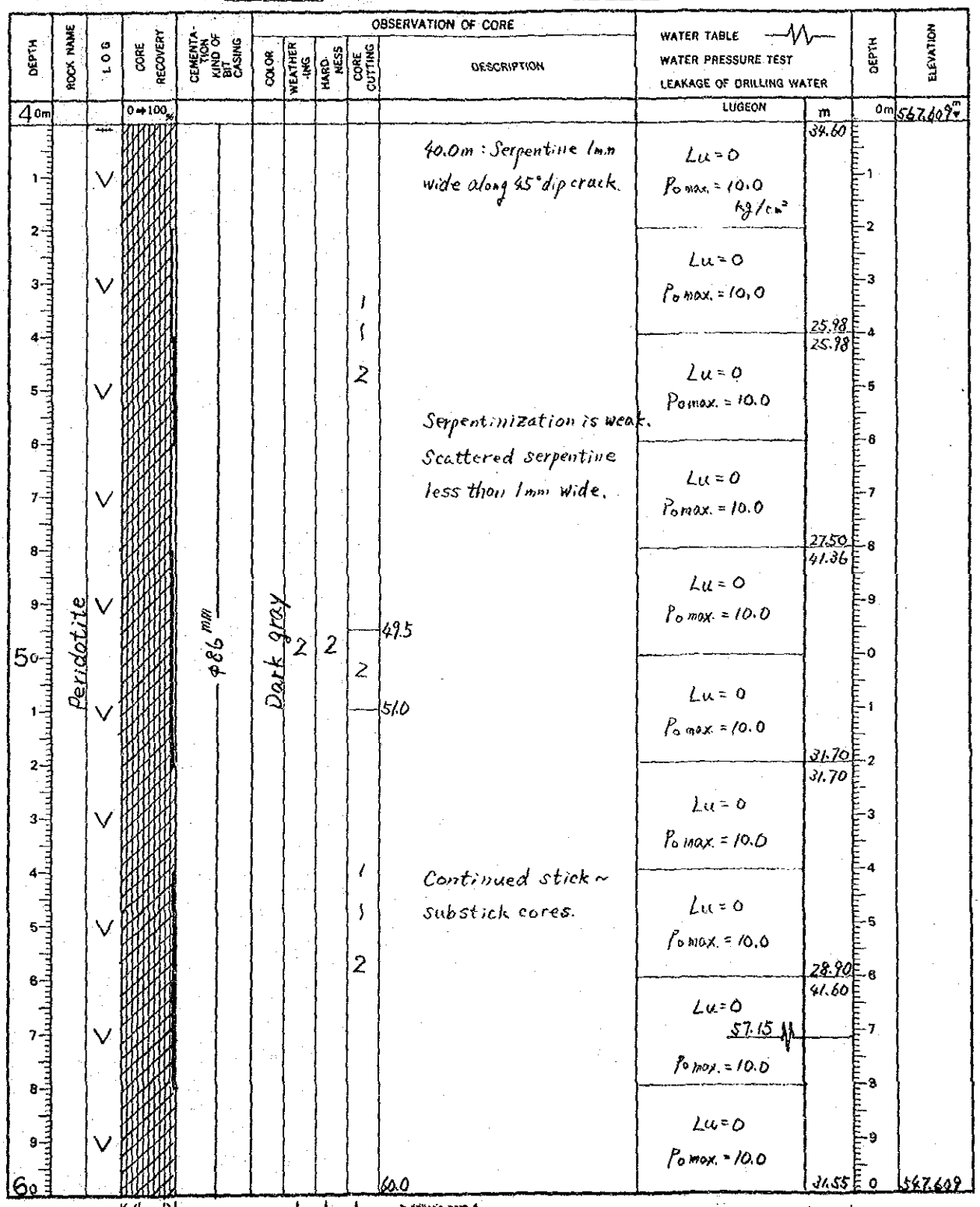
core loss
RQD
▶ driller's note ◀
1 (stick), 2 (substick), 3 (piece), 4 (fragment), 5 grain
1 (hard) – 5 (soft)
1 (fresh) – 5 (decomposed)

Water table after drilling → 0.30
Water table before drilling → 0.50

GEOLOGIC LOG OF DRILL HOLE

GOKTAS PROJECT — HOLE No. SK - 3 (SHEET 3 OF 5)

LOCATION	DAM	DEPTH OF HOLE	100.00 m	COMMENCED	25 - 8 -1988
ELEVATION	607.609 m	DEPTH OF OVERBURDEN	0 m	COMPLETED	11 - 9 -1988
COORDINATE	X. 452,559.74 Y 4,177,956.03	LENGTH OF ROCK DRILLING	100.00 m	DRILLED BY	DSI
ANGLE FROM HOLIZONTAL	90 °	TOTAL LENGTH OF CORE	100.00 m	LOGGED BY	JICA
BEARING OF ANGLE HOLE	-	CORE RECOVERY	100.0 %		



GEOLOGIC LOG OF DRILL HOLE

GOKTAS PROJECT — HOLE No. SK-3 (SHEET 4 OF 5)

LOCATION	DAM	DEPTH OF HOLE	100.00 m	COMMENCED	25 - 8 -1988
ELEVATION	607.609 m	DEPTH OF OVERBURDEN	0 m	COMPLETED	11 - 9 -1988
COORDINATE	X. 452,559.74 Y. 4177,956.03	LENGTH OF ROCK DRILLING	100.00 m	DRILLED BY	DSI
ANGLE FROM HOLIZONTAL	90 °	TOTAL LENGTH OF CORE	100.00 m	LOGGED BY	JICA
BEARING OF ANGLE HOLE	—	CORE RECOVERY	100.0 %		

OBSERVATION OF CORE

DEPTH	ROCK NAME	LOG	CORE RECOVERY	CEMENTATION KIND OF BIT CASING	COLOR	WEATHERING	HARDNESS	CORE CUTTING	DESCRIPTION
60m			0 ⇒ 100%					60.0	
70	Peridotite			φ86 mm	Dark gray	2	2	65.5 65.7 67.5 72.0 75.0 79.0	65.5~65.7m : Piece ~ fragment cores, weak serpentinization. 73.0 m and 73.2m : Serpentine 1mm wide along 50° dip cracks. 74.5m : Serpentine 1~2mm wide along 50° dip crack.
80									

WATER TABLE / WATER PRESSURE TEST / LEAKAGE OF DRILLING WATER

LUGEON	m	DEPTH 0m	ELEVATION 547.609 m
Lu = 0 $P_{o\,max.}$ = 10.0 kg/cm²	37.55		
Lu = 0 $P_{o\,max.}$ = 10.0	27.70		
Lu = 0 $P_{o\,max.}$ = 10.0	38.90		
Lu = 0 $P_{o\,max.}$ = 10.0	27.10		
Lu = 0 $P_{o\,max.}$ = 10.0	27.10		
Lu = 0 $P_{o\,max.}$ = 10.0	32.10		
Lu = 0 $P_{o\,max.}$ = 10.0	46.70		
Lu = 0 $P_{o\,max.}$ = 10.0	34.90		
Lu = 0 $P_{o\,max.}$ = 10.0	34.90		
Lu = 0 $P_{o\,max.}$ = 10.0	34.95	0	527.609

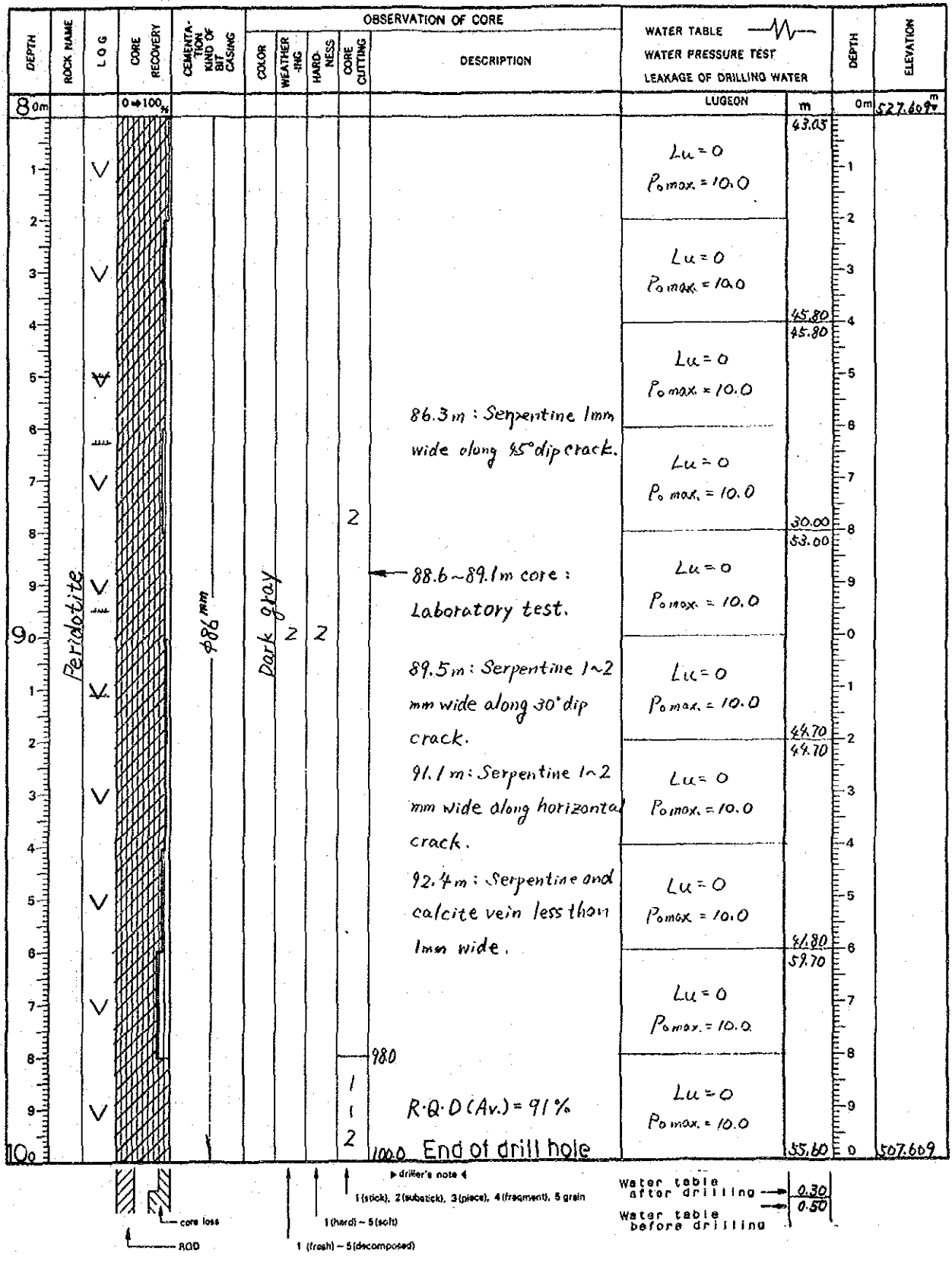
Water table after drilling → 0.30
Water table before drilling → 0.50

core loss
ROD
▶ driller's note ◀
1 (stick), 2 (substick), 3 (piece), 4 (fragment), 5 grain
1 (hard) ~ 5 (soft)
1 (fresh) ~ 5 (decomposed)

GEOLOGIC LOG OF DRILL HOLE

GOKTAS PROJECT — HOLE No. SK - 3 (SHEET 5 OF 5)

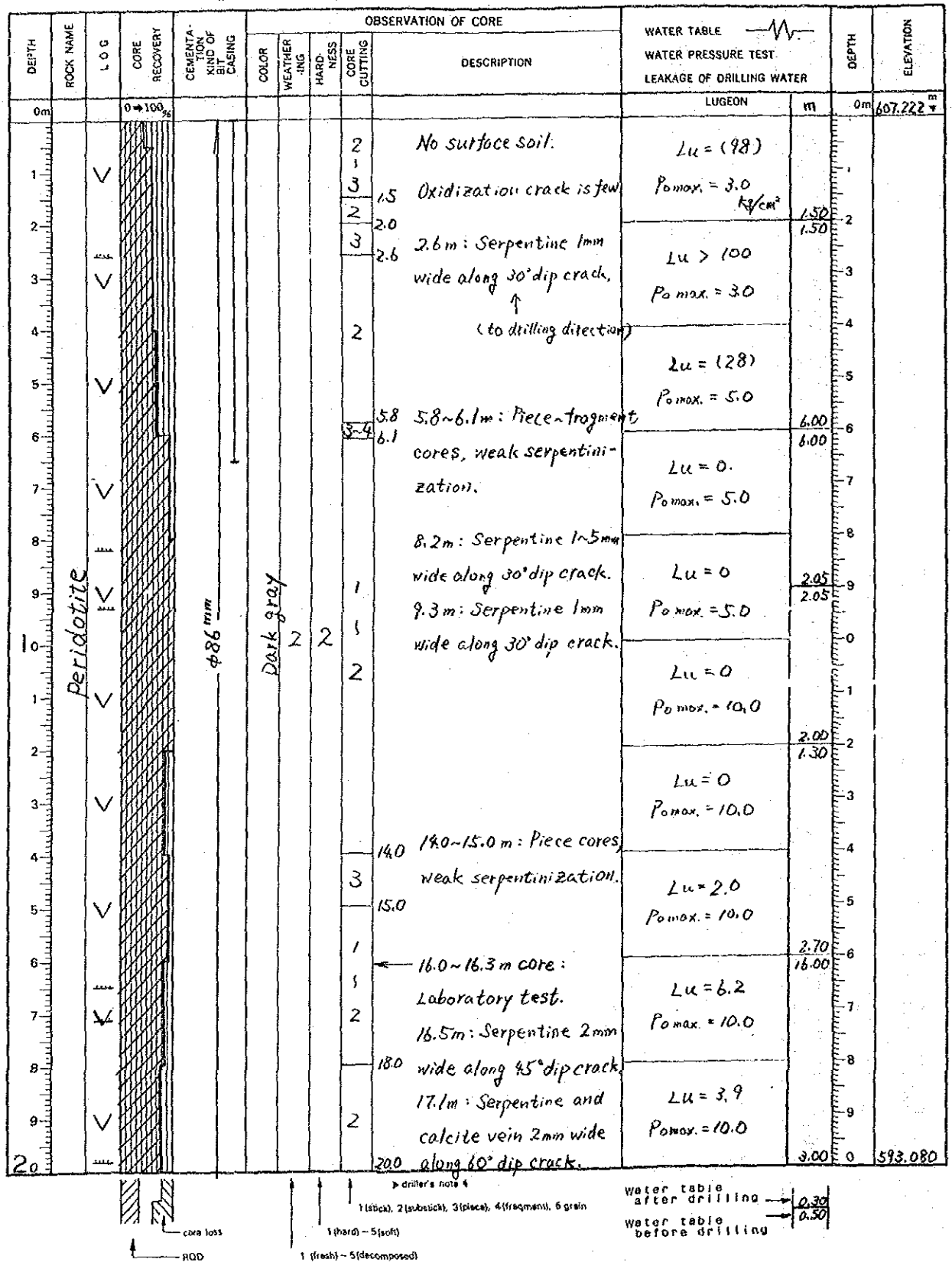
LOCATION	DAM	DEPTH OF HOLE	100.00 m	COMMENCED	25 - 8 -1988
ELEVATION	607.609 m	DEPTH OF OVERBURDEN	0 m	COMPLETED	11 - 9 -1988
COORDINATE	X 452,559.74 Y 4,177,956.05	LENGTH OF ROCK DRILLING	100.00 m	DRILLED BY	DSI
ANGLE FROM HOLIZONTAL	90 °	TOTAL LENGTH OF CORE	100.00 m	LOGGED BY	JICA
BEARING OF ANGLE HOLE	-	CORE RECOVERY	100.0 %		



GEOLOGIC LOG OF DRILL HOLE

GOKTAS PROJECT — HOLE No. SK-4 (SHEET 1 OF 4)

LOCATION	DAM	DEPTH OF HOLE	80.00 m	COMMENCED	10-8-1988
ELEVATION	607.222 m	DEPTH OF OVERBURDEN	0 m	COMPLETED	24-8-1988
COORDINATE	X. 452,560.15 Y. 4,177,955.30	LENGTH OF ROCK DRILLING	80.00 m	DRILLED BY	DSI
ANGLE FROM HOLIZONTAL	45°	TOTAL LENGTH OF CORE	80.00 m	LOGGED BY	JICA
BEARING OF ANGLE HOLE	S25°E	CORE RECOVERY	100.0 %		



GEOLOGIC LOG OF DRILL HOLE

GOKTAS PROJECT — HOLE No. SK-4 (SHEET 2 OF 4)

LOCATION	DAM	DEPTH OF HOLE	80.00 m	COMMENCED	10 - 8 -1988
ELEVATION	607.222 m	DEPTH OF OVERBURDEN	0 m	COMPLETED	24 - 8 -1988
COORDINATE	X 452,560.15 Y 4177,955.30	LENGTH OF ROCK DRILLING	80.00 m	DRILLED BY	DSI
ANGLE FROM HOLIZONTAL	45 °	TOTAL LENGTH OF CORE	80.00 m	LOGGED BY	JICA
BEARING OF ANGLE HOLE	S25°E	CORE RECOVERY	100.0 %		

DEPTH	ROCK NAME	LOG	CORE RECOVERY	CEMENTATION KIND OF BIT CASING	OBSERVATION OF CORE: COLOR	WEATHERING	HARDNESS	CORE CUTTING	DESCRIPTION	WATER TABLE / WATER PRESSURE TEST / LEAKAGE OF DRILLING WATER: LUGEON	m	DEPTH	ELEVATION
2 0m			0 → 100 %									0m	583.080 m
1		V						1	19.8m : Serpentine 1~5 mm wide along 30° dip crack.	Lu = 2.9 Pomax = 10.0 kg/cm²	3.00	1	
2								1	22.0~22.5 m : Weak serpentinization.			2	
3		V						2		Lu = 3.8 Pomax = 10.0		3	
4								1			10.60	4	
5		V						5		Lu = 0.4 Pomax = 10.0	13.00	5	
6								2	25.5~26.0m : Piece cores, 80° dip crack with thin serpentine.			6	
7		V						3		Lu = 3.0 Pomax = 10.0		7	
8								25.5	26.8m : Serpentine 1mm wide		17.00	8	
9		V						26.0		Lu = 0 Pomax = 10.0	17.00	9	
30	Peridotite			φ86 mm	Dark gray	2	2					0	
1								1	30.6m : Serpentine 1~5 mm wide along 20° dip crack.	Lu = 1.3 Pomax = 10.0		1	
2								1			13.76	2	
3		V						2		Lu = 0.4 Pomax = 10.0	29.10	3	
4												4	
5		V								Lu = 3.0 Pomax = 10.0		5	
6											18.70	6	
7		V							37.3m, 37.4m and 37.7m : Serpentine 1mm wide along 55° dip cracks.	Lu = 4.8 Pomax = 10.0	18.70	7	
8												8	
9		V								Lu = 1.2 Pomax = 10.0		9	
40											17.15	0	578.938

core loss
RQD
▶ driller's note ◀
1 (stick), 2 (substick), 3 (piece), 4 (fragment), 5 grain
1 (hard) ~ 5 (soft)
1 (fresh) ~ 5 (decomposed)
Water table after drilling → 0.30
Water table before drilling → 0.50

GEOLOGIC LOG OF DRILL HOLE

GOKTAS PROJECT — HOLE No. SK – 4 (SHEET 3 OF 4)

LOCATION	DAM	DEPTH OF HOLE	80.00 m	COMMENCED	10 - 8 -1988
ELEVATION	607.222 m	DEPTH OF OVERBURDEN	0 m	COMPLETED	24 - 8 -1988
COORDINATE	X 452,560.15 Y 4,177,955.30	LENGTH OF ROCK DRILLING	80.00 m	DRILLED BY	DSI
ANGLE FROM HOLIZONTAL	45°	TOTAL LENGTH OF CORE	80.00 m	LOGGED BY	JICA
BEARING OF ANGLE HOLE	S25°E	CORE RECOVERY	100.0 %		

DEPTH	ROCK NAME	LOG	CORE RECOVERY	CEMENTATION KIND OF BIT CASING	OBSERVATION OF CORE: COLOR	WEATHERING	HARDNESS	CORE CUTTING	DESCRIPTION	WATER TABLE / WATER PRESSURE TEST / LEAKAGE OF DRILLING WATER: LUGEON	m	DEPTH	ELEVATION
4 0m			0 → 100%									0m	578.938 m
1		V						1	42.1m : Serpentine 1mm wide along 30° dip crack.	Lu = 1.6 Pomax. = 10.0 kg/cm²	38.50	1	
2								1				2	
3		V						2		Lu = 15.0 Pomax. = 10.0		3	
4											18.20	4	
									44.5		18.20		
5		V								Lu = 4.0 Pomax. = 10.0		5	
6												6	
									47.5m : Calcite vein 1mm wide, 60° dip.	Lu = 6.3 Pomax. = 10.0		7	
											21.70		
8								2		Lu = 0.4 Pomax. = 10.0	44.30	8	
9		V							48.8 m : Serpentine 1mm wide along 30° dip and 45° dip cracks.	49.80		9	
5 0	Peridotite			φ86 mm	Dark gray	2	2					0	
1		V							50.4m : Serpentine 1mm wide.	Lu = 0 Pomax. = 10.0		1	
2									← 51.7~52.0 m core : Laboratory test.		22.10	2	
											22.10		
3		V								Lu = 0 Pomax. = 10.0		3	
									53.5				
4								3	53.5~54.3m : Piece cores, thin meshy serpentine.			4	
									54.3				
5		V						2		Lu = 0 Pomax. = 10.0		5	
									55.0				
6								3	56.0m : Calcite vein 2 cm wide and Serpentine 5mm wide along 35° dip crack.		16.90	6	
									56.0		48.40		
								2	56.5	Lu = 0 Pomax. = 10.0			
7		V						2				7	
								1					
8								3	57.2 m : Serpentine 1mm wide along 20° dip crack.			8	
									58.5				
9		V						2		Lu = 0 Pomax. = 10.0		9	
6 0											17.15	0	564.796

