

DRILL LOG

HOLE NO.881-2 SHEET NO: 1 OF 2

PROJECT		SAPT GANDAKI PROJECT				DEPTH		50 M		ELEVATION		
SITE		DAM SITE B: LEFT BANK		COORDINATE		EXCLINATION		VERTICAL		DRILL RIG		
AVERAGE CORE RECOVERY		08.7%		DATE		FROM JAN.29 TO FEB.10		DRILLED		LOGGED		
								by NORBAHADUR		by KIDO, KUMAZAWA		
DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	ROCK CLASSIFICATION	BIT DIAMETER	GROUNDWATER LEVEL	CORE RECOVERY	R. Q. D & MAX. CORE L. 50 cm	WATER PRESSURE TEST LUGEN VALVE	DEPTH
JAN.29			Residual Soil		Dark reddish brown residual soil (loamy) Includ. root fragments.		84		100			1
					Pale reddish brown. Silty/sandy soil.				100			2
	4.10								100			3
			Decomposed Rock (Sandstone)		Yellowish gray decomposed sandstone, micaceous.				100			4
					7.3 to 7.6 m; Dirty brownish gray weathered sandstone				100			5
					8.5 to 8.8 m; Yellowish gray weathered medium sandst. massive and micaceous.				100			6
					10.0 to 10.3 m; Dirty gray clay (weathered silt stone)				100			7
					11.7 to 11.9 m; Pale brown weathered medium sandst.				100			8
JAN.30									100			9
									100			10
									100			11
JAN.31									100			12
	11.90		Sandstone		White gray laminated, fine to medium sandstone				100			13
	12.65				12.65 to 12.9 m; Fractured. (minor fault)				100			14
			Mudstone		12.65 to 13.15 m; Dark gray massive mudst; rather weak and latent cracks.				100			15
FEB.2									100			16
	16.50				Includ. black lignite small fragments.				100			17
			Fine Sandstone		Dark gray massive fine sandstone.				100			18
	17.50								100			19
			Fine to Medium Sandstone		White gray massive micaceous fine to medium sandstone. Include. indistinct laminae.				100			20
	19.50								100			21
			Medium to Coarse Sandstone		White gray micaceous medium to coarse sandst. 20.7 to 21.0 m; Vertical crack.				100			22
					22.2 to 22.4 m; } Some laminated.				100			23
					23.1 to 23.4 m; }				100			24
					24.1 to 24.4 m; Includ. small pebbles.				100			25
					25.9 to 26.1 m; Lignitic black laminae.				100			26
FEB.4	26.45								100			27
	26.95		Conglomerate		26.45 to 26.95 m; Pebble congl. with gray siltstone patches.				100			28
	28.10		Siltstone		Dark gray laminated calcareous siltstone. Laminae dip 45°				100			29
	28.90		Mudstone		Dark gray massive mudstone.				100			30
FEB.5					Greenish gray mudstone, includ. dark brownish siltstone patched struct.				100			31

LOG FORM-8

*R.Q.D is Rock Quality Designation, R.Q.D = (Total length of cylindrical cores longer than 10 cm / Total core length) x 100%

*LUGEN VALVE is l/min/m under injection water pressure of 10kg/cm²

*DEPTH and ELEVATION are in meter

*DIAMETER is in millimeter.

HOLE NO.881-2

DRILL LOG

HOLE NO. B81-2 SHEET NO. 2 OF 2

DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	ROCK CLASSIFICATION	BIT & DIAMETER	GROUNDWATER LEVEL	CORE RECOVERY	R. Q. D. B. MAX. CORE L. 50 cm	WATER PRESSURE TEST LUGEN VALUE	DEPTH
	30.20											
	31.30		Fine Sandstone		Gray massive fine sandstone; muddy and incl. patched str.							
	31.40				Gray laminated fine sandst.							
			Fine to Medium Sandstone		Fine to medium sandstone; Some laminated							
	33.05				White gray medium to coarse massive sandstone. Cores are long and not bad.							
			Medium to Coarse Sandstone		35.6 to 35.75 m; Finegrains and laminated.							
					36.9 to 38.5 m; Fine to medium grains and including indistinct laminae.							
	39.95											
			Pebble Conglomerate		Pebble conglomerate with matrix of white gray coarse sandstone. 41.75 to 42.1 m } Some laminated medium 42.6 to 42.8 m } sandst. 43.05 to 43.15 m }							
	43.25				Gray laminated fine to medium sandstone; including silt. laminae.							
			Fine to Medium Sandstone									
	46.43				White gray massive and micaceous medium to coarse sandstone. 46.65 to 47.5 m; Some laminated 47.2 m; Dark gray siltstone thin bed; 2 cm-thick.							
			Medium to Coarse Sandstone									
	49.10				Gray massive fine sandstone; with white gray patched str.							
	50.00		Fine Sandst.									

LOG FORM-C

HOLE NO. B81-2

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DRILL LOG

HOLE NO. B81-3 SHEET NO. 1 OF 2

PROJECT		SAPT GANDAKI PROJECT		DEPTH		40 M		ELEVATION		
SITE		DAM SITE B, RIGHT BANK		COORDINATE		INCLINATION		VERTICAL		
AVERAGE CORE RECOVERY		99.3%		DATE		FROM MAR. 10 TO MAR. 17		DRILLED BY KUMAR		
DATE		MAR. 10		MAR. 11		MAR. 12		MAR. 13		
DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	ROCK CLASSIFICATION	BIT & DIAMETER	CHRONOMETER LEVEL	CORE RECOVERY	R. Q. D. & MAX. CORE L. 50 cm	
								WATER PRESSURE TEST LUGEN VALUE		
								10 20 30 40 50		
1		Overburden	Δ	Upper 30 cm; brownish gray top soil.	CH	66 (M. Bit : Single)				
2	Δ		0.3 to 1.1 m; Yellowish brown micaceous soil with rock fragments.							
3	Δ		1.1 to 5.7 m; Decomposed rock fragments.							
4	Δ		5.0 to 5.7 m; coarse sandst.							
5	5.70		Δ							
6		Coarse Sandstone	○	5.7 to 6.5 m; weathered and weak very coarse sandstone with a pebble and granule.	CH	66 (M. Bit : Single)	5.70			
7										
8										
9										
10										
11										
12										
13										
14										
15	15.48									
16	16.60	Siltstone & Fine Sandst.		Dark gray and laminated.	CM	66 (D. Bit : Double)	14.35m (Mar. 18)			
17	17.60	Fine Sandst.		Upper half; muddy. Dark gray and massive.						
18										
19	19.00	Siltstone & Fine Sandst.		Dark gray and laminated. 18.8 to 19.2 m; fractured.	CM	66 (D. Bit : Double)	17.70m (Apr. 7)			
20	20.25	Fine Sandst.		Dark gray and massive. Below 19.9 m; laminated with slickensides.						
21		Fine Sandstone	Δ	Brownish and weathered with laminated and/or patched structures.	CL	66 (D. Bit : Double)				
22										
23										
24										
25	25.55			Bedding slip with clay seam. Gray and massive.	CM	66 (D. Bit : Double)				
26				Slickensides with clay seams are in places.						
27		Fine Sandstone			CL	66 (D. Bit : Double)				
28										
29	29.10			Below 27.65 m; Cores are rather long and not bad.	CH	66 (D. Bit : Double)				
30		Fine Sandst.	Δ Δ Δ Δ	29.1 to 29.5 m; patched. 29.5 to 30.2 m; laminated.						

• R.Q.D. is Rock Quality Designation. R.Q.D. = (Total length of cylindrical cores longer than 10 cm) / (Total core length) × 100%.

• LUGEN VALUE is l/min/m under injection water pressure of 10 kg/cm².

• DEPTH and ELEVATION are in meter.

• DIAMETER is in millimeter.

HOLE NO. B81-3

DRILL LOG

HOLE NO. B81-3 SHEET NO. 2 OF 2

PROJECT		SITE			COORDINATE		DEPTH		ELEVATION																
AVERAGE CORE RECOVERY		DATE		FROM TO		INCLINATION		DRILL RIG																	
DATE		DEPTH		ELEVATION		ROCK TYPE OR FORMATION		COLUMN SECTION		DESCRIPTION		ROCK CLASSIFICATION		BIT DIAMETER		GROUNDWATER LEVEL		CORE RECOVERY		R. Q. D. & MAX. CORE L. 50 cm		WATER PRESSURE TEST LUGEN VALUE		DEPTH	
MAR 14		31			Fine Sandstone		30.2 to 30.5 m; fractured. White gray and cross laminated.	C _M	30.55																
		32	32.60		Fractured zone		32.8 to 32.9 m; dark gray laminated very fine sandst. 32.9 to 35.2 m; greenish gray and weak mudstone. 35.2 to 35.45; fine sandstone.	C _L	32.60																
		33																							
		34																							
		35	35.45		Fine Sandstone		Gray and patched and/or laminated.		35.50																
		36																							
		37	37.60		Fractured		37.4 to 40.3 m; stained with weathering.	C _L																	
		38	39.30		Fine Sandst.		Brownish gray and massive.																		
		39					Patched structure.		40.20																
		40	40.50		Fine Sandst. and Siltstone		Gray, calcareous and laminated.																		
		41																							
		42	42.50		Fine Sandst.		white gray, massive and micaceous.	C _M																	
		43					Fault clay; 15 cm. thick.																		
		44	44.65				Gray and massive.																		
		45																							
		46	46.35		Fine Sandstone		Micaceous and cross laminated.																		
		47																							
		48	48.25				Fault clay		48.80																
		49	48.65				Dirty gray and muddy.																		
		50	49.20				Calcareous and patched.																		
		51	49.75				White gray and massive.	C _H	50.00																
		52	50.00																						

LOG FORM-B

HOLE NO. B81-3

*R.Q.D. is Rock Quality Designation, R.Q.D. = (Total length of cylindric cores longer than 10 cm / Total core length) × 100%
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 *DEPTH and ELEVATION are in meter
 *DIAMETER is in millimeter

