

APPENDICES

Appendix 1. Geologic Core Logs of the Drillings

Appendix 1. Geologic Core Logs of the Drillings

Legend

Q ₁	Quaternary		Soil
			Loam
N ₁ ¹⁻² ar	Aral Formation		Pebble-gravel-boulder
			Clay
C _{2,3} mt	Middle-Upper Carboniferous Maityub Formation		Sandy clay
			Clayey sand
			Sand
			Crust of weathering
			Ilmenite

Abbreviation

il	-----	ilmenite
qz	-----	quartz
feld	-----	feldspar
frags	-----	fragments
crs	-----	coarse

F	Depth m	Sec	Depth m	Geology & Mineralization	Assay									
					Sample #	Depth m	Ilmenite kg/m ³	Zircon kg/m ³	Rutile kg/m ³	Ben- zene kg/m ³	Other kg/m ³			
Q11-III	0		0.30 1.00	Soil Loam										
Q1				Pebble-gravel-boulder deposits w/Sand & Clay Boulder (MAX. 7 x 15cm)										
	10													
			12.80	Dense, plastic Clay										
	20													
N11-2 ar														
			26.80	Some dusty impregnation of ilmenite										
						28.00								
					38/32-1	29.00	2.59	0.07	Tr	0.04	7.99			
					32-2	29.90	1.10	0.05	Tr	0.02	15.08			
			29.90		32-3	31.00	1.24	0.02	Tr	Tr	1.57			
					32-4	32.00	0.76	0.02	Tr	0.02	5.20			
C2-3 mt	30	#		Crust of weathering on siltstone										
		#	32.00											
	40													
	50													

M J B K - 2

(1:200)

ELEVATION : 469.54 m

COORDINATE : N 14,636,452.6 E 5,402,441.6

F	Depth m	Sec	Depth m	Geology & Mineralization	Assay															
					Sample #	Depth m	Ilmenite kg/m ³	Zircon kg/m ³	Rutile kg/m ³	UO ₂ kg/m ³	Apatite kg/m ³									
Q11-III	0		0.30 0.90	Soil Dense loam																
Q1				Pebble-gravel-boulder deposits w/Sand & Clay Boulder(MAX.7×12cm) Sandy clayey material(30%)																
			12.10	Dense, vely plastic Clay																
			23.60	Poorly sandy clay Dusty ilmenite impregnation (to 1%)	38/28-1	23.60	3.96	0.11	0.02	0.02	1.06									
			26.00		28-2	26.00	2.90	0.07	Tr	Tr	0.22									
			26.80	Sandy clay w/ilmenite(1~5%)	28-3	26.80	99.16	2.88	0.36	0.22	8.64									
			27.40	Clay Sandy w/ilmenite(to 5~7%)	28-4	27.40	117.34	2.48	0.16	0.18	6.41									
			29.50	Poorly sandy clay ilmenite (1~3%)	28-5	29.50	56.38	1.33	0.05	0.02	0.50									
			30.20	Clay Sandy w/ilmenite(3~5%)	28-6	29.50	24.59	0.45	0.04	0.04	0.72									
				Dense, plastic Clay w/dasty ilmenite(<1%)	28-7	30.20	47.93	0.43	0.04	0.05	2.92									
	N11-2 ar					28-8	31.50	1.33	0.04	Tr	Tr	2.77								
					28-9	33.00	1.24	0.04	Tr	Tr	2.30									
					28-10	34.00	0.29	0.02	Tr	Tr	0.77									
					28-11	35.00	0.52	0.04	Tr	0.02	2.16									
					28-12	36.00	0.70	0.02	Tr	0.02	2.90									
					28-13	37.00	0.70	0.02	Tr	Tr	1.89									
					28-14	38.00	2.65	0.11	Tr	0.02	0.43									
					28-15	39.00	1.35	0.09	Tr	0.02	2.83									
					28-16	40.00	1.21	0.07	Tr	Tr	1.12									
					28-17	41.00	0.50	0.02	Tr	0.02	0.70									
C2-3 mt			42.85 42.90	42.85~42.90m Sandy material w/qz fragments	28-18	42.00	4.86	0.31	0.02	0.16	3.55									
			44.00	Crust of weathering Shale w/vertical bedding (85-87°)	28-19	42.90	14.96	0.41	0.02	0.18	6.05									
					28-20	44.00	0.20	0.02	Tr	Tr	0.07									

M J B K - 3

(1:200)

ELEVATION : 469.75 m

COORDINATE : N14,636,257.6 E 5,402,491.2

F	Depth m	Sec	Depth m	Geology & Mineralization	Assay													
					Sample #	Depth m	Ilmenite kg/m ³	Zircon kg/m ³	Rutile kg/m ³	Hg kg/m ³	As kg/m ³	Other kg/m ³						
Q11-m	0	0	1.40	Loam w/rare Pebble and gravel														
Q1	0	0	10.30	Gravel-Pebble-sand deposits w/rare boulder(max φ 15cm)														
N11-2 ar	10	0	26.00	Olive grey~grey very plastic clay w/rare hematite and limonit														
			26.00	26.00~28.50m Sandy clayey w/Poo sandy ilmenite	38/24-1	26.00												
			27.50			27.50	1.42	0.05	Tr	Tr								1.55
			28.50			24-2	28.50	9.70	0.36	0.02	Tr							6.48
			29.30	il=2~3%		24-3	29.30	42.35	1.22	0.11	Tr							7.97
			30.00	il=2~5%		24-4	30.00	89.73	1.82	0.13	0.23							8.87
			30.50			24-5	30.50	61.74	1.28	0.95	0.22							1.85
			31.30	il=1~5%		24-6	31.30	61.74	1.30	0.09	0.04							6.23
			32.00	il=2~3%		24-7	32.00	75.85	1.30	0.07	0.13							4.54
			33.00			24-8	33.00	134.46	2.25	0.07	0.02							12.94
			33.50			24-9	33.50	122.85	2.57	0.05	Tr							22.19
			33.70			24-10	33.70	24.57	0.49	0.05	0.18							53.77
			34.60	il=2~3%		24-11	34.60	122.13	1.96	0.05	4.28							1.04
			35.20			24-12	35.20	27.86	0.68	0.04	0.11							0.88
			36.40	il=2~3%		24-13	36.40	106.42	2.11	0.11	0.74							1.22
			37.60	37.6m qz & feld frags(2~4cm)		24-14	37.60	166.84	2.47	0.07	0.05							27.56
			38.20	il=7~10cm		24-15	38.20	161.23	2.03	0.09	0.34							1.19
C2-3 mt	40	#	41.00	38.2m qz & feld frags crust of weathering white clay Bottom of the holes	24-16	39.00	0.56	0.007	Tr	0.009							0.68	
		#			24-17	40.00	0.41	0.02	Tr	Tr							32.60	
		#																

F	Depth m	Sec	Depth m	Geology & Mineralization	Assay							
					Sample #	Depth m	Ilmenite kg/m ³	Zircon kg/m ³	Rutile kg/m ³	BeV- eng kg/m ³	Anothe kg/m ³	
Q11-III	0		1.00	Loam								
Q1			9.80	Gravel-Pebble-sand deposits w/boulder(max φ 20cm)								
	10			Yellowish brow~Olive grey dense plastic clay								
N1 1-2 ar			24.00	24.00~26.00m Sandy clayey w/dust- like il	38/16-1	24.00						
			26.00	il=1~3%	16-2	25.00	0.74	0.04	Tr	Tr		0.23
			27.00	il=1%	16-3	26.00	11.07	0.42	0.05	0.04		4.54
			28.00	il=1%	16-4	27.00	12.37	0.45	0.05	0.04		2.02
			29.20	il=1%	16-5	28.00	4.37	0.14	0.02	0.02		1.04
			29.60	il=1-2%~5-7%	16-6	29.20	41.04	1.24	0.16	0.09		9.05
			31.40	il=1-2%~3-5%	16-7	29.60	85.03	1.89	0.20	0.11		6.89
			31.80	il=2~3%	16-8	30.60	113.17	2.57	0.18	Tr		9.67
			32.40	il=7~10%	16-9	31.40	144.22	3.20	0.20	Tr		3.65
			33.20	33.9m qz frags(5×3×2cm)	16-10	31.80	173.03	2.97	0.16	0.23		1.62
			33.90	33.9~34.9m crust of weathering(Kaolin)	16-11	32.40	59.42	1.40	0.16	0.05		1.46
				33.9~34.9m clay shale	16-12	33.20	78.34	2.11	0.23	0.27		2.03
				Bottom of the hole	16-13	33.90	184.28	2.68	0.07	1.30		2.95
	C2-3 mt			36.00		16-14	34.90	7.13	0.14	Tr	Tr	
						36.00	1.44	0.04	Tr	Tr		1.75
	40											
	50											

M J B K - 5

(1:200)

ELEVATION : 470.40 m

COORDINATE : N 14,635,685.6 E 5,402,632.2

F	Depth m	Sec	Depth m	Geology & Mineralization	Assay						
					Sample #	Depth m	Ilmenite kg/m ³	Zircon kg/m ³	Rutile kg/m ³	U ₂ O ₃ kg/m ³	Apatite kg/m ³
Q11-III	0		1.00	Loam w/Pebbles							
			3.40	Sand, clay, gravel, Pebble deposits w/some boulder							
			7.80	Gravel-Pebble-boulder deposits (max ϕ =12cm)							
N1 1-2 ar	10		21.00	Olive grey~grey dense, very plastic clay w/limonite oolite ilmenite impregnation about 1% and gradually increasing sand to 10~20%, ilmenite to 1-2% in clay mass							
			23.20	Olive grey sandy clay w/sandy il, & iron oxide	38/12-1	22.00	3.06	0.09	Tr	0.02	0.41
			24.50	sandy clay w/granular ilmenite(1-3%)	12-2	23.20	3.28	0.07	Tr	Tr	0.70
			28.00	Yellow brown, red brown sandy clay w/sandy ilmenite(2-3%)	12-3	24.00	7.04	0.18	Tr	0.02	25.67
			29.00	Grey sand clay w/ilmenite(3-5%) 29.0m qz frags (ϕ 2~3cm)	12-4	25.00	7.65	0.20	0.02	Tr	43.38
			29.90	29.9m qz frags(ϕ 10~20cm)	12-5	26.00	9.18	0.22	0.04	0.02	32.54
			34.00	Crust of weathering Yellow-brown sand stone	12-6	27.00	8.84	0.14	0.02	0.02	53.21
			37.00	Bottom of the hole	12-7	28.00	10.48	0.23	0.02	0.02	57.47
					12-8	29.00	28.15	0.56	0.04	0.07	2.38
					12-9	29.90	123.61	1.62	0.09	0.034	10.15
	C2-3 mt				Grey~brown clay	12-10	31.00	0.76	0.13	0.02	0.02
				Credeposited crust of wesathering	12-11	32.00	0.86	0.13	Tr	0.11	7.27

F	Depth m	Sec	Depth m	Geology & Mineralization	Assay							
					Sample #	Depth m	Ilmenite kg/m ³	Zircon kg/m ³	Rutile kg/m ³	SSVene kg/m ³	Anothe kg/m ³	
011-III	0		1.60	Dense loam w/Pebbles								
Q1			8.00	Pebble-gravel deposits w/boulders(max.4 x 10cm)								
	10			Dense clay								
N11-2 ar			23.50									
			25.70	Poor dust like ilmenite(1%)	34/32- 1	25.00	1.26	0.02	Tr	0.02	0.88	
			26.50	Sandy clay w/ilmenite(1~5%)	32- 2	26.00	2.70	0.05	0.02	0.02	0.99	
			27.70	Clayey Sand w/ilmenite(3~5%)	32- 3	27.00	44.32	0.70	0.09	0.11	5.49	
					32- 4	28.00	57.83	1.01	0.11	0.65	3.31	
					32- 5	29.00	0.94	0.02	Tr	0.02	0.07	
C2-3 mt		#	30.00	Redeposited crust of weathering	32- 6	29.90	1.26	0.04	Tr	0.02	0.23	
		#										
	40											
	50											