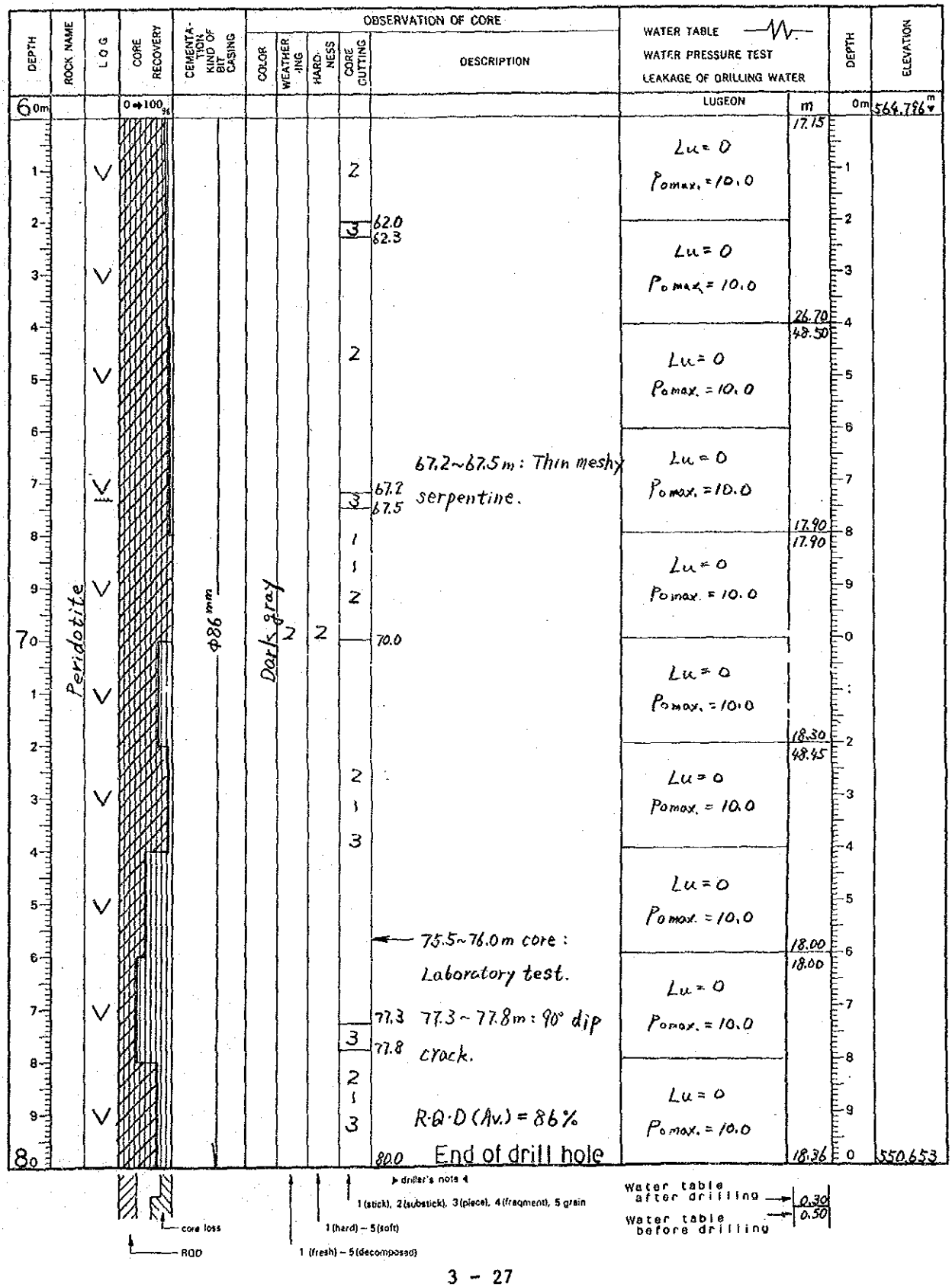
core loss
RQD
1 (fresh) ~ 5 (decomposed)
1 (hard) ~ 5 (soft)
▶ driller's note ◀
1 (stick), 2 (subastick), 3 (piece), 4 (freqment), 5 grain

water table after drilling → 0.30
water table before drilling → 0.50

GEOLOGIC LOG OF DRILL HOLE

GOKTAS PROJECT — HOLE No. SK-4 (SHEET 4 OF 4)

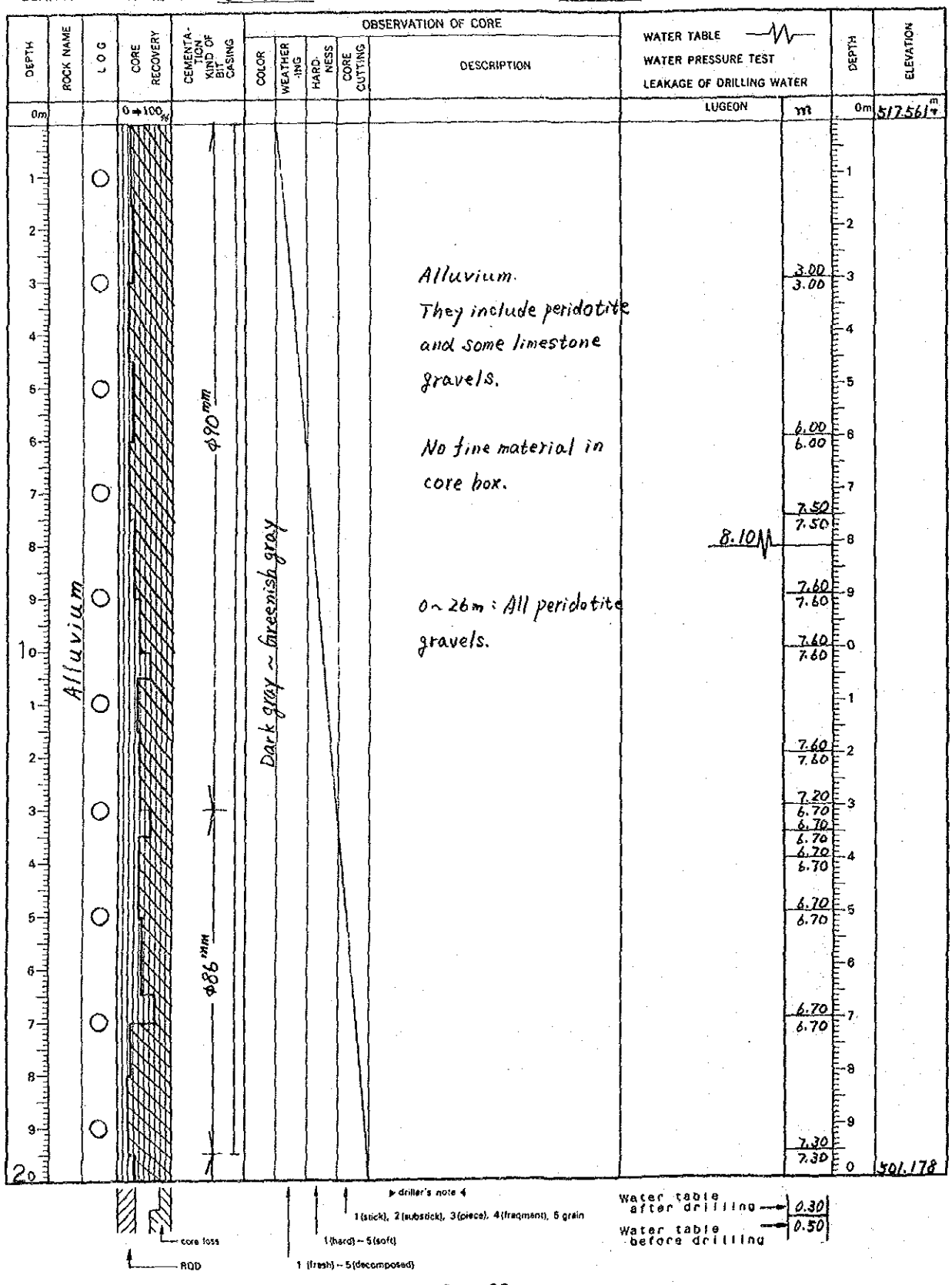
LOCATION	DAM	DEPTH OF HOLE	80.00 m	COMMENCED	10 - 8 -1988
ELEVATION	607.222 m	DEPTH OF OVERBURDEN	0 m	COMPLETED	24 - 8 -1988
COORDINATE	X: 452,560.15 Y: 4,177,955.30	LENGTH OF ROCK DRILLING	80.00 m	DRILLED BY	DSI
ANGLE FROM HOLIZONTAL	45 ·	TOTAL LENGTH OF CORE	80.00 m	LOGGED BY	JICA
BEARING OF ANGLE HOLE	S25°E	CORE RECOVERY	100.0 %		



GEOLOGIC LOG OF DRILL HOLE

GOKTAS PROJECT — HOLE No. SK-5 (SHEET 1 OF 5)

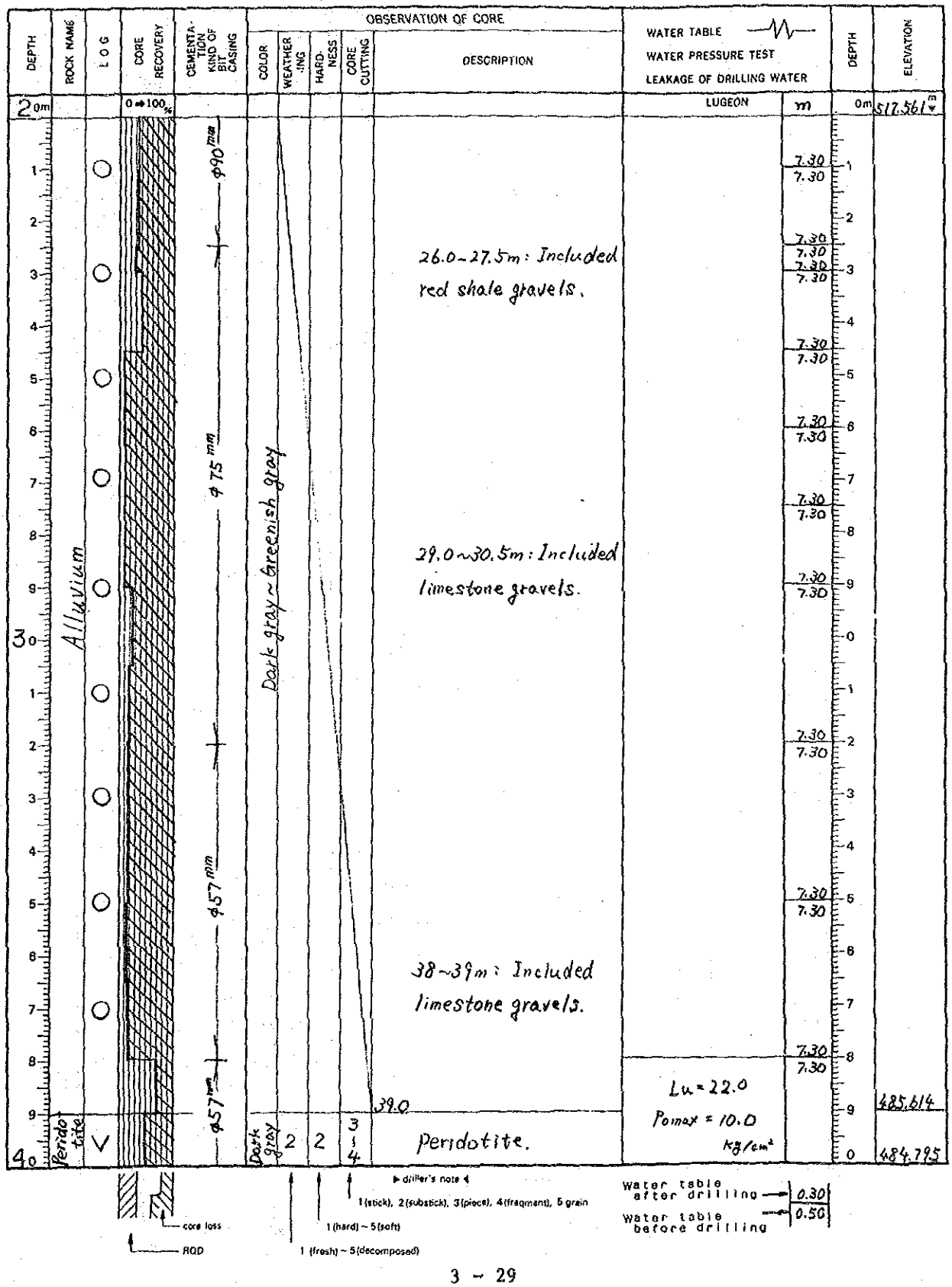
LOCATION	DAM	DEPTH OF HOLE	100.00 m	COMMENCED	14 - 7 -1988
ELEVATION	517.561 m	DEPTH OF OVERBURDEN	39.00 m	COMPLETED	6 - 9 -1988
COORDINATE	X 452,534.29 Y 4178,057.82	LENGTH OF ROCK DRILLING	61.00 m	DRILLED BY	DSI
ANGLE FROM HOLIZONTAL	55 °	TOTAL LENGTH OF CORE	69.97 m	LOGGED BY	JICA
BEARING OF ANGLE HOLE	S 40° E	CORE RECOVERY	69.97 %		



GEOLOGIC LOG OF DRILL HOLE

GOKTAS PROJECT — HOLE No. SK-5 (SHEET 2 OF 5)

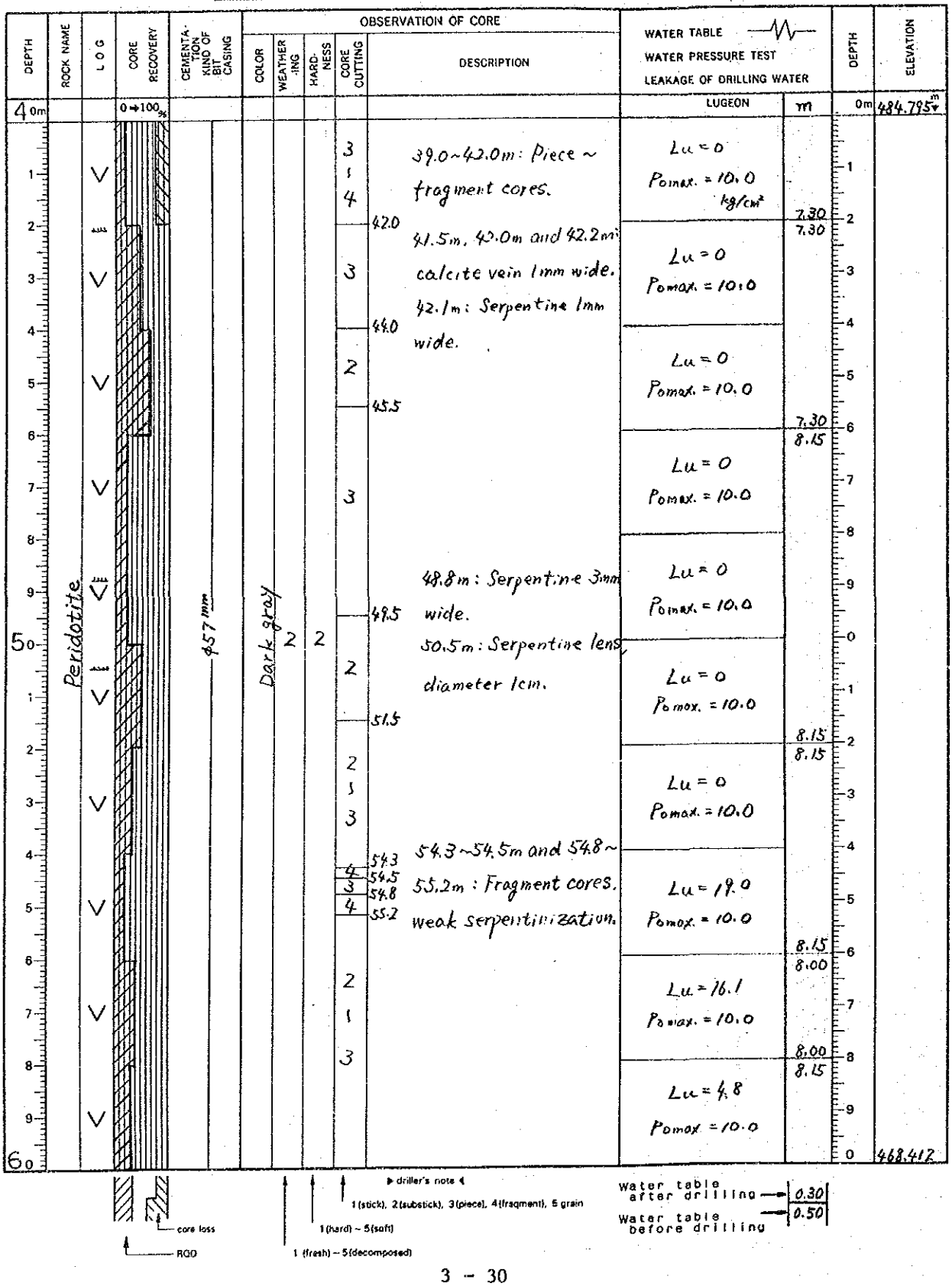
LOCATION	DAM	DEPTH OF HOLE	100.00 m	COMMENCED	14 - 7 -1988
ELEVATION	517.561 m	DEPTH OF OVERBURDEN	39.00 m	COMPLETED	6 - 9 -1988
COORDINATE	X 452,534.29 Y 4178,057.82	LENGTH OF ROCK DRILLING	61.00 m	DRILLED BY	DSI
ANGLE FROM HOLIZONTAL	55 °	TOTAL LENGTH OF CORE	69.97 m	LOGGED BY	JICA
BEARING OF ANGLE HOLE	S 40° E	CORE RECOVERY	69.97 %		



GEOLOGIC LOG OF DRILL HOLE

GOKTAS PROJECT — HOLE No. SK-5 (SHEET 3 OF 5)

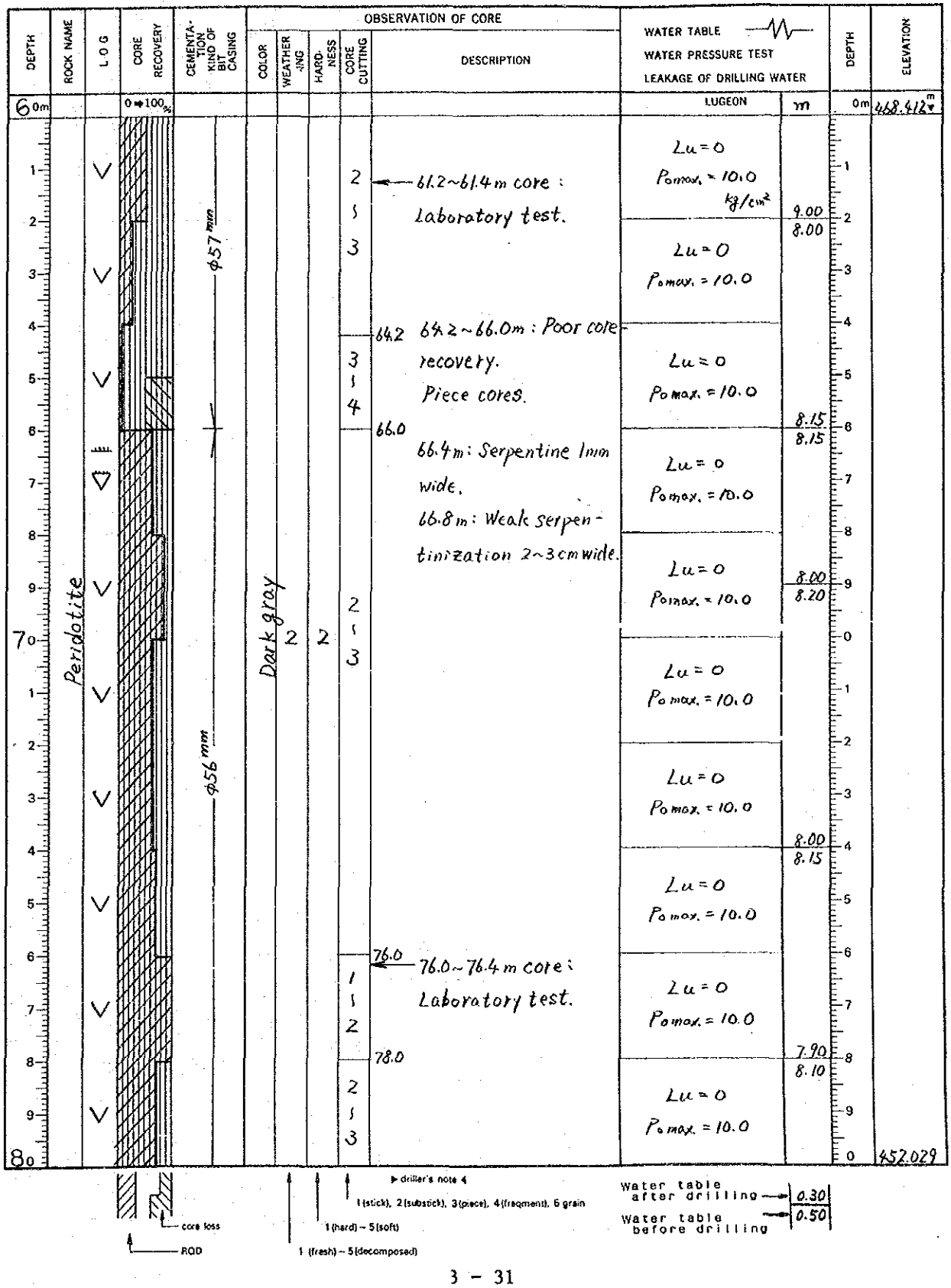
LOCATION	DAM	DEPTH OF HOLE	100.00 m	COMMENCED	14 - 7 -1988
ELEVATION	517.561 m	DEPTH OF OVERBURDEN	39.00 m	COMPLETED	6 - 9 -1988
COORDINATE	X 452534.29 Y 4178057.82	LENGTH OF ROCK DRILLING	61.00 m	DRILLED BY	DSI
ANGLE FROM HOLIZONTAL	55 °	TOTAL LENGTH OF CORE	69.97 m	LOGGED BY	JICA
BEARING OF ANGLE HOLE	S 40° E	CORE RECOVERY	69.97 %		