DRILL LOG

HOLE NO. B81-4 SHEET NO. 1 OF 2

PROJECT		SAPT GANDAKI PROJECT				DEPTH	40 M	ELEVATION			
SITE		DAM SITE A; RIGHT BANK		COORDINATE	:	INCLINATION	VERTICAL	DRILL RIG	TONE UD-5		
AVERAGE CORE RECOVERY		99%		DATE	FROM NOV.24 TO DEC.3	DRILLED	by M. KIDO	LOGGED	by KUMAZAWA		
DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	ROCK CLASSIFICATION & BIT DIAMETER	LEVEL	CORE RECOVERY	R. Q. D. & MAX. CORE L. 50 cm	WATER PRESSURE TEST LUGEN VALUE	DEPTH
Nov. 24	1		Talus Deposit	△	Talus deposit Pale brownish sandy silt with decomposed sandstone fragments.	CM	2.80 (Nov.26 to 30) 3.00M (Dec.4)	100		P. Applied Pressure (kg/cm ²) Q. Constant Rate of Flow (lit/min)	1
2		2									
3		3									
4		4									
5	5.00										5
Nov. 25	6	6.20	Mudstone (gradual)		Greenish gray massive, sandy mudstone; incl. micas. 5.0 to 5.7 m; Weathered & soft.	CM		100			6
	7		Micaceous Sandstone (Medium)		Gray medium sandstone; massive and micaceous.			100			7
	8	8.00	(gradual)					100			8
	9		Micaceous Sandstone (Coarse)		White gray micaceous coarse sandstone; subangular grains.			100		159.3 LV	9
	10										10
	11										11
	12	11.90	(unconformable)		11.2 to 11.9 m; Some laminated dipping in 50°.			100			12
	13	12.40	Siltstone & Sandst.		Gray siltstone and fine sandst.			100			13
	14		Fine to Medium Sandstone	△	12.40 m; Minor fault with clay of 3 cm-thick. Gray, micaceous and some laminated. 12.4 to 12.8 m; fine sandst. patches. 12.4 to 13.2 m; rather weak.		13.40 (Dec. 1, 2)	100		14.9 LV	14
	15										15
	16	15.00									16
	17	16.35	Laminated Siltstone and Sandstone		Gray to dark gray and well laminated with 45° dipping.			100			17
	18	17.25	Coarse Sandstone (unconformable)	△	White gray micaceous sandst. with some laminae and gray and green silt patch layers.			100		2.8 LV	18
	19										19
	20		Calcareous Siltstone and Fine Sandst.	△	Gray to dark gray siltstone to fine sandstone. (Calcareous) 19.0 m; Brownish cracks. 19.7 m, 12.2 m; Pale brown cracks. Laminated and rather hard. 21.55 m; Silt patched layer. Well laminated; includ. fossil leaves along laminae. Cross and folded laminae. 25.65 m; Crack with gray clay. (minor fault)	CH	68	100			20
	21										21
	22										22
	23										23
	24										24
	25	26.00	Dark gray Mudstone	△	Dark gray massive mudst. 26.3 m; Incl. lignite fragments. 27.5 to 28.4 m; Gray fine and micaceous sandstone. White gray calcareous siltstone patches in the bottom part. Laminated siltstone. Very fine sandstone with siltst. patches.			100		18.1 LV	25
	26										26
	27										27
	28	28.70		△				100		2.3 LV	28
	29	29.20									29
Dec. 1	30							100			30

LOG FORM-B

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*LUGEN VALUE is l/min/m under injection water pressure of 10 kg/cm².

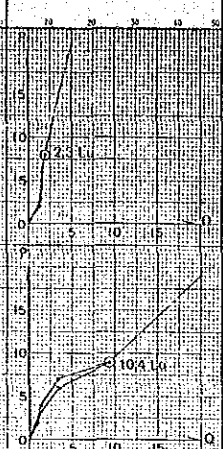
*DEPTH and ELEVATION are in meter.

*DIAMETER is in millimeter.

HOLE NO. B81-4

DRILL LOG

HOLE NO. B81-4 SHEET NO. 2 OF 2

DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	ROCK CLASSIFICATION	BIT & DIAMETER	GROUNDWATER LEVEL	CORE RECOVERY		R. Q. D.	WATER PRESSURE TEST		DEPTH
									%	CS		LUGEON VALUE		
Dec. 2	30.70		Alternation of Micaceous Fine Sandst. and Laminated Calcareous Siltstone		Calcareous Gray patches	32.60	6.6 I.D.B. Double J							
	31.55				Gray laminated siltstone (Fault with clay)	C _M			100					31
					White gray fine sandstone. (Calcareous)	32.50			100					32
					Incl. lignite small patches. 32.3 to 32.85 m. Dark gray. 33.45 m. Slickenside with clay seam.	C _H			100					33
	34.60				Patched siltstone to fine sandstone (dark gray)				100					34
	35.30				White gray micaceous sandstone	36.10			100					35
	36.15				Dark gray very fine sandst. Incl. slickenside in places. (Minor fault with clay)				100					36
	37.25				White gray fine sandstone laminated.	C _L			100					37
	38.15		Muddy Sandstone		Weakness 38.9 to 39.9 m; Greenish gray massive sandy mudstone Micaceous.	38.90			100					38
	40.00				C _H 40.00			100						40
Dec. 3														

DRILL LOG

HOLE NO.B81-5 SHEET NO. 1 OF 2

PROJECT		SAPT GANDAKI PROJECT		DEPTH	50 M	ELEVATION					
SITE		DAM SITE B; LEFT BANK		COORDINATE	INCUSATION	VERTICAL	DRILL RIG				
AVERAGE CORE RECOVERY		99.3%		DATE	FROM FEB.11 TO FEB.21	DRILLED	by NORSANADUR				
				LOGGED	by KIDO & KUMAZAWA	TONE: UD-5					
DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	ROCK CLASSIFICATION & BIT DIAMETER	GROUNDWATER LEVEL	CORE RECOVERY	R. Q. D. & MAX. CORE L. 50 cm	WATER PRESSURE TEST LUGERON VALUE	DEPTH
FEB.11	1.00		Over burden		Talus deposit; brownish	8G					1
FEB.12			Decomposed Rocks		Pole brown to yellowish gray decomposed soft sandst.	D					2
					Yellowish gray very fine sandstone.						3
					Pebbly						4
	8.50										5
FEB.13					White gray massive coarse sandstone.	9.00					6
					9.5 m; Includ. small pebbles; subangular						7
					Long cores but rather soft.	CL					8
					12.1 to 12.4 m; Pebbles with siltstone patches.	12.50					9
					12.85 m; Includ. a pebble.						10
					Below 13.1 m; Indistinct lamination.						11
					Massive and long cores, but not hard.	CH					12
					19.35 to 19.5 m; Some greenish.						13
					Below 20.4 m; Includ. granule and small pebbles.						14
	20.80										15
FEB.14					Dark gray and laminated.	CL					16
					21.7 to 22.55 m; Siltstone;						17
					21.7 to 22.1 m; Blackish gray						18
					22.1 to 22.25 m; Darty gray						19
					22.25 to 22.55 m; Greenish gray						20
					Well laminated.						21
					23.3 to 23.45 m; Slaky.	CH					22
FEB.15	23.95										23
					Gray, massive and micaceous.						24
	24.70				White gray, massive and micaceous.	25.10					25
					25.2 to 26.35 m; Brownish and weak coarse sandst.						26
					26.4 to 26.7 m; Cracky.	CL					27
	27.70				Below 27.3 m; Laminated.						28
					Well laminated fine sandst.						29
					Below 28.6 m; Silty and includ. fossil leaves.	CH					30
					Slickensides along laminae common.						31
	29.75				Bedding dips in 35°						32

LOG FORM-B

HOLE NO.B81-5

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DRILL LOG

HOLE NO. B81-5 SHEET NO. 2 OF 2

DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	ROCK CLASSIFICATION	BIT & DIAMETER	GROUNDWATER LEVEL	CORE RECOVERY	R. Q. D.	WATER PRESSURE TEST LUGON VALUE	DEPTH
	30.40		Mudstone		Greenish gray and massive	30.70						
	32.30		Patched-like Breccia.		Greenish mudst. and pale brownish gray calcareous siltstone are patched each other; hard.	B						
	34.30		Sandy Siltstone		Pale greenish gray calcareous, laminated and hard. 32.4 to 32.9 m; A vertical crack with calcite seam.	CH						
	35.55		Mudstone		Greenish gray and massive, and staky. Lower part; Incl. patches.	35.00						
	38.35		Very Fine to Fine Sandstone		Incl. green patches. Below 36.6 m; Laminated. Incl. reddish and greenish thin bands. Below 37.9 m; Dark gray siltst.							
	40.20		Fine Sandstone		Upper; Massive and muddy incl. black lignitic spots. Middle; Patched. Lower; Laminated and silty.	CH						
	41.30		Fine Sandstone		Greenish gray and massive. Incl. small patches.	B						
	42.05				White gray, massive and micaceous.							
	42.50				Pale brown siltstone patched.							
	43.20				Cross laminated.							
	44.05				Silty and well laminated. Incl. fossil leaves.							
	45.30		Fine Sandstone		Dark gray massive and micaceous. Laminated. Calcareous, silty and well laminated.							
	47.90				47.9 m; Bedding slip fault with 2 cm-thick clay.	47.40						
	48.60		Mudstone		Greenish gray and massive, with black lignitic fragments.	CL						
	49.70		Sandstone		Muddy fine sandstone with calcareous patches.	B						
	50.00				White gray medium sandst.	50.00						