F	Depth m	Sec	Depth m	Geology & Mineralization	Assay															
					Sample #	Depth m	Ilmenite kg/m ³	Zircon kg/m ³	Rutile kg/m ³	U- kg/m ³	Other kg/m ³									
OH-III	0		0.80	Dense loam																
GI			8.00	Sand-Pebble-gravel deposits w/rare boulder																
				Dense, plastic clay w/hematite & ilmenite																
N1 1-2 ar			24.60																	
			25.30	Poorly Sand clay w/dusty ilmenite	34/24-1	24.60	0.61	0.02	Tr	Tr										
			26.00	Sandy clay w/ilmenite(3~5%)	24-2	25.30	2.29	0.05	0.02	Tr										
			27.20	Clayey Sand w/ilmenite(5%)	24-3	26.00	34.07	0.77	0.07	0.04										
			28.50	Dense clay w/ilmenite(1%) Grains of ilmenite	24-4	27.20	113.44	3.10	0.31	0.14										
			29.30	Sandy clay w/ilmenite(1%)	24-5	28.50	19.89	0.45	0.07	0.02										
			30.60	Sandy clay w/ilmenite(3~10%)	24-6	29.30	73.15	1.85	0.22	0.23										
			32.00	Dense clay w/ilmenite(<1%)	24-7	30.60	279.81	4.36	0.23	0.86										
			33.00	Sandy clay w/ilmenite(3%)	24-8	32.00	35.32	6.14	0.52	0.14										
			33.50	Sandy clay w/ilmenite(5%)	24-9	33.00	24.75	0.47	0.04	0.04										
			34.90	Dense clay w/few ilmenite(<1%)	24-10	33.50	91.33	1.49	0.13	0.18										
			35.70	Sandy clay w/few ilmenite	24-11	34.90	4.30	0.18	0.02	0.02										
			36.50	Sandy clay w/ilmenite(3%)	24-12	35.70	29.61	0.45	0.02	0.16										
			37.50	Clayey Sand w/ilmenite(5~10%)	24-13	36.50	52.87	0.70	0.02	0.02										
			40.40	Dense clay w/ilmenite(<1%)	24-14	37.50	197.95	1.76	0.11	0.43										
			41.00	Clayey Sand w/ilmenite(7~10%) & siliceous rock fragments	24-15	38.50	7.92	0.31	Tr	0.05										
	C2-3 mt			43.00	Crust of weathering deposited shale	24-16	39.50	3.56	0.09	0.02	0.04									
						24-17	40.40	7.13	0.09	0.02	0.07									
						24-18	41.00	172.76	2.25	0.31	0.04									
						24-19	42.00	13.12	0.23	0.05	0.05									
					24-20	43.00	6.55	0.31	0.04	0.09										

F	Depth m	Sec	Depth m	Geology & Mineralization	Assay							
					Sample #	Depth m	Ilmenite kg/m ³	Zircon kg/m ³	Rutile kg/m ³	Rey- coxene kg/m ³	Anothe kg/m ³	
QH-III	0		1.00	Dense loam								
QI			8.00	Clay sand pebble gravel								
N1 1-2 a r	10			Dense clay w/homatite								
			25.00	Rare dusty impregnation of ilmenite	34/16- 1	25.00						
			26.00			26.00	0.32	0.02	Tr	Tr	0.72	
			27.00		16- 2	27.00	2.27	0.05	0.02	0.02	0.50	
			28.50	Clayey Sand w/ilmenite(1~3%)	16- 3	28.50	23.15	0.49	0.05	0.04	2.30	
			29.00	Clayey Sand w/ilmenite(3~5%)	16- 4	29.00	56.54	1.04	0.05	0.31	4.52	
			29.50	Clayey w/ilmenite(<1%)	16- 5	29.50	202.45	6.08	0.90	0.86	52.29	
			30.10	Clayey Sand w/ilmenite(7~10%)	16- 6	30.10	51.80	1.08	0.14	0.47	2.18	
			31.50	Sandy clay w/ilmenite(1~3%)	16- 7	31.50	41.22	1.01	0.22	0.32	2.75	
			32.40	Clayey Sand w/ilmenite(5~10%)	16- 8	32.40	204.17	3.55	0.38	2.88	12.94	
			33.70	Sandy clay w/ilmenite(1~5%)	16- 9	33.70	151.65	0.34	0.72	0.67	5.58	
C2-3 m t			34.60	Clayey Sand w/ilmenite(3~5%)	16-10	34.60	108.34	1.76	0.07	0.72	4.59	
			36.00	Crust of weathering with debris of slate	16-11	36.00	19.91	0.23	0.02	0.07	1.17	
	40											
	50											

M J B K - 1 1

(1:200)

ELEVATION : 488.01 m

COORDINATE : N 14,632,772.4 E 5,406,624.1

F	Depth m	Sec	Depth m	Geology & Mineralization	Assay						
					Sample #	Depth m	Ilmenite kg/m ³	Zircon kg/m ³	Rutile kg/m ³	Spinel kg/m ³	Other kg/m ³
Q11-III	0		0.50	Soil, vegetal layer							
			1.10	Lome w/clay							
				Boulder-pebble deposits w/sand							
Q1			9.70								
	10			Grey-brown clay w/gravel & Sand							
			11.70								
N1 1-2 a r			16.00	Light-grey, dense clay w/iron oxide and sand(5~7%)							
				Grey-brown, dense clay w/sand(3~5%) Poor ilmenite impregnation							
	20										
			22.40								
			24.00		Red-brown clay w/sand(5~10%)						
			25.50		Red-gray clay w/sand(20~30%) (redeposited crust of weathering)						
			27.20		Brown sandy clay w/finesand(20~30%)						
C2-3 m t				Light brown clayey sand clay(30~50%) (crust of weathering)							
	30			Joints w/iron oxide							
			31.80		Light brown clayey sand clay(30~40%) Iron and manganese						
			34.50		Ochres are in fractures Light brown, yellow brown sand						
			37.00		Ochre in fractures (Crust of weathering on porphyrite)						
	40										
	50										

F	Depth m	Sec	Depth m	Geology & Mineralization	Assay						
					Sample #	Depth m	Ilmenite kg/m ³	Zircon kg/m ³	Rutile kg/m ³	Refractene kg/m ³	Anothe kg/m ³
Q11-III	0		0.50	Soil							
			1.10	Loam							
			1.40	Grey sandy clay							
Q1				Boulder-pebble deposits w/sand							
			10.00	Light gray dense clay w/sand & gravel							
			13.00	Brown grey dense clay w/nests of ironoxide and manganese ochre							
			16.90	Light grey clay w/sand							
			17.50	Red brown clay w/sand and impregnations of ilmenite							
			18.60	Grey brown dense clay							
			22.40	Light grey clay w/sand In base of bed, sand 10-15% and ilmenite impregnation	23.30						
			24.30		2GL/12-1	24.30	8.93	0.23	Tr	0.11	0.77
			25.30	Light grey sand w/clay ilmenite impregnation	12-2	25.90	22.54	0.67	Tr	0.34	2.41
			26.90		12-3	26.90	6.70	0.23	Tr	0.07	5.15
N11-2 ar			26.90	Light grey sand w/clay & ilmenite	12-4	28.00	34.83	0.92	Tr	0.38	1.85
			28.00	Sand w/ilmenite impregnation	12-5	28.50	119.05	4.95	0.29	0.92	0.49
			28.50	Sand w/clay & ilmenite impregnation	12-6	29.90	107.75	3.96	0.45	0.79	0.68
			29.90	Yellow brown clay w/Sand (redeposited crust of weathering)	12-7	30.90	2.54	10.49	Tr	0.04	17.51
			32.50	Yellow brown clay w/Sand	12-8	31.90	3.08	0.22	0.02	0.16	5.63
			35.00	Green brown dense clay-sand deposits (crust of weathering)							
			37.50	Grey brown sand							
			38.70	Brown fine sand							
			39.20	Clay (crust of weathering)							
			40.20								
C2-3 m t			41.40	Weathered siltsone Bottom of the hole							

F	Depth m	Sec	Depth m	Geology & Mineralization	Assay							
					Sample #	Depth m	Ilmenite kg/m ³	Zircon kg/m ³	Rutile kg/m ³	Ben- zene kg/m ³	Anothe kg/m ³	
QII-III	0		0.50 0.60	Soilvegetalbad Loam								
QI				Pebble boulder deposits w/gravel sand & clay Boulder (max ϕ = 40cm) clay=5-10%								
			8.40	Grey sandy clay								
	10			Sand pebbles & clay clay=30-40%								
N1 1-2 a r			12.30									
				Brownish grey dense clay w/gypsun & limonite								
			14.30 14.60	Light gray sandy clay								
				Light grey dense clay w/limonite inclusion								
			17.30									
			18.30	Light gray clay w/sand & l								
	20			Red grey dense clay w/iron hydroxide nests								
			20.80									
			23.00	Lght grey white dense clay w/iron hydroxide nests								
				Brown red clay w/lenticular spots of white sandy clay (redeposited crust of weathering)								
C2-3 m t			28.20									
	30			Brown grey yellow brown dense spotted banded clay w/sand and iron oxide (red eposited crust of wethering)								
			32.80									
			33.80	Brown clay (crust of wethering)								
			Brown light brown sand clay w/rare qz frags									
		37.00										
			Dark green silt stone (crust of weathering)									
		39.00										
			Bottom of the hole									
	40											
	50											

F	Depth m	Sec	Depth m	Geology & Mineralization	Assay						
					Sample #	Depth m	Ilmenite kg/m ³	Zircon kg/m ³	Rutile kg/m ³	Residual kg/m ³	Another kg/m ³
Q11-III	0		0.40	Soil							
			1.10	Brown loam & clay							
			2.20	Gray clay w/sand & gravel							
Q1				Boulder Pebble deposits w/sand & clay							
	10		11.00	Gravel sand deposits w/clay(30-50%)							
			13.50								
			14.50	Brown crs sand w/gravel							
	N1 1-2 a r			16.80	Light grey dense clay w/iron oxide impregnation						
			19.00	Grey brown clay w/dense sand							
20			20.50	Grey dense clay							
			22.80	Brown sandy clay sand(40-50%)							
			23.70	Yellow brown crs sand Rock debris in base							
			28.20	Grey brown dense clay w/limonitied rock fragments (redeposited crust of weathering)							
			29.00	Sand w/brown clay clay(20-30%)							
C2-3 mt		30	#		Crust of weathering						
		#		Grey brown sandy clayey w/joints							
		#	32.00	Iron ochre in joints							
	40										
	50										