GEOLOGIC LOG OF DRILL HOLE

GOKTAS PROJECT — HOLE No. SK-5 (SHEET 4 OF 5)

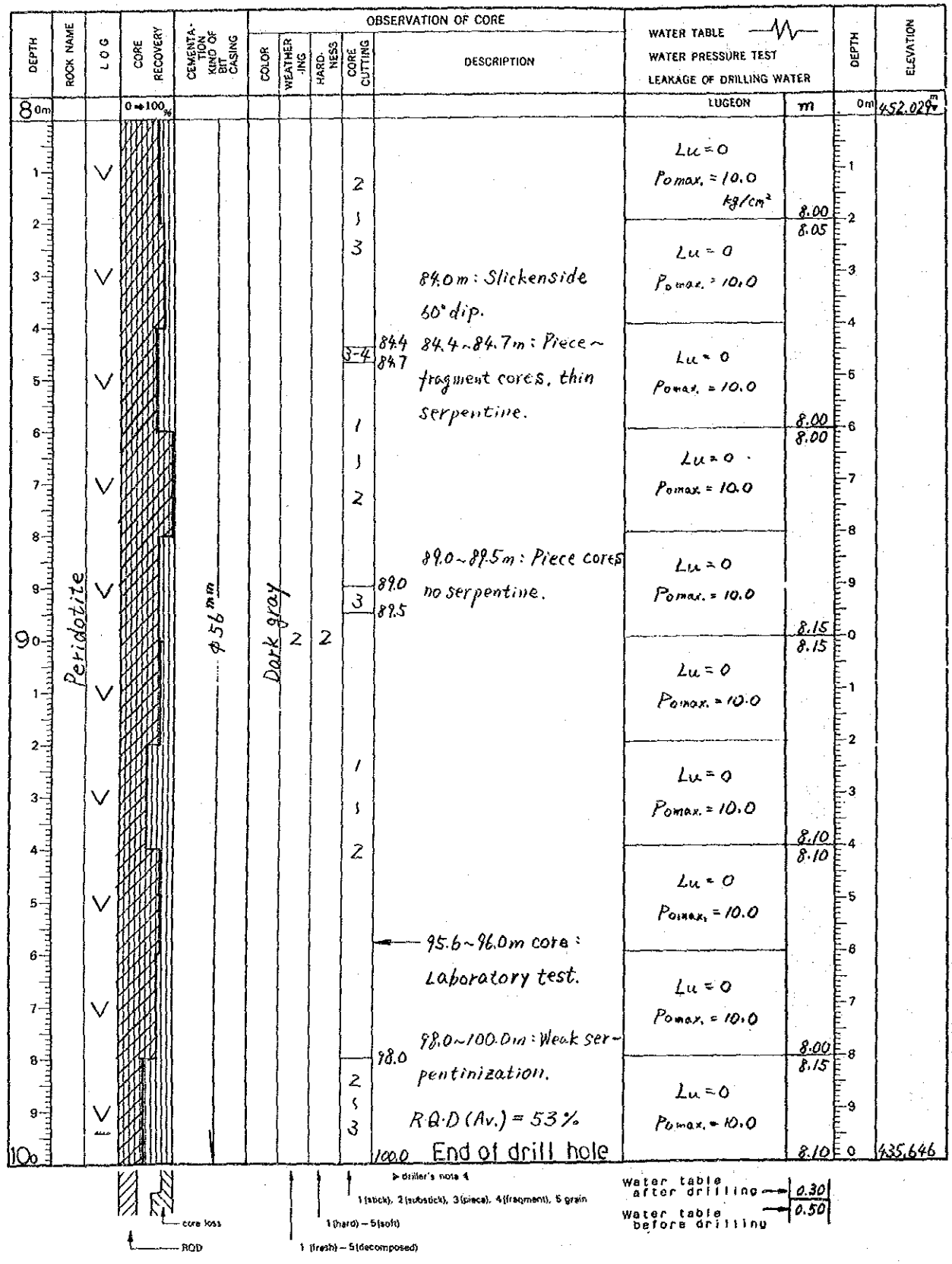
LOCATION	DAM	DEPTH OF HOLE	100.00 m	COMMENCED	14 - 7 -1988
ELEVATION	517.561 m	DEPTH OF OVERBURDEN	39.00 m	COMPLETED	6 - 9 -1988
COORDINATE	X 452,534.29 Y 4178,057.82	LENGTH OF ROCK DRILLING	61.00 m	DRILLED BY	DSI
ANGLE FROM HOLIZONTAL	55 °	TOTAL LENGTH OF CORE	69.97 m	LOGGED BY	JICA
BEARING OF ANGLE HOLE	S40° E	CORE RECOVERY	69.97 %		



GEOLOGIC LOG OF DRILL HOLE

GOKTAS PROJECT — HOLE No. SK-5 (SHEET 5 OF 5)

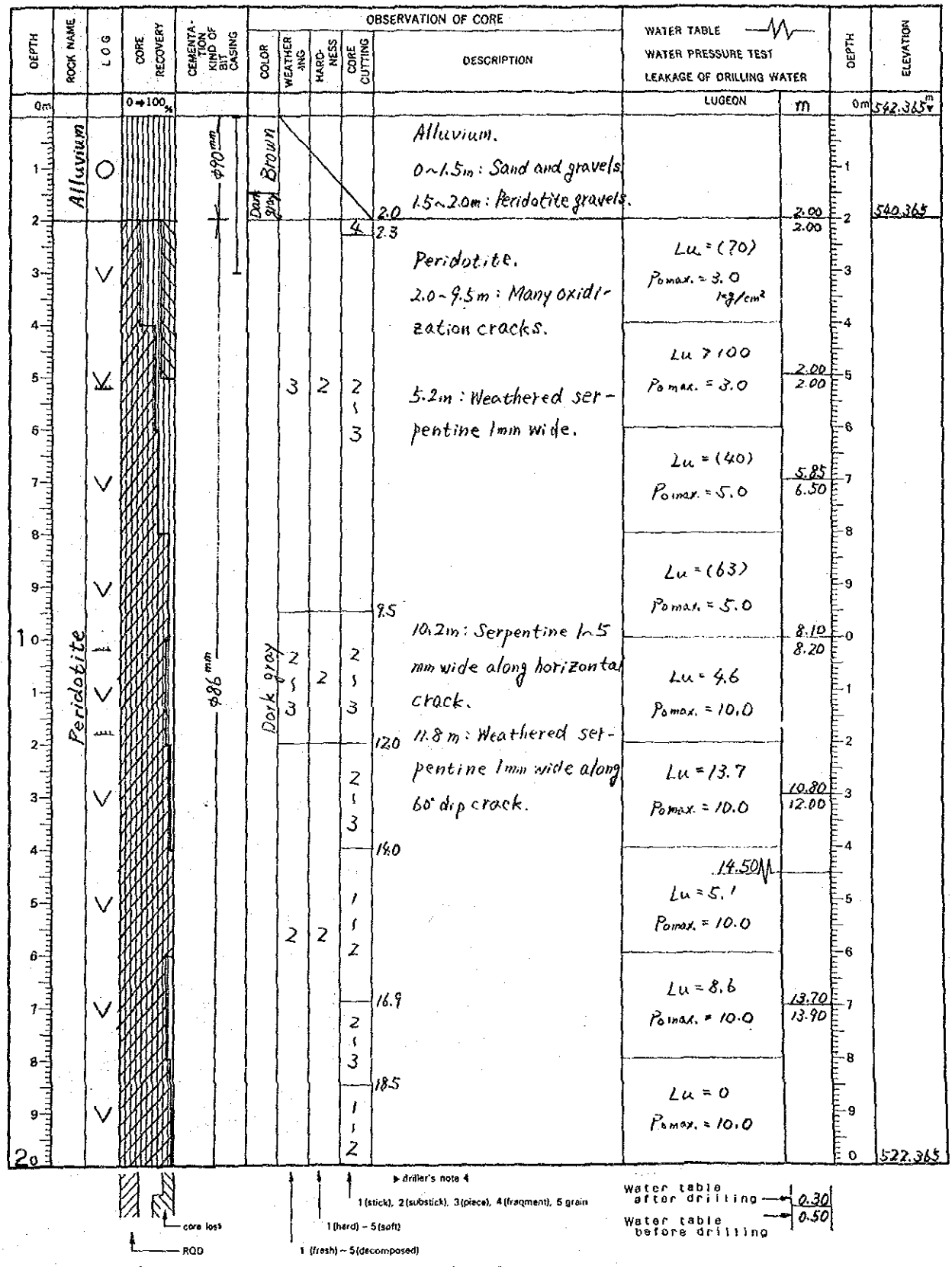
LOCATION	DAM	DEPTH OF HOLE	100.00 m	COMMENCED	14 - 7 -1988
ELEVATION	517.561 m	DEPTH OF OVERBURDEN	39.00 m	COMPLETED	6 - 9 -1988
COORDINATE	X. 452,534.29 Y. 4,178,057.82	LENGTH OF ROCK DRILLING	61.00 m	DRILLED BY	DSI
ANGLE FROM HOLIZONTAL	55 °	TOTAL LENGTH OF CORE	69.97 m	LOGGED BY	JICA
BEARING OF ANGLE HOLE	S 40° E	CORE RECOVERY	69.97 %		



GEOLOGIC LOG OF DRILL HOLE

GOKTAS PROJECT — HOLE No. SK - 6 (SHEET 1 OF 5)

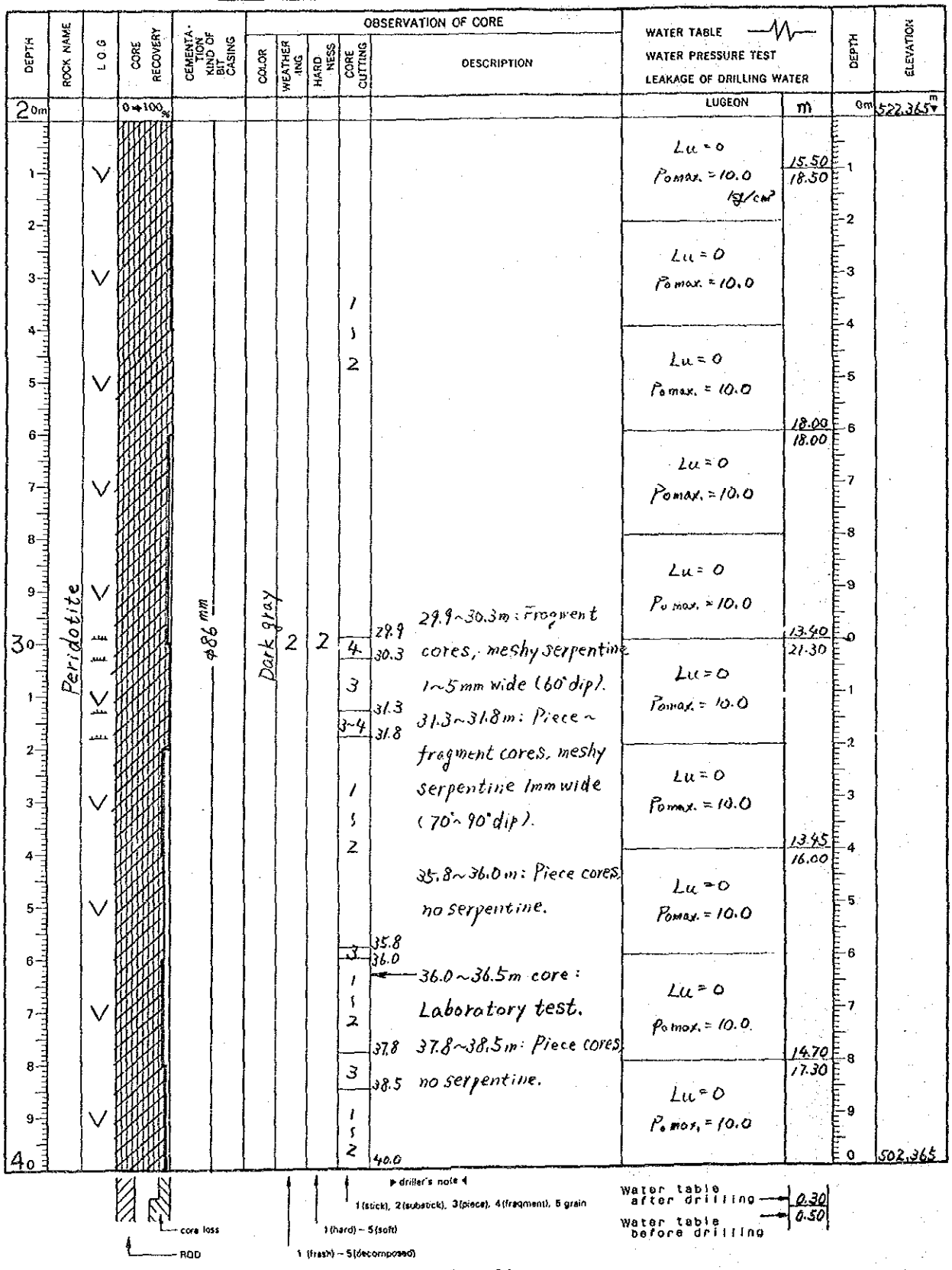
LOCATION	DAM	DEPTH OF HOLE	90.00m	COMMENCED	11 - 8 -1988
ELEVATION	542.365 m	DEPTH OF OVERBURDEN	2.00m	COMPLETED	1 - 9 -1988
COORDINATE	X. 452,510.97 Y. 4,178,997.07	LENGTH OF ROCK DRILLING	88.00m	DRILLED BY	DSI
ANGLE FROM HOLIZONTAL	90°	TOTAL LENGTH OF CORE	89.23m	LOGGED BY	JICA
BEARING OF ANGLE HOLE	—	CORE RECOVERY	99.1 %		



GEOLOGIC LOG OF DRILL HOLE

GOKTAS PROJECT — HOLE No. SK-6 (SHEET 2 OF 5)

LOCATION	DAM	DEPTH OF HOLE	90.00m	COMMENCED	11 - 8 -1988
ELEVATION	542.365 m	DEPTH OF OVERBURDEN	2.00m	COMPLETED	1 - 9 -1988
COORDINATE	X. 452,510.97 Y. 4,178,097.07	LENGTH OF ROCK DRILLING	88.00m	DRILLED BY	DSI
ANGLE FROM HOLIZONTAL	90 °	TOTAL LENGTH OF CORE	89.23m	LOGGED BY	JICA
BEARING OF ANGLE HOLE	—	CORE RECOVERY	99.1 %		



GEOLOGIC LOG OF DRILL HOLE

GOKTAS PROJECT — HOLE No. SK - 6 (SHEET 3 OF 5)

LOCATION	DAM	DEPTH OF HOLE	90.00 m	COMMENCED	11 - 8 - 1988
ELEVATION	542.365 m	DEPTH OF OVERBURDEN	2.00 m	COMPLETED	1 - 9 - 1988
COORDINATE	X. 452.510.97 Y. 4.178.097.07	LENGTH OF ROCK DRILLING	88.00 m	DRILLED BY	DSI
ANGLE FROM HOLIZONTAL	90°	TOTAL LENGTH OF CORE	89.23 m	LOGGED BY	JICA
BEARING OF ANGLE HOLE	–	CORE RECOVERY	99.1 %		

DEPTH	ROCK NAME	LOG	CORE RECOVERY	CEMENTATION KIND OF BIT CASING	COLOR	WEATHERING	HARDNESS	CORE CUTTING	DESCRIPTION	WATER TABLE / WATER PRESSURE TEST / LEAKAGE OF DRILLING WATER: LUGEON	m	DEPTH	ELEVATION
40m			0 ⇒ 100%									0m	502.365 m
1	Peridotite	V		φ86 mm	Dark gray	2	2	2 ~ 3	40.7m : Serpentine 1mm wide along 70° dip crack.	Lu = 0, Pomax. = 10.0 kg/cm²	14.50 / 16.70	1	
2										Lu = 0, Pomax. = 10.0		2	
3		V										3	
4								1 ~ 2		Lu = 0, Pomax. = 10.0		4	
5		V										5	
6										Lu = 0, Pomax. = 10.0	14.50 / 21.30	6	
7		V							47.9m : Calcite vein less than 1mm wide.			7	
8										Lu = 0, Pomax. = 10.0		8	
9		V										9	
50									50.0	Lu = 0, Pomax. = 10.0	14.50 / 14.50	0	
1		V						2 ~ 3				1	
2										Lu = 0, Pomax. = 10.0	14.50 / 21.30	2	
3		V										3	
4				φ76 mm					54.0	Lu = 0, Pomax. = 10.0		4	
5		V										5	
6								2		Lu = 0, Pomax. = 10.0	13.30 / 15.30	6	
7		V										7	
8										Lu = 0, Pomax. = 10.0		8	
9		V						1 ~ 2	59.0			9	
60											14.50	0	482.365

▶ driller's note ◀

1 (stick), 2 (substick), 3 (piece), 4 (fragment), 5 grain

1 (hard) – 5 (soft)

1 (fresh) – 5 (decomposed)

core loss

RQD

Water table after drilling → 0.30

Water table before drilling → 0.50

GEOLOGIC LOG OF DRILL HOLE

GOKTAS PROJECT — HOLE No. SK-6 (SHEET 4 OF 5)

LOCATION	DAM	DEPTH OF HOLE	90.00 m	COMMENCED	11 - 8 -1988
ELEVATION	542.365 m	DEPTH OF OVERBURDEN	2.00 m	COMPLETED	1 - 9 -1988
COORDINATE	X. 452,510.97 Y. 4178,097.07	LENGTH OF ROCK DRILLING	88.00 m	DRILLED BY	DSI
ANGLE FROM HOLIZONTAL	90 °	TOTAL LENGTH OF CORE	89.23 m	LOGGED BY	JICA
BEARING OF ANGLE HOLE	—	CORE RECOVERY	99.1 %		

DEPTH	ROCK NAME	LOG	CORE RECOVERY 0→100%	CEMENTATION KIND OF BIT CASING	OBSERVATION OF CORE: COLOR	WEATHERING	HARDNESS	CORE CUTTING	DESCRIPTION	WATER TABLE / WATER PRESSURE TEST / LEAKAGE OF DRILLING WATER: LUGEON	m	DEPTH	ELEVATION
6 0m			0→100%									0m	482.365m
	Peridotite			φ76 mm	Dark gray	W	2	1	67.1m : Calcite vein and serpentine less than 1mm wide (50° dip).	Lu = 0 Pomax. = 10.0 kg/cm²	21.00		
										Lu = 0 Pomax. = 10.0			
										Lu = 0 Pomax. = 10.0	14.00		
										Lu = 0 Pomax. = 10.0	14.00		
										Lu = 0 Pomax. = 10.0			
7 0								1		Lu = 0 Pomax. = 10.0			
								1					
								2					
										Lu = 0 Pomax. = 10.0	14.20 20.00		
										Lu = 0 Pomax. = 10.0			
										Lu = 0 Pomax. = 10.0			
										Lu = 0 Pomax = 10.0	14.00 14.50		
										Lu = 0 Pomax. = 10.0			
8 0													462.365

core loss

RQD

▶ driller's note ◀
1 (stick), 2 (substick), 3 (piece), 4 (fragment), 5 grain

1 (hard) – 5 (soft)