DRILL LOG

HOLE NO. B81-6

SHEET NO. 1 OF 2

PROJECT		SAPT GANDAKI PROJECT			DEPTH		30 M		ELEVATION		
SITE		DAM SITE B; RIVERBED		COORDINATE	:	INCLINATION	VERTICAL	DRILL RIG	TONE UD-5		
AVERAGE CORE RECOVERY		34.4%		DATE	FROM FEB.20 TO MAR.26, '82	DRILLED	by M. KIDO RISHUNU	LOGGED	by KUMAZAWA		
DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	BIT & DIAMETER	GROUNDWATER LEVEL	CORE RECOVERY	MAX. CORE LENGTH OF BOULDERS	WATER PRESSURE TEST LUGEON VALUE	DEPTH
FEB. 20	1				Above 7.6 m; Gravely Including boulders (schists, quartzites, meta-sandstones and granites).	101	River Water Level; 1.0 to 1.5 meter above the Surface of sand and gravels.	40			1
FEB. 21	2					86		40			2
FEB. 22	3							40			3
FEB. 23	4							40			4
FEB. 24	5							40			5
FEB. 25	6							40			6
FEB. 26	7							35			7
FEB. 27	8							15			8
FEB. 28	9							25			9
MAR. 1	10							0			10
MAR. 2	11							0			11
MAR. 3	12							0			12
MAR. 4	13							0			13
MAR. 5	14							0			14
MAR. 6	15							20			15
MAR. 7	16							5			16
MAR. 8	17							30			17
MAR. 9	18							30			18
MAR. 10	19							15			19
MAR. 11	20							10			20
MAR. 12	21							25			21
MAR. 13	22							10			22
MAR. 14	23							80			23
MAR. 15	24							70			24
MAR. 16	25							80			25
MAR. 17	26							80			26
MAR. 18	27							50			27
MAR. 19	28							50			28
MAR. 20	29							60			29
MAR. 21	30							80			30

LOG FORM-B

HOLE NO. 81-6

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 *DEPTH and ELEVATION are in meter
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DRILL LOG

HOLE NO. B81-6 SHEET NO. 2 OF 2

PROJECT		SITE		COORDINATE		DEPTH		ELEVATION	
AVERAGE CORE RECOVERY		DATE		FROM TO		INCLINATION		DRILL FIG	
DATE		DEPTH		ELEVATION		ROCK TYPE OR FORMATION		COLUMN SECTION	
DESCRIPTION		BIT DIAMETER		GROUNDWATER LEVEL		CORE RECOVERY		MAX. CORE LENGTH OF BOULDERS	
LUGEON VALUE		WATER PRESSURE TEST		DEPTH					
M26	MAR 23	32.0	33.7	32.0	33.7	32.0	33.7	32.0	33.7
M26	MAR 24	33.7	34.5	33.7	34.5	33.7	34.5	33.7	34.5
M26	MAR 25	34.5	36.0	34.5	36.0	34.5	36.0	34.5	36.0
M26	MAR 26	36.0		36.0		36.0		36.0	

LOG FORM-B

HOLE NO. B81-6

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* DEPTH and ELEVATION are in meter

* DIAMETER is in millimeter

DRILL LOG

HOLE NO. B81-7 SHEET NO. 1 OF 2

PROJECT		SAPT GANDAKI PROJECT				DEPTH		50 M.		ELEVATION			
SITE		DAM SITE C, LEFT BANK		COORDINATE		INCLINATION		VERTICAL		DRILL RIG			
AVERAGE CORE RECOVERY		98 %		DATE		FROM FEB.23 TO MAR.3 '82		DRILLED		by KUMAL			
LOG FORM-B		98 %		DATE		FROM FEB.23 TO MAR.3 '82		DRILLED		by KIDO & KUMAZAWA			
DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	ROCK CLASSIFICATION	BIT & DIAMETER	GROUNDWATER LEVEL	CORE RECOVERY	R. Q. D. MAX. CORE L. 50 cm	WATER PRESSURE TEST LUKEON VALUE	DEPTH	
FEB 23	1		Overburden		Reddish brown soil; micaceous loam.	66 (1 M.B. Single)			100		Applied Pressure (kg/cm ²) Constant Rate of Flow (lit./min. per 100 cm ²)	1	
	2								100			2	
	3								100			3	
	4				100					4			
	5				100					5			
	6				100					6			
	7				100					7			
	8				100					8			
FEB 24	9	8.60	Decomposed Rocks		7.5 to 8.6 m; Terrace gravel; includ. boulders.	D			100		Maximum Core Length (cm) R. Q. D. (%)	9	
	10	10.30							100			10	
	11								100			11	
	12	12.30							100			12	
	13	13.40			100					13			
	14				100					14			
	15	14.90			100					15			
	16				100					16			
FEB 25	17	16.90	Sandy Mudstone		Greenish gray and massive slaky and weak.	C ₁			100		Maximum Core Length (cm) R. Q. D. (%)	17	
	18	17.40	Sandstone		Includ. black lignitic fragments				100			18	
	19	18.00	Siltst. & Sandst.		Gray, muddy and patched				100			19	
	20	18.50			Laminated				100			20	
	21	19.05			Muddy and includ. brown spots				100			21	
	22	19.45			Gray, massive fine sandstone.				100			22	
	23	20.85			Patched structure				100			23	
	24	21.25			Massive fine sandst.				100			24	
FEB 26	25	21.75	Fine Sandstone		Calcareous brown patches.	C _{1H}			100		Maximum Core Length (cm) R. Q. D. (%)	25	
	26	22.70							Massive, micaceous and muddy.	100			26
	27	23.00							Gray and cross laminated	100			27
	28	23.75							Brown patched	100			28
	29	24.10			Micaceous and white gray sandstone patched				100			29	
	30				Brown patched				100			30	
	31				Gray and well laminated				100			31	
	32				34.35 m; Brownish crack dip 60°				100			32	
FEB 27	33	25.90	Laminated Fine Sandst. and Siltst.		Laminated dip 20° to 30°.	C			100		Maximum Core Length (cm) R. Q. D. (%)	33	
	34	26.60			25.80 to 25.90m; Bedding slip clay.				100			34	
	35				Dark gray, massive and micaceous; slaky				100			35	
	36				White gray, massive and micaceous; with patches.				100			36	
	37	28.50			Incl. lignitic fragments.				100			37	
	38	29.40			White gray and laminated				100			38	
	39				Dark gray, with brown patches				100			39	
	40				Muddy sandstone				100			40	

*R.Q.D. is Rock Quality Designation. R.Q.D. = (Total length of cylindrical cores longer than 10 cm / Total core length) x 100 %

*LUKEON VALUE is l/min/sq under injection water pressure of 10 kg/cm²

*DEPTH and ELEVATION are in meter

*DIAMETER is in millimeter

DRILL LOG

HOLE NO. B81-7 SHEET NO. 2 OF 2

DATE	DEPTH m	ELEVATION m	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	ROCK CLASSIFICATION	BIT & DIAMETER	GROUNDWATER LEVEL	CORE RECOVERY %	R. Q. D.	WATER PRESSURE TEST		DEPTH m			
											LUGEON VALUE					
FEB. 28	30.70		Sandstone		Brownish gray and massive	CH	66 (D.B., Double)		100				31			
	31.10				Brown siltstone patches.								100			31
	32		Muddy Sandstone		Brownish gray, massive and micaceous								100			32
	33				Brown and gray colored patches.								100			33
	34				White gray and massive; micaceous sandst.								100			34
MAR. 1	35		Medium to Coarse Sandstone		33.3 to 33.6 m; A high dip crack (82°)								100			35
	36														36	
	37														37	
	38														38	
	38.35														38	
MAR. 2	39		Siltstone Patched Layer		Massive and long cores.	100			37							
	40							38								
	41							39								
	42							40								
	43							41								
MAR. 3	43.10		Medium to Coarse Sandstone		39.8 m; Includ. a lignitic fragment.	100			42							
	44							43								
	45							44								
	46							45								
	46.60							46								
	47				40.0 m; Black lignite lamina in 3 mm thick.	100			47							
	48							48								
	49							49								
	50							50								
	50.00							50								

HOLE NO. B81-7

DRILL LOG

HOLE NO.B81-8 SHEET NO. 1 OF 2

PROJECT		SAPT GANDAKI PROJECT				DEPTH	40 M	ELEVATION				
SITE		DAM SITE A; RIGHT BANK		COORDINATE		INCLINATION	VERTICAL	DRILL RIG	TONE; UD-5			
AVERAGE CORE RECOVERY		99.7%		DATE	FROM NOV.13 TO NOV.22	DRILLED	by M. KIDO	LOGGED	by KUMAZAWA			
DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	ROCK CLASSIFICATION	DIAMETER	GROUNDWATER LEVEL	CORE RECOVERY	R. Q. D. & MAX. CORE L. 50 cm	WATER PRESSURE TEST LUGEON VALUE	DEPTH
NOV.13	0.30		Top Soil		Dark brown.	0.30						
	1.10		Weathered Fine Sandst.		Yellowish gray and patched.							
NOV.14	2.10				Laminated and cracky.							
	2.67				Yellowish gray and massive.							
	3.60				Gray and massive; calcareous and hard. Cracks are rust-colored.	CL						
	4.75				Laminated							
	5.20				Silty. Includ. fossil leaves along laminae.							
	5.85		Mudstone		Greenish and weak.	6.50						
	6.80				6.15 to 6.8 m; Fractured.							
	7.30		Fine Sandstone		Patched.							
	8.60				Gray and well laminated.	CM						
	9.00		Siltstone		7.73 m; slip fault clay; 2cm. thick.							
NOV.15	9.97		Fine Sandstone		Dark gray and laminated.	9.00						
	10.50				Gray, massive and very fine. Includ. some siltstone patches.							
	10.80		Siltstone & Fine Sandst.		Laminated.							
	11.30				Calcareous							
	11.78		Fine Sandstone		Dark gray and laminated.							
	13.76				Gray and massive.							
	14.27				Laminated.							
	14.75				13.2 to 13.3 m; Crack with folding laminae.							
	16.60		Fine Sandst.		13.4 to 13.6 m; Rather weak; with slickensides.	CH						
	17.75				White gray and massive.							
	19.40		Medium to Coarse Sandstone		14.3 to 14.75 m; Indistinct laminae.	16.70						
	21.45				15.3 m; Includ. pebbles. Micaceous. Including pebbles.							
	22.65		Mudstone		Greenish, sandy and massive. Includ. lignitic small fragments	CH						
	25.80				Gray and calcareous siltstone patched.							
	26.20		Fine Sandstone		White gray and laminated. Laminae dip in high angle of 70°.							
	28.30				21.1 m; Faulty clay 2 cm-thick. 21.32 to 21.45 m; Fractured.							
	28.68		Medium to Fine Sandstone		Gray and massive; with lignitic small fragments.							
	29.20				Bedding slip with clay seam of 2 mm thick.							
	29.70		Pebble Conglo.		White gray and massive.							
	30.30				Includ. siltstone patches.							
	30.80		Coarse Sandstone		White gray, massive and micaceous.							
	31.30				Some laminated and including some small siltstone pebbles.							
	31.80		Mudstone		28.3 to 28.4 m; Fractured.							
	32.30				Dark gray.							
	32.80		Siltstone		Calcareous silt patched.							
	33.30				Dark gray and patched; Calcareous and very hard.							