F	Depth m	Sec	Depth m	Geology & Mineralization	Assay							
					Sample #	Depth m	Ilmenite kg/m ³	Zircon kg/m ³	Rutile kg/m ³	Reg- Coke kg/m ³	Anothe kg/m ³	
Q11-III	0		0.30	Soil								
			1.20	Loam								
Q1				Pebble boulder deposits w/sand								
	10											
			11.00	Clay w/sand & gravel								
			12.50									
N1 1-2 a r				Light-gray dense clay								
			16.00	Brown dense clay w/sand(5-10%)								
			17.00	Brown dense clay w/sand(5-7%)								
	20											
			21.50	Red brown grey dense clay w/sand (5-10%)								
			23.40	Red brown clay w/sand	23.40							
			24.10	Yellow brown crs sand	2GL/24-1	24.10	1.19	0.04	Tr	Tr	4.03	
			24.50	Red brown grey dense clay w/sand(10-20%)	24- 2	24.50	3.71	0.34	Tr	0.14	53.01	
			26.00	Light grey sand w/ilmenite(1-3%)	24- 3	26.00	225.50	6.37	0.02	1.73	10.17	
			27.20	Light grey brown clay w/sand	24- 4	27.20	24.57	1.04	0.02	0.34	5.00	
			28.20	Brown fine sand w/clay	24- 5	28.20	46.42	1.51	0.04	0.49	98.19	
			28.90	Bande and jointy sand	24- 6	28.90	169.63	2.99	0.02	1.06	9.18	
C2-3 m t			29.50	Grey brown fine sand w/clay(20-30%) Ochre of Fe&Mn are in joints crust of wethering	24- 7	29.50	0.72	0.04	Tr	0.04	4.25	
			29.80		24- 8	30.90	0.52	0.09	Tr	0.02	1.62	
			31.80									
			34.50									

F	Depth m	Sec	Depth m	Geology & Mineralization	Assay							
					Sample #	Depth m	Ilmenite kg/m ³	Zircon kg/m ³	Rutile kg/m ³	Spinel kg/m ³	Anothe kg/m ³	
QII-III	0		0.30 1.10	Soil Dense loam								
QI				Clay sand pebble gravel deposits w/boulder(max.7x15cm)								
			9.10									
			10	Dense plastic clay								
			25.00									
N11-2 ar			25.00	Rare impregnation of ilmenite(1%)	30/28-1	24.00	0.49	0.02	Tr	Tr	0.63	
			26.00		28-2	26.00	6.34	0.18	0.02	0.04	0.70	
			27.50		28-3	27.50	3.62	0.11	Tr	0.02	1.04	
			28.20		28-4	28.20	1.58	0.04	Tr	0.02	0.65	
			29.00	Sand clay w/ilmenite(1-5%)	28-5	29.00	61.06	1.31	0.16	0.13	2.79	
			30.50		28-6	30.50	45.02	0.77	0.07	0.16	3.38	
			31.20	Clayey sand w/ilmenite(5-7%)	28-7	31.20	272.95	4.55	0.27	1.17	28.49	
			32.70	Weak sand clay w/ilmenite(ab.1%)	28-8	32.70	15.01	0.31	0.02	0.02	5.35	
			34.00	Clayey sand w/ilmenite(1-5%)	28-9	34.00	28.17	0.68	0.04	0.14	2.12	
			34.50	Clayey sand w/ilmenite(5-10%)	28-10	34.50	132.68	1.69	0.18	0.18	8.91	
			35.50		28-11	35.50	70.83	1.08	0.13	0.40	18.22	
			36.00	Sand clay w/ilmenite(ab.3%)	28-12	36.00	58.10	1.10	0.09	0.20	9.32	
			37.00	Clayey sand w/ilmenite(5-10%)	28-13	36.50	129.11	2.30	0.09	0.50	12.15	
			38.00	Ferrous clayey sand w/ilmenite(1-7%)	28-14	37.00	85.99	1.17	0.05	0.40	15.32	
		39.00	Sand clay w/ilmenite(1-10%)	28-15	38.00	133.09	2.07	0.25	0.76	7.11		
C2-3 mt			41.00	Crust of weathering	28-16	39.00	165.44	2.25	0.16	0.34	17.84	
					28-17	40.00	5.36	0.07	Tr	0.02	1.04	
					28-18	41.00	16.94	0.20	0.02	0.02	0.54	

F	Depth m	Sec	Depth m	Geology & Mineralization	Assay							
					Sample #	Depth m	Ilmenite kg/m ³	Zircon kg/m ³	Rutile kg/m ³	Other kg/m ³	Anothe kg/m ³	
Q11-III	0	0	0.60	Dense loam w/Pebble								
	Q1		9.00	Clay sand, Pebble gravel deposits w/boulder(max.7×15cm)								
N1 1-2 a r	10			Dense plastic clay w/ flakes of hematite								
			31.00									
			32.00									
			32.00		Rare dusty impregnation of ilmenite	30/20- 1	32.00	0.68	0.02	Tr	Tr	0.90
			33.00			20- 2	33.00	0.97	0.05	Tr	0.02	0.22
			34.00			20- 3	34.00	2.03	0.04	Tr	0.02	0.54
			35.00		Sand clay w/ilmenite(2-3%)	20- 4	35.00	18.81	0.61	0.02	0.05	0.52
			36.00			20- 5	36.00	59.09	1.13	0.14	0.23	0.52
			37.00		Sand clay w/ilmenite(5-7%)	20- 6	37.00	103.09	1.67	0.11	0.43	2.12
			38.00		Clayey sand w/ilmenite(5-7%)	20- 7	38.00	65.86	0.83	0.04	0.07	16.45
			38.20		Clayey sand w/iron oxide	20- 8	38.50	77.40	1.51	0.16	0.09	4.59
			39.50		Clayey sand w/ilmenite(3-5%)	20- 9	39.50	70.65	1.62	0.09	0.34	3.92
		40	40.00		Clayey sand w/ilmenite(5-7%)	20-10	40.00	121.72	1.15	0.02	0.25	0.49
			41.00		Sand clay w/ilmenite(about3%)	20-11	41.00	88.78	1.35	0.07	0.72	2.84
			41.50		Clayey sand w/ilmenite(3-5%)	20-12	41.50	29.65	0.36	0.27	Tr	1.71
			43.00		Clayey sand w/ilmenite(5-7%)&qz	20-13	43.00	196.74	2.65	0.13	1.37	0.85
			43.50		Sand clay w/ilmenite(5-7%)	20-14	43.50	60.84	1.22	0.05	0.72	24.52
		44.00		Clay w/ilmenite(1%)	20-15	44.00	7.07	0.31	0.02	0.36	26.64	
C2-3 m t		*		Crwst of weathering	20-16	45.00	2.18	0.07	0.02	0.16	31.37	
			46.00		20-17	46.00	2.66	0.09	Tr	0.56	15.61	
	50											

Appendix 2. Results of Laboratory Works

Appendix 2-1 List of Laboratory Works

Appendix 2-1 List of Laboratory Works

No.	Type of work	Whole Area	Bektemir No.1 South	Bektemir No.3 South	Total
1	Microscopic observation of the thin sections	12	0	0	12
2	X-Ray diffraction analysis	6	14	2	22
3	Preparation for analysis	0	249	22	271
4	Quantity mineralogical analysis for ilmenite, rutile and zircon of usual and check samples	0	198	16	214
5	Inside (same laboratory) geological check of mineralogical analysis (III classes of content - select 30 samples each)	0	90	0	90
6	Outside (another laboratory) geological check of mineralogical analysis (III classes of content - select 30 samples each)	0	90	0	90
7	Chemical analysis of check samples for TiO ₂ and ZrO ₂	0	25	6	31
8	Separation of monomineral ilmenite and zircon fractions from group samples	0	22	0	22
8.1	Grainmetric analysis of monomineral fraction	0	22	0	22
8.2	Chemical and spectral quantity analysis of monomineral fraction Ilmenite ; TiO ₂ , Sc ₂ O ₃ , Nb ₂ O ₅ , Ta ₂ O ₅ , TR, V ₂ O ₅ , Cr ₂ O ₃ , Al ₂ O ₃ , SiO ₂ , FeO, Fe ₂ O ₃	0	11	0	11
	Zircon; ZrO ₂ , Sc ₂ O ₃ , Hf, TR, Y, Th	0	11	0	11
8.3	Determination of zircon radioactivity	0	11	0	11
9	Chemical analysis of water sample	0	4	0	4
10	Chemical analysis of water sample according to the State Standard (GOST) "Drinking water"	0	2	0	2
11	Physical - mechanical test of rock;				
	* short complex	0	11	0	11
	* complete complex	0	10	0	10
	Total of laboratory works	18	770	46	834

**Appendix 2-2 Microscopic Observations of
the Thin Sections**

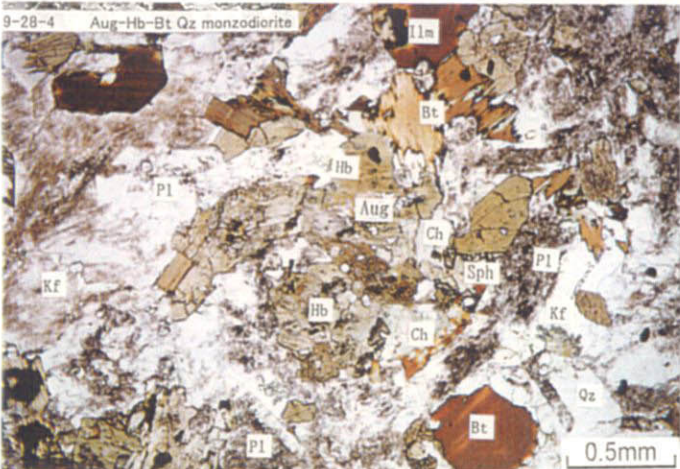
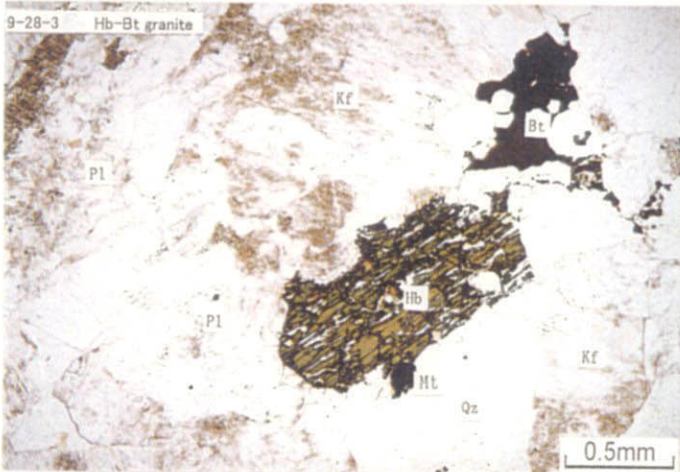
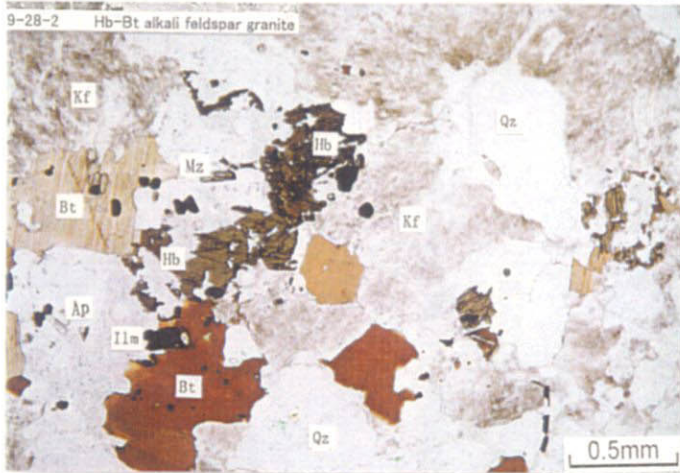
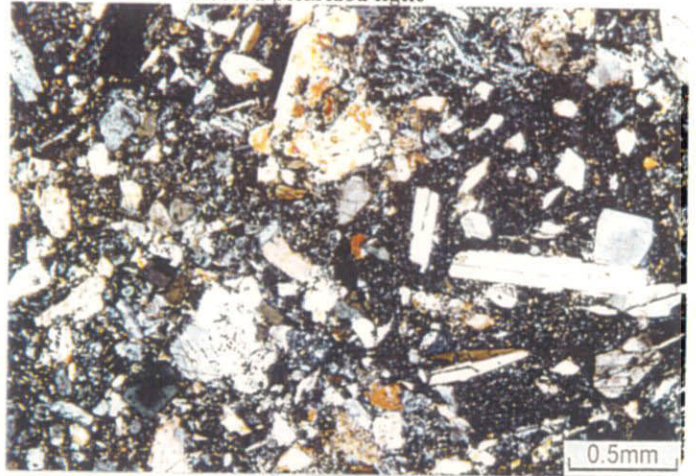
Abbreviations