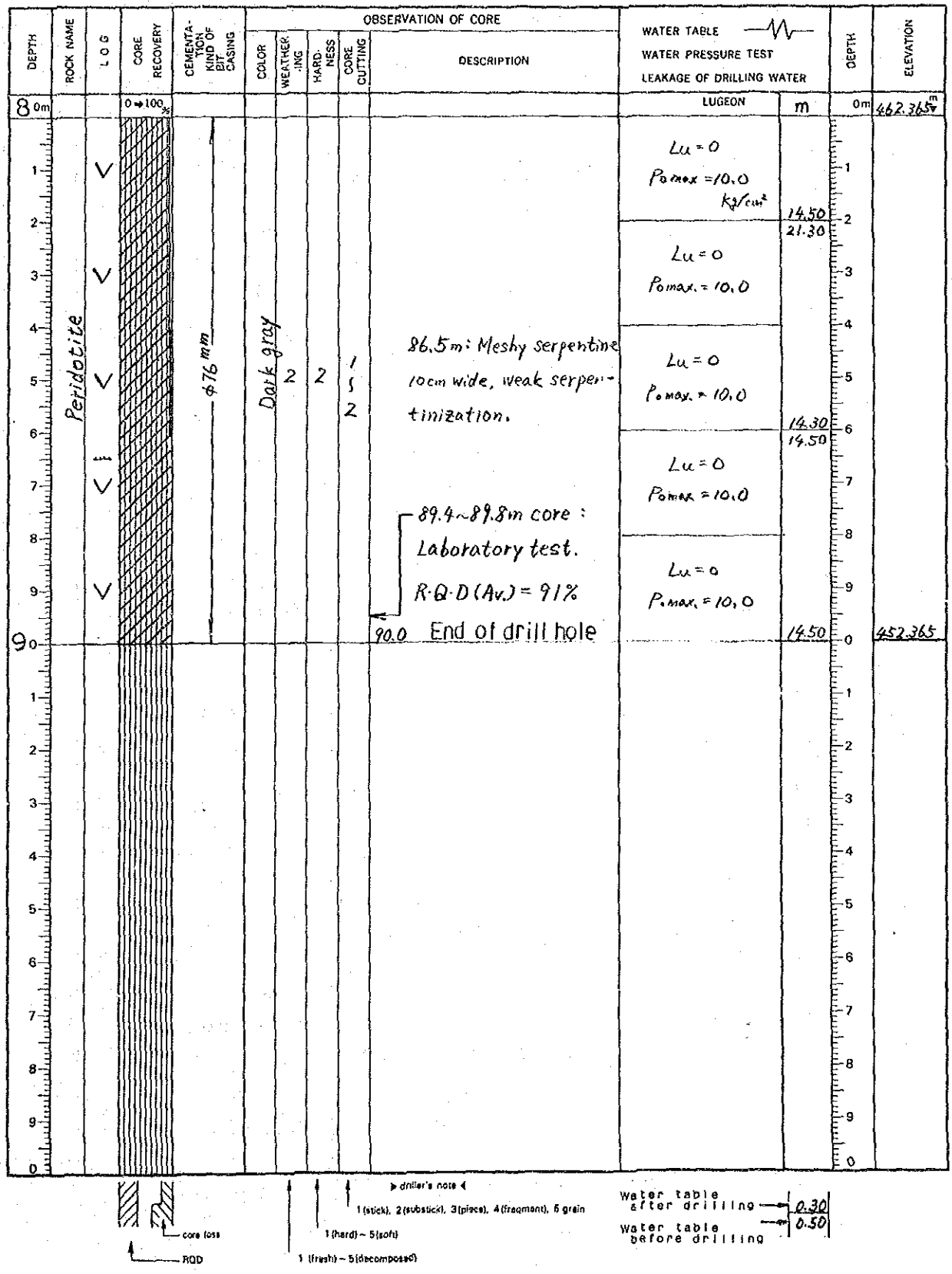
1 (fresh) – 5 (decomposed)

Water table after drilling → 0.30
Water table before drilling → 0.50

GEOLOGIC LOG OF DRILL HOLE

GOKTAS PROJECT — HOLE No. SK – 6 (SHEET 5 OF 5)

LOCATION	DAM	DEPTH OF HOLE	90.00 m	COMMENCED	11 – 8 – 1988
ELEVATION	542.365 m	DEPTH OF OVERBURDEN	2.00 m	COMPLETED	1 – 9 – 1988
COORDINATE	X. 452,510.47 Y. 4,178,097.07	LENGTH OF ROCK DRILLING	88.00 m	DRILLED BY	DSI
ANGLE FROM HOLIZONTAL	90 °	TOTAL LENGTH OF CORE	89.23 m	LOGGED BY	JICA
BEARING OF ANGLE HOLE	–	CORE RECOVERY	99.1 %		



GEOLOGIC LOG OF DRILL HOLE

GOKTAS PROJECT — HOLE No. SK-7 (SHEET 1 OF 4)

LOCATION	DAM	DEPTH OF HOLE	80.00 m	COMMENCED	23 - 9 -1988
ELEVATION	603.687 m	DEPTH OF OVERBURDEN	0 m	COMPLETED	6 - 10 -1988
COORDINATE	X. 452439.67 Y. 4178108.32	LENGTH OF ROCK DRILLING	80.00 m	DRILLED BY	DSI
ANGLE FROM HOLIZONTAL	60 ·	TOTAL LENGTH OF CORE	80.00 m	LOGGED BY	JICA
BEARING OF ANGLE HOLE	N25°W	CORE RECOVERY	100.0 %		

DEPTH	ROCK NAME	LOG	CORE RECOVERY (0 ➡ 100%)	CEMENTATION / KIND OF BIT / CASING	OBSERVATION OF CORE: COLOR	WEATHERING	HARDNESS	CORE CUTTING	DESCRIPTION
0m									
1	Peridotite	V		φ86 mm	Dark gray	2	2	3 1 4	No surface soil.
1.3									Peridotite.
2		V							
3		V							4.1m: Oxidization crack 45° dip.
4									
5		V							4.3m and 4.5m: Serpentine 1mm wide along 0°~15° dip cracks. ↑ (to drilling direction)
6									
7		V						1	6.1m: Serpentine 1mm wide along 15° dip crack.
8								1 2	
9		V							
10									
11		V							
12									
13		V							
14									
15		V							
16									
17		V							
18									
18.0						3	2 1 3	3	18.0~19.5m: Oxidization cracks, weak serpentinization.
19		V							
19.5						2	2	2	
20									

WATER TABLE / WATER PRESSURE TEST / LEAKAGE OF DRILLING WATER

LUGEON	m	DEPTH	ELEVATION
0.00 Overflow 0.5 ℓ/min.		0m	603.687m
Lu=(17) Pomax=3.0 kg/cm²	1.00	1	
Lu=(22) Pomax=3.0	3.00	3	
Lu=(9) Pomax=5.0		5	
Lu=(5) Pomax=5.0	3.60	6	
Lu=0 Pomax=5.0	6.30	6	
Lu=0 Pomax=10.0		10	
Lu=0 Pomax=10.0	6.95	12	
Lu=1.4 Pomax=10.0		14	
Lu=2.6 Pomax=10.0	16.34	16	
Lu=13.0 Pomax=10.0	17.00	17	
		20	586.366

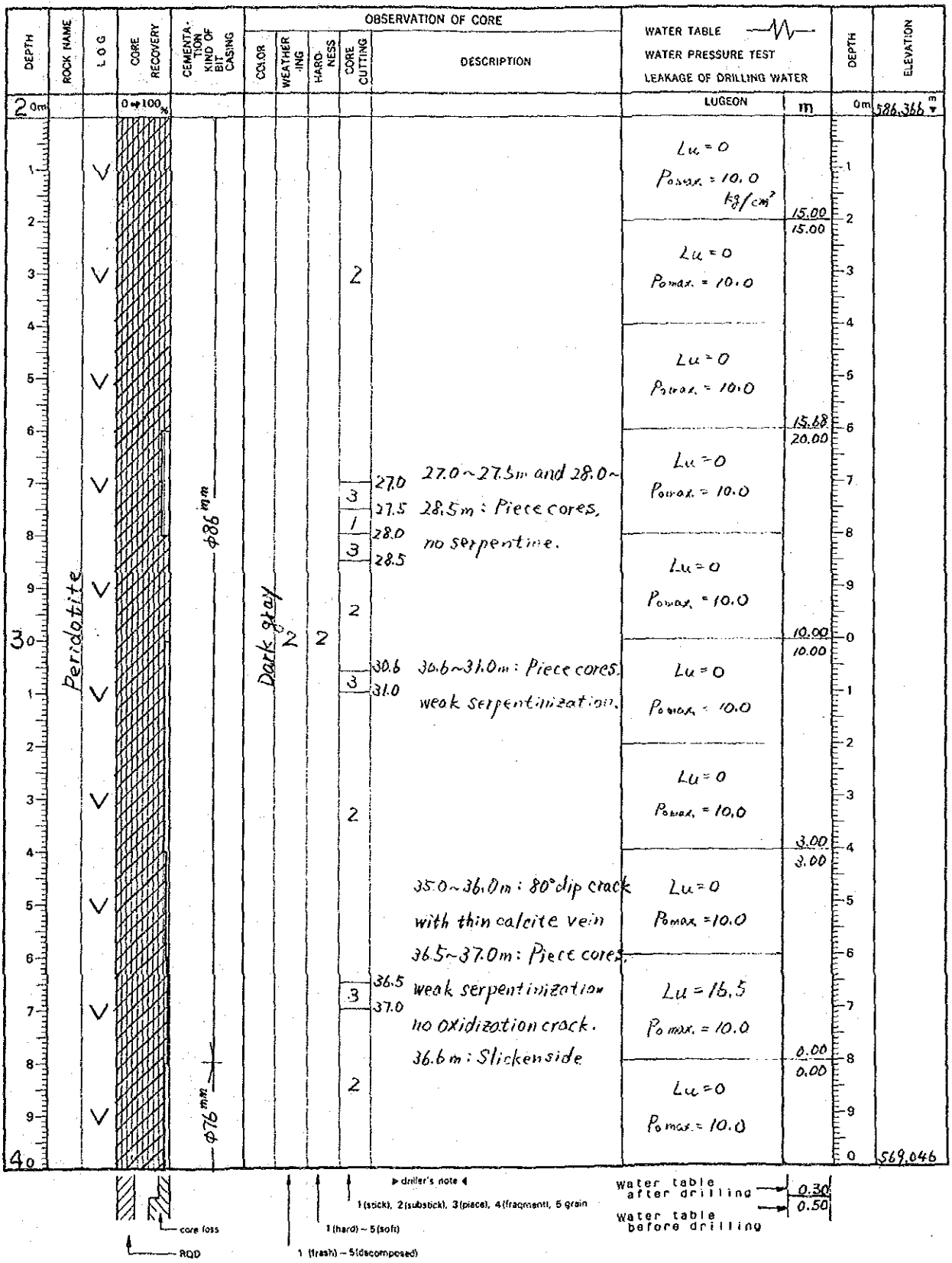
Water table after drilling → 0.30
Water table before drilling → 0.50

core loss
ROD
1 (fresh) ~ 5 (decomposed)
1 (hard) ~ 5 (soft)
▶ driller's note 4
1 (stick), 2 (substick), 3 (piece), 4 (fragment), 5 grain

GEOLOGIC LOG OF DRILL HOLE

GOKTAS PROJECT — HOLE No. SK-7 (SHEET 2 OF 4)

LOCATION	DAM	DEPTH OF HOLE	80.00 m	COMMENCED	23-9-1988
ELEVATION	603.687 m	DEPTH OF OVERBURDEN	0 m	COMPLETED	6-10-1988
COORDINATE	X 452439.67 Y 4178108.32	LENGTH OF ROCK DRILLING	80.00 m	DRILLED BY	DSI
ANGLE FROM HOLIZONTAL	60°	TOTAL LENGTH OF CORE	80.00 m	LOGGED BY	JICA
BEARING OF ANGLE HOLE	N 25° W	CORE RECOVERY	100.0 %		



GEOLOGIC LOG OF DRILL HOLE

GOKTAS PROJECT — HOLE No. SK-7 (SHEET 3 OF 4)

LOCATION	DAM	DEPTH OF HOLE	80.00 m	COMMENCED	23 - 9 -1988
ELEVATION	603.687 m	DEPTH OF OVERBURDEN	0 m	COMPLETED	6 - 10 -1988
COORDINATE	X 452439.67 Y 4178108.32	LENGTH OF ROCK DRILLING	80.00 m	DRILLED BY	DSI
ANGLE FROM HOLIZONTAL	60 °	TOTAL LENGTH OF CORE	80.00 m	LOGGED BY	JICA
BEARING OF ANGLE HOLE	N25°W	CORE RECOVERY	100.0 %		

DEPTH	ROCK NAME	LOG	CORE RECOVERY (0→100%)	CEMENTATION KIND OF BIT CASING	OBSERVATION OF CORE: COLOR	WEATHERING	HARDNESS	CORE CUTTING	DESCRIPTION	WATER TABLE / WATER PRESSURE TEST / LEAKAGE OF DRILLING WATER: LUGEON	m	DEPTH	ELEVATION
40m												0m	569.046m
1		V						2		Lu = 0 Pomax. = 10.0 kg/cm²	0.00	1	
2									42.5~44.5m : Thin serpentine along 70°~80° dip crack.		0.00	2	
3		V					2	3		Lu = 0 Pomax = 10.0		3	
4												4	
5		V						2 (44.5–45.0) 3 (45.0–45.6)	45.0~45.6m : Serpentine 1mm wide along 40° dip crack.	Lu = 0 Pomax = 10.0	0.00	5	
6								2			0.00	6	
7		V					3	3-4 (47.1–47.4)	47.1~47.4m : Calcite vein 2~3mm wide, serpentine 1mm wide and talc less than 1mm wide. Meshy.	Lu = 0 Pomax. = 10.0		7	
8												8	
9		V								Lu = 0 Pomax. = 10.0		9	
50	Peridotite			ϕ76mm	Dark gray	2					0.00	0	
1									47.9~51.5m : Serpentine 1mm wide along many cracks.	Lu = 0 Pomax. = 10.0	0.00	1	
2												2	
3		V					2	2		Lu = 0 Pomax. = 10.0		3	
4											0.00	4	
5		V							54.8m : Serpentine 1mm wide along 40° dip crack.	Lu = 0 Pomax. = 10.0	0.00	5	
6												6	
7		V							57.2m : Meshy serpentine 1mm wide.	Lu = 0 Pomax. = 10.0		7	
8									58.1m : Serpentine 1mm wide along 30° dip crack.		0.00	8	
9		V								Lu = 0 Pomax. = 10.0	0.00	9	
60												0	551.725

water table after drilling → 0.30
water table before drilling → 0.50

core loss
RQD
▶ driller's note ◀ 1 (suck), 2 (substick), 3 (piece), 4 (fragment), 5 grain
1 (hard) ~ 5 (soft)
1 (fresh) ~ 5 (decomposed)

GEOLOGIC LOG OF DRILL HOLE

GOKTAS PROJECT — HOLE No. SK-7 (SHEET 4 OF 4)

LOCATION	DAM	DEPTH OF HOLE	80.00 m	COMMENCED	23-9-1988
ELEVATION	603.687 m	DEPTH OF OVERBURDEN	0 m	COMPLETED	6-10-1988
COORDINATE	X 452439.67 Y 4178108.32	LENGTH OF ROCK DRILLING	80.00 m	DRILLED BY	DSI
ANGLE FROM HOLIZONTAL	60 °	TOTAL LENGTH OF CORE	80.00 m	LOGGED BY	JICA
BEARING OF ANGLE HOLE	N25°W	CORE RECOVERY	100.0 %		

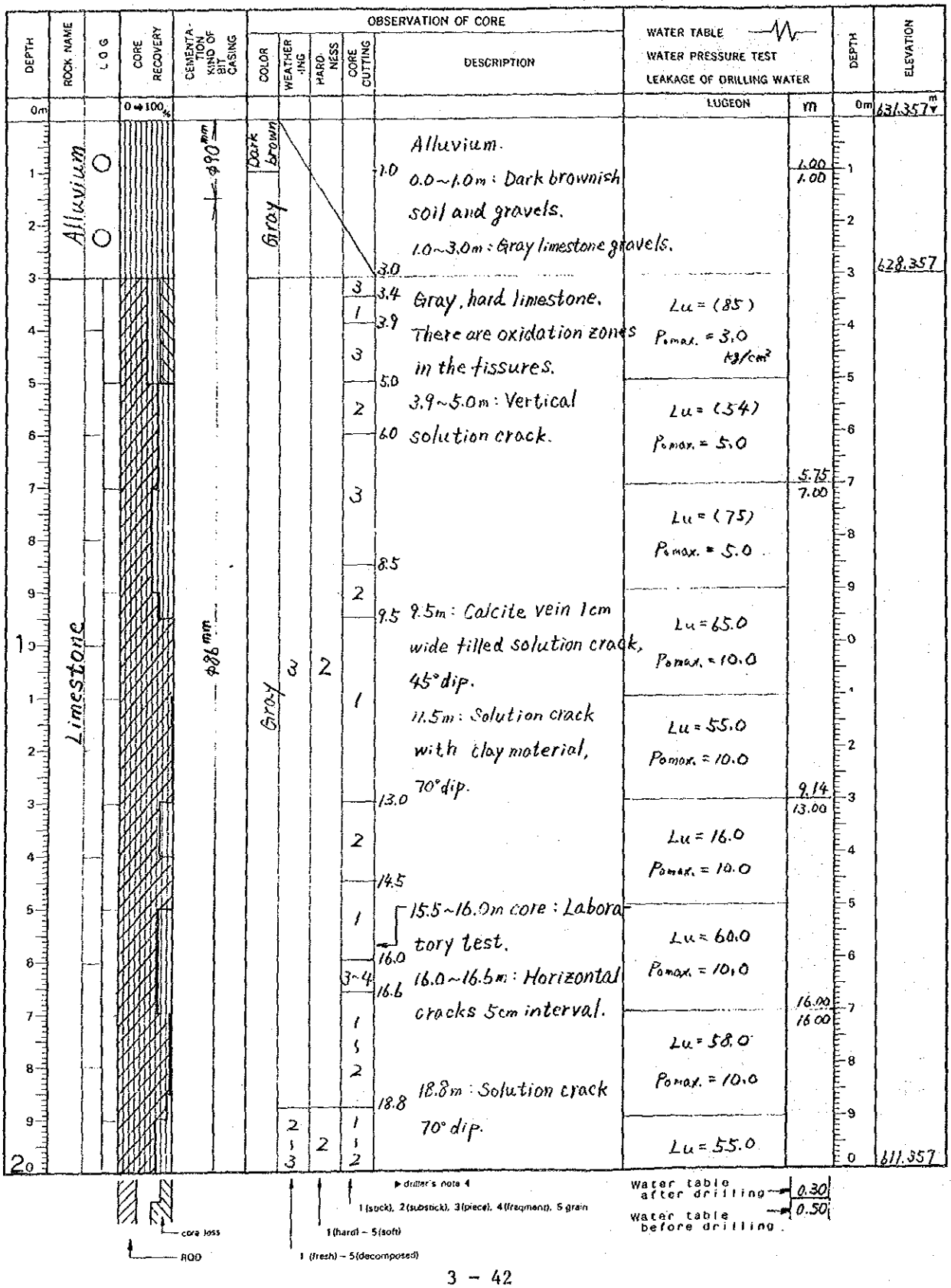
DEPTH	ROCK NAME	LOG	CORE RECOVERY	CEMENTATION KIND OF BIT CASING	OBSERVATION OF CORE: COLOR	WEATHERING	HARDNESS	CORE CUTTING	DESCRIPTION	WATER TABLE / WATER PRESSURE TEST / LEAKAGE OF DRILLING WATER: LUGEON	m	DEPTH	ELEVATION
6 0m			0 ➡ 100 %									0m	551.725 m
	Peridotite			φ76 mm	Dark gray	2	2	2	60.3m: Serpentine 1mm wide along 30° dip crack.	Lu = 0, Pomax. = 10.0 kg/cm²	0.00		
									62.7m: Serpentine 1mm wide along 10° dip crack.	Lu = 0, Pomax. = 10.0	0.00		
								2		Lu = 0, Pomax. = 10.0			
										Lu = 0, Pomax. = 10.0	0.00		
										Lu = 0, Pomax. = 10.0	0.00		
								67.5					
								1		Lu = 0, Pomax. = 10.0			
7 0								2			0.00		
										Lu = 0, Pomax. = 10.0	0.00		
								72.0					
									73.1m and 73.7m: Serpentine 1mm wide along 70° dip crack.	Lu = 0, Pomax. = 10.0	0.00		
								2		Lu = 0, Pomax. = 10.0	0.00		
										Lu = 0, Pomax. = 10.0	0.00		
									R.Q.D (Av.) = 91%	Lu = 0, Pomax. = 10.0	0.00		
8 0									80.0 End of drill hole		0.00	0	534.405

core loss
RQD
▶ driller's note ◀
1 (stick), 2 (substick), 3 (piece), 4 (fragment), 5 grain
1 (hard) ~ 5 (soft)
1 (fresh) ~ 5 (decomposed)
water table after drilling 0.30
water table before drilling 0.50

GEOLOGIC LOG OF DRILL HOLE

GOKTAS PROJECT — HOLE No. TB-1 (SHEET 1 OF 5)