LOG FORM-B

HOLE NO.B81-8

* R.Q.D. is Rock Quality Designation. R.Q.D. = (Total length of cylindrical cores longer than 10 cm) / (Total core length) × 100%
 * LUGEON VALUE is l/min/m under injection water pressure of 10 kg/cm²
 * DEPTH and ELEVATION are in meter
 * DIAMETER is in millimeter

DRILL LOG

HOLE NO. B81-8 SHEET NO. 2 OF 2

DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	ROCK CLASSIFICATION	BIT & DIAMETER	GROUNDWATER LEVEL	CORE RECOVERY	R. Q. D.	WATER PRESSURE TEST LUGEON VALUE	DEPTH
NOV 20	30.13		Calcareous Siltstone		Laminae dip in 42°	CH	65 (D.B. Double)					
	30.45				Patched.							
NOV 21	31.50		Fine to Med. Sandstone		Dark gray calcareous shale. 32.3 to 32.6 m; Patched.							
	32.60				White gray and micaceous.							
NOV 21	33.58		Siltstone and Fine Sandst.		Well laminated.							
	35.75				Includ. some fossile leaves along laminae.							
NOV 21	37.60		Fine Sandst.		White gray and laminated.							
	38.65				Fossile leaves blackish laminae.							
NOV 22	38.65		Mudstone		Some greenish and massive. Cracks developed by slaking.							
	40.00				Gray calcareous siltstone patched. 38.65 to 39.35 m; Breccia-like.							

LOG FORM-C

HOLE NO. B81-8

DRILL LOG

HOLE NO.B81-9 SHEET NO. 1 OF 2

PROJECT		SAPT GANDAKI PROJECT				DEPTH		40 M		ELEVATION		TONE UD-5	
SITE		DAMSITE A; LEFT BANK		COORDINATE		INCLINATION		VERTICAL		DRILL RIG		LOGGED	
AVERAGE CORE RECOVERY		80.4 %		DATE		FROM Oct. 23 TO Nov. 3		DRILLED		by M. KIDO		by KUMAZAWA	
DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	ROCK CLASSIFICATION	BIT & DIAMETER	GROUNDWATER LEVEL	CORE RECOVERY	R. Q. D. B. MAXCOREL. 50 cm	WATER PRESSURE TEST LUGEON VALUE		DEPTH
Oct. 23	1		Terrace Deposit		Terrace deposit; gravelly. Including boulders of quartzites and granites.	C _H	100	6.30	60			1	
2		1.4 to 1.8 m; Cemented Conglomerate.			25				2				
3					5				3				
4					10				4				
5					10				5				
6					0				6				
7			Massive Sandstone		Gravels with brownish sandy soil.	66	6.30	30			7		
8					5			8					
9	9.10				10			9					
10					65			10					
11					100			11					
12					100			12					
13			Pebble Conglomerate		10.15 to 11.3 m; medium to fine sandst. with indistinct lamina dipping in 54°.	66	6.30	100			13		
14					10.65 m; includ. a pebble			100				14	
15	14.65		Mudstone		11.3 to 14.65 m; Medium to coarse	66	6.30	100			15		
16					16 to 16.8 m; Includ. cobbles.			100				16	
17			Sandstone		16.8 to 17.8 m; Pebbles and granules	66	6.30	100			17		
18	17.80				19.2 to 20.6 m; White gray fine sandst.; massive and some soft.			100				18	
19			Sandstone		20.8 to 24.3 m; Micaceous medium sandst.; laminated	66	6.30	100			19		
20	19.20				Lamina dips in 36°			100				20	
21			Sandstone		24.3 to 25.3 m; Coarse sandstone; not soft.	66	6.30	100			21		
22					Dark gray; some hard and being slips along laminae.			100				22	
23			Sandstone		Greenish gray; massive, muddy and micaceous.	66	6.30	100			23		
24	25.30				White gray; massive micaceous and muddy medium sandstone with patched str.			100				24	
25	25.80		Mudstone		Dirty gray and sandy	66	6.30	100			25		
26	26.55				Upper; white gray massive micaceous fine sandst.			100				26	
27			Sandstone		Lower; gray, patched and very fine; some brownish patches	66	6.30	100			27		
28	27.95							100				28	
29	28.40		Sandstone			66	6.30	100			29		
30	29.90							100				30	

LOG FORM-B

*R.Q.D. is Rock Quality Designation. R.Q.D. = (Total length of cylindric cores longer than 10 cm) / Total core length × 100%
 *LUGEON VALUE is l/min/m under injection water pressure of 10 kg/cm²
 *DEPTH and ELEVATION are in meter
 *DIAMETER is in millimeter

HOLE NO.B81-9

DRILL LOG

HOLE NO.B81-9 SHEET NO. 2 OF 2

DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	ROCK CLASSIFICATION	GROUNDWATER LEVEL	CORE RECOVERY	R. Q. D.	WATER PRESSURE TEST LUGEN VALUE	DEPTH
Nov. 1	31	30.90	Mudstone		Greenish and weak Includ. brown silt patches	C _M					31
	32	32.40	Sandstone		Brownish dirty gray muddy fine sandstone; massive Patched str. in lower part.						32
	33	33.05	Siltstone		Dark gray, brown patched and hard. (Sheared along bed; 1 to 2 cm th.)						33
Nov. 2	34	34.70	Sandstone		Upper 10 cm; greenish mudstone. Gray fine sandstone with white gray patches.	C _M to C _H					34
	35	35.90	Siltstone		Dark gray, calcareous and laminated. Slicker sides along laminae. (Sheared along bed. 3 cm th.)						35
	36	36.50	Mudstone		Dark gray and shaly						36
	37										37
	38	39.40	Sandstone		White gray to gray, well laminated. fine to very fine sandstone Micaceous and cross laminating.						38
Nov. 3	39		Sandstone		Top; Blackish gray mudstone; 1 cm. Greenish gray massive muddy sandst. 39.8 to 40 m; Inc. lignitic fragments.						39
	40	40.00				40.00					40

LOG FORM-C

HOLE NO.B81-9

DRILL LOG

HOLE NO. 881-10 SHEET NO. 1 OF 2

PROJECT		SAPT GANDAKI PROJECT				DEPTH		40 M		ELEVATION					
SITE		DAM SITE A, LEFT BANK		COORDINATE		EXPLANATION		VERTICAL		DRILL RIG					
AVERAGE CORE RECOVERY		48.1%		DATE		FROM NOV.4 TO DEC.27		DRILLED		LOGGED					
								by M. KIDO		by KUMAZAWA					
DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	ROCK CLASSIFICATION & BIT DIAMETER	GROUNDWATER LEVEL	CORE RECOVERY	R. Q. D. & MAX. CORE L. 50 cm	WATER PRESSURE TEST LUGEN VALUE					DEPTH
	1.20		Red Soil		Reddish brown soil.			50							
					A Gr. cobble & a Qtz boulder. Sandy soil with rock fragments and micaceous.			60							
								60							
								60							
								60							
					Includ. decomposed rock fragments.			60							
								70							
								30							
	8.30							80							
					Includ. Boulders. (Qtz.)			70							
								80							
					Brownish gray colored and micaceous.			60							
								50							
								30							
								30							
	15.0							80							
					Pebbles, cobbles and boulders.			50							
								30							
								30							
	18.0							40							
								30							
								30							
					Granules and pebbles.			30							
								20							
								30							
								30							
								30							
								30							
								20							
								20							
								20							
	29.0							30							
					Silty.			30							

LOG FORM-B

HOLE NO. 881-10

*R.Q.D. is Rock Quality Designation. R.Q.D. = (Total length of cylindrical cores longer than 10 cm / Total core length) x 100%
 *LUGEN VALUE is l/min/m under injection water pressure of 10 kg/cm²
 *DEPTH and ELEVATION are in meter
 *DIAMETER is in millimeter

DRILL LOG

HOLE NO. B81-10 SHEET NO. 2 OF 2

PROJECT		SITE		COORDINATE		DEPTH		ELEVATION																			
AVERAGE CORE RECOVERY		DATE		FROM TO		INCLINATION		DRILL RIG																			
DATE		DEPTH		ELEVATION		ROCK TYPE OR FORMATION		COLUMN SECTION		DESCRIPTION		ROCK CLASSIFICATION		BIT DIAMETER		CROWN WATER LEVEL		CORE RECOVERY		R. Q. D. & MAX. CORE L.		WATER PRESSURE TEST		LUGEN VALUE		DEPTH	
31																											
32	32.0																										
33																											
34																											
35																											
36																											
37	37.60																										
38	38.70																										
39																											
40	40.00																										

LOG FORM-B

HOLE NO. B81-10

*R.Q.D. is Rock Quality Designation, R.Q.D. = (Total length of cylindrical cores longer than 10 cm / Total core length) x 100%
 *LUGEN VALUE is l/min/m under injection water pressure of 10 kg/cm²
 *DEPTH and ELEVATION are in meter
 *DIAMETER is in millimeter