Act	:	actinolite
Al	:	allanite
And	:	andesite
Ap	:	apatite
Aug	:	augite
Bas	:	basalt
Bt	:	biotite
Cal	:	calcite
Ch	:	chlorite
Cord	:	Cordierite
Cpx	:	clinopyroxene
Ep	:	epidote
Fl	:	fluorite
Gt	:	goethite
Hb	:	hornblende
Hm	:	hematite
Ilm	:	ilmenite
Kf	:	K-feldspar
Mst	:	mudstone
Mt	:	magnetite
Mz	:	monazite
Lc	:	leucoxene
Opx	:	orthopyroxene
Pl	:	plagioclase
Prh	:	prehnite
Qz	:	quartz
Ser	:	sericite
Sph	:	sphene
Zr	:	zircon

Appendix 2-3 Photomicrographs of the Thin Sections

Plane polarized light

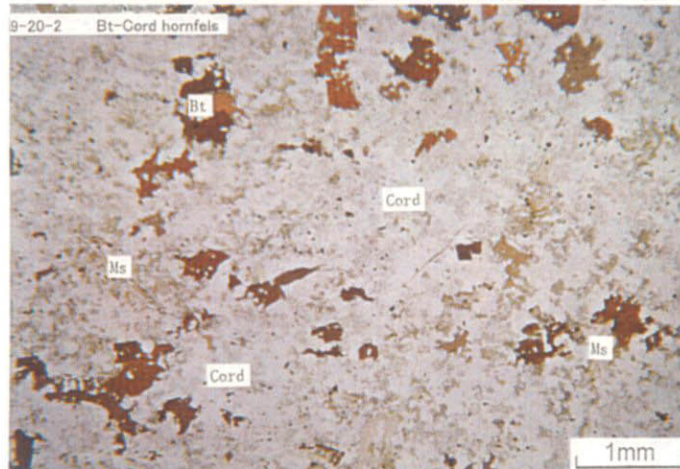
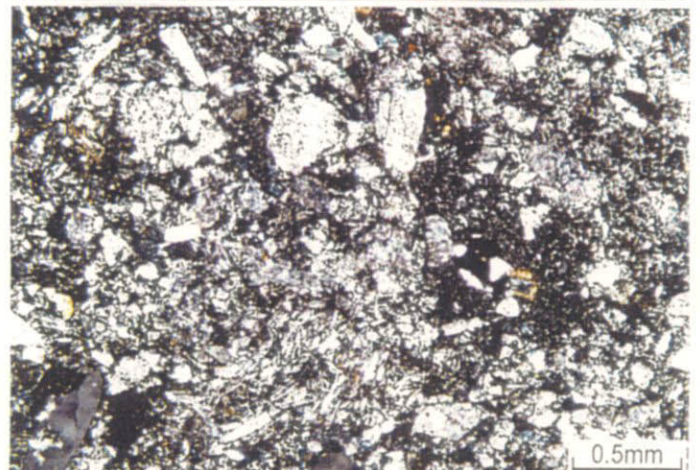
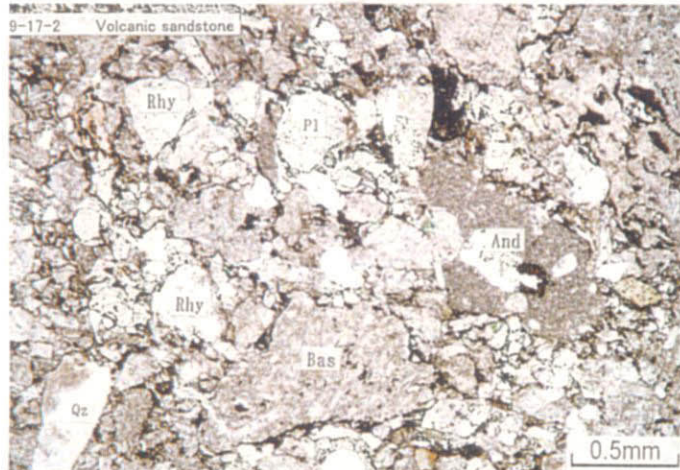
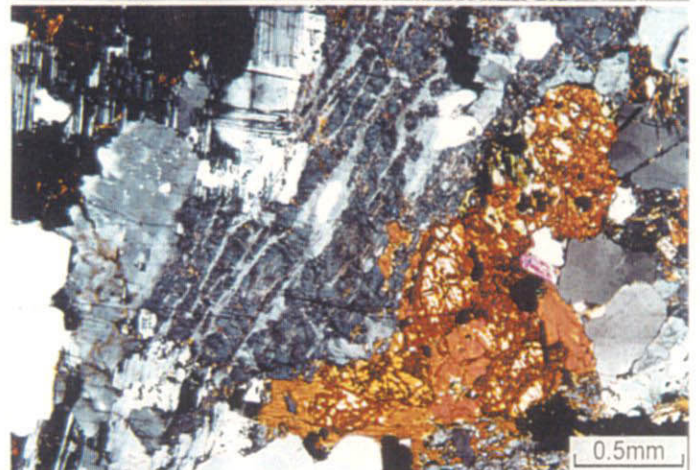
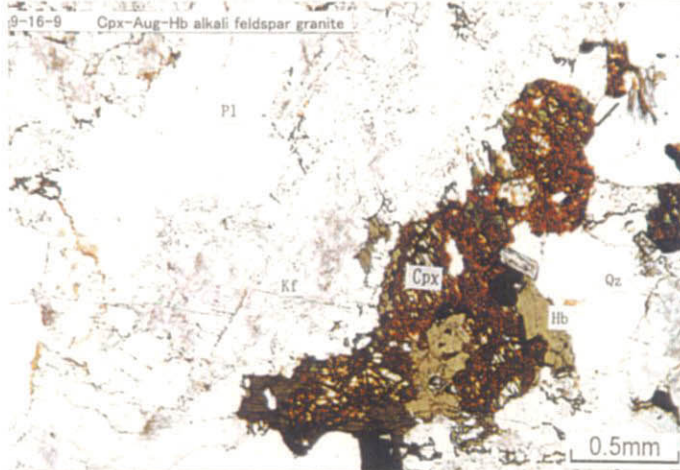
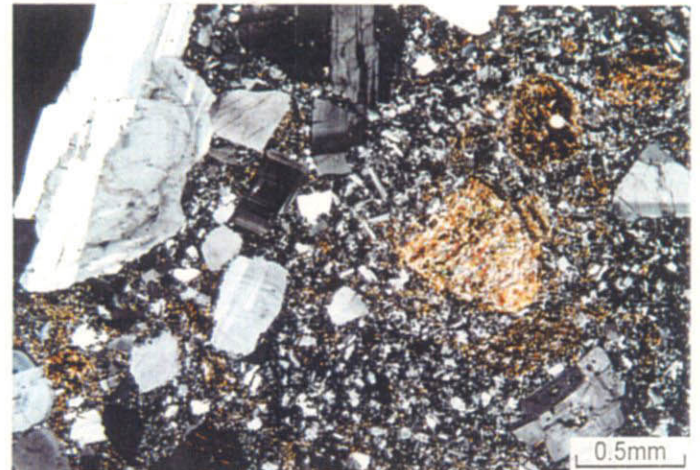
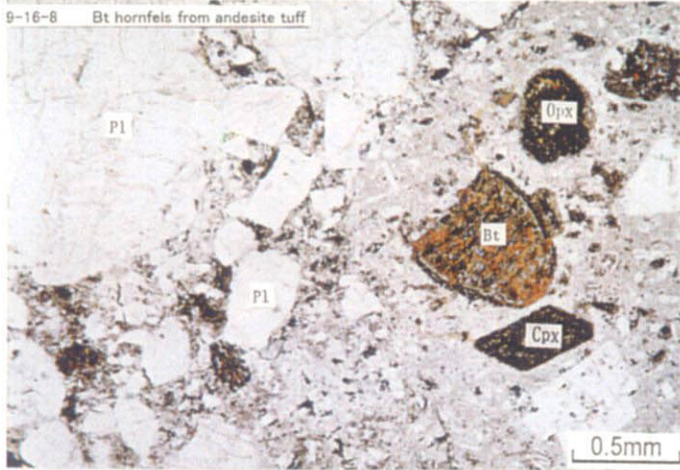
Crossed polarized light



Appendix 2-3 Photomicrographs of the Thin Sections

Plane polarized light

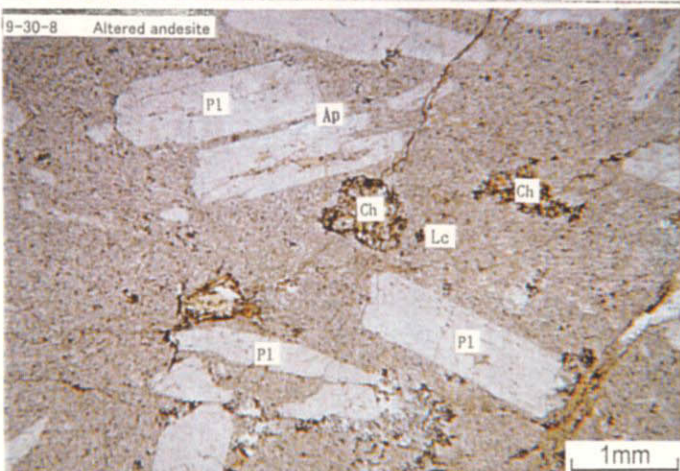
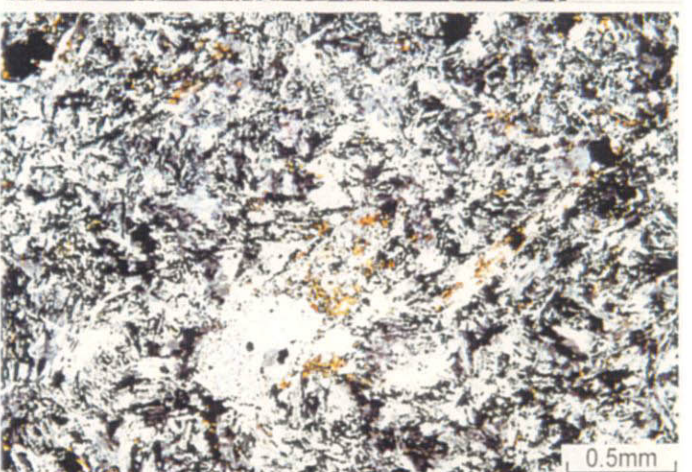
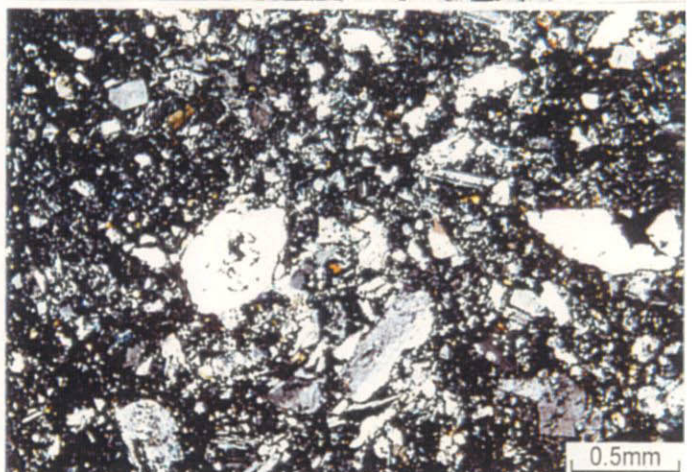
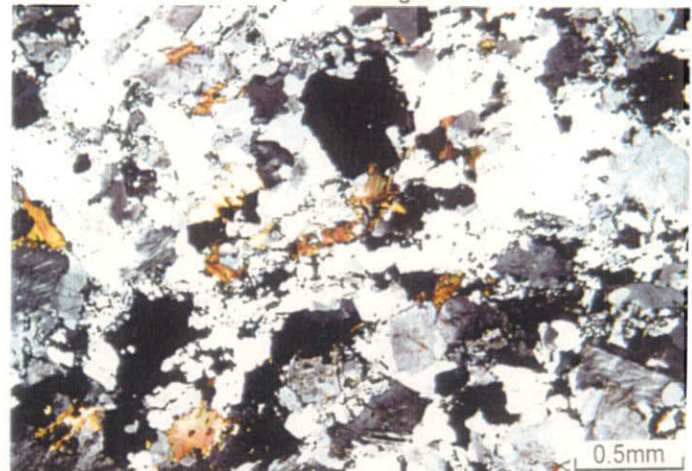
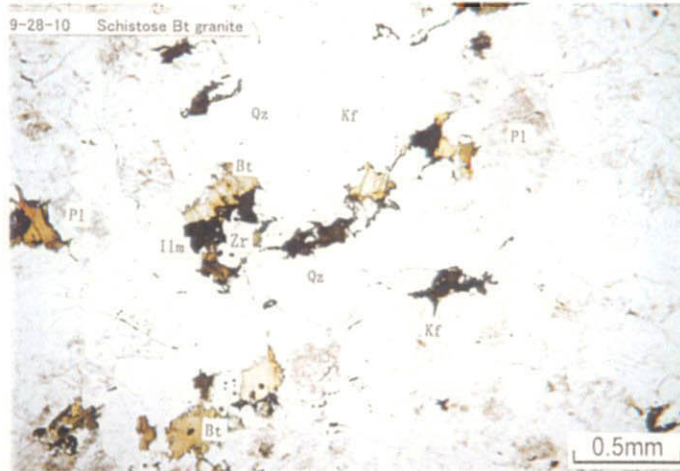
Crossed polarized light