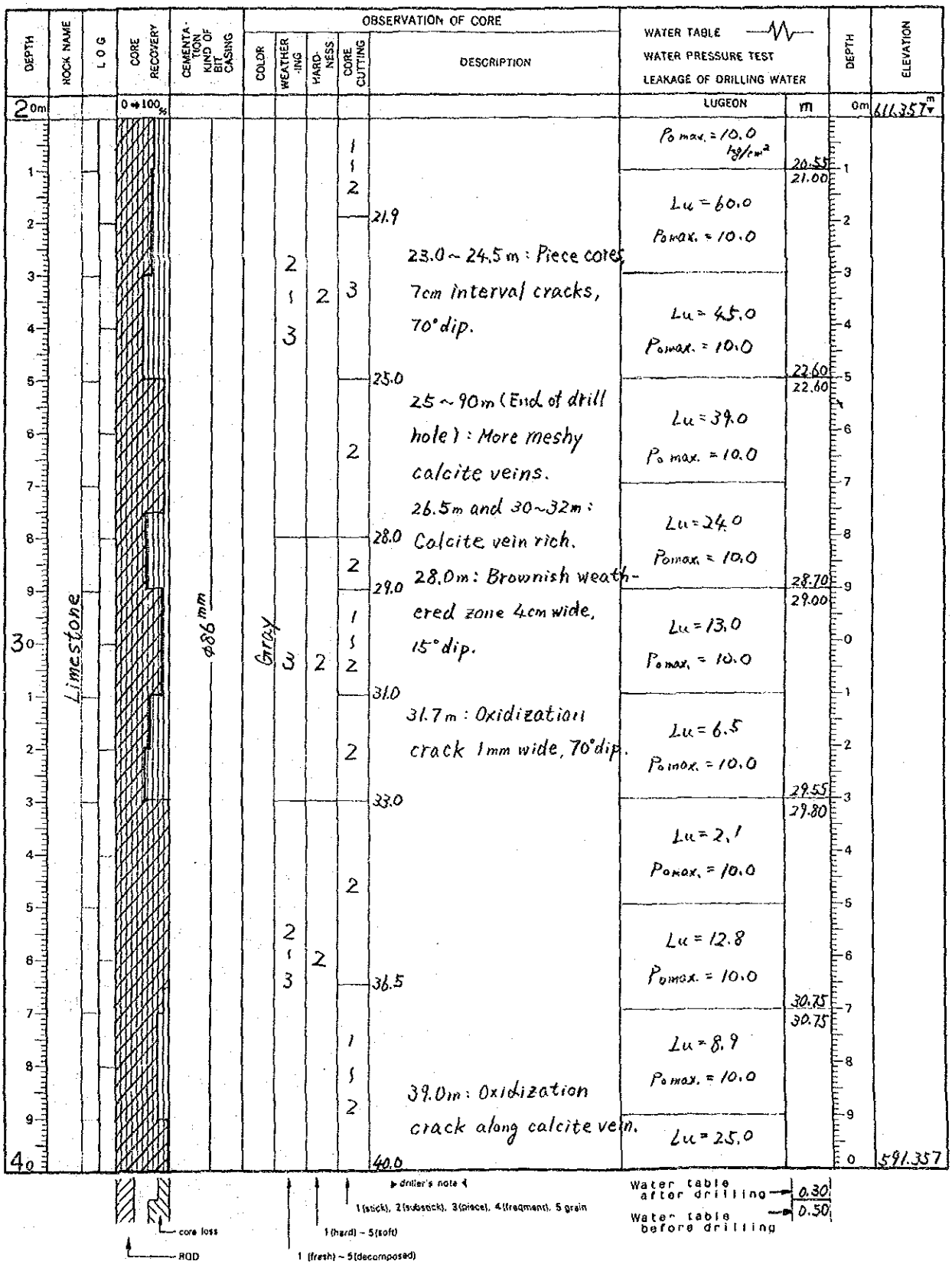
LOCATION	HEADRACE TUNNEL	DEPTH OF HOLE	90.00 m	COMMENCED	4 - 5 -1988
ELEVATION	631.357 m	DEPTH OF OVERBURDEN	3.00 m	COMPLETED	8 - 6 -1988
COORDINATE	X. 455,751.98 Y. 4172,232.91	LENGTH OF ROCK DRILLING	87.00 m	DRILLED BY	DSI
ANGLE FROM HOLIZONTAL	90°	TOTAL LENGTH OF CORE	89.50 m	LOGGED BY	JICA
BEARING OF ANGLE HOLE	—	CORE RECOVERY	99.4 %		



GEOLOGIC LOG OF DRILL HOLE

GOKTAS PROJECT — HOLE No. TB-1 (SHEET 2 OF 5)

LOCATION	HEADRACE TUNNEL	DEPTH OF HOLE	90.00 m	COMMENCED	4 - 5 -1988
ELEVATION	631.357 m	DEPTH OF OVERBURDEN	3.00 m	COMPLETED	8 - 6 -1988
COORDINATE	X 455,757.98 Y 4,172,232.91	LENGTH OF ROCK DRILLING	87.00 m	DRILLED BY	DSI
ANGLE FROM HOLIZONTAL	90°	TOTAL LENGTH OF CORE	89.50 m	LOGGED BY	JICA
BEARING OF ANGLE HOLE	—	CORE RECOVERY	99.4 %		



GEOLOGIC LOG OF DRILL HOLE

GOKTAS PROJECT — HOLE No. TB-1 (SHEET 3 OF 5)

LOCATION	HEADRACE TUNNEL	DEPTH OF HOLE	90.00 m	COMMENCED	4 - 5 -1988
ELEVATION	631.357 m	DEPTH OF OVERBURDEN	3.00 m	COMPLETED	8 - 6 -1988
COORDINATE	X. 455,751.98 Y. 4172,232.91	LENGTH OF ROCK DRILLING	87.00 m	DRILLED BY	DSI
ANGLE FROM HOLIZONTAL	90°	TOTAL LENGTH OF CORE	89.50 m	LOGGED BY	JICA
BEARING OF ANGLE HOLE	—	CORE RECOVERY	99.4 %		

DEPTH	ROCK NAME	LOG	CORE RECOVERY	CEMENTATION KIND OF BIT CASING	OBSERVATION OF CORE: COLOR	WEATHERING	HARDNESS	CORE CUTTING	DESCRIPTION	WATER TABLE / WATER PRESSURE TEST / LEAKAGE OF DRILLING WATER: LUGEON	m	DEPTH	ELEVATION
40m			0→100%									0m	591.357m
	Limestone (bituminous)			φ86 mm	Dark gray	2	2	1	40.0 40.0~57.0 m Limestone (bituminous). 40.0m : Solution crack with clay material.	Pomax. = 10.0 kg/cm²	33.45	1	
											39.25		
										Lu = 0 Pomax. = 10.0		2	
										Lu = 0 Pomax. = 10.0		3	
											35.45	4	
											35.45	5	
										Lu = 0 Pomax. = 10.0		6	
									← 46.85~47.0m core : Microscopic observation.			7	
						2	2	1		Lu = 0 Pomax. = 10.0	35.60	8	
						2	3	2			39.30		
										Lu = 0 Pomax. = 10.0		9	
50												0	
											34.40	1	
											39.20		
										Lu = 0 Pomax. = 10.0		2	
										Lu = 0 Pomax. = 10.0		3	
												4	
										Lu = 0 Pomax. = 10.0	33.40	5	
											33.40		
										Lu = 0 Pomax. = 10.0		6	
									57.0			7	574.357
	Limestone				Gray	2~3	2	1~2	Gray, hard limestone. 57.5m : Solution crack 70° dip.	Lu = 0 Pomax. = 10.0		8	
											33.00	9	
60										Lu = 12.7	31.25	0	531.357

Water table after drilling → 0.30
Water table before drilling → 0.50

core loss
RQD

▶ driller's note ◀
1 (stick), 2 (substick), 3 (piece), 4 (fragment), 5 grain
1 (hard) ~ 5 (soft)
1 (fresh) ~ 5 (decomposed)

GEOLOGIC LOG OF DRILL HOLE

GOKTAS PROJECT — HOLE No. TB-1 (SHEET 4 OF 5)

LOCATION	HEADRACE TUNNEL	DEPTH OF HOLE	90.00 m	COMMENCED	4 - 5 -1988
ELEVATION	631.357 m	DEPTH OF OVERBURDEN	3.00 m	COMPLETED	8 - 6 -1988
COORDINATE	X. 453,751.98 Y. 4172,232.91	LENGTH OF ROCK DRILLING	87.00 m	DRILLED BY	DSI
ANGLE FROM HOLIZONTAL	90°	TOTAL LENGTH OF CORE	89.50 m	LOGGED BY	JICA
BEARING OF ANGLE HOLE	—	CORE RECOVERY	99.4 %		

DEPTH	ROCK NAME	LOG	CORE RECOVERY	CEMENTATION KIND OF BIT CASING	COLOR	WEATHERING	HARDNESS	CORE CUTTING	DESCRIPTION	WATER TABLE / WATER PRESSURE TEST / LEAKAGE OF DRILLING WATER (LUGEON)	m	DEPTH	ELEVATION
60m			0→100%									0m	531.357m
1	Limestone			φ86 mm	Gray	2 ~ 3	2	1 ~ 2	60m: Small cavities rich. 62.0m: Calcite vein 1cm wide filled solution crack.	Pomax = 10.0 kg/cm²		1	
2								3	62.0 / 62.4	Lu = 29.0 Pomax = 10.0		2	
3								2			57.20	3	
4								3 ~ 4	63.5	63.50 Lu = 38.0 Pomax = 10.0	57.20	4	
5						3	2		62.0~69.0m: More oxidization zone. Many solution cracks with clay material. 63.5~65.2m: Fragment cores caused by two direction solution cracks.			5	
6									65.2	Lu = 28.0 Pomax = 10.0		6	
7								2			58.06	7	
8										Lu = 30.0 Pomax = 10.0	59.25	8	
9									69.0			9	
70										Lu = 7.9 Pomax = 10.0		0	
1						2 ~ 3	2	2			58.10	1	
2										Lu = 0 Pomax = 10.0	58.10	2	
3										Lu = 0 Pomax = 10.0		3	
4												4	
5									75.0		58.20	5	556.357
6	Limestone (bituminous)				Dark gray			2	75.0 ~ 90.0m (End of drill hole): Limestone (bituminous).	Lu = 1.1 Pomax = 10.0	59.80	6	
7						2	2 ~ 3		77.0			7	
8								1 ~ 2		Lu = 0 Pomax = 10.0		8	
9											58.40	9	
80										Lu = 0	58.40	0	511.357

▶ driller's note ◀

1 (stick), 2 (substick), 3 (piece), 4 (fragment), 5 grain

1 (hard) ~ 5 (soft)

1 (fresh) ~ 5 (decomposed)

core loss

RQD

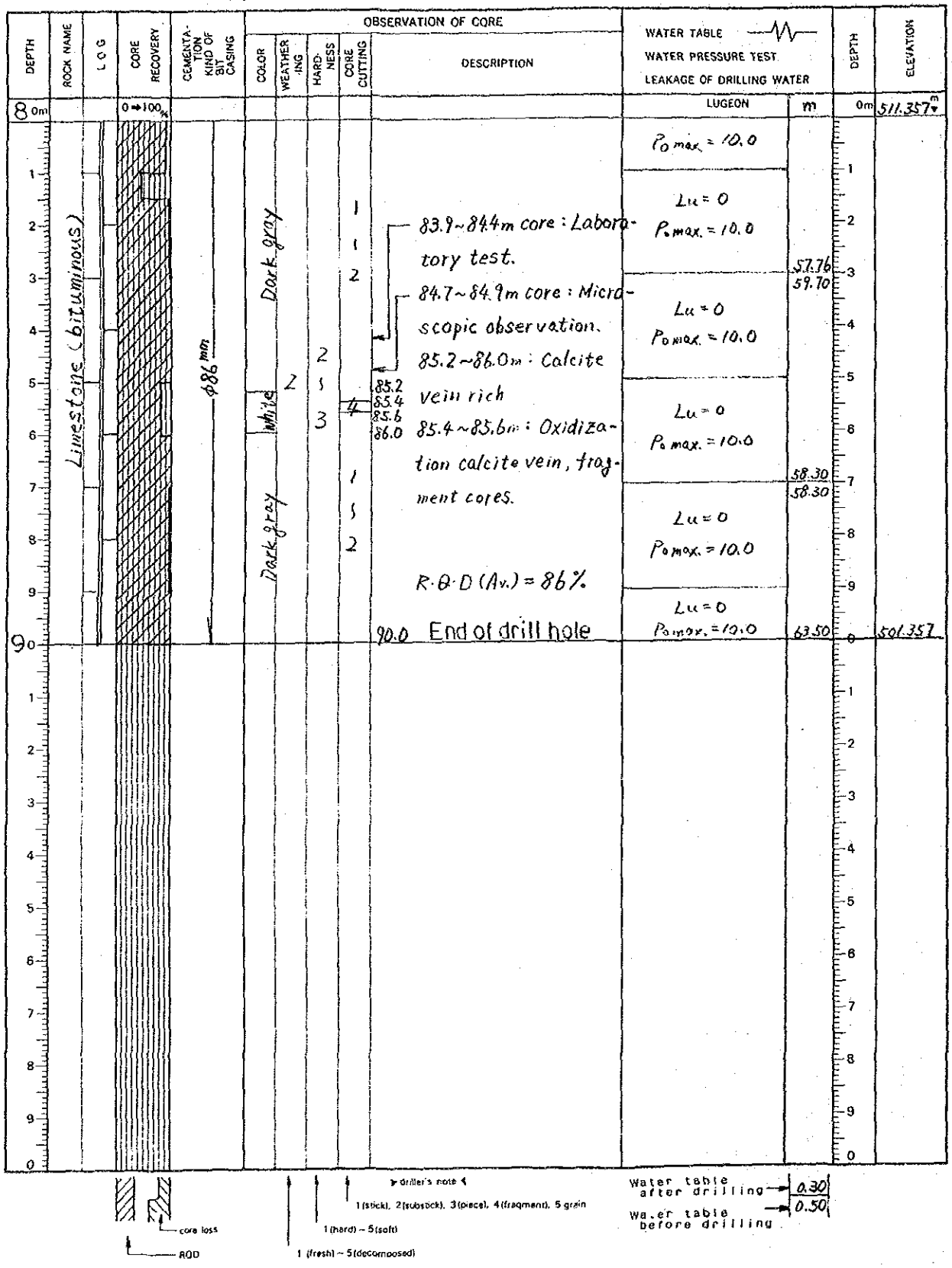
Water table after drilling → 0.30

Water table before drilling → 0.50

GEOLOGIC LOG OF DRILL HOLE

GOKTAS PROJECT — HOLE No. TB-1 (SHEET 5 OF 5)

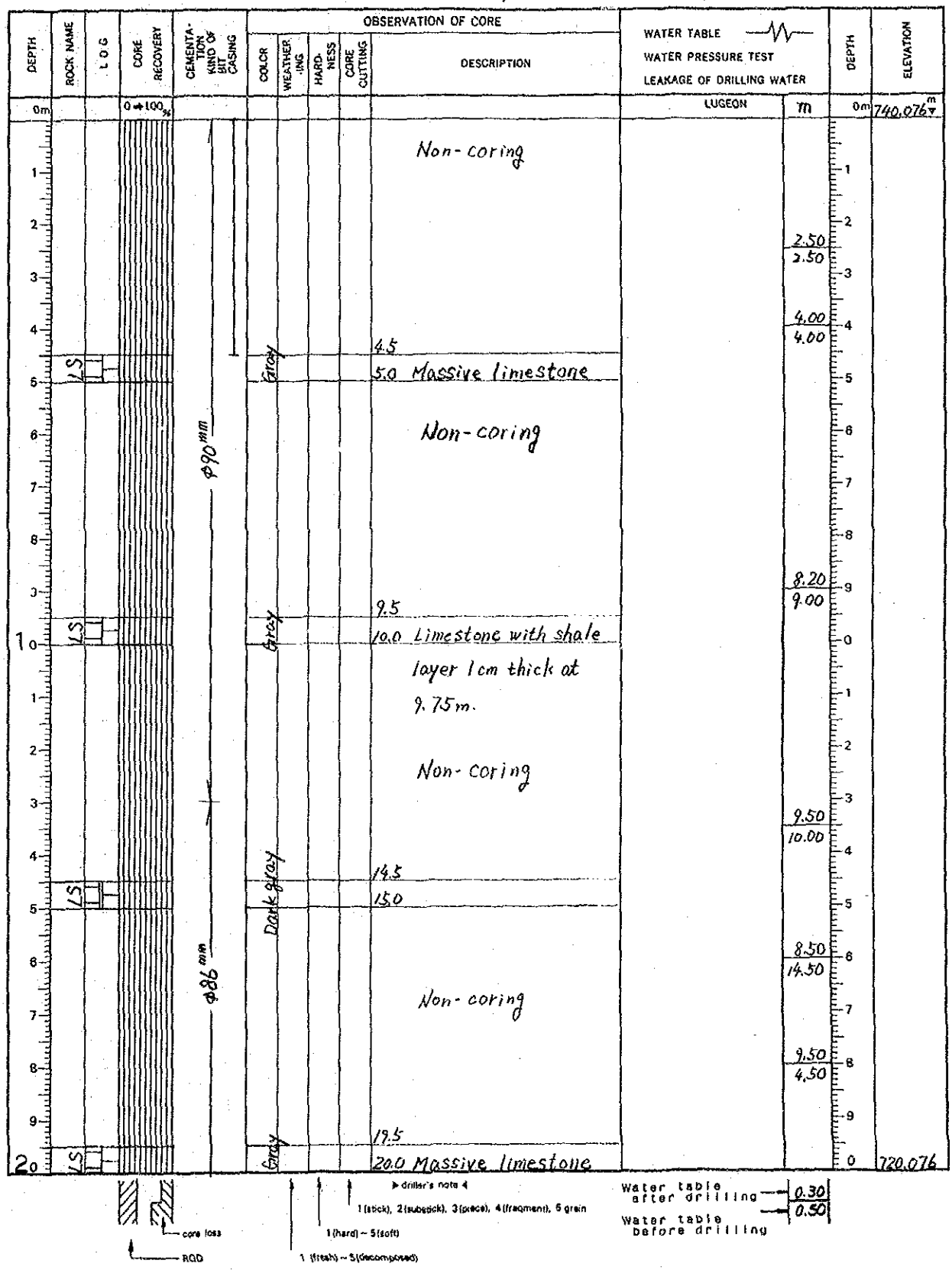
LOCATION	HEADRACE TUNNEL	DEPTH OF HOLE	90.00 m	COMMENCED	4 - 5 -1988
ELEVATION	631.357 m	DEPTH OF OVERBURDEN	3.00 m	COMPLETED	8 - 6 -1988
COORDINATE	X. 455.751.98 Y. 4172.232.91	LENGTH OF ROCK DRILLING	87.00 m	DRILLED BY	DSI
ANGLE FROM HOLIZONTAL	90°	TOTAL LENGTH OF CORE	89.50 m	LOGGED BY	JICA
BEARING OF ANGLE HOLE	—	CORE RECOVERY	99.4 %		



GEOLOGIC LOG OF DRILL HOLE

GOKTAS PROJECT — HOLE No. TB-2 (SHEET 1 OF 10)

LOCATION	HEADRACE TUNNEL	DEPTH OF HOLE	190.00 m	COMMENCED	10 - 5 -1988
ELEVATION	740.076 m	DEPTH OF OVERBURDEN	0 m	COMPLETED	19 - 7 -1988
COORDINATE	X. 460,825.80 Y. 4168,853.59	LENGTH OF ROCK DRILLING	190.00 m	DRILLED BY	DSI
ANGLE FROM HOLIZONTAL	90 °	TOTAL LENGTH OF CORE	81.20 m	LOGGED BY	JICA
BEARING OF ANGLE HOLE	—	CORE RECOVERY	81.2/910 = 89.2 %		



GEOLOGIC LOG OF DRILL HOLE

GOKTAS PROJECT — HOLE No. TB-2 (SHEET 2 OF 10)

LOCATION	HEADRACE TUNNEL	DEPTH OF HOLE	190.00 m	COMMENCED	10 - 5 -1988
ELEVATION	740.076 m	DEPTH OF OVERBURDEN	0 m	COMPLETED	19 - 7 -1988
COORDINATE	X. 460,825.80 Y. 4168,653.59	LENGTH OF ROCK DRILLING	190.00 m	DRILLED BY	DSI
ANGLE FROM HOLIZONTAL	90 ·	TOTAL LENGTH OF CORE	81.20 m	LOGGED BY	JICA
BEARING OF ANGLE HOLE	—	CORE RECOVERY	812/910 = 89.2 %		

DEPTH	ROCK NAME	LOG	CORE RECOVERY	CEMENTATION KIND OF BIT CASING	OBSERVATION OF CORE: COLOR	WEATHERING	HARDNESS	CORE CUTTING	DESCRIPTION	WATER TABLE / WATER PRESSURE TEST / LEAKAGE OF DRILLING WATER: LUGEON	m	DEPTH	ELEVATION
20m			0 ⇒ 100%									0m	720.076m
									Non-coring		5.00		
											12.50		
									24.5				
	LS				Gray				25.0 Massive limestone		5.65		
											6.50		
									Non-coring				
									29.5				
	LS				Gray				30.0 Massive limestone		8.00		
30											28.00		
									Non-coring				
									34.5				
	LS				Gray				35.0 Massive limestone		6.00		
											6.50		
									Non-coring				
									39.5				
40	LS				Gray				40.5 Massive limestone		7.00	0	700.076

φ86 mm

core loss

RQD

1 (fresh) – 5 (decomposed)

1 (hard) – 5 (soft)

▶ driller's note 4

1 (stick), 2 (substick), 3 (piece), 4 (fragment), 5 grain

Water table after drilling → 0.30

Water table before drilling → 0.50

GEOLOGIC LOG OF DRILL HOLE

GOKTAS PROJECT — HOLE No. TB-2 (SHEET 3 OF 10)

LOCATION	HEADRACE TUNNEL	DEPTH OF HOLE	190.00 m	COMMENCED	10 - 5 -1988
ELEVATION	740.076 m	DEPTH OF OVERBURDEN	0 m	COMPLETED	19 - 7 -1988
COORDINATE	X. 460,825.80 Y. 4,168,453.59	LENGTH OF ROCK DRILLING	190.00 m	DRILLED BY	DSI
ANGLE FROM HOLIZONTAL	90 °	TOTAL LENGTH OF CORE	81.20 m	LOGGED BY	JICA
BEARING OF ANGLE HOLE	—	CORE RECOVERY	81.2/91.0 = 89.2 %		