DRILL LOG

HOLE NO. B81-11 SHEET NO. 1 OF 1

PROJECT		SAPT GANDAKI PROJECT			DEPTH	30.5 M	ELEVATION					
SITE		DAMSITE B; RIVERBED		COORDINATE	INCLINATION	VERTICAL	KOKEN, OE-2L					
AVERAGE CORE RECOVERY		33.4%		DATE	FROM JAN.10 TO MAR.3	DRILLED by BISHUNU	LOGGED by KIDU & KUMAZAWA					
DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	ROCK CLASSIFICATION	DIAMETER	GROUNDWATER LEVEL	CORE RECOVERY	R. Q. D. & MAX CORE L.	WATER PRESSURE TEST LUGEON VALUE	DEPTH
JAN 1	1			0	0 to 30.2 m; Riverbed deposits; sand and gravels.		101	River water level; 2 m above the surface of gravel.	30			1
JAN 2	2			0	0 to 2.0 m; Gravelly; including quartzite and granite boulders.		86		40			2
JAN 3	3			0					15			3
JAN 4	4			0	3.3 to 3.7 m; Sandy				20			4
JAN 5	5			0					30			5
JAN 6	6		Riverbed Deposits (Gravel)	0					5			6
JAN 7	7			0					20			7
JAN 8	8			0					15			8
JAN 9	9			0	Sand and gravels.				20			9
JAN 10	10			0					40			10
JAN 11	11			0					30			11
JAN 12	12			0					20			12
JAN 13	13			0					25			13
JAN 14	14			0					3			14
JAN 15	15			0					25			15
JAN 16	16			0					15			16
JAN 17	17			0					15			17
JAN 18	18			0					5			18
JAN 19	19			0					10			19
JAN 20	20			0					20			20
JAN 21	21			0	19.5 to 27.1 m; Gravelly. Quartzite, sandstone and granite boulders are commonly contained.				60			21
JAN 22	22		Riverbed Deposits (Gravel)	0					70			22
JAN 23	23			0					70			23
JAN 24	24			0					70			24
JAN 25	25			0					70			25
JAN 26	26			0					60			26
JAN 27	27			0	27.1 to 27.5 m; Sand layer.				60			27
JAN 28	28			0	27.5 to 30.2 m; Sand and gravels.				50			28
JAN 29	29			0					50			29
JAN 30	30	30.20		0					30			30
JAN 31	31	30.50	Fine Sandst.	0	White gray, micaceous and calcareous.	C14	56		15			31

LOG FORM-5

HOLE NO. B81-11

*R.Q.D is Rock Quality Designation, R.Q.D = (Total length of cylindrical cores longer than 10 cm / Total core length) x 100%
 *LUGEON VALUE is l/min/m under injection water pressure of 10 kg/cm²
 *DEPTH and ELEVATION are in meter
 *DIAMETER is in millimeter

DRILL LOG

HOLE NO.B81-12 SHEET NO. 1 OF 2

PROJECT		SAPT GANDAKI PROJECT				DEPTH	50M	ELEVATION				
SITE		DAM SITE B: LEFT BANK		COORDINATE	:	INCLINATION	VERTICAL	TONE UD-5				
AVERAGE CORE RECOVERY		99 %		DATE	FROM JAN.12 TO JAN.26	DRILLED	by A. SAKAI	LOGGED				
				by KUMAZAWA								
DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	ROCK CLASSIFICATION	BIT DIAMETER	CHUCKER WATER LEVEL	CORE RECOVERY	R. Q. D. MAX. CORE LENGTH	WATER PRESSURE TEST LUGON VALUE	DEPTH
Jan. 12	1		(Top Soil) Talus Deposits		Yellowish brown, micaceous and sandy talus deposits.	99	64					1
	2	2.20										2
	3				Grayish color silt, sand and gravels. (Sandy)							3
	4				3.8 m; Granite boulder							4
	5				5.6 m; Quartzite boulder							5
	6				Subround pebbles.							6
	7	7.30			7.3 m; Mica Oz schist boulder.							7
	8				(Gravely)							8
	9											9
	10				9.5 to 10.2 m; Boulders.							10
	11				10.2 to 11.8 m; White grayish and silty.							11
	12				11.8 to 13.9 m; Pebbles, cobbles and boulders. (roundness).							12
	13				Matrix; dirty grayish and muddy.							13
	14	13.90			Laminated fine sandstone	13.90						14
	15	14.70			Dark gray calcareous siltst. 14.0 to 14.7 m; Laminated.	CL						15
	16	15.30			14.7 to 15.3 m; Massive and muddy; not calcareous.							16
	17	16.50			15.3 to 18.5 m; Lamination with patched structure.							17
	18	17.75			Greenish gray muddy micaceous sandstone; massive and not hard.							18
	19				White gray micaceous medium sandstone; massive and some weak.	CM						19
	20											20
	21	21.15			21.15 to 21.4 m; Greenish gray muddy sandstone; micaceous and including white gray sandstone patches. Some brownish (weathered).							21
	22	21.40			21.4 to 24.7 m; White gray medium to coarse sandst; massive and patched.							22
	23				24.7 to 27.8 m; White gray fine to medium sandstone; micaceous and laminated.							23
	24	24.70			Laminae dip 45°.							24
	25				Long cores.							25
	26											26
	27	27.80			Laminated fine sandst. and siltst. with patched str. Stained brown							27
	28											28
	29											29
	30	30.00										30

LOG FORM-B

HOLE NO.B81-12

*R.Q.D. is Rock Quality Designation, R.Q.D.= (Total length of cylinder cores longer than 10 cm)/(Total core length) x 100.

*LUGON VALUE is 1/10th of water injection water pressure of 10kg/cm².

*DEPTH and ELEVATION are in meter.

*DIAMETER is in millimeter.

DRILL LOG

HOLE NO. B81-12 SHEET NO. 2 OF 2

DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	ROCK CLASSIFICATION	BIT & DIAMETER	GROUNDWATER LEVEL	CORE RECOVERY	R. Q. D	WATER PRESSURE TEST LUGEN VALUE	DEPTH
Jan 20	33.10		Brownish Sandstone		Massive micaceous sandst.; stained brown with weathering. Upper part: fine and muddy. Bottom; coarse	C _M						31
Jan 21	35.20		Sandstone (calcareous)		Brownish gray (weathered) muddy fine sandstone 34 to 34.4 m; patched str. (limy) Medium sandst.	C _H						33
Jan 21	37.85				White gray massive medium sandstone	C _H						35
Jan 21	39.20				Some laminated Calcareous	C _H						37
Jan 21	42.00		Laminated Siltstone		Dark gray well laminated calcareous siltstone and very fine sandstone; Slickensides with clay seams along laminae are common	C _L						39
Jan 22	43.25		Mudstone		Greenish gray sandy mudst.; massive and micaceous.	C _H						41
Jan 23	45.00		Sandstone		White gray medium to coarse sandstone; Massive and long cores taken.	C _H						43
Jan 24	49.60				Some laminated.	C _H						45
Jan 24	51.80		Mudstone		Dark gray mudstone; massive	C _H						47
Jan 25	52.80		Siltstone		Gray calcareous siltstone with patched str.	C _H						49
Jan 25	54.75		Sandstone & Siltstone Alternation		Thin alternation of white gray sandst. and dark gray calcareous silts. Well laminated	C _H						51
Jan 26	55.55		Mudstone		Dark gray mudstone with gray siltstone patches Incl. black lignite small fragments	C _H						53
Jan 26	56.80				Greenish gray sandy mudst. White gray sandst. patches. Muddy micaceous sandst.	C _H						55
Jan 26	58.10		Sandstone		White gray massive micaceous medium sandstone; with some greenish patches Long cores; some good	C _H						57
Jan 26	60.00					C _H						59

LOG FORM-C

HOLE NO. B81-12

DRILL LOG

HOLE NO. 881-13 SHEET NO. 1 OF 2

ATTACHMENT-11.29

PROJECT		SAPT GANDAKI PROJECT				DEPTH	50 M	ELEVATION				
SITE		DAM SITE B; RIVERBED		COORDINATE	:	INCLINATION	VERTICAL	DRILL RIG	KOKEN OE-2L			
AVERAGE CORE RECOVERY		71.7%		DATE	FROM MAR.28 TO APR.9, '82	DRILLED	by BISHUNU	LOGGED	by KIDO & KUMAZAWA			
DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	ROCK CLASSIFICATION	BIT & DIAMETER	GROUNDWATER LEVEL	CORE RECOVERY	R. Q. D. & MAX. CORE L.	WATER PRESSURE TEST	DEPTH
MAR 28	1				Above 1.5 m; Sandy; micaceous coarse sand.				0		P: Applied Pressure (kg/cm ²)	1
MAR 28	2				1.5 to 4.0 m; Sand and gravels.		101	River Water Level; 5.9 m above the surface of sand & gravel.	10		Q: Core Rate of Flow (liters/min)	2
MAR 28	3								15			3
MAR 28	4						63		10			4
MAR 28	5				Below 4.0 m; Gravelly; including boulders (quartzites, meta-sandst. schists and granites) commonly.				60		Maximum Core Length of Boulders (cm) above 16.3 m in depth.	5
MAR 28	6		Riverbed Sand and Gravels						30			6
MAR 28	7								25			7
MAR 28	8								30			8
MAR 28	9								25			9
MAR 28	10								20			10
MAR 28	11								25			11
MAR 28	12								5			12
MAR 28	13								5			13
MAR 28	14								15			14
MAR 28	15								15			15
MAR 28	16								15			16
MAR 28	16.30								15			16
MAR 28	17								15			17
MAR 28	18		Coarse Sandstone		White gray and patched. Including pebbles and soft rock patches.		7.30 m		10		Maximum Core Length (cm)	18
MAR 28	18.80								10		R.O.D. (%)	19
MAR 28	19				Boundary dips in 5 to 10°.				10			20
MAR 28	20		Fine Sandst.		Dark gray and massive with patches.				10			21
MAR 28	20.85								10			22
MAR 28	21.60		Sandst. & Siltst.		Dark gray, laminated and patched.				10			23
MAR 28	22.20		Muddy Sandst.		Dark gray and massive.				10			24
MAR 28	23.15		Fine Sandst.		Gray and massive.				10			25
MAR 28	24				White gray and massive.				10			26
MAR 28	25		Medium Sandstone		Cores are long and rather good condition.				10			27
MAR 28	26				Bedding slip with clay seam.				10			28
MAR 28	26.40								10			29
MAR 28	27.49		Fine Sandst.		26.4 to 27.1 m; Massive 27.1 to 27.35 m; Laminated, 27.35 to 27.48 m; Fractured.				10			30
MAR 28	28.03		Muddy Sandst.		Greenish gray and massive.				10			31
MAR 28	29				Patched and/or well laminated.				10			32
MAR 28	30		Fine Sandst.		28.03 to 29.25 m; Some greenish and patched.				10			33