Appendix 2-3 Photomicrographs of the Thin Sections

Plane polarized light

Crossed polarized light



Appendix 2-4 Results of X-Ray Diffraction Analysis

Appendix 2-4 Results of X-Ray Diffraction Analysis

Sample no.	Locality	Rock description	Q	K	S	C	S-Sm	Mont	Ilm	Bt	Zir	Pl	K-f	Illite	Ae	Hb	Remarks
1	9-16-9	aegirine-hb alkali-f.granite	⊙									⊙	⊙		○		TiO ₂ : 0.18 %, ZrO ₂ : 0.11 %
2	9-20-4	meta-hb andesite tuff								○		⊙				⊙	TiO ₂ : 0.64 %, ZrO ₂ : 0.02 %
3	9-28-2	hb-bt granite	⊙							○		⊙	⊙			△	TiO ₂ : 0.37 %, ZrO ₂ : 0.03 %
4	9-28-3	hb-bt granite	⊙							○		⊙	⊙			△	TiO ₂ : 0.09 %, ZrO ₂ : 0.03 %
5	9-28-4	bt-hb quartz diorite	⊙			○				○		⊙	△			⊙	TiO ₂ : 1.10 %, ZrO ₂ : 0.02 %
6	9-28-10	schistose hb-bt granite	⊙							△		⊙	⊙				TiO ₂ : 0.18 %, ZrO ₂ : 0.02 %
7	MJBK-1	Clay	⊙	•													
8	MJBK-3	Clay	⊙	○										○			
9	MJBK-8	Clay	⊙	•			•					•					
10	MJBK-11	Clay	⊙	○			△										
11	MJBK-13	Clay	⊙	○			○										
12	MJBK-16	Clay	⊙	△			○							△			
13	MJBK-3	limenite sand	⊙				○		△			△	△				
14	MJBK-4	limenite sand	⊙						△			△	△				
15	MJBK-7	limenite sand (concentrate)	⊙						⊙			⊙					TiO ₂ : 38.71 %, ZrO ₂ : 0.04 %
16	MJBK-7	limenite sand	⊙						○			○	○				
17	MJBK-7	limenite sand	⊙						○			○	○				
18	MJBK-8	limenite sand	⊙	△					△			○	○				
19	MJBK-8	limenite sand	⊙						○			○	○				
20	MJBK-8	limenite sand (concentrate)	⊙						△			△	△				TiO ₂ : 27.87 %, ZrO ₂ : 0.54 %
21	MJBK-9	limenite sand	⊙						△			△	△				
22	MJBK-9	limenite sand (concentrate)	⊙					△	△			⊙	⊙				

[Abundance]

[Abbreviations]

⊙ : Abundant, ○ : Common, △ : Poor, • : Rare

Q = Quartz
 S-Sm = Sericite-Smectite mixed
 Bt = Biotite
 Hb = Hornblende
 K = Kaolinite
 Mont = Montmorillonite
 Zir = Zircon
 S = Sericite
 K-f = K-Feldspar
 C = Chlorite
 Ilm = Ilmenite
 Ae = Aegirine

**Appendix 2-5 Quantity Mineralogical Analysis of
Usual and Check Samples**

Appendix 2-5 Quantity Mineralgical Analysis of Usual and Check Samples (1)

No.	No. of drillholes	Sample No.	Depth (m)	Weight of dried sample (kg)	Weight of sand after sieving (-1.0 mm) (g)	Weight of sample for analysis (g)	Weight of sample for separation (g)	Weight of heavy fraction (g)	Content of heavy fraction (%)	Heavy fractions					Content of heavy fraction (kg/t)	Content of heavy fractions				
										Ilmenite (%)	Zircon (%)	Rutile (%)	Leucoxene (%)	the others (%)		Ilmenite (kg/t)	Zircon (kg/t)	Rutile (kg/t)	Leucoxene (kg/t)	the others (kg/t)
1	MJBK-1	38/32-1	28.0 m - 29.0 m	10.3	138.9	34.7	34.7	14.52	41.84	20.26	0.67	0.01	0.33	78.73	5.54	1.14	0.04	tr	0.02	4.44
2	MJBK-1	38/32-2	29.0 m - 29.9 m	9.2	151.4	37.8	38.2	20.97	54.89	6.74	0.35	0.02	0.09	92.8	9.03	0.61	0.03	tr	0.01	8.38
3	MJBK-1	38/32-3	29.9 m - 31.0 m	9.1	82.3	41.1	40.9	7.09	17.33	43.82	0.85	0.05	0.16	55.12	1.57	0.69	0.01	tr	tr	0.87
4	MJBK-1	38/32-4	31.0 m - 32.0 m	10.9	81.7	40.8	41.4	18.37	44.37	12.73	0.34	0.02	0.03	86.88	3.33	0.42	0.01	tr	0.01	2.89
5	MJBK-2	38/28-1	23.6 m - 25.0 m	11.9	200	37.5	37.42	6.38	17.05	76.92	2.01	0.26	0.3	20.51	2.87	2.2	0.06	0.01	0.01	0.59
6	MJBK-2	38/28-2	25.0 m - 26.0 m	8.2	93	34.6	34.41	5.36	15.58	90.73	2.16	0.26	0.28	6.57	1.77	1.61	0.04	tr	tr	0.12
7	MJBK-2	38/28-3	26.0 m - 26.8 m	8.5	2790	43.5	43.5	8.19	18.83	89.12	2.59	0.32	0.2	7.77	61.81	55.09	1.6	0.2	0.12	4.8
8	MJBK-2	38/28-4	26.8 m - 27.4 m	7.6	3355	39.2	39.1	6.23	15.93	92.7	1.96	0.13	0.14	5.07	70.32	65.19	1.38	0.09	0.1	3.56
9	MJBK-2	38/28-5	27.4 m - 28.3 m	6.1	1164	36.3	36.3	6.16	16.97	96.73	2.3	0.1	0.02	0.85	32.38	31.32	0.74	0.03	0.01	0.28
10	MJBK-2	38/28-6	28.3 m - 29.5 m	10.1	780	36.5	36.5	6.78	18.57	95.21	1.72	0.11	0.16	2.8	14.35	13.66	0.25	0.02	0.02	0.4
11	MJBK-2	38/28-7	29.5 m - 30.2 m	5.9	945	29.5	29.52	5.26	17.82	93.32	0.84	0.06	0.11	5.67	28.54	26.63	0.24	0.02	0.03	1.62
12	MJBK-2	38/28-8	30.2 m - 31.5 m	12.1	203	37.6	37.32	5.11	13.69	32.14	0.66	tr	0.07	67.13	2.3	0.74	0.02	tr	tr	1.54
13	MJBK-2	38/28-9	31.5 m - 33.0 m	13.2	150	37.5	38.2	6.69	17.51	34.49	1.03	0.06	0.06	64.36	1.99	0.69	0.02	tr	tr	1.28
14	MJBK-2	38/28-10	33.0 m - 34.0 m	10.6	49	36.2	36.2	4.7	12.98	27.5	1.16	0.08	tr	71.26	0.6	0.16	0.01	tr	tr	0.43
15	MJBK-2	38/28-11	34.0 m - 35.0 m	11.1	160	40	40	4.22	10.55	19.24	1.23	tr	0.38	79.15	1.52	0.29	0.02	tr	0.01	1.2
16	MJBK-2	38/28-12	35.0 m - 36.0 m	10.6	230	42.3	42.5	3.96	9.32	19.46	0.59	0.05	0.21	79.69	2.02	0.39	0.01	tr	0.01	1.61
17	MJBK-2	38/28-13	36.0 m - 37.0 m	9.1	145	36.2	36.4	3.31	9.09	26.89	0.3	0.01	0.17	72.63	1.45	0.39	0.01	tr	tr	1.05
18	MJBK-2	38/28-14	37.0 m - 38.0 m	10.3	168	42	41.8	4.56	10.91	82.53	3.39	0.23	0.44	13.41	1.78	1.47	0.06	tr	0.01	0.24
19	MJBK-2	38/28-15	38.0 m - 39.0 m	11.7	145	36.2	36	6.91	19.19	31.42	1.93	0.05	0.47	66.13	2.38	0.75	0.05	tr	0.01	1.57
20	MJBK-2	38/28-16	39.0 m - 40.0 m	11.4	105	39.1	38.3	5.54	14.47	50.31	2.76	0.14	0.28	46.51	1.33	0.67	0.04	tr	tr	0.62
21	MJBK-2	38/28-17	40.0 m - 41.0 m	10.2	44	44	44.3	7.13	16.09	41.7	1.06	0.06	0.99	56.19	0.69	0.28	0.01	tr	0.01	0.39
22	MJBK-2	38/28-18	41.0 m - 42.0 m	10.1	470	29.3	29.7	3.15	10.61	54.57	3.49	0.19	1.79	39.96	4.94	2.7	0.17	0.01	0.09	1.97
23	MJBK-2	38/28-19	42.0 m - 42.9 m	8.6	875	40.6	40	4.72	11.8	69.15	1.95	0.08	0.85	27.97	12.01	8.31	0.23	0.01	0.1	3.36
24	MJBK-2	38/28-20	42.9 m - 44.0 m	7.1	350	43.7	44.4	0.14	0.32	71.88	3.12	tr	tr	25	0.16	0.11	0.01	tr	tr	0.04
25	MJBK-3	38/24-1	26.0 m - 27.5 m	12.7	125	31.2	31.35	5.34	17.03	47.22	1.61	0.02	0.21	50.94	1.68	0.79	0.03	tr	tr	0.86
26	MJBK-3	38/24-2	27.5 m - 28.5 m	9.9	505	31.5	31.37	9.56	18.04	58.57	2.21	0.06	0.03	39.13	9.2	5.39	0.2	0.01	tr	3.6
27	MJBK-3	38/24-3	28.5 m - 29.3 m	8.3	1855	28.9	28.73	3.69	12.84	81.99	2.37	0.21	0	15.43	28.7	23.53	0.68	0.06	tr	4.43
28	MJBK-3	38/24-4	29.3 m - 30.0 m	7.7	3775	30	33.54	3.83	11.42	89.03	1.81	0.12	0.24	8.8	55.99	49.85	1.01	0.07	0.13	4.93
29	MJBK-3	38/24-5	30.0 m - 30.5 m	5.9	1250	32	33.6	5.74	17.08	94.79	1.96	0.09	0.32	2.84	36.19	34.3	0.71	0.03	0.12	1.03
30	MJBK-3	38/24-6	30.5 m - 31.3 m	5.1	1180	40	42.08	7.01	16.66	88.98	1.87	0.13	0.05	8.97	38.55	34.3	0.72	0.05	0.02	3.46
31	MJBK-3	38/24-7	31.3 m - 32.0 m	11.5	3165	36.3	35.97	11.5	16.53	92.63	1.59	0.08	0.16	5.54	45.49	42.14	0.72	0.04	0.07	2.52
32	MJBK-3	38/24-8	32.0 m - 33.0 m	14.2	6175	36.1	35.97	6.88	19.13	89.79	1.5	0.05	0.02	8.64	83.19	74.7	1.25	0.04	0.01	7.19
33	MJBK-3	38/24-9	33.0 m - 33.5 m	5	2150	40.2	40.2	7.67	19.08	83.19	1.74	0.04	tr	15.03	82.04	68.25	1.43	0.03	tr	12.33
34	MJBK-3	38/24-10	33.5 m - 33.7 m	1.5	235	44	43.86	12.29	28.02	31.09	0.61	0.07	0.23	68	43.9	13.65	0.27	0.03	0.1	29.85
35	MJBK-3	38/24-11	33.7 m - 34.6 m	16.9	5780	33.7	33.43	7.03	21.03	94.34	1.51	0.04	3.31	0.8	71.92	67.85	1.09	0.03	2.38	0.58
36	MJBK-3	38/24-12	34.6 m - 35.2 m	8.2	1190	37.2	37	4.19	11.32	94.24	2.28	0.14	0.35	2.99	16.43	15.48	0.38	0.02	0.06	0.49
37	MJBK-3	38/24-13	35.2 m - 36.4 m	14.4	4960	38.7	38.57	6.88	17.84	96.23	1.9	0.1	0.67	1.1	61.44	59.12	1.17	0.06	0.41	0.68
38	MJBK-3	38/24-14	36.4 m - 37.6 m	16.6	5860	34.2	34	10.53	30.97	84.68	1.25	0.04	0.03	14	109.33	92.58	1.37	0.04	0.03	15.31
39	MJBK-3	38/24-15	37.6 m - 38.2 m	6.5	2360	36.9	36.7	9.26	25.23	97.79	1.23	0.05	0.21	0.72	91.6	89.57	1.13	0.05	0.19	0.66
40	MJBK-3	38/24-16	38.2 m - 39.0 m	6.1	185	34.6	34.47	0.8	2.32	44.56	0.59	0.04	0.75	54.73	0.7	0.31	0.004	tr	0.005	0.38
41	MJBK-3	38/24-17	39.0 m - 40.0 m	7.9	330	41.2	41.08	18.05	43.94	1.22	0.06	0	0.01	98.71	18.35	0.23	0.01	tr	tr	18.11
42	MJBK-4	38/16-1	24.0 m - 25.0 m	9.1	25	25	24.02	4.93	20.52	73.87	3.29	0.09	0.16	22.59	0.56	0.41	0.02	tr	tr	0.13
43	MJBK-4	38/16-2	25.0 m - 26.0 m	10.9	540	33.7	33.66	6.33	18.81	69.8	2.55	0.37	0.2	27.08	9.32	6.51	0.24	0.03	0.02	2.52
44	MJBK-4	38/16-3	26.0 m - 27.0 m	12.5	640	40	40	6.48	16.2	82.82	3	0.38	0.28	13.52	8.29	6.87	0.25	0.03	0.02	1.12
45	MJBK-4	38/16-4	27.0 m - 28.0 m	10.8	185	34.5	34.4	6.24	18.14	78.15	2.73	0.17	0.4	18.55	3.11	2.43	0.08	0.01	0.01	0.58
46	MJBK-4	38/16-5	28.0 m - 29.2 m	12.3	2160	33.7	33.77	5.51	16.32	79.57	2.42	0.3	0.16	17.55	28.66	22.8	0.69	0.09	0.05	5.03
47	MJBK-4	38/16-6	29.2 m - 29.6 m	6.1	1295	40.4	40.4	9.95	24.63	90.34	2	0.22	0.11	7.33	52.29	47.24	1.05	0.11	0.06	3.83
48	MJBK-4	38/16-7	29.6 m - 30.6 m	11	3550	40.8	40.7	8.8	21.62	90.11	2.05	0.15	tr	7.69	69.77	62.87	1.43	0.1	tr	5.37
49	MJBK-4	38/16-8	30.6 m - 31.4 m	8.9	2980	34.6	34.5	8.66	25.1	95.34	2.12	0.13	tr	2.41	84.04	80.12	1.78	0.11	tr	2.03