DEPTH	ROCK NAME	LOG	CORE RECOVERY	CEMENTATION KIND OF BIT CASING	OBSERVATION OF CORE: COLOR	WEATHERING	HARDNESS	CORE CUTTING	DESCRIPTION	WATER TABLE / WATER PRESSURE TEST / LEAKAGE OF DRILLING WATER: LUGEON	m	DEPTH	ELEVATION
4 0m			0 → 100 %								33.00	0m	700.076 m
									Non-coring				
									44.5				
	LS				Gray				50.0 Massive limestone				
									Non-coring		7.15		
											7.30		
									49.5				
5 0	LS			φ86 mm	Gray				50.0 Massive limestone				
									Non-coring		10.50		
											36.70		
									54.5				
	LS				Gray				55.0 Massive limestone				
									Non-coring		32.00		
											38.50		
									59.5				
6 0	LS				Gray				60.0 Massive limestone			0	680.076

core loss

RQD

▶ driller's note 4

1 (stick), 2 (substick), 3 (piece), 4 (fragment), 5 grain

1 (hard) – 5 (soft)

1 (fresh) – 5 (decomposed)

Water table after drilling 0.30

Water table before drilling 0.50

GEOLOGIC LOG OF DRILL HOLE

GOKTAS PROJECT — HOLE No. TB-2 (SHEET 4 OF 10)

LOCATION	HEADRACE TUNNEL	DEPTH OF HOLE	190.00 m	COMMENCED	10 - 5 -1988
ELEVATION	740.076 m	DEPTH OF OVERBURDEN	0 m	COMPLETED	19 - 7 -1988
COORDINATE	X. 460,825.80 Y. 4168,653.59	LENGTH OF ROCK DRILLING	190.00 m	DRILLED BY	DSI
ANGLE FROM HOLIZONTAL	90 °	TOTAL LENGTH OF CORE	81.20 m	LOGGED BY	JICA
BEARING OF ANGLE HOLE	—	CORE RECOVERY	81.2/91.0 = 89.2 %		

DEPTH	ROCK NAME	LOG	CORE RECOVERY	CEMENTATION KIND OF BIT CASING	OBSERVATION OF CORE: COLOR	WEATHERING	HARDNESS	CORE CUTTING	DESCRIPTION	WATER TABLE / WATER PRESSURE TEST / LEAKAGE OF DRILLING WATER: LUGEON	m	DEPTH	ELEVATION
6 0m			0 → 100 %									0m	680.076 m
									Non-coring				
									64.5				
	LS				Gray				65.0 Massive limestone				
												32.00	
												56.50	
									Non-coring				
									69.5				
	LS				Gray				70.0 Massive limestone				
7 0				ϕ86 mm								26.40	
												28.00	
									Non-coring				
									74.5				
	LS				Gray				75.0 Massive limestone				
												27.00	
												59.50	
									Non-coring				
									79.5				
8 0	LS				Gray				80.0 Massive limestone			26.50	660.076

core loss
RQD
▶ driller's note 4
1 (stick), 2 (substick), 3 (piece), 4 (fragment), 5 grain
1 (hard) – 5 (soft)
1 (fresh) – 5 (decomposed)
Water table after drilling 0.30
Water table before drilling 0.50

GEOLOGIC LOG OF DRILL HOLE

GOKTAS PROJECT — HOLE No. TB-2 (SHEET 5 OF 10)

LOCATION	HEADRACE TUNNEL	DEPTH OF HOLE	190.00 m	COMMENCED	10 - 5 -1988
ELEVATION	740.076 m	DEPTH OF OVERBURDEN	0 m	COMPLETED	19 - 7 -1988
COORDINATE	X. 460,325.80 Y. 4168,653.59	LENGTH OF ROCK DRILLING	190.00 m	DRILLED BY	DSI
ANGLE FROM HOLIZONTAL	90 °	TOTAL LENGTH OF CORE	81.20 m	LOGGED BY	JICA
BEARING OF ANGLE HOLE	—	CORE RECOVERY	81.2/91.0 = 89.2 %		

DEPTH	ROCK NAME	LOG	CORE RECOVERY	CEMENTATION, KIND OF BIT, CASING	OBSERVATION OF CORE: COLOR	WEATHERING	HARDNESS	CORE CUTTING	DESCRIPTION
8 0m			0 → 100 %						
1									Non-coring
4	LS				Gray				84.5 85.0 Massive limestone
5									Non-coring
8									
9	LS			486 mm	Gray				89.5 90.0 Massive limestone
9 0									Non-coring
4	LS				Gray				94.5 95.0 Massive limestone
5									Non-coring
9									
10 0	LS				Gray				99.5 100.0 Massive limestone

WATER TABLE / WATER PRESSURE TEST / LEAKAGE OF DRILLING WATER — LUGEON

m	DEPTH	ELEVATION
	0m	660.076 a.s.l.
27.00		
28.00	4	
68.00		
60.55	8	
68.00		
68.50	2	
68.50		
45.00	6	
46.00		
71.00	0	640.076

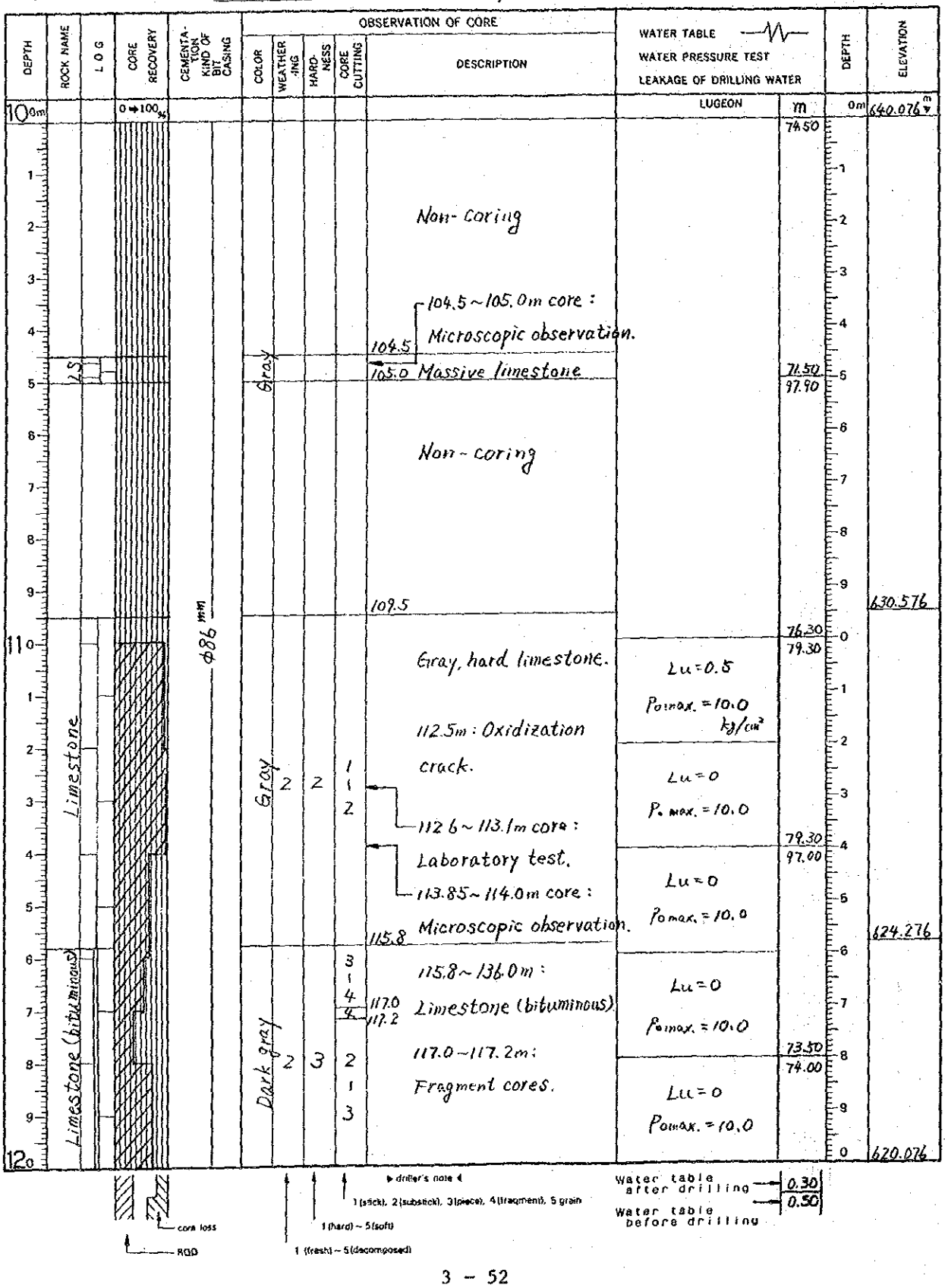
core loss
ROD
▶ driller's note ◀
1 (stick), 2 (subastick), 3 (piece), 4 (fragment), 5 grain
1 (hard) ~ 5 (soft)
1 (fresh) ~ 5 (decomposed)

Water table after drilling 0.30
Water table before drilling 0.50

GEOLOGIC LOG OF DRILL HOLE

GOKTAS PROJECT — HOLE No. TB-2 (SHEET 6 OF 10)

LOCATION	HEADRACE TUNNEL	DEPTH OF HOLE	190.00 m	COMMENCED	10 - 5 -1988
ELEVATION	740.076 m	DEPTH OF OVERBURDEN	0 m	COMPLETED	19 - 7 -1988
COORDINATE	X 460.825.80 Y 4168.853.59	LENGTH OF ROCK DRILLING	190.00 m	DRILLED BY	DSI
ANGLE FROM HOLIZONTAL	90 °	TOTAL LENGTH OF CORE	81.20 m	LOGGED BY	JICA
BEARING OF ANGLE HOLE	—	CORE RECOVERY	81.2/91.0 = 89.2 %		



GEOLOGIC LOG OF DRILL HOLE

GOKTAS PROJECT — HOLE No. TB-2 (SHEET 7 OF 10)

LOCATION	HEADRACE TUNNEL	DEPTH OF HOLE	190.00 m	COMMENCED	10 - 5 -1988
ELEVATION	740.076 m	DEPTH OF OVERBURDEN	0 m	COMPLETED	19 - 7 -1988
COORDINATE	X. 460.825.80 Y. 4.168.653.59	LENGTH OF ROCK DRILLING	190.00 m	DRILLED BY	DSI
ANGLE FROM HOLIZONTAL	90 °	TOTAL LENGTH OF CORE	81.20 m	LOGGED BY	JICA
BEARING OF ANGLE HOLE	—	CORE RECOVERY	81.2/91.0 = 89.2 %		

DEPTH	ROCK NAME	LOG	CORE RECOVERY	CEMENTATION KIND OF BIT CASING	COLOR	WEATHERING	HARDNESS	CORE CUTTING	DESCRIPTION	WATER TABLE / WATER PRESSURE TEST / LEAKAGE OF DRILLING WATER: LUGEON	m	DEPTH	ELEVATION
120m			0→100%									0m	620.076 m
	Limestone (bituminous)			φ86 mm	Dark gray	2	3	2~3	121.5 No oxidization crack.	Lu = 0, Po max. = 10.0 kg/cm²	73.40 / 86.00		
								3		Lu = 0, Po max. = 10.0			
									124.6~124.78m core: Microscopic observation. 125.0	Lu = 0, Po max. = 10.0	67.00 / 67.00		
							2~3	2		Lu = 0, Po max. = 10.0			
						3	3	3	127.6 127.6~128.0m: Re-consolidated fracture zone, 15° dip. 128.0				
								1	129.5	Lu = 0, Po max. = 10.0	67.05 / 67.05		
130						2	2~3	2	No solution crack.	Lu = 0, Po max. = 10.0			
										Lu = 0, Po max. = 10.0	86.00 / 86.00		
									136.0	Lu = 0, Po max = 10.0	63.00 / 63.00		604.076
	Quartz sandstone			φ76 mm	Light gray	2~3	2	3~4	136.0~149.0m Quartz sandstone. 138.0	Lu = 0, Po max. = 10.0			
								2	139.5~140.3m: Piece~fragment cores. 139.5	Lu = 0, Po max = 10.0			
140								3~4			65.10	0	600.076

▶ driller's note 4

1 (stick), 2 (substick), 3 (piece), 4 (fragment), 5 grain

1 (hard) ~ 5 (soft)

1 (fresh) ~ 5 (decomposed)

core loss

RQD

Water table after drilling 0.30

Water table before drilling 0.50

GEOLOGIC LOG OF DRILL HOLE

GOKTAS PROJECT — HOLE No. TB-2 (SHEET 8 OF 10)

LOCATION	HEADRACE TUNNEL	DEPTH OF HOLE	190.00 m	COMMENCED	10 - 5 -1988
ELEVATION	740.076 m	DEPTH OF OVERBURDEN	0 m	COMPLETED	19 - 7 -1988
COORDINATE	X. 460.825.80 Y. 4168.653.59	LENGTH OF ROCK DRILLING	190.00 m	DRILLED BY	DSI
ANGLE FROM HOLIZONTAL	90 ·	TOTAL LENGTH OF CORE	81.20 m	LOGGED BY	JICA
BEARING OF ANGLE HOLE	--	CORE RECOVERY	81.2/91.0 = 89.2 %		

DEPTH	ROCK NAME	LOG	CORE RECOVERY	CEMENTATION KIND OF BIT CASING	OBSERVATION OF CORE: COLOR	WEATHERING	HARDNESS	CORE CUTTING	DESCRIPTION
140m			0→100%					3~4	140.3
1	Quartz sandstone							2	
2								3	142.4 / 142.7 144.4~144.6m and 145.1~145.5m: Fragment cores, oxidization cracks.
3								2	
4					Light gray	2		4	144.4
5						1	2	2	144.6 144.6~145.1m core:
						3		4	145.1 / 145.5 Laboratory test.
6								2	146.5~146.7m core:
7								1	Microscopic observation.
8								3	
9								4	149.0 / 149.2
150	Sandy limestone			φ76 mm				2	149.0~180.0m: Sandy limestone.
1									
2								4	152.0 / 152.3 152.0m core: Microscopic observation.
3								2	
4					Dark gray	2	2		
5						1		1	154.5~155.0m core:
						2		3	155.0 Laboratory test.
6								2	
7								1	No oxidization crack.
8								3	
9									
160									160.0

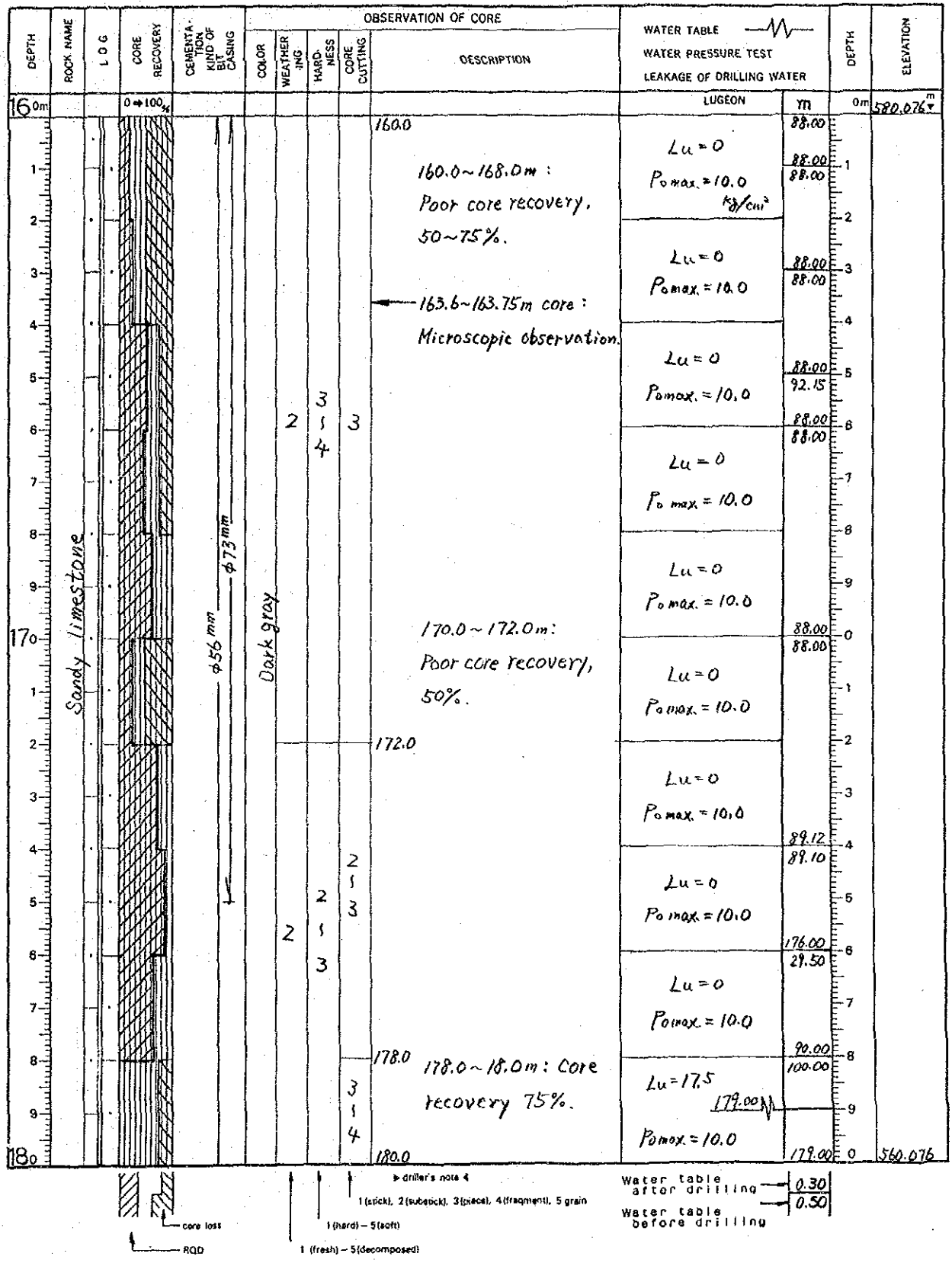
WATER TABLE / WATER PRESSURE TEST / LEAKAGE OF DRILLING WATER: LUGEON	m	DEPTH	ELEVATION
	63.00	0m	600.076 m
Lu=0, Pomax.=10.0 kg/cm²		1	
		2	
Lu=0, Pomax.=10.0		3	
	65.40	4	
	87.50		
Lu=0, Pomax.=10.0		5	
		6	
Lu=0, Pomax.=10.0		7	
	75.30	8	
	76.00		
Lu=0, Pomax.=10.0		9	591.076
	77.00	0	
	67.00		
Lu=0, Pomax.=10.0		1	
		2	
Lu=0, Pomax.=10.0		3	
	78.00	4	
	76.20		
Lu=0, Pomax.=10.0		5	
	77.00	6	
	156.00		
Lu=0, Pomax.=10.0		7	
		8	
Lu=0, Pomax.=10.0		9	
	88.00	0	580.076

core loss
RQD
driller's note: 1(stick), 2(substick), 3(piece), 4(fragment), 5 grain
1(hard) ~ 5(soft)
1(fresh) ~ 5(decomposed)
Water table after drilling 0.30
Water table before drilling 0.50

GEOLOGIC LOG OF DRILL HOLE

GOKTAS PROJECT — HOLE No. TB-2 (SHEET 9 OF 10)

LOCATION	HEADRACE TUNNEL	DEPTH OF HOLE	190.00 m	COMMENCED	10 - 5 -1988
ELEVATION	740.076 m	DEPTH OF OVERBURDEN	0 m	COMPLETED	19 - 7 -1988
COORDINATE	X 460,825.80 Y 4,168,653.59	LENGTH OF ROCK DRILLING	190.00 m	DRILLED BY	DSI
ANGLE FROM HOLIZONTAL	90 °	TOTAL LENGTH OF CORE	81.20 m	LOGGED BY	JICA
BEARING OF ANGLE HOLE	--	CORE RECOVERY	81.2/91.0 = 89.2 %		



GEOLOGIC LOG OF DRILL HOLE

GOKTAS PROJECT — HOLE No. TB-2 (SHEET 10 OF 10)

LOCATION	HEADRACE TUNNEL	DEPTH OF HOLE	190.00 m	COMMENCED	10 - 5 -1988
ELEVATION	740.076 m	DEPTH OF OVERBURDEN	0 m	COMPLETED	19 - 7 -1988
COORDINATE	X. 460.825.80 Y. 4.168.653.59	LENGTH OF ROCK DRILLING	190.00 m	DRILLED BY	DSI
ANGLE FROM HOLIZONTAL	90 °	TOTAL LENGTH OF CORE	81.20 m	LOGGED BY	JICA
BEARING OF ANGLE HOLE	—	CORE RECOVERY	81.2/91.0 = 89.2 %		

DEPTH	ROCK NAME	LOG	CORE RECOVERY	CEMENTATION KIND OF BIT CASING	COLOR	WEATHERING	HARDNESS	CORE CUTTING	DESCRIPTION	WATER TABLE / WATER PRESSURE TEST / LEAKAGE OF DRILLING WATER: LUGEON	m	DEPTH	ELEVATION
180m			0→100%									0m	560.076
	Dolomitic limestone			φ56 mm	Gray	2	2	3	180.0 180.0 ~ 190.0m (End of drill hole): Dolomitic limestone. 180.0~188.0m: Core recovery 50~75%.	Lu = 0 Po max. = 10.0 kg/cm²	179.00		
										Lu = 0 Po max. = 10.0	179.00		
										Lu = 0 Po max. = 10.0	179.00		
										Lu = 0 Po max. = 10.0	179.00		
								2	188.0 187.7~187.85m core: Microscopic observation.	Lu = 0 Po max. = 10.0	179.00		551.076
					Dark gray	2	2~3	2	189.0 190.0 End of drill hole		179.00		550.076
190									R.Q.D (Av.) = 60%				

core loss

RQD

▶ driller's note ◀

1 (stick), 2 (substick), 3 (piece), 4 (fragment), 5 grain

1 (hard) – 5 (soft)