LOG FORM-8

HOLE NO. 881-13

*R.Q.D. is Rock Quality Designation. R.Q.D. = (Total length of cylinder cores longer than 10 cm / Total core length) * 100 %
 *LUGEON VALUE is l/min/ft under injection water pressure of 10 kg/cm²
 *DEPTH and ELEVATION are in meter
 *DIAMETER is in millimeter

DRILL LOG

HOLE NO. 881-13 SHEET NO. 2 OF 2

ATTACHMENT-11.30

PROJECT		SITE		COORDINATE		DEPTH		ELEVATION				
AVERAGE CORE RECOVERY		DATE		FROM TO		INCLINATION		DRILL RIG				
DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	ROCK CLASSIFICATION	BIT & DIAMETER	GROUNDWATER LEVEL	CORE RECOVERY	R. Q. D.	WATER PRESSURE TEST LUGEON VALUE	DEPTH
APR. 7	31.40		Fine Sandst.		Laminae dip in 30°.	CH			100			31.40
	31.85		Fine Sandst.		Dark gray and muddy.				100			31.85
	33.24		Medium Sandstone		White gray, massive and micaceous.				100			33.24
	33.38		Silt & Sandst.		Well laminated.				100			33.38
	35.10		Muddy Sandstone		Greenish gray and massive.				100			35.10
APR. 8	35.90		Coarse Sandstone	O	White gray, massive and micaceous.	CM	56 (C.B. Double)		100			35.90
	36.2 to 37.5 m	36.2 to 37.5 m; Soft and weak.			100						36.2 to 37.5 m	
	38.57 m	38.57 m; Including a quartzite cobble.			100						38.57 m	
	40.0	Cores are massive and long; but not so hard.			100						40.0	
	42.95 to 43.15 m	42.95 to 43.15 m; Including soft rock patches and granules.			100						42.95 to 43.15 m	
	44.0	Pebbles and granules are scattered.			100						44.0	
	46.0				100						46.0	
	48.0				100						48.0	
	50.00				100						50.00	
	50.00				Mudstone					Dark gray and massive	50.00	

LOG FORM-B

*R.Q.D. is Rock Quality Designation. R.Q.D. = (Total length of cylindric cores longer than 10 cm) / (Total core length) x 100%
 *LUGEON VALUE is l/min/m under injection water pressure of 10kg/cm²
 *DEPTH and ELEVATION are in meter
 *DIAMETER is in millimeter

HOLE NO. 881-13

DRILL LOG

HOLE NO.B81-14 SHEET NO. 1 OF 2

PROJECT		SAPT GANDAKI PROJECT				DEPTH	60 M	ELEVATION				
SITE		DAMSITE C; LEFT BANK		COORDINATE		INCLINATION	VERTICAL	DRILL RIG	KOKEN OE-2L			
AVERAGE CORE RECOVERY		100%		DATE	FROM DEC.28 TO JAN.4	DRILLED	by M. KIDO	LOGGED	by KUMAZAWA			
DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	ROCK CLASSIFICATION	BIT & DIAMETER	GROUNDWATER LEVEL	CORE RECOVERY	R. Q. D & MAX. CORE L	WATER PRESSURE TEST LUGEON VALUE	DEPTH
DEC 28	1	1.20	Overburden		Dark brown top soil.	CH	86					
	2				Pole brown silt and sand.							
	3				Pole brownish and weathered.							
	4	2.70	Coarse Sandstone		White gray and massive medium to coarse sandst.	CM	2.70					
	5				3.4 to 3.6 m; Includ. patched-like soft pebbles.							
	6				3.5 to 3.8 m; Some laminated.							
	7				Long and good cores.							
	8				7.0 to 7.5 m; Includ. granules and pebbles; mainly soft rocks.							
	9				Indistinct lamination.							
	10				8.2 to 9.4 m; Including some patched-like siltstone granules.							
	11	11.60	Fine Sandstone		(Unconformable) Greenish dark gray and muddy.	B	1360					
12				Includ. lignitic small fragments.								
13	12.60			Massive and micaceous.								
14				13.55 m; A brown colored crack.								
15	14.20			Siltstone patched.								
16				Long and hard cores.								
17	15.50	Medium Sandstone		Massive and hard.	B							
18				Some patched.								
19	16.30			17.45 to 17.9 m; Gray fine sandstone with some patches.								
20				White gray massive and micaceous sandstone.								
21				Medium to coarse sandst.								
DEC 29	22		Fine Sandstone		Bottom; Patched like greenish siltstone pebbles.	CM						
	23	23.00			Pale green and massive.							
	24				Pale green and patched.							
	25	24.28	Fine Sandstone		Lower; Calcareous and hard.	CM						
	26				Patched-like breccia.							
	27	24.82	Calcareous Siltstone		White gray and laminated.	CM						
	28				Gray and hard; (Shaly).							
	29	26.70	Sandstone		Bottom; Includ. fossil leaves.	CM						
30				Gray and massive medium sandst.								
DEC 30	27.45	Sandstone		Greenish and muddy sandstone, massive.	CM							
	28											Weak and slaky.

LOG FORM-B

HOLE NO. B81-14

*R.Q.D is Rock Quality Designation, R.Q.D=(Total length of cylindric cores longer than 10 cm)/(Total core length) x 100%
 *LUGEON VALUE is l/min/m under injection water pressure of 10kg/cm²
 *DEPTH and ELEVATION are in meter
 *DIAMETER is in millimeter

DRILL LOG

HOLE NO. B81-14 SHEET NO. 2 OF 2

DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	ROCK CLASSIFICATION	BIT & DIAMETER	GROUNDWATER LEVEL	CORE RECOVERY	R. Q. D. & MAX. CORE L.	WATER PRESSURE TEST LUGEN VALUE	DEPTH
DEC 31	30.20		Medium Sandstone		White gray and massive. Laminated.	CH	66		100			31
	31.20				White gray, massive and micaceous.				100			32
					31.67 m; Includ. a green siltstone patch.				100	0.2 Lu		33
					32.15 to 32.73 m; Pale greenish and some laminated.				100			34
					33.55 to 33.8 m; Pebbles and small cobbles.				100			35
			Coarse Sandstone		Coarse to very coarse.				100			36
					36.8 to 37.7 m; Laminated.				100	0.6 Lu		37
					Long cores; not so hard.				100			38
					39.6 m } Include pebbles.				100			39
					39.8 m }				100			40
					Includ. granules.				100			41
JAN 2	41.49				Dark gray and some weak.				100			42
	42.40		Mudstone		Laminated and including lignitic fragments.				100	0.02 Lu		43
					44.05 to 44.25 m; Reddish brown. Calcareous and some hard.				100			44
	44.25		Very Fine Sandstone		Brownish siltst. patched & laminated.				100			45
	45.90				Brownish dark gray.				100			46
	46.40		Fine Sandstone		Dark gray and laminated.				100			47
	46.90				Very fine sandst.				100			48
	47.80				Massive and patched.				100			49
JAN 3					Pale brownish gray and patched.				100			50
			Fine to Very Fine Sandstone		Massive and some weak.				100			51
					Minor fault clays.				100			52
JAN 4	50.00				48.7 m: 1 to 2 cm thick.				100			53
					49.9 m: 1 cm thick.				100			54

LOG FORM-C

HOLE NO. B81-14

DRILL LOG

HOLE NO. B81-15 SHEET NO. 1 OF 2

PROJECT		SAPT GANDAKI PROJECT			DEPTH		50 M		ELEVATION			
SITE		DAMSITE 8; RIVER CHANNEL		COORDINATE	INCUSATION		VERTICAL		DRILL RIG			
AVERAGE CORE RECOVERY		91.8%		DATE	FROM APR.2 TO APR.9 '82		DRILLED by KUDO NORBAHOR		LOGGED by KUMAZAWA			
DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	ROCK CLASSIFICATION	BIT DIAMETER	GROUNDWATER LEVEL	CORE RECOVERY	R. Q. D. & MAX. CORE L. 50 cm	WATER PRESSURE TEST LUKEON VALUE	DEPTH
APR 2	1		Riverbed Sand and Gravels.		Above 1.2 m; Sandy	C _M	114	RIVER WATER LEVEL; 0.8 m above	0	Maximum Core Length of 50 cm (above 4.32 m in 26 m)		1
	2	Below 1.2 m; Gravely.			25				2			
	3				15				3			
	4	4.60			20				4			
APR 3	5	5.93	Fine Sandst.		Yellowish gray and some weathered. Laminated.	C _M	86		15	Maximum Core Length of 50 cm (above 4.32 m in 26 m)		5
	6		30	6								
	7	7.30	Very Fine Sandstone		Upper 10 cm; Purple gray and muddy. Some patched and laminated.				00			7
	8		8.40	Fine Sandst.					Some greenish gray and patched.			00
APR 4	9	9.30	Fine Sandst. and Siltstone		Well laminated. Bedding slip clay; 6 cm. thick.	C _L	86		00			9
	10		00	10								
	11	10.75	Muddy Sandstone		Dirty gray colored. Weathered and cracky.				00			11
	12		00	12								
APR 5	13		Fine Sandstone		Above 11.85 m; Some greenish and muddy; including white calcareous spots.	C _H	86		85	P. Applied Pressure (kg/cm ²)	Q. Gate Valve Flow (lit/min)	13
	14				00				14			
	15	15.02							00			15
	16				00				16			
APR 6	17	16.07	Muddy Fine Sandst.		Greenish gray and massive with white calcareous spots.	C _H	86		00			17
	18		00	18								
	19	17.02	Fine Sandst.		Gray and massive with some patches.				00			19
	20		00	20								
APR 7	21		Fine to Medium Sandstone		White gray, micaceous and some hard.	C _H	86		00			21
	22				00				22			
	23	22.17							00			23
	24				00				24			
APR 8	25	23.25	Fine Sandst.		Gray and massive.	C _H	86		00			25
	26		00	26								
	27	24.30	Very Fine Sandstone		Dark gray and patched.				00			27
	28		00	28								
APR 9	29	25.25	Fine Sandst.		Laminated and/or patched. Bedding slip with clay seam.	C _H	86		00			29
	30		00	30								
	31	26.40	Fine Sandst.		Some laminated. Bedding slip fault; 1 cm. thick.				00			31
	32		00	32								
APR 10	33	27.40	Fine Sandst.		Gray and massive. Includ. vertical cracks	C _H	86		00			33
	34		00	34								
	35		00	35								
	36		00	36								
APR 11	37		Medium to Coarse Sandstone		White gray, massive and micaceous.	C _H	86		00			37
	38				00				38			
	39				00				39			
	40				00				40			