Appendix 2-5 Quantity Mineralogical Analysis of Usual and Check Samples (2)

No.	No. of drillholes	Sample No.	Depth (m)	Weight of dried sample (kg)	Weight of sand after sieving (-1.0 mm) (g)	Weight of sample for analysis (g)	Weight of sample for separation (g)	Weight of heavy fraction (g)	Content of heavy fraction (%)	Heavy fractions					Content of heavy fraction (kg/t)	Content of heavy fractions				
										Ilmenite (%)	Zircon (%)	Rutile (%)	Leucoxene (%)	the others (%)		Ilmenite (kg/t)	Zircon (kg/t)	Rutile (kg/t)	Leucoxene (kg/t)	the others (kg/t)
50	MJBK-4	38/16-9	31.4 m - 31.8 m	5.4	2320	36.2	36.1	8.31	23.02	97.2	1.67	0.09	0.13	0.91	98.9	96.13	1.65	0.09	0.13	0.9
51	MJBK-4	38/16-10	31.8 m - 32.4 m	6.7	2565	40	39.8	3.61	9.07	95.08	2.24	0.25	0.09	2.34	34.72	33.01	0.78	0.09	0.03	0.81
52	MJBK-4	13/16-11	32.4 m - 33.2 m	8.1	2460	38.4	38.26	5.79	15.18	94.41	2.53	0.28	0.32	2.46	46.1	43.52	1.17	0.13	0.15	1.13
53	MJBK-4	38/16-12	33.2 m - 33.9 m	5.6	2450	38.2	38.13	9.26	24.29	96.34	1.4	0.04	0.68	1.54	106.27	102.38	1.49	0.04	0.72	1.64
54	MJBK-4	38/16-13	33.9 m - 34.9 m	8.6	280	35	35.3	4.68	13.26	91.5	1.88	0.05	0.03	6.54	4.32	3.96	0.08	tr	tr	0.28
55	MJBK-4	38/16-14	34.9 m - 36.0 m	6.6	90	45	45.38	5.97	13.16	44.92	0.97	0.06	0.07	53.98	1.79	0.8	0.02	tr	tr	0.97
56	MJBK-5	38/12-1	21.0 m - 22.0 m	8.9	155	38.7	38.4	4.38	11.41	85.63	2.45	0.09	0.35	11.48	1.99	1.7	0.05	tr	0.01	0.23
57	MJBK-5	38/12-2	22.0 m - 23.2 m	13.4	300	37.5	37.74	3.8	10.07	80.63	1.89	0.1	0.1	17.28	2.25	1.82	0.04	tr	tr	0.39
58	MJBK-5	38/12-3	23.2 m - 24.0 m	6.7	290	36.2	36.06	15.23	42.23	21.36	0.54	0.02	0.05	77.98	18.28	3.91	0.1	tr	0.01	14.26
59	MJBK-5	38/12-4	24.0 m - 25.0 m	8.2	520	32.5	32.42	14.51	44.76	14.99	0.38	0.05	з н.	84.58	28.38	4.25	0.11	0.01	tr	24.1
60	MJBK-5	38/12-5	25.0 m - 26.0 m	4.3	360	45	45.58	12.7	27.86	21.89	0.5	0.07	0.05	77.49	23.33	5.1	0.12	0.02	0.01	18.08
61	MJBK-5	38/12-6	26.0 m - 27.0 m	8	480	30	30.08	17.33	57.63	14.22	0.24	0.01	0.02	85.51	34.57	4.91	0.08	0.01	0.01	29.56
62	MJBK-5	38/12-7	27.0 m - 28.0 m	8.2	575	35.9	35.76	19.33	54.05	15.36	0.35	0.02	0.01	84.26	37.9	5.82	0.13	0.01	0.01	31.93
63	MJBK-5	38/12-8	28.0 m - 29.0 m	9.1	500	31.2	31.58	9.96	31.54	90.26	1.78	0.09	0.24	7.63	17.33	15.64	0.31	0.02	0.04	1.32
64	MJBK-5	38/12-9	29.0 m - 29.9 m	6.6	1305	40.7	40.96	15.63	38.16	91.02	1.19	0.07	0.25	7.47	75.45	68.67	0.9	0.05	0.019	5.64
65	MJBK-5	38/12-10	29.9 m - 31.0 m	7.5	830	37.9	37.92	2.49	6.57	5.77	0.91	0.2	0.17	92.95	7.27	0.42	0.07	0.01	0.01	6.76
66	MJBK-5	38/12-11	31.0 m - 32.0 m	7.6	1290	40.3	40.55	1.11	2.74	10.28	1.46	0.03	1.35	86.88	4.65	0.48	0.07	tr	0.06	4.04
67	MJBK-6	34/32-1	23.5 m - 24.5 m	10.6	150	37.5	37.76	3.22	8.53	57.77	1.05	0.14	0.66	40.38	1.21	0.7	0.01	tr	0.01	0.49
68	MJBK-6	34/32-2	24.5 m - 25.7 m	13.9	265	33.1	33	3.64	11.3	71.68	1.5	0.18	0.47	26.2	2.1	1.5	0.03	0.01	0.01	0.55
69	MJBK-6	34/32-3	25.7 m - 26.5 m	8.2	4931.7	38.5	38.43	1.8	4.68	87.41	1.37	0.18	0.22	10.82	28.17	24.62	0.39	0.05	0.06	3.05
70	MJBK-6	34/32-4	26.5 m - 27.7 m	8.3	3765	36.7	36.6	2.82	7.7	91.93	1.6	0.18	1.03	5.26	34.95	32.13	0.56	0.06	0.36	1.84
71	MJBK-6	34/32-5	27.7 m - 28.8 m	7.9	28.2	28.2	28	4.53	16.18	89.93	1.53	0.17	0.51	7.86	0.58	0.52	0.01	tr	0.01	0.04
72	MJBK-6	34/32-6	28.8 m - 30.0 m	8	60.4	30.2	29.87	3.39	11.35	81.5	2.91	0.14	0.47	14.98	0.86	0.7	0.02	tr	0.01	0.13
73	MJBK-7	34/28-1	25.0 m - 26.0 m	9.7	75	37.5	37.9	2.5	6.6	36.68	1.74	0.26	0.26	61.06	0.51	0.19	0.01	tr	tr	0.31
74	MJBK-7	34/28-2	26.0 m - 27.0 m	8.3	182	45.5	45.8	4.88	10.66	85.28	3.16	0.4	0.32	10.84	2.34	2	0.07	0.01	0.01	0.25
75	MJBK-7	34/28-3	27.0 m - 28.2 m	11.2	420	39.3	38.9	7.13	18.33	52.14	1.28	0.12	0.17	46.29	6.87	3.58	0.09	0.01	0.01	3.18
76	MJBK-7	34/28-4	28.2 m - 29.5 m	10.6	300	37.5	37.3	4.34	11.64	86.22	1.6	0.25	0.22	11.71	3.29	2.84	0.05	0.01	0.01	0.38
77	MJBK-7	34/28-5	29.5 m - 30.2 m	9.7	2153	33.6	33.4	7.59	22.72	93.63	1.61	0.12	0.22	4.42	50.44	47.23	0.81	0.06	0.11	2.23
78	MJBK-7	34/28-6	30.2 m - 31.0 m	6.6	3120	36.5	35.3	12.18	34.5	97.83	1.35	0.07	0.09	0.66	163.11	159.57	2.2	0.11	0.15	1.08
79	MJBK-7	34/28-7	31.0 m - 32.0 m	10.2	2915	34.1	34	6.15	18.09	90.79	1.44	0.11	0.15	7.51	51.69	46.93	0.74	0.06	0.08	3.88
80	MJBK-7	34/28-8	32.0 m - 32.5 m	8.7	1120	35	35	5.67	16.2	92.42	1.85	0.06	0.09	5.58	20.86	19.28	0.39	0.01	0.02	1.16
81	MJBK-7	34/28-9	32.5 m - 33.6 m	8.6	4265	33.3	33.3	5.07	15.22	94.04	2.3	0.08	0.33	3.25	75.51	71.01	1.74	0.06	0.25	2.45
82	MJBK-7	34/28-10	33.6 m - 34.2 m	5.4	1340	41.8	41.8	5.44	13.01	83.03	1.61	0.07	0.53	14.76	32.29	26.81	0.52	0.02	0.17	4.77
83	MJBK-7	34/28-11	34.2 m - 35.0 m	6.6	3540	41.4	41.3	11.06	26.78	95.17	1.2	0.07	0.01	3.55	143.64	136.7	1.72	0.1	0.02	5.1
84	MJBK-7	34/28-12	35.0 m - 35.8 m	6.3	3030	35.4	35.4	10.5	29.66	96.13	1.12	0.04	0.01	2.7	142.66	137.14	1.6	0.06	0.01	3.85
85	MJBK-7	34/28-13	35.8 m - 36.6 m	11.3	4750	37.1	37.1	6.05	16.31	94.89	1.63	0.05	0.04	3.39	68.55	65.05	1.12	0.03	0.03	2.32
86	MJBK-7	34/28-14	36.6 m - 37.3 m	8.1	3525	41.2	41.8	10.9	26.08	95.43	1.33	0.11	0.25	2.88	113.48	108.29	1.51	0.13	0.28	3.27
87	MJBK-7	34/28-15	37.3 m - 38.5 m	5	275	34.3	34.2	1.04	3.04	80.51	1.05	0.06	3.1	15.28	1.67	1.34	0.02	tr	0.05	0.26
88	MJBK-7	34/28-16	38.5 m - 39.5 m	8.2	330	41.2	41.9	3.23	7.71	20.07	0.3	0.05	0.36	79.22	3.1	0.62	0.01	tr	0.01	2.46
89	MJBK-8	34/24-1	23.5 m - 24.6 m	7.5	25.6	25.6	25.4	3.79	14.92	66.56	2.56	0.32	0.4	30.16	0.51	0.34	0.01	tr	tr	0.16
90	MJBK-8	34/24-2	24.6 m - 25.3 m	5.5	176.5	33	32.6	1.57	4.82	81.86	1.73	0.42	0.16	15.83	1.55	1.27	0.03	0.01	tr	0.24
91	MJBK-8	34/24-3	25.3 m - 26.0 m	7.1	1274.6	39.8	39.6	4.46	11.26	93.65	2.12	0.21	0.12	3.9	20.21	18.93	0.43	0.04	0.02	0.79
92	MJBK-8	34/24-4	26.0 m - 27.2 m	13.4	6640	37.7	37.7	5	13.26	95.91	2.61	0.26	0.12	1.1	65.71	63.02	1.72	0.17	0.08	0.72
93	MJBK-8	34/24-5	27.2 m - 28.5 m	13.8	1445	35.8	35.5	4.03	11.35	92.93	2.09	0.32	0.12	4.54	11.89	11.05	0.25	0.04	0.01	0.54
94	MJBK-8	34/24-6	28.5 m - 29.3 m	7.3	2390	37.3	37.1	4.8	12.94	95.91	2.44	0.27	0.31	1.07	42.37	40.64	1.03	0.12	0.13	0.45
95	MJBK-8	34/24-7	29.3 m - 30.6 m	12.3	6945	40.6	40.6	11.5	28.33	97.19	1.51	0.08	0.3	0.92	159.96	155.46	2.42	0.13	0.48	1.47
96	MJBK-8	34/24-8	30.6 m - 32.0 m	11.1	1925	30	29.5	4.22	14.31	79.06	13.73	1.17	31	5.73	24.82	19.62	3.41	0.29	0.08	1.42
97	MJBK-8	34/24-9	32.0 m - 33.0 m	10	1135	35.4	38.2	4.81	12.59	96.2	1.86	0.13	0.15	1.66	14.29	13.75	0.26	0.02	0.02	0.24
98	MJBK-8	34/24-10	33.0 m - 33.5 m	4.5	1160	36.2	36.1	7.92	21.94	89.72	1.46	0.12	0.17	8.53	56.56	50.74	0.83	0.07	0.1	4.82
99	MJBK-8	34/24-11	33.5 m - 34.9 m	9.8	203.4	38.1	38	6.6	17.37	66.33	3.16	0.07	0.06	30.38	3.6	2.39	0.1	0.01	0.01	1.09