1 (fresh) – 5 (decomposed)

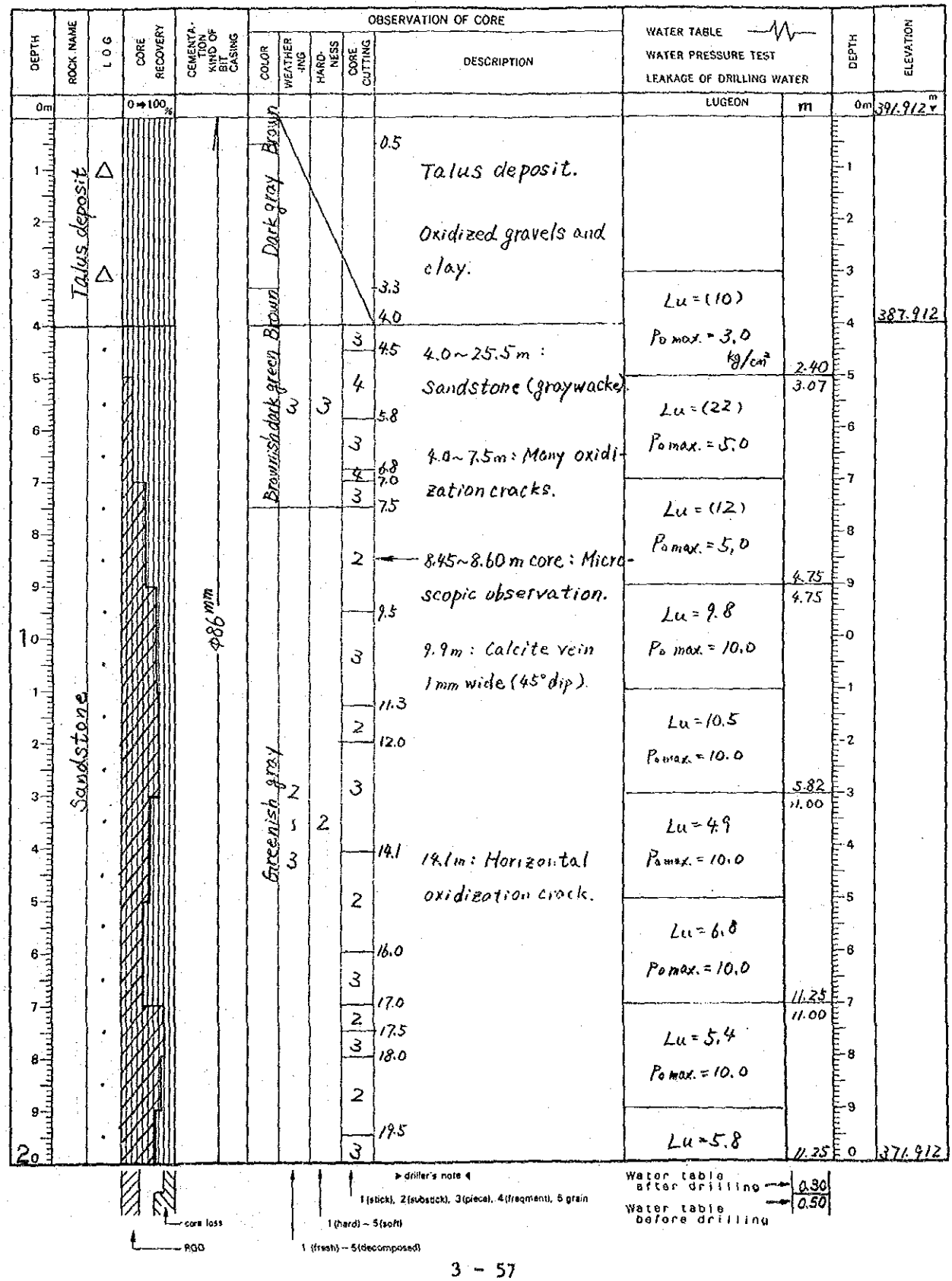
Water table after drilling 0.30

Water table before drilling 0.50

GEOLOGIC LOG OF DRILL HOLE

GOKTAS PROJECT — HOLE No. PB-1 (SHEET 1 OF 4)

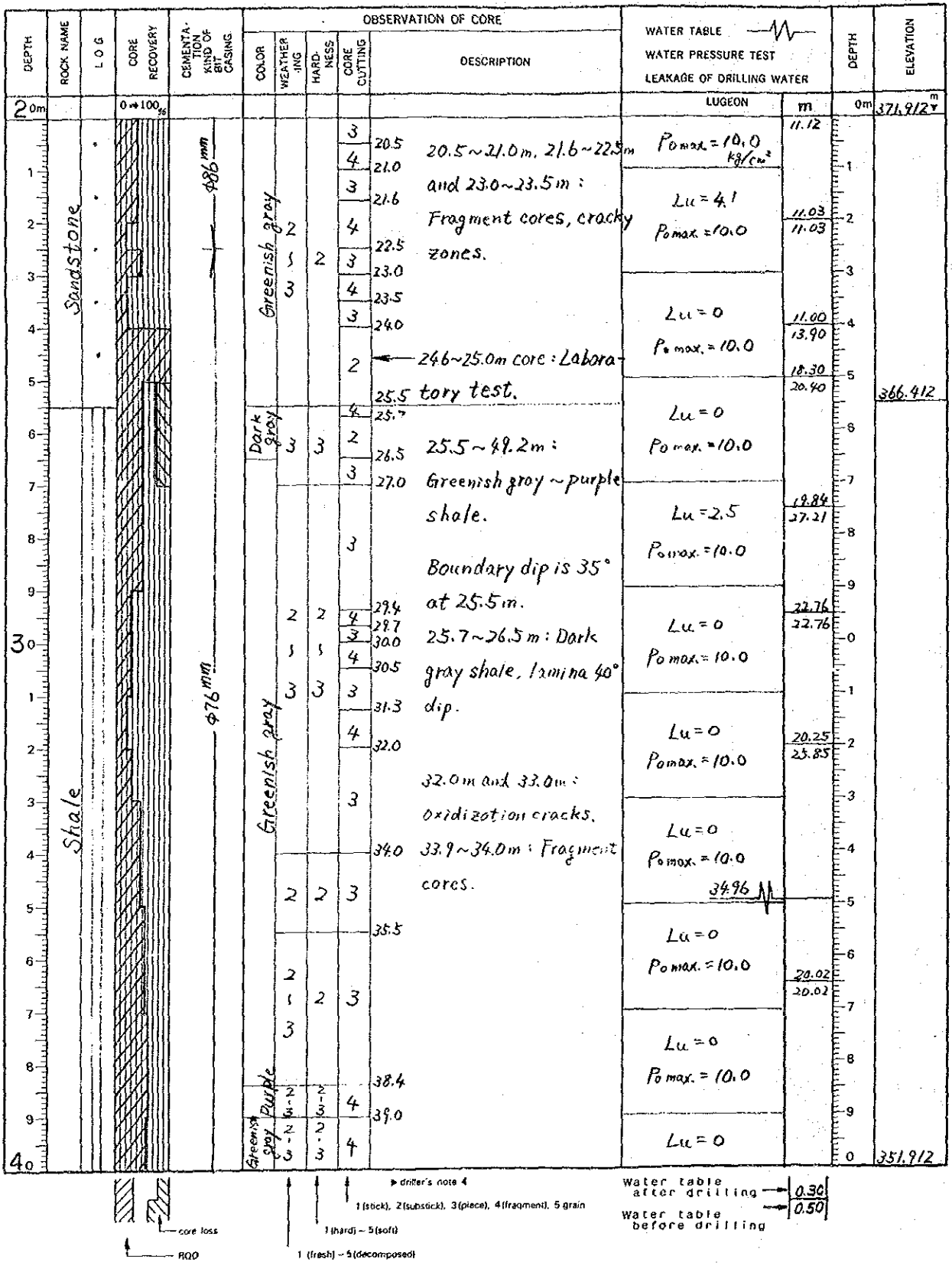
LOCATION	POWER PLANT	DEPTH OF HOLE	71.00 m	COMMENCED	25 - 5 -1988
ELEVATION	391.912 m	DEPTH OF OVERBURDEN	4.00 m	COMPLETED	16 - 6 -1988
COORDINATE	X 462.758.59 Y 4.166.135.85	LENGTH OF ROCK DRILLING	67.00 m	DRILLED BY	DSI
ANGLE FROM HOLIZONTAL	90 °	TOTAL LENGTH OF CORE	70.37 m	LOGGED BY	JICA
BEARING OF ANGLE HOLE	—	CORE RECOVERY	99.1 %		



GEOLOGIC LOG OF DRILL HOLE

GOKTAS PROJECT — HOLE No. PB-1 (SHEET 2 OF 4)

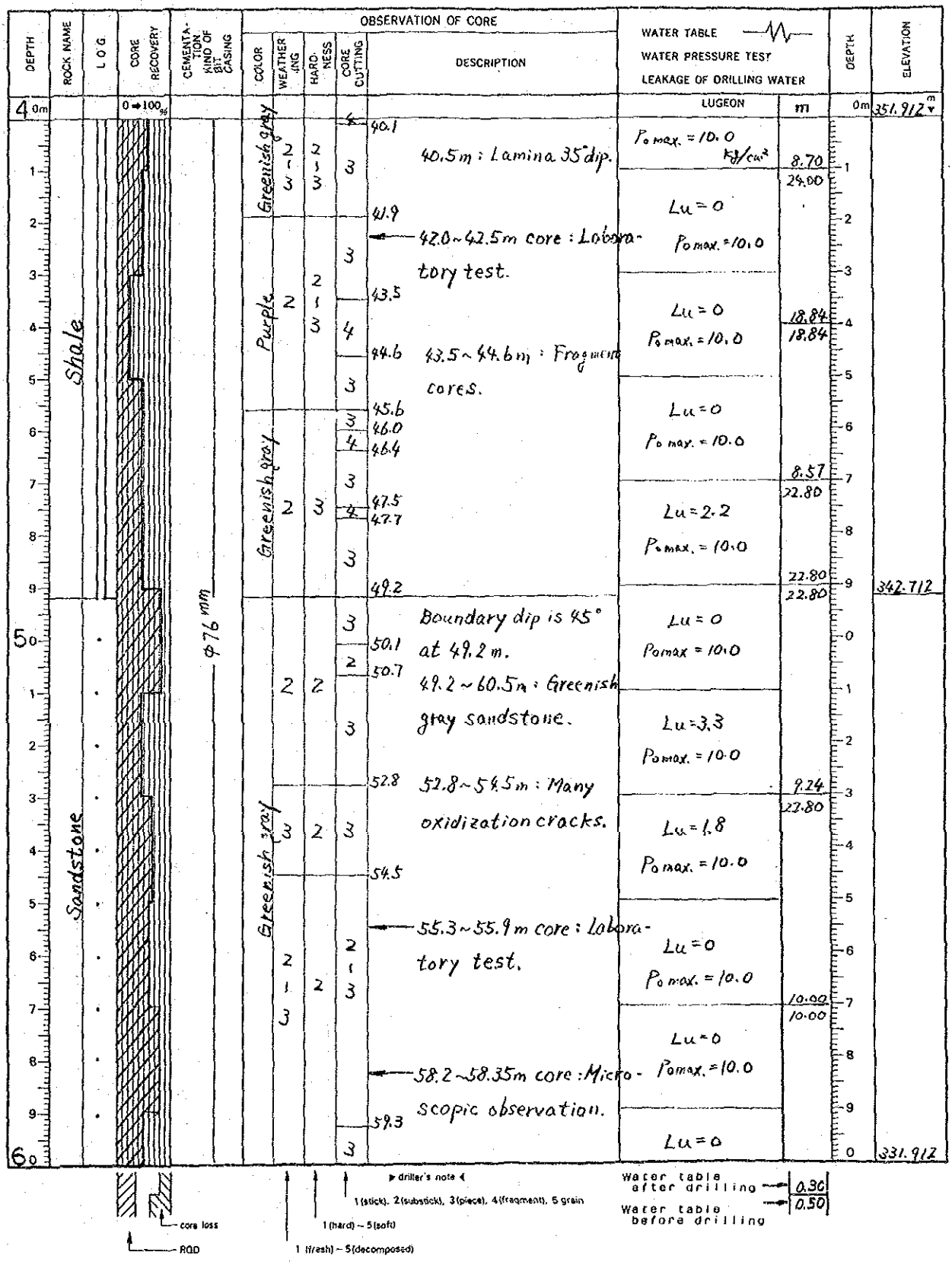
LOCATION	POWER PLANT	DEPTH OF HOLE	71.00 m	COMMENCED	25 - 5 -1988
ELEVATION	391.912 m	DEPTH OF OVERBURDEN	4.00 m	COMPLETED	16 - 6 -1988
COORDINATE	X. 462.758.59 Y. 4.166.135.85	LENGTH OF ROCK DRILLING	67.00 m	DRILLED BY	DSI
ANGLE FROM HOLIZONTAL	90 °	TOTAL LENGTH OF CORE	70.37 m	LOGGED BY	JICA
BEARING OF ANGLE HOLE	—	CORE RECOVERY	99.1 %		



GEOLOGIC LOG OF DRILL HOLE

GOKTAS PROJECT — HOLE No. PB-1 (SHEET 3 OF 4)

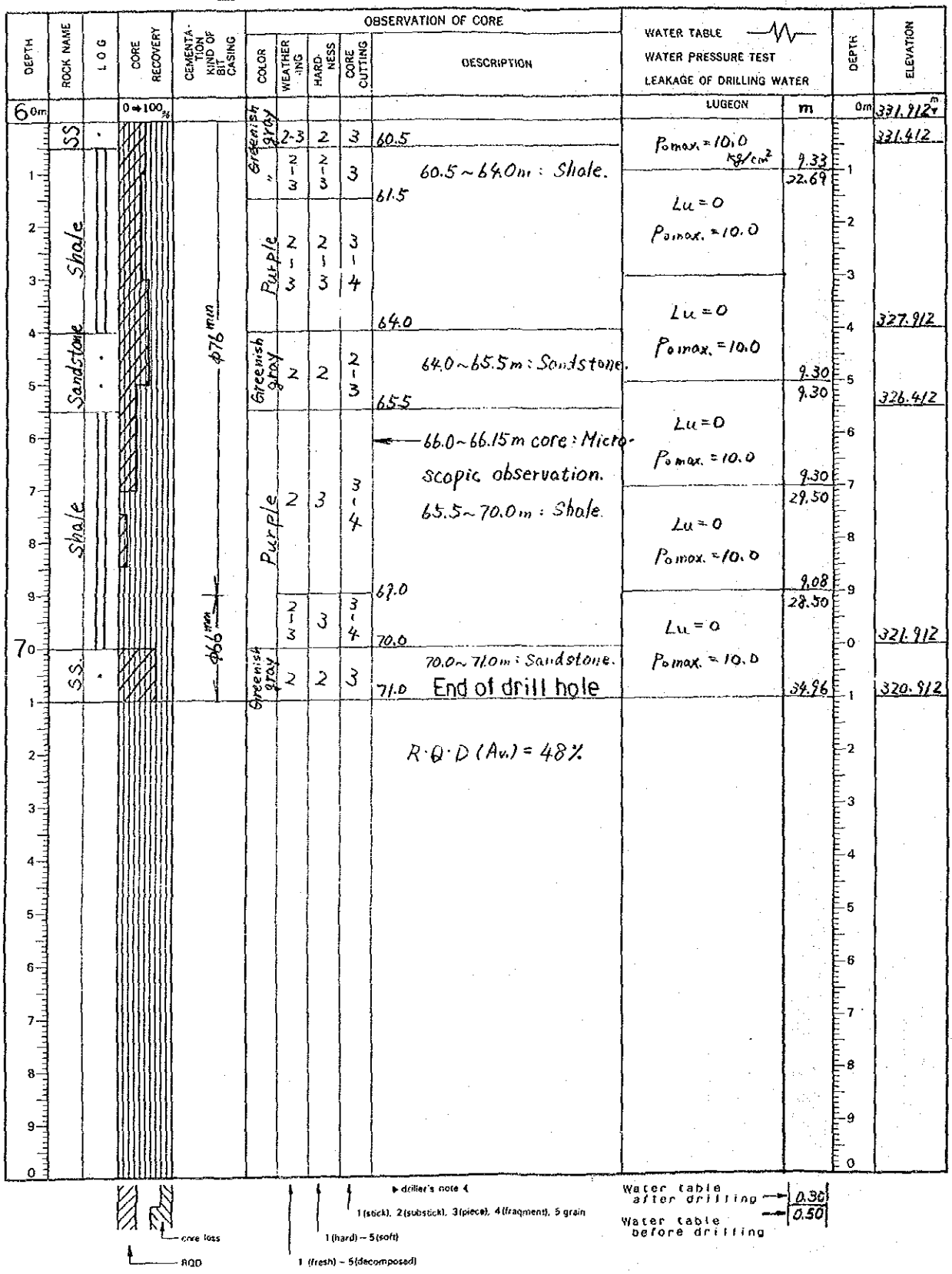
LOCATION	POWER PLANT	DEPTH OF HOLE	71.00 m	COMMENCED	25 - 5 -1988
ELEVATION	391.912 m	DEPTH OF OVERBURDEN	4.00 m	COMPLETED	16 - 6 -1988
COORDINATE	X. 462.758.59 Y. 4,166,135.85	LENGTH OF ROCK DRILLING	67.00 m	DRILLED BY	DSI
ANGLE FROM HOLIZONTAL	90 °	TOTAL LENGTH OF CORE	70.37 m	LOGGED BY	JICA
BEARING OF ANGLE HOLE	—	CORE RECOVERY	99.1 %		



GEOLOGIC LOG OF DRILL HOLE

GOKTAS PROJECT — HOLE No. PB-1 (SHEET 4 OF 4)

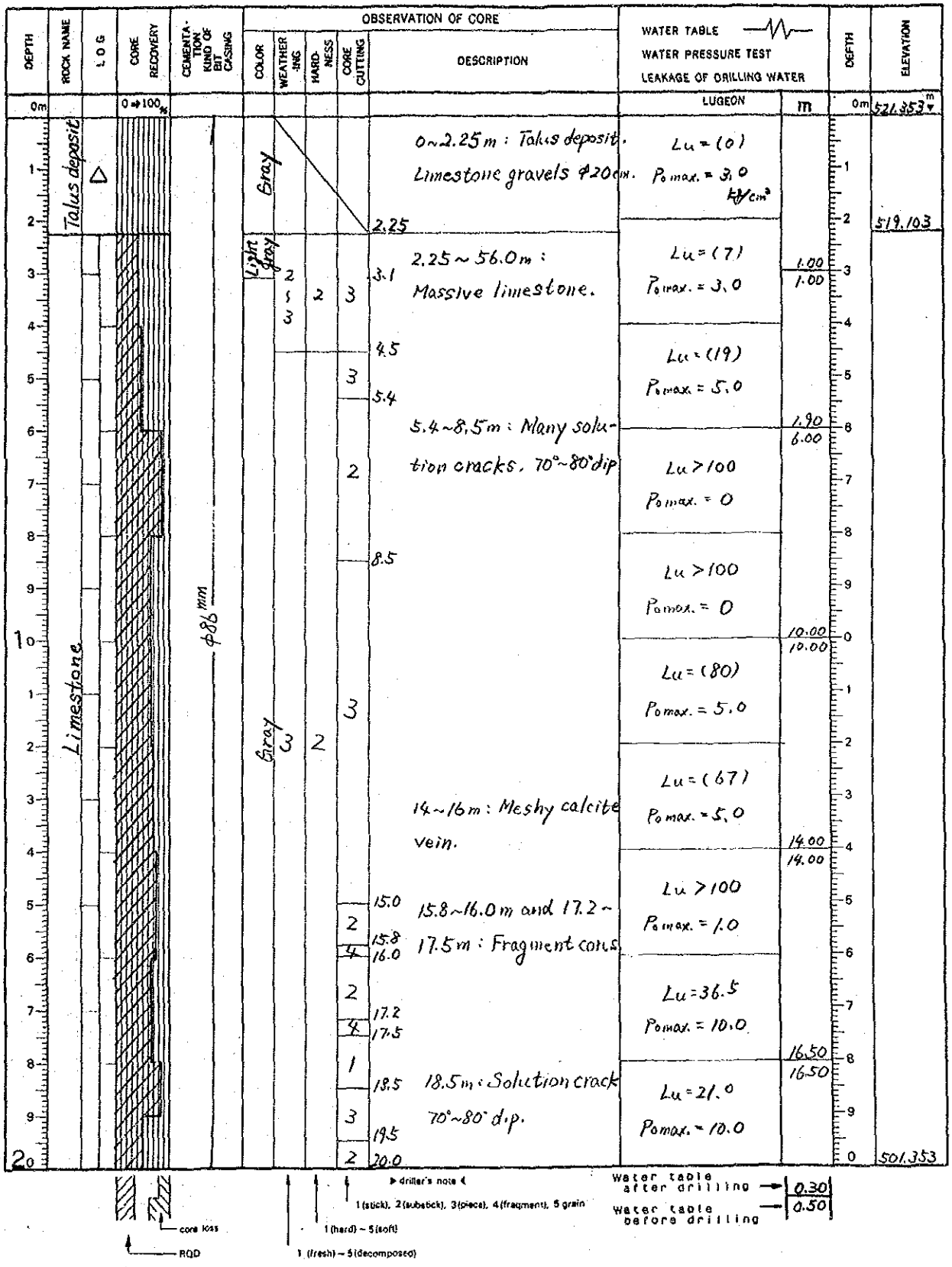
LOCATION	POWER PLANT	DEPTH OF HOLE	71.00 m	COMMENCED	25 - 5 -1988
ELEVATION	391.912 m	DEPTH OF OVERBURDEN	4.00 m	COMPLETED	16 - 6 -1988
COORDINATE	X 462.758.59 Y 4.166.135.85	LENGTH OF ROCK DRILLING	67.00 m	DRILLED BY	DSI
ANGLE FROM HOLIZONTAL	90 °	TOTAL LENGTH OF CORE	70.37 m	LOGGED BY	JICA
BEARING OF ANGLE HOLE	—	CORE RECOVERY	99.1 %		