LOG FORM-8

* R.Q.D. is Rock Quality Designation. R.Q.D. = (Total length of cylindrical cores longer than 10 cm) / (Total core length) × 100%
 * LUKEON VALUE is l/min/m under injection water pressure of 10 kg/cm²
 * DEPTH and ELEVATION are in meter
 * DIAMETER is in millimeter

HOLE NO. B81-15

DRILL LOG

HOLE NO. B81-15 SHEET NO. 2 OF 2

PROJECT		COORDINATE		DEPTH		ELEVATION							
SITE		DATE		INCLINATION		DRILL RIG							
AVERAGE CORE RECOVERY		FROM		TO		LOGGED							
DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	ROCK CLASSIFICATION	BIT DIAMETER	GROUNDWATER LEVEL	CORE RECOVERY	R.Q.D. & MAX. CORE L. 50 cm	WATER PRESSURE TEST LUGEON VALUE		DEPTH
APR 8	47.78		Medium to Coarse Sandstone		Massive. 32.2 to 32.8 m; Laminated.	C11	56.10.01		100	100	0.34 LU		31
									100	100			32
									100	100			33
									100	100			34
									100	100			35
									100	100			36
									100	100			37
									100	100			38
									100	100			39
									100	100			40
									100	100			41
									100	100			42
									100	100			43
									100	100			44
									100	100			45
									100	100			46
									100	100			47
									100	100			48
									100	100			49
									100	100			50
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									100	100			68
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									100	100			89
									100	100			90
									100	100			91
									100	100			92
									100	100			93
									100	100			94
									100	100			95
									100	100			96
									100	100			97
									100	100			98
									100	100			99
									100	100			100

LOG FORM-B

HOLE NO. B81-15

*R.Q.D is Rock Quality Designation. R.Q.D = (Total length of cylindric cores longer than 10 cm) / (Total core length) x 100%
 *LUGEON VALUE is l/min/m under injection water pressure of 10 kg/cm²
 *DEPTH and ELEVATION are in meter
 *DIAMETER is in millimeter

DRILL LOG

HOLE NO. B81-18 SHEET NO. 1 OF 2

ATTACHMENT-II.35

PROJECT		SAPT GANDAKI PROJECT				DEPTH		50 M		ELEVATION		
SITE		DAM SITE C; RIGHT BANK		COORDINATE		INCLINATION		VERTICAL		TONE, UD-5		
AVERAGE CORE RECOVERY		96.2%		DATE		FROM MAR.23 TO MAR.31 '82		DRILLED by KIDO, KUMAL		LOGGED by KUMAZAWA		
DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	ROCK CLASSIFICATION	BIT & DIAMETER	GROUNDWATER LEVEL	CORE RECOVERY	R. Q. D. & MAX. CORE LENGTH	WATER PRESSURE TEST LUGEN VALUE	DEPTH
MAR 23	1		Overburden	△ △	Pale brown overburden.	99	66 I.M. Bit : Single		100			1
2		Including decomposed rocks.			2							
3					3							
4					4							
5					5							
6					6							
7					7							
8	9.60											
MAR 24	9	9.20	Fine Sandst.		Gray, hard and calcareous.	D			100			9
10		Weathered Sandstone		Brownish weathered fine sandstone.	10							
11				Laminated.	11							
MAR 25	12	12.10	Fractured rock		Fractured and clayey	12.10	66 I.M. Bit : Double		100			12
13		Siltstone		Dark gray and cracky	13							
14	13.90			Greenish gray, massive and some weak.	14							
15	15.25			14.65m; Minor fault clay; 1cm. th.	15							
16	16.35			White gray and laminated.	16							
17	16.75			16.35m; Fault clay; 2cm. thick. Includ. folded laminae & slickensides.	17							
18	17.90			Gray and some laminated. Includ. black lignitic fragments.	18							
19	18.80			Patched. 18 to 19.4 m; Cracky	19							
20	19.40			Laminated; high dipped.	20							
21				White gray and some laminated.	21							
MAR 26	22	21.70	Medium Sandstone		19.8 to 21.7 m; Cracky and/or fractured.	C _L to D			100			22
23		Mudstone		Cracky and weak.	23							
24	23.60			Sandy	24							
25	24.50		Fine Sandst.	△ △	Patched and weak.	C _L			100			25
26				Pale greenish gray. 24.5 to 25.9 m; Fractured zone.	26							
27	27.30			Laminated and patched structure.	27							
MAR 27	28		Fine Sandst.	△ △	White gray and massive. 27.4 to 28.4 m; Fractured zone.	C _L			100			28
29				Cracky.	29							
30						29.50			100			30

LOG FORM-3

* R.Q.D. is Rock Quality Designation, R.Q.D. = (Total length of cylindric cores longer than 10 cm) / Total core length x 100%
 * LUGEN VALUE is l/min/m under injection water pressure of 10kg/cm²
 * DEPTH and ELEVATION are in meter
 * DIAMETER is in millimeter

HOLE NO. B81-18

DRILL LOG

HOLE NO. B81-16 SHEET NO. 2 OF 2

ATTACHMENT-II. 36

PROJECT				COORDINATE				DEPTH		ELEVATION				
SITE				DATE		FROM TO		INCLINATION		DRILL RG				
AVERAGE CORE RECOVERY								DRILLED		LOGGED				
DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	ROCK CLASSIFICATION	BIT DIAMETER	PROCDMETER LEVEL	CORE RECOVERY	R. Q. D	WATER PRESSURE TEST LUGEON VALUE	DEPTH		
MAR 28	31		Fine Sandstone		29.95 to 31.8 m; Rusted with brown and some cracky.	CL	66 (M. Bit: Double)		100		10 20 30 40 50	31		
	32				Long cores and good; including sandst. patches.	CM		100		100		10 20 30 40 50	32	
	33							100		100		10 20 30 40 50	33	
	34							100		100		10 20 30 40 50	34	
	35							100		100		10 20 30 40 50	35	
	36				35.50				70		100	10 20 30 40 50	36	
	37	37.00							65		100	10 20 30 40 50	37	
	38	38.15		Fine Sandst.		37.0 to 37.65 m; Fractured. Dark gray, massive & muddy.		CM		100		100	10 20 30 40 50	38
	39	39.45		Breccia	△ △ △	Dark gray, patched-like breccia, small pebble size.		CL		100		100	10 20 30 40 50	39
	40	39.75		Fractured	△ △ △	Clayey		CM		86		100	10 20 30 40 50	40
MAR 29	40.35		Fine Sandst.	△ △ △	Gray and some laminated.				100		100	10 20 30 40 50	41	
	40.70		Siltstone	△ △ △	Dark gray and laminated.				100		100	10 20 30 40 50	42	
	41.60				Blackish gray, muddy and weak rock.				100		100	10 20 30 40 50	43	
	42.15		Fine Sandstone	△ △ △	Gray and massive.				100		100	10 20 30 40 50	44	
	43				Gray and massive with patched structure.				100		100	10 20 30 40 50	45	
	44				Bedding slip fault; 10 cm. th.				100		100	10 20 30 40 50	46	
	45	41.60		Fine Sandst.	△ △ △	White gray, massive and micaceous.			100		100	10 20 30 40 50	47	
	46	46.30			Lower part; silty and laminated.				100		100	10 20 30 40 50	48	
	47			Fine Sandst.	△ △ △	46.3 to 46.5m; Bedding slip fault. 46.5 to 46.8m; Muddy. 46.8 to 47.6m; White gray, massive and micaceous. 47.6 to 48.05m; Patched.	CM		100		100	10 20 30 40 50	49	
	48	48.05							100		100	10 20 30 40 50	50	
MAR 31	49		Fine Sandst. and Siltst.	△ △ △	Gray to dark gray and well laminated.				100		100	10 20 30 40 50	51	
	50	50.00			Some cracky.				100		100	10 20 30 40 50	52	

LOG FORM-B

HOLE NO. B81-16

*R.Q.D. is Rock Quality Designation, R.Q.D. = (Total length of cylindrical cores longer than 10 cm) / (Total core length) x 100%
 *LUGEON VALUE is l/min/m under injection water pressure of 10kg/cm²
 *DEPTH and ELEVATION are in meter
 *DIAMETER is in millimeter

DRILL LOG

HOLE NO. B81-17 SHEET NO. 1 OF 2

PROJECT		SAPT GANDAKI PROJECT				DEPTH	50 M	ELEVATION				
SITE		DAM SITE B; RIGHT BANK		COORDINATE	:	INCLINATION	VERTICAL	DRILL RIG	UD-5			
AVERAGE CORE RECOVERY		99.8%		DATE	FROM MAR.18 TO MAR.22,'02	DRILLED	by KIDO KUMAR	LOGGED	by KUMAZAWA			
DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	ROCK CLASSIFICATION	BIT DIAMETER	GROUNDWATER LEVEL	CORE RECOVERY	R.Q.D. & MAX. CORE LENGTH 50 cm	WATER PRESSURE TEST	DEPTH
									%		LUCEON VALUE	
MAR 18	1		Overburden		Pale brown decomposed rock fragments.		99 mm		100		P. Added Pressure (kg/cm ²)	1
	2								100		C. Core R.Q.D. of 100% (100/100)	2
	3	3.30							100			3
	4		Decomposed Rock		Pale brown decomposed rock (sandstone)	D			100			4
	5								100			5
	6	6.60							100			6
	7								100			7
	8	8.60							100			8
	9		Fine Sandstone		Upper 50 cm; Dark gray and some muddy and weak.				100		Maximum Core Length (cm)	9
	10				Gray, massive and micaceous.				100		R.Q.D. (%)	10
	11	11.40			White gray.	C _{II}			100			11
	12				Laminated and/or patched.				100			12
	13	12.60	Fine to Very Fine Sandstone		Lower part; Medium sandst.				100			13
	14				Gray and well laminated.	C _L			100			14
	15				Fault clay along bedding. 15 cm. th.				100			15
	16		Muddy Sandstone		Greenish gray and massive.				100			16
	17	16.50			12.6 to 13.2 m; Weak.				100			17
	18				Includ. sandstone patches.	C _M			100			18
	19	17.20			16.0 m; Fault clay; 10 cm. th.				100			19
	20		Fine Sandst.		Dark gray and silty.				100			20
	21				Gray and massive.				100			21
	22		Medium Sandstone		White gray, massive and micaceous.				100			22
	23				Long cores.				100			23
	24	22.20			Laminated.				100			24
	25								100			25
	26		Coarse Sandstone		Includ. blackish lignitic laminae.	C _H			100			26
	27				Some laminated.				100			27
	28	27.20							100			28
	29		Medium to Coarse Sandstone		White gray, massive and micaceous.				100			29
	30				Cores are long and good.				100			30

LOG FORM-B

HOLE NO. B81-17

* R.Q.D. is Rock Quality Designation. R.Q.D. = (Total length of cylindrical cores longer than 10 cm) / (Total core length) × 100%.