Appendix 2-5 Quantity Mineralogical Analysis of Usual and Check Samples (3)

No.	No. of drillholes	Sample No.	Depth (m)	Weight of dried sample (kg)	Weight of sand after sieving (-1.0 mm) (g)	Weight of sample for analysis (g)	Weight of sample for separation (g)	Weight of heavy fraction (g)	Content of heavy fraction (%)	Heavy fractions					Content of heavy fraction (kg/t)	Content of heavy fractions				
										Ilmenite (%)	Zircon (%)	Rutile (%)	Leucoxene (%)	the others (%)		Ilmenite (kg/t)	Zircon (kg/t)	Rutile (kg/t)	Leucoxene (kg/t)	the others (kg/t)
100	MJBK-8	34/24-12	34.9 m - 35.7 m	5.3	435	40.6	40.5	8.72	21.53	93.1	1.43	0.07	0.49	4.91	17.67	16.45	0.25	0.01	0.09	0.87
101	MJBK-8	34/24-13	35.7 m - 36.5 m	4.9	815	38.1	38	7.29	19.18	92.03	1.23	0.02	0.04	6.68	31.91	29.37	0.39	0.01	0.01	2.13
102	MJBK-8	34/24-14	36.5 m - 37.5 m	11.8	6020	35.2	35.2	7.8	22.16	97.29	0.87	0.05	0.2	1.59	113.05	109.97	0.98	0.06	0.24	1.8
103	MJBK-8	34/24-15	37.5 m - 38.5 m	9.1	470	29.3	29.3	5.48	18.7	45.52	1.73	0.02	0.34	52.39	9.66	4.4	0.17	tr	0.03	5.06
104	MJBK-8	34/24-16	38.5 m - 39.5 m	7.8	160	40	40	10.26	25.6	37.66	1.06	0.09	0.41	60.78	5.26	1.98	0.05	0.01	0.02	3.2
105	MJBK-8	34/24-17	39.5 m - 40.4 m	11.4	435	40.6	40.6	8.99	22.1	46.95	0.6	0.06	0.46	51.93	8.45	3.96	0.05	0.01	0.04	4.39
106	MJBK-8	34/24-18	40.4 m - 41.0 m	5.6	2085	32.5	32.3	9.04	27.9	92.11	1.2	0.16	0.02	6.51	104.2	95.98	1.25	0.17	0.02	6.78
107	MJBK-8	34/24-19	41.0 m - 42.0 m	7.7	445	41.7	41.8	7	16.7	75.29	1.32	0.29	0.38	22.72	9.68	7.29	0.13	0.03	0.03	2.2
108	MJBK-8	34/24-20	42.0 m - 43.0 m	13.1	650	40.6	30.3	3.69	12.18	60.23	2.82	0.25	0.89	35.81	6.04	3.64	0.17	0.02	0.05	2.16
109	MJBK-9	34/20-1	27.0 m - 28.0 m	7.9	154.3	38.5	38.38	6.85	17.85	82.67	1.51	0.14	0.31	15.37	3.49	2.88	0.05	0.01	0.01	0.54
110	MJBK-9	34/20-2	28.0 m - 29.0 m	9.8	264.1	33	32.91	7.35	22.33	38.03	0.7	0.04	0.02	61.21	6.02	2.29	0.04	0.01	tr	3.68
111	MJBK-9	34/20-3	29.0 m - 30.0 m	8.2	1995	31.1	30.81	4.99	16.2	92.95	1.81	0.09	0.05	5.1	39.4	36.62	0.71	0.04	0.02	2.01
112	MJBK-9	34/20-4	30.0 m - 31.0 m	9.6	3130	36.6	36.5	6.55	17.95	96.07	1.62	0.18	0.69	1.44	38.51	56.21	0.95	0.11	0.4	0.84
113	MJBK-9	34/20-5	31.0 m - 31.5 m	5.9	2460	38.4	38.33	9.08	23.69	88.27	1.35	0.08	0.27	10.03	98.77	87.18	1.33	0.08	0.27	9.91
114	MJBK-9	34/20-6	31.5 m - 32.5 m	9	1195	37.3	37.27	6.62	17.76	92.21	1.62	0.12	0.37	5.68	23.58	21.74	0.38	0.03	0.09	1.34
115	MJBK-9	34/20-7	32.5 m - 33.7 m	11.4	4570	35.7	35.5	6.38	17.97	93.47	1.7	0.1	0.34	4.39	72.04	67.34	1.22	0.07	0.25	3.16
116	MJBK-9	34/20-8	33.7 m - 35.0 m	12.9	4425	34.5	34.38	5.24	15.24	83.37	1.93	0.13	3.98	10.59	52.28	43.58	1.01	0.07	2.08	5.54
117	MJBK-9	34/20-9	35.0 m - 36.5 m	14.9	7170	42	41.86	7.73	18.47	92	1.4	0.07	0.29	6.24	88.86	61.75	1.24	0.06	0.26	5.55
118	MJBK-9	34/20-10	36.5 m - 37.7 m	12.2	4245	33.1	33.1	10.08	30.45	96.48	1.17	0.04	0.03	2.28	105.96	102.23	1.24	0.04	0.03	2.42
119	MJBK-9	34/20-11	37.7 m - 39.0 m	10.4	640	40	39.22	5.57	16.75	37.96	1.18	0.06	0.63	60.17	10.31	3.91	0.12	0.01	0.07	6.2
120	MJBK-9	34/20-12	39.0 m - 40.0 m	10.1	310	38.7	38.7	12.43	32.12	27.21	0.74	0.04	0.24	71.77	9.86	2.68	0.07	0.01	0.02	7.08
121	MJBK-10	34/16-1	25.0 m - 26.0 m	8.3	195	36.4	34.7	0.86	2.53	30.95	1.48	0.1	0.18	67.29	0.59	0.18	0.01	tr	tr	0.4
122	MJBK-10	34/16-2	26.0 m - 27.0 m	8.9	360	33.7	32.58	1.28	3.93	79.16	2.21	0.2	0.74	17.69	1.59	1.26	0.03	0.01	0.01	0.28
123	MJBK-10	34/16-3	27.0 m - 28.5 m	15.2	1795	42	41.9	5.13	12.24	88.97	1.86	0.2	0.15	8.82	14.46	12.86	0.27	0.03	0.02	1.28
124	MJBK-10	34/16-4	28.5 m - 29.0 m	6.3	1520	35.6	35.6	5.12	14.38	90.52	1.68	0.09	0.48	7.23	34.17	31.41	0.58	0.03	0.17	2.51
125	MJBK-10	34/16-5	29.0 m - 29.5 m	4.5	7856	36.7	36.62	3.06	8.36	77.1	2.32	0.34	0.33	19.91	145.88	112.47	3.38	0.5	0.48	29.05
126	MJBK-10	34/16-6	29.5 m - 30.1 m	7.2	1710	40	39.77	5.18	13.02	93.06	1.94	0.26	0.82	3.92	30.93	28.78	0.6	0.08	0.26	1.21
127	MJBK-10	34/16-7	30.1 m - 31.5 m	11.1	2650	41.4	41.34	4.38	10.6	90.54	2.23	0.47	0.71	6.05	25.29	22.9	0.56	0.12	0.18	1.53
128	MJBK-10	34/16-8	31.5 m - 32.4 m	8.1	3680	35.9	35.9	9.83	27.38	91.18	1.58	0.17	1.29	5.78	124.4	113.43	1.97	0.21	1.6	7.19
129	MJBK-10	34/16-9	32.4 m - 33.7 m	14.1	5935	34.6	34.46	7.23	20.98	95.4	0.21	0.46	0.42	3.51	88.31	84.25	0.19	0.4	0.37	3.1
130	MJBK-10	34/16-10	33.7 m - 34.6 m	6.8	2655	41.4	41.32	6.79	16.43	93.81	1.53	0.06	0.62	3.98	64.16	60.19	0.98	0.04	0.4	2.55
131	MJBK-10	34/16-11	34.6 m - 36.0 m	7.6	285	35.6	35.53	11.27	31.72	93.08	1.08	0.07	0.31	5.46	11.89	11.06	0.13	0.01	0.04	0.65
132	MJBK-12	2GL/12-1	23.3 m - 24.3 m	3.7	143.5	35.8	35.6	4.69	13.17	87.85	2.47	0.07	1.09	8.52	5.11	4.49	0.13	tr	0.06	0.43
133	MJBK-12	2GL/12-2	24.3 m - 25.9 m	4.6	531.5	33.2	33.1	4.13	12.48	86.87	2.47	0.03	1.35	9.28	14.42	12.52	0.37	tr	0.19	1.34
134	MJBK-12	2GL/12-3	25.9 m - 26.9 m	6.8	260	32.5	32.4	5.72	17.65	55.18	1.86	0.02	0.54	42.4	6.75	3.72	0.13	tr	0.04	2.86