GEOLOGIC LOG OF DRILL HOLE

GOKTAS PROJECT — HOLE No. PB-2 (SHEET 1 OF 4)

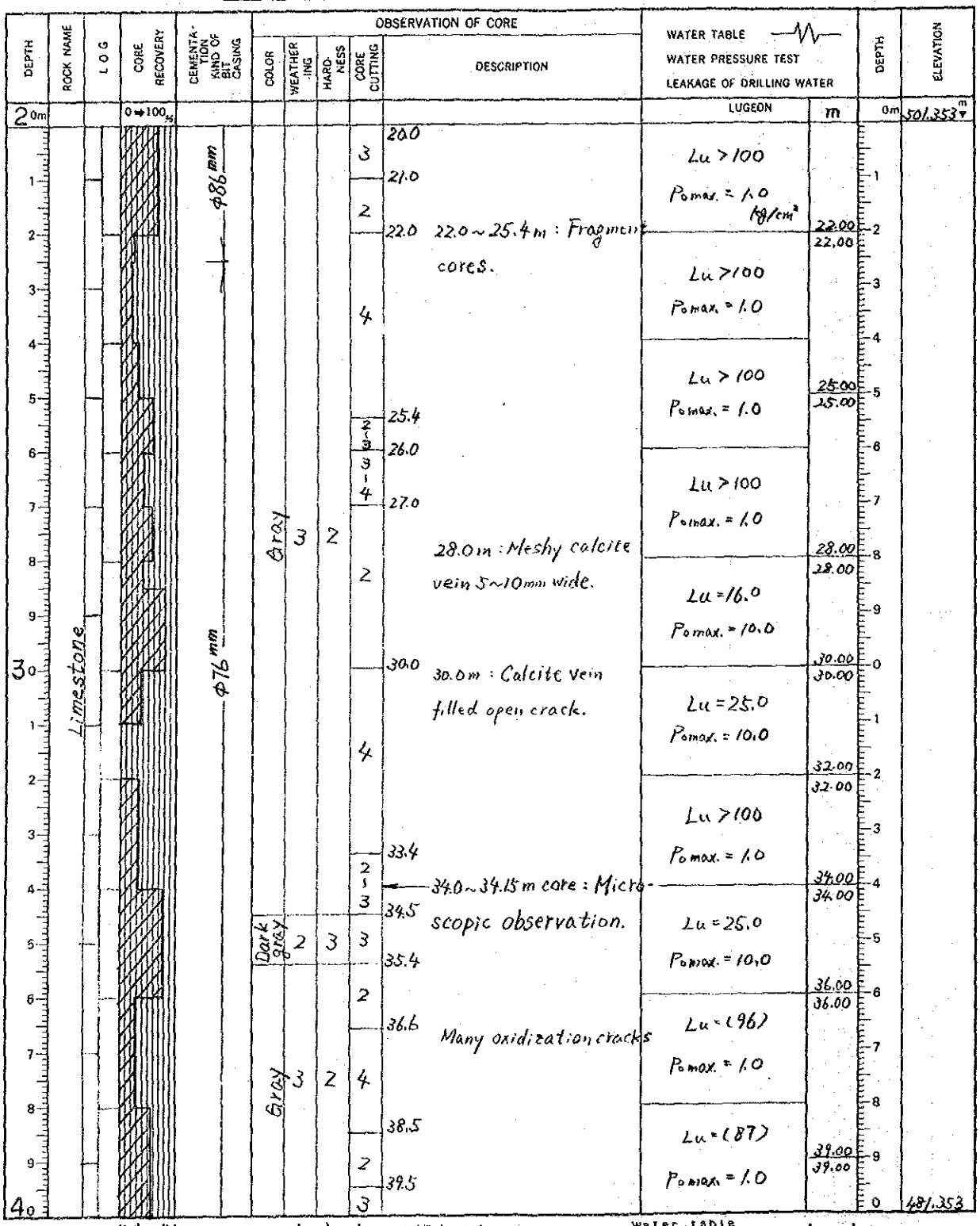
LOCATION	PENSTOCK	DEPTH OF HOLE	70.00 m	COMMENCED	7 - 4 -1988
ELEVATION	521.353 m	DEPTH OF OVERBURDEN	2.25 m	COMPLETED	24 - 5 -1988
COORDINATE	X 462,565.39 Y 4,166,145.90	LENGTH OF ROCK DRILLING	67.75 m	DRILLED BY	DSI
ANGLE FROM HOLIZONTAL	90 °	TOTAL LENGTH OF CORE	68.85 m	LOGGED BY	JICA
BEARING OF ANGLE HOLE	-	CORE RECOVERY	98.4 %		



GEOLOGIC LOG OF DRILL HOLE

GOKTAS PROJECT — HOLE No. PB-2 (SHEET 2 OF 4)

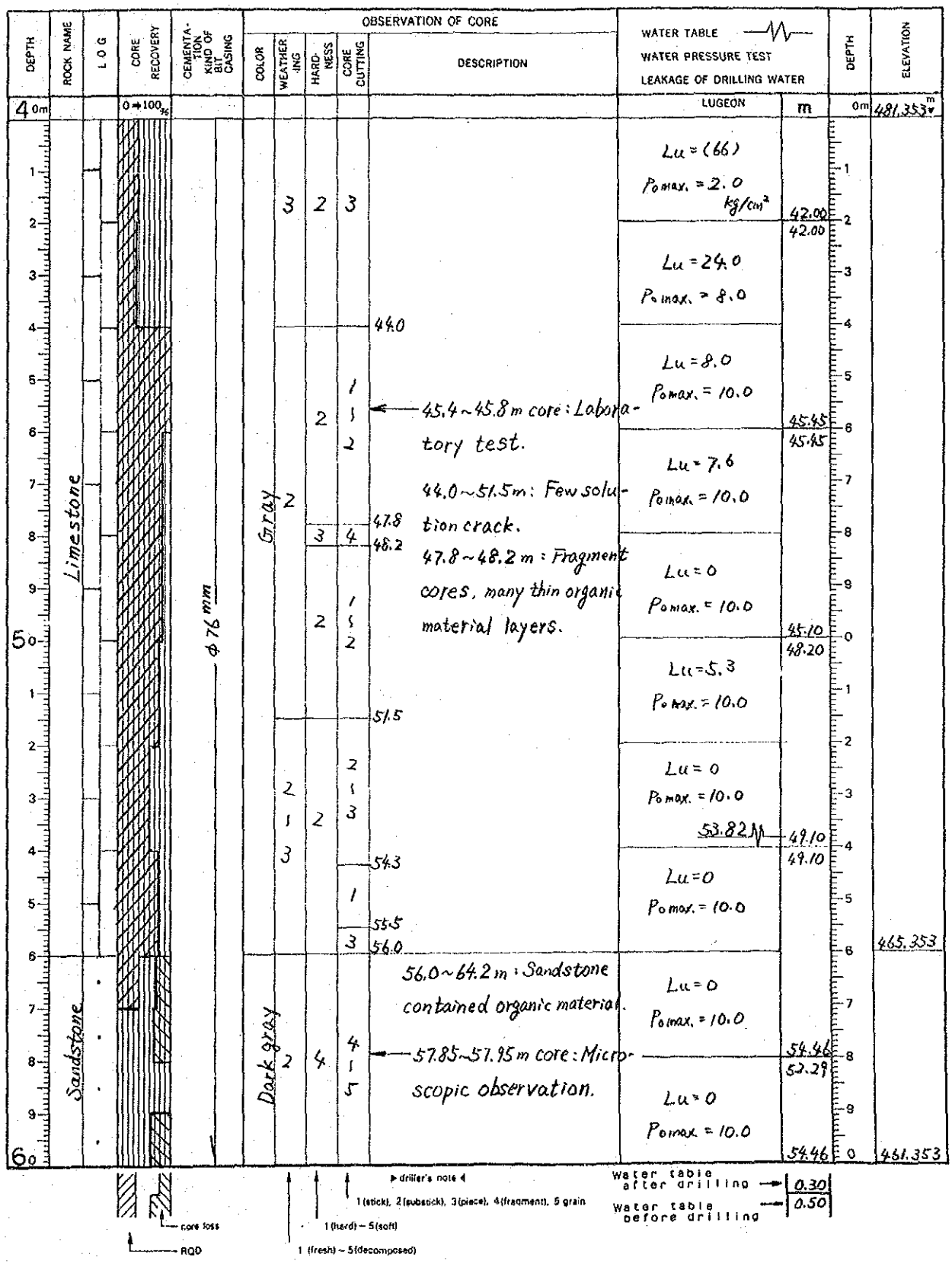
LOCATION	PENSTOCK	DEPTH OF HOLE	70.00 m	COMMENCED	7 - 4 -1988
ELEVATION	521.353 m	DEPTH OF OVERBURDEN	2.25 m	COMPLETED	24 - 5 -1988
COORDINATE	X 462,565.39 Y 4166,145.90	LENGTH OF ROCK DRILLING	67.75 m	DRILLED BY	DSI
ANGLE FROM HOLIZONTAL	90 ·	TOTAL LENGTH OF CORE	68.85 m	LOGGED BY	JICA
BEARING OF ANGLE HOLE	-	CORE RECOVERY	98.4 %		



GEOLOGIC LOG OF DRILL HOLE

GOKTAS PROJECT — HOLE No. PB – 2 (SHEET 3 OF 4)

LOCATION	PENSTOCK	DEPTH OF HOLE	70.00 m	COMMENCED	7 - 4 -1988
ELEVATION	521.353 m	DEPTH OF OVERBURDEN	2.25 m	COMPLETED	24 - 5 -1988
COORDINATE	X. 462,565.39 Y. 4,166,145.90	LENGTH OF ROCK DRILLING	67.75 m	DRILLED BY	DSI
ANGLE FROM HOLIZONTAL	90 ·	TOTAL LENGTH OF CORE	68.85 m	LOGGED BY	JICA
BEARING OF ANGLE HOLE	–	CORE RECOVERY	98.4 %		



GEOLOGIC LOG OF DRILL HOLE

GOKTAS PROJECT — HOLE No. PB-2 (SHEET 4 OF 4)

LOCATION	PENSTOCK	DEPTH OF HOLE	70.00 m	COMMENCED	7 - 4 -1988
ELEVATION	521.353 m	DEPTH OF OVERBURDEN	2.25 m	COMPLETED	24 - 5 -1988
COORDINATE	X 462,565.39 Y 4,166,145.90	LENGTH OF ROCK DRILLING	67.75 m	DRILLED BY	DSI
ANGLE FROM HOLIZONTAL	90 °	TOTAL LENGTH OF CORE	68.85 m	LOGGED BY	JICA
BEARING OF ANGLE HOLE	-	CORE RECOVERY	98.4 %		

DEPTH	ROCK NAME	LOG	CORE RECOVERY	CEMENTATION KIND OF BIT CASING	OBSERVATION OF CORE: COLOR	WEATHERING	HARDNESS	CORE CUTTING	DESCRIPTION	WATER TABLE / WATER PRESSURE TEST / LEAKAGE OF DRILLING WATER: LUGEON	m	DEPTH	ELEVATION
6 0m			0→100%									0m	461.353 m
1	Sandstone				Dark gray	2	4	4 1 5	Cores are brittle. Core recovery 60~90%.	Lu=0 Pomax.=10.0 kg/cm²	54.46	1	
2											54.46	2	
3										Lu=0 Pomax.=10.0	54.60	3	
4									64.2		54.60	4	457.153
5	Limestone			φ66 mm	Gray	2	3	3	64.2~70.0m (End of drill hole): Limestone	Lu=0 Pomax.=10.0	50.24	5	
6									65.5			6	
7							2	2	67.80~67.95m core: Microscopic observation.	Lu=0 Pomax.=10.0	49.56	7	
8											49.56	8	
9									68.8~69.2m core: Laboratory test.	Lu=0 Pomax.=10.0		9	
70									70.0 End of drill hole		51.56	0	451.353
1									R·Q·D (Av.) = 56%			1	
2												2	
3												3	
4												4	
5												5	
6												6	
7												7	
8												8	
9												9	
0												0	

core loss
ROD
1 (hard) ~ 5 (soft)
1 (fresh) ~ 5 (decomposed)
▶ driller's note ◀
1 (stick), 2 (substick), 3 (piece), 4 (fragment), 5 grain

Water table after drilling → 0.30
Water table before drilling → 0.50

GEOLOGIC LOG OF DRILL HOLE

GOKTAS PROJECT — HOLE No. SSK-1 (SHEET 1 OF 3)

LOCATION	Alternative Power Plant	DEPTH OF HOLE	50.00 m	COMMENCED	23 - 9 -1987
ELEVATION	520.518 m	DEPTH OF OVERBURDEN	35.50 m	COMPLETED	9 - 10 -1987
COORDINATE	X 453,591.59 Y 4177,144.65	LENGTH OF ROCK DRILLING	15.50 m	DRILLED BY	DSI
ANGLE FROM HOLIZONTAL	90°	TOTAL LENGTH OF CORE	31.35 m	LOGGED BY	JICA
BEARING OF ANGLE HOLE	—	CORE RECOVERY	62.7 %		

DEPTH	ROCK NAME	LOG	CORE RECOVERY	CEMENTATION KIND OF BIT CASING	OBSERVATION OF CORE: COLOR	WEATHERING	HARDNESS	CORE CUTTING	DESCRIPTION	WATER TABLE / WATER PRESSURE TEST / LEAKAGE OF DRILLING WATER: LUGEON	m	DEPTH	ELEVATION
0m			0 → 100%									0m	520.518 m
1	Alluvium			φ90 mm	Brown				0.7 Alluvium. 0~0.7m : Brownish graval and sand.		1.50		
10					Dark gray				0.7~35.5m : Peridotite gravels. No fine material in core boxes.		10.50		
											16.50		
20											16.50		500.518

core loss

RQD

driller's note 4

1 (stick), 2 (substick), 3 (piece), 4 (fragment), 5 grain

1 (hard) ~ 5 (soft)

1 (fresh) ~ 5 (decomposed)

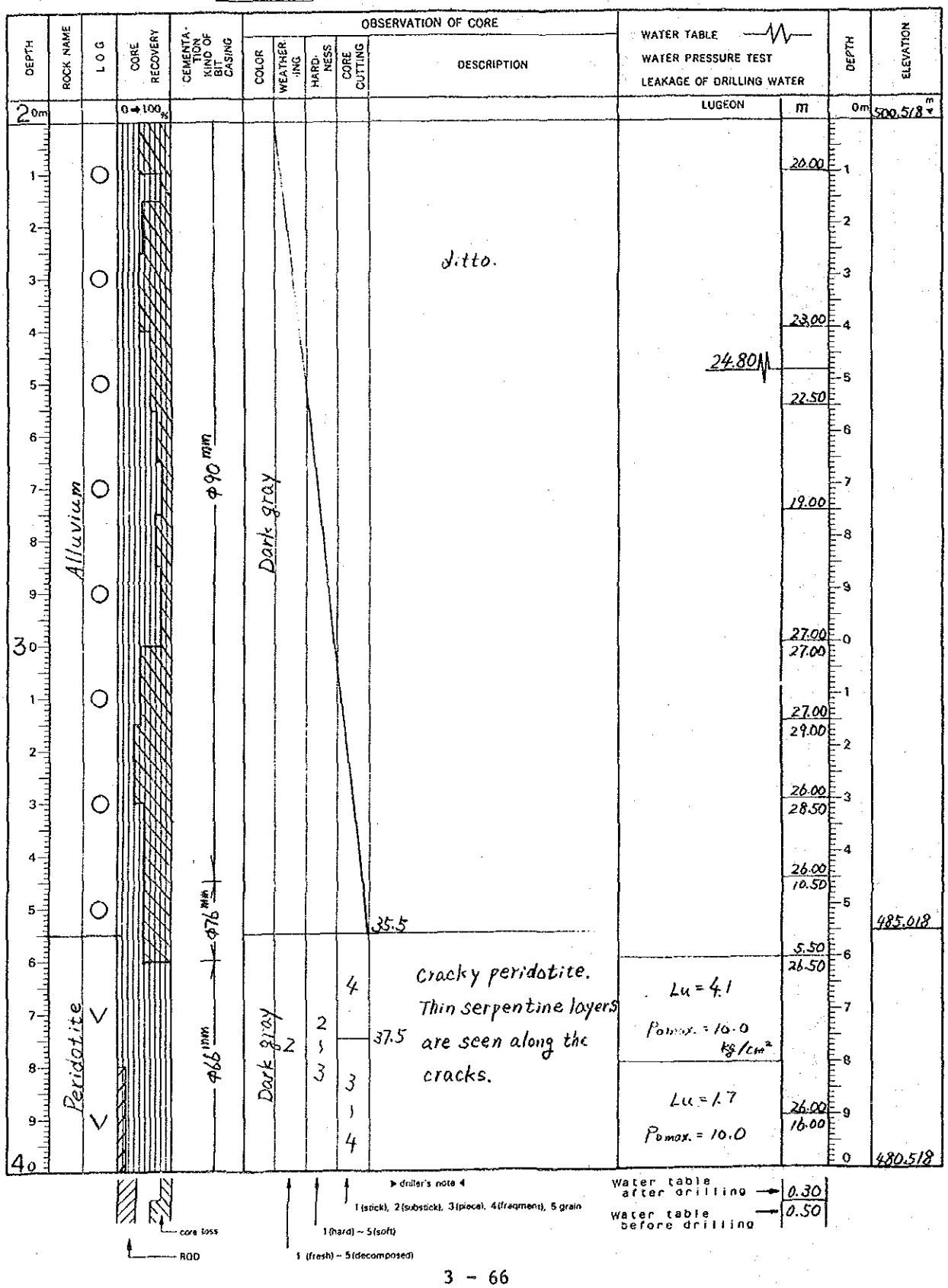
Water table after drilling → 0.30

Water table before drilling → 0.50

GEOLOGIC LOG OF DRILL HOLE

GOKTAS PROJECT — HOLE No. SSK-1 (SHEET 2 OF 3)

LOCATION	Alternative Power Plant	DEPTH OF HOLE	50.00 m	COMMENCED	23 - 9 -1987
ELEVATION	520.518 m	DEPTH OF OVERBURDEN	35.50 m	COMPLETED	9 - 10 -1987
COORDINATE	X 453.591.59 Y 4177.144.65	LENGTH OF ROCK DRILLING	15.50 m	DRILLED BY	DSI
ANGLE FROM HOLIZONTAL	90°	TOTAL LENGTH OF CORE	31.35 m	LOGGED BY	JICA
BEARING OF ANGLE HOLE	--	CORE RECOVERY	62.7 %		



GEOLOGIC LOG OF DRILL HOLE

GOKTAS PROJECT — HOLE No. SSK-1 (SHEET 3 OF 3)

LOCATION	Alternative Power Plant	DEPTH OF HOLE	50.00 m	COMMENCED	23 - 9 -1987
ELEVATION	520.518 m	DEPTH OF OVERBURDEN	35.50 m	COMPLETED	9 - 10 -1987
COORDINATE	X 453.591.59 Y 4177.144.65	LENGTH OF ROCK DRILLING	15.50 m	DRILLED BY	DSI
ANGLE FROM HOLIZONTAL	90°	TOTAL LENGTH OF CORE	31.35 m	LOGGED BY	JICA
BEARING OF ANGLE HOLE	-	CORE RECOVERY	62.7 %		

DEPTH	ROCK NAME	LOG	CORE RECOVERY	CEMENTATION KIND OF BIT CASING	OBSERVATION OF CORE: COLOR	WEATHERING	HARDNESS	CORE CUTTING	DESCRIPTION	WATER TABLE / WATER PRESSURE TEST / LEAKAGE OF DRILLING WATER: LUGEON	m	DEPTH	ELEVATION
4 0m			0 ⇒ 100%									0m	480.518m
1	Peridotite	V		φ66 mm	Dark gray	2	3 ~ 2	3 ~ 4	Piece and fragment cores continue. No oxidization along cracks.	Lu = 1.3 Pomax. = 10.0 kg/cm²		1	
2		V										2	
3		V								Lu = 1.0 Pomax. = 10.0		3	
4											17.00	4	
5		V								Lu = 0 Pomax. = 10.0	24.80	5	
6												6	
7		V								Lu = 0 Pomax. = 10.0	24.80	7	
8											24.80	8	
9		V							R·Q·D (Av.) = 10 %	Lu = 0 Pomax. = 10.0		9	
5 0									50.0 End of drill hole		24.80	0	470.518
1												1	
2												2	
3												3	
4												4	
5												5	
6												6	
7												7	
8												8	
9												9	
0												0	

core loss
RQD

▶ driller's note ◀
1 (rock), 2 (rubble), 3 (piece), 4 (fragment), 5 grain
1 (hard) ~ 5 (soft)
1 (fresh) ~ 5 (decomposed)

water table after drilling → 0.30
water table before drilling → 0.50