* LUCEON VALUE is 1/min under injection water pressure of 10 kg/cm².

* DEPTH and ELEVATION are in meter.

* DIAMETER is in millimeter.

DRILL LOG

HOLE NO. B91-17 SHEET NO. 2 OF 2

PROJECT		SITE		COORDINATE		DEPTH		ELEVATION					
AVERAGE CORE RECOVERY		DATE		FROM TO		INCLINATION		DRILL RIG					
DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	ROCK CLASSIFICATION	BIT & DIAMETER	GROUNDWATER LEVEL	CORE RECOVERY	R. Q. D & MAX. CORE L. 50 cm	WATER PRESSURE TEST LUGEN VALUE	DEPTH	
MAR. 20	31		Medium to Coarse Sandstone		(Coarse sandstone)	CH	66 (D. Bit, Double)		100	100		31	
	32	31.7 m; Including black lignite fragments.											32
	33	32.15 to 32.35 m; Including gray and green siltstone patches.											33
	34	Laminated.											34
	35												35
	36	35.1 to 35.7 m; Including softrock patches and pebbles.											36
	37	Very coarse and massive.											37
	38												38
	39				37.9 to 38.1 m; Including blackish lignitic laminae.								
	40	40.60											
MAR. 21	41		Coarse to Very Coarse Sandstone		40.6 m; A pebble conglomerate layer, 5 cm, thick.	B	66 (M. Bit, Double)	100	100		41		
	42	Massive coarse sandstone long cores; including granite size fragments.										42	
	43	White gray and micaceous.										43	
	44											44	
	45											45	
	46											46	
	47											47	
	48											48	
	49											49	
	50	50.00											
MAR. 22	50					CH						50	

LOC FORM-B

HOLE NO. B91-17

*R.Q.D is Rock Quality Designation, R.Q.D = (Total length of cylindrical cores longer than 10 cm / Total core length) x 100%.

*LUGEN VALUE is $1/\text{min/m}$ under injection water pressure of 10 kg/cm².

*DEPTH and ELEVATION are in meter.

*DIAMETER is in millimeter.

DRILL LOG

HOLE NO. B81-18 SHEET NO. 1 OF 2

PROJECT		SAPT GANDAKI PROJECT		DEPTH		60 M		ELEVATION		TONE, UD-5		
SITE		DAM SITE C; LEFT BANK		COORDINATE		INCLINATION		VERTICAL		DRILL RIG		
AVERAGE CORE RECOVERY		89.4%		DATE		FROM APR.2 TO APR.10 '82		DRILLED		by M. KIDO KUMAR		
LOG FORM-B												
DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	ROCK CLASSIFICATION	BIT & DIAMETER	GROUNDWATER LEVEL	CORE RECOVERY	R. Q. D. & MAX. CORE L.	WATER PRESSURE TEST LUGEN VALUE	DEPTH
									%	cm	10 20 30 40 50	
APR 2	1		Terrace Deposits	Q	Brownish soil with gravels.	CL	66 (M.S. Single)	7.10M (APR. 10)	100			1
	2			Q	Granite and quartzite boulders.				0			2
	3			Q					5			3
	4			Q					3			4
	5			Q					0			5
APR 3	6	6.40		Q	6.2 m; Tertiary sandstone soft cobbles included.	CL	66 (M.S. Single)		100			6
	7	7.25	Very Fine Sandstone		Greenish gray laminated. 7.12 to 7.25 m. Fractured.	CL	66 (M.S. Single)		100			7
	8	7.60	Mudstone		Greenish gray with white spots.	CL	66 (M.S. Single)		100			8
	9		Fine Sandst.		Gray and massive.	CL	66 (M.S. Single)		100			9
	10	9.30			9.2 to 9.8 m; Including white calcareous spots.	CL	66 (M.S. Single)		100			10
APR 4	11	10.12	Coarse Sandst.		White gray and micaceous.	CL	66 (M.S. Single)		100			11
	12	10.62	Fine Sandst.		Laminated and/or patched.	CL	66 (M.S. Single)		100			12
	13	11.36	Medium Sandst.		Gray and massive.	CL	66 (M.S. Single)		100			13
	14		Coarse Sandstone		White gray, massive and micaceous.	CL	66 (M.S. Single)		100			14
	15				11.4 m; High dipping crack.	CL	66 (M.S. Single)		100			15
	16	16.50			Long cores and not so hard.	CL	66 (M.S. Single)		100			16
APR 5	17		Mudstone		Greenish gray and massive.	CL	66 (M.S. Single)		100			17
	18	18.50			16.5 to 17.0 m; Slaky.	CL	66 (M.S. Single)		100			18
	19	19.42	Siltstone & Fine Sandst.		Gray and calcareous.	CL	66 (M.S. Single)		100			19
	20	19.70			Laminated and/or patched.	CL	66 (M.S. Single)		100			20
	21	20.10			Gray and massive.	CL	66 (M.S. Single)		100			21
	22				Silty and patched.	CL	66 (M.S. Single)		100			22
	23	22.45	Fine Sandstone		Gray and well laminated.	CL	66 (M.S. Single)		100			23
	24	24.00			Gray and massive.	CL	66 (M.S. Single)		100			24
	25	24.22			22.7 to 23.1 m } Vertical brownish cracks.	CL	66 (M.S. Single)		100			25
	26	24.77			23.5 to 23.9 m } nish cracks.	CL	66 (M.S. Single)		100			26
	27	26.20			Laminated.	CL	66 (M.S. Single)		100			27
	28	27.62	Fine Sandst.		Dark gray and laminated silt-stone to very fine sandst.	CL	66 (M.S. Single)		100			28
	29	28.37	Med. to Coarse Sandstone		Laminae dip in 35° to 40°.	CL	66 (M.S. Single)		100			29
	30	29.12	Mudstone		26.2m; Bed slip fault clay; 1 cm Dark gray and muddy.	CL	66 (M.S. Single)		100			30
					Includ. blackish fig. fragments.	CL	66 (M.S. Single)		100			
					Gray to white gray with some soft rock patches.	CL	66 (M.S. Single)		100			
					Dark gray with some patches. Some slaky and weak.	CL	66 (M.S. Single)		100			
					Gray to dark gray and laminated.	CL	66 (M.S. Single)		100			

* R.Q.D. is Rock Quality Designation. R.Q.D. = (Total length of cylindrical cores longer than 10 cm) / (Total core length) x 100%

* LUGEN VALUE is l/min/m under injection water pressure of 105 kg/cm²

* DEPTH and ELEVATION are in meter

* DIAMETER is in millimeter

HOLE NO. B81-18

DRILL LOG

HOLE NO. 881-18 SHEET NO. 2 OF 2

PROJECT		SITE				COORDINATE		DEPTH		ELEVATION		
AVERAGE CORE RECOVERY		DATE		FROM		TO		INCLINATION		DRILL RIG		
DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	ROCK CLASSIFICATION	BIT DIAMETER	GROUNDWATER LEVEL	CORE RECOVERY	R. Q. D. MAX. CORE L.	WATER PRESSURE TEST LUGEN VALUE	DEPTH
APR 7	31		Fine Sandst. and Siltstone		29.43 to 29.48 m; Fractured along bedding.							31
	32				30.48 m, 31.23 m and 31.85 m; Slip faults with clay seams.							32
	32.67				31.9 to 32.43 m; Cross lamination.							32.67
	33		Medium Sandstone		White gray and micaceous. Some laminated.							33
	34				33.45 m; a high dipping crack.							34
	35		Very Fine Sandstone		Dark gray and well laminated.							35
	36		Medium Sandstone		White gray, micaceous and laminated.							36
	37		Siltstone		Laminated with fossil leaves.							37
	38		Sandy Mudstone		37.36 to 37.57 m; Fractured. Greenish gray.							38
	39				Below 37.95 m; Patched.							39
	40		Fine Sandstone		Gray and massive.							40
	41		Mudstone		Gray to white gray and laminated.							41
	42		Fine Sandst.		Bottom part; Muddy. Greenish gray.							42
	43		Fine Sandst. & Siltstone		40.7 to 41.3 m; Muddy and including white spots.							43
	44		Muddy Fine Sandst.		Dark gray and well laminated.							44
	45		Fine Sandst.		Some greenish gray and massive.							45
	46				Calcareous patched and/or laminated.							46
	47				Fractured layer.							47
	48		Fine Sandst.		Some laminated.							48
	49				46.3 to 46.5 m; Fractured.							49
	50				Well laminated. Slicker sides along laminae common.							50
	51				Muddy and staky.							51
	52		Fine Sandst.		Dark gray and massive.							52
	53				Dark gray and patched.							53

LOG FORM-B

HOLE NO. 881-18

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 *LUGEN VALUE is l/min/m under injection water pressure of 10 kg/cm²
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 *DIAMETER is in millimeter