135	MJBK-12	2GL/12-4	26.9 m - 28.0 m	5.1	790	37	37	5.04	13.62	91.72	2.4	0.02	1	4.86	21.1	19.35	0.51	tr	0.21	1.03
136	MJBK-12	2GL/12-5	28.0 m - 28.5 m	2.1	1055	32.9	32.8	4.56	13.9	94.72	3.94	0.22	0.73	0.39	69.83	66.14	2.75	0.16	0.51	0.27
137	MJBK-12	2GL/12-6	28.5 m - 29.9 m	5.7	2205	34.4	34.5	5.63	16.32	94.82	3.49	0.22	0.69	0.6	63.13	59.86	2.2	0.25	0.44	0.38
138	MJBK-12	2GL/12-7	29.9 m - 30.9 m	4.1	380	35.5	35.5	4.3	12.11	12.57	0.52	-	0.18	86.73	11.22	1.41	5.83	-	0.02	9.73
139	MJBK-12	2GL/12-8	30.9 m - 31.9 m	3.6	490	30.6	30.4	1.13	3.72	33.79	2.35	0.1	1.83	61.93	5.06	1.71	0.12	0.01	0.09	3.13
140	MJBK-15	2GL/24-1	23.4 m - 24.1 m	2.3	45	45	45.7	11.38	24.9	22.91	0.79	0.03	0.45	76.81	2.92	0.66	0.02	tr	tr	2.24
141	MJBK-15	2GL/24-2	24.1 m - 24.5 m	1.8	130	32.5	32.5	14.3	44	6.49	0.6	0.01	0.24	92.66	31.78	2.06	0.19	tr	0.08	29.45
142	MJBK-15	2GL/24-3	24.5 m - 26.0 m	5.2	2915	34.1	34.1	8.24	24.16	92.5	2.61	0.01	0.71	4.17	135.44	125.28	3.54	0.01	0.96	5.65
143	MJBK-15	2GL/24-4	26.0 m - 27.2 m	4.3	495	30.9	30.9	4.62	14.95	79.34	3.36	0.05	1.09	16.16	17.21	13.65	0.58	0.01	0.19	2.78
144	MJBK-15	2GL/24-5	27.2 m - 28.2 m	5	1410	33	30.6	8.84	28.89	31.66	1.03	0.02	0.33	66.96	81.47	25.79	0.84	0.02	0.27	54.55
145	MJBK-15	2GL/24-6	28.2 m - 28.9 m	3.2	1290	40.3	39.4	9.93	25.2	92.76	1.63	0.01	0.58	5.02	101.6	94.24	1.66	0.01	0.59	5.1
146	MJBK-15	2GL/24-7	28.9 m - 29.9 m	4	130	32.5	32.4	2.79	8.61	14.12	0.73	0.03	0.66	84.46	2.8	0.4	0.02	tr	0.02	2.36
147	MJBK-15	2GL/24-8	29.9 m - 30.9 m	1.8	420	39.3	39.3	0.21	0.53	23.44	3.94	0.01	0.43	72.18	1.25	0.29	0.05	tr	0.01	0.9
148	MJBK-16	30/28-1	24.0 m - 25.0 m	13.1	56.5	28.2	28.2	4.1	14.54	42.75	1.1	0.16	0.14	55.85	0.63	0.27	0.01	tr	tr	0.35
149	MJBK-16	30/28-2	25.0 m - 26.0 m	12.4	735	34.4	34.3	2.34	6.82	87.21	2.36	0.3	0.47	9.66	4.04	3.52	0.1	0.01	0.02	0.39

Appendix 2-5 Quantity Mineralgical Analysis of Usual and Check Samples (4)

No.	No. of drillholes	Sample No.	Depth (m)	Weight of dried sample (kg)	Weight of sand after sieving (-1.0 mm) (g)	Weight of sample for analysis (g)	Weight of sample for separation (g)	Weight of heavy fraction (g)	Content of heavy fraction (%)	Heavy fractions					Content of heavy fraction (kg/t)	Content of heavy fractions				
										Ilmenite (%)	Zircon (%)	Rutile (%)	Leucoxene (%)	the others (%)		Ilmenite (kg/t)	Zircon (kg/t)	Rutile (kg/t)	Leucoxene (kg/t)	the others (kg/t)
150	MJBK-16	30/28-3	26.0 m - 27.5 m	11.4	180	33.7	33.5	5.64	16.87	75.5	2.39	0.1	0.21	21.8	2.66	2.01	0.06	tr	0.01	0.58
151	MJBK-16	30/28-4	27.5 m - 28.2 m	8.3	125	31.2	31	2.62	8.45	69.1	1.89	0.16	0.52	28.33	1.27	0.88	0.02	tr	0.01	0.36
152	MJBK-16	30/28-5	28.2 m - 29.0 m	9.5	2125	33.2	33.1	5.38	16.25	93.28	2.02	0.24	0.2	4.26	36.36	33.92	0.73	0.09	0.07	1.55
153	MJBK-16	30/28-6	29.0 m - 30.5 m	17.8	3120	36.1	36.4	5.7	15.66	91.12	1.56	0.13	0.34	6.85	27.45	25.01	0.43	0.04	0.09	1.88
154	MJBK-16	30/28-7	30.5 m - 31.2 m	8.4	4105	32	31.7	11.08	34.95	88.78	1.48	0.09	0.38	9.27	170.8	151.64	2.53	0.15	0.65	15.83
155	MJBK-16	30/28-8	31.2 m - 32.7 m	8.5	790	36.9	36.7	4.54	12.37	72.48	1.48	0.09	0.1	25.85	11.5	8.34	0.17	0.01	0.01	2.97
156	MJBK-16	30/28-9	32.7 m - 34.0 m	11.3	1100	34.3	34.3	6.1	17.78	90.4	2.19	0.15	0.46	6.8	17.31	15.65	0.38	0.02	0.08	1.18
157	MJBK-16	30/28-10	34.0 m - 34.5 m	5.7	2355	36.7	36.5	7.05	19.32	92.37	1.18	0.12	0.12	6.21	79.8	73.71	0.94	0.1	0.1	4.95
158	MJBK-16	30/28-11	34.5 m - 35.5 m	10.6	4530	35.3	35.3	4.16	11.38	78.14	1.19	0.13	0.45	20.09	50.36	39.35	0.6	0.07	0.22	10.12
159	MJBK-16	30/28-12	35.5 m - 36.0 m	4.5	1605	37.5	37.5	4.02	10.72	84.43	1.6	0.13	0.3	13.54	38.23	32.28	0.61	0.05	0.11	5.18
160	MJBK-16	30/28-13	36.0 m - 36.5 m	5.7	2135	33.3	33.3	7.12	21.38	89.56	1.6	0.06	0.35	8.44	80.09	71.73	1.28	0.05	0.28	6.75
161	MJBK-16	30/28-14	36.5 m - 37.0 m	6.1	1895	29.6	29.5	5.43	18.41	83.54	1.13	0.06	0.39	14.88	57.18	47.77	0.65	0.03	0.22	8.51
162	MJBK-16	30/28-15	37.0 m - 38.0 m	8.6	3260	38.1	38	7.98	21	92.89	1.44	0.18	0.53	4.96	79.6	73.94	1.15	0.14	0.42	3.95
163	MJBK-16	30/28-16	38.0 m - 39.0 m	9.6	3910	30.5	30.7	7.79	25.37	88.93	1.21	0.09	0.18	9.59	103.35	91.91	1.25	0.09	0.19	9.91
164	MJBK-16	30/28-17	39.0 m - 40.0 m	6	245	30.6	30.5	2.7	8.85	82.58	1.21	0.07	0.22	15.92	3.61	2.98	0.04	tr	0.01	0.58
165	MJBK-16	30/28-18	40.0 m - 41.0 m	5.6	330	41.2	41.4	6.91	16.69	95.64	1.12	0.06	0.13	3.05	9.84	9.41	0.11	0.01	0.01	0.3
166	MJBK-17	30/20-1	31.0 m - 32.0 m	10.1	255	31.8	32.5	1.15	3.54	42.68	1.25	0.1	0.03	55.94	0.89	0.38	0.01	tr	tr	0.5
167	MJBK-17	30/20-2	32.0 m - 33.0 m	10.4	360	34.2	35.2	0.71	2.02	76.71	4.17	0.45	0.99	17.68	0.7	0.54	0.03	tr	0.01	0.12
168	MJBK-17	30/20-3	33.0 m - 34.0 m	11.1	300	37.5	37.7	2.04	5.41	77.57	1.71	0.22	0.25	20.25	1.46	1.13	0.02	tr	0.01	0.3
169	MJBK-17	30/20-4	34.0 m - 35.0 m	11	945	29.5	29.5	3.82	12.95	93.95	3.1	0.11	0.27	2.57	11.12	10.45	0.34	0.01	0.03	0.29
170	MJBK-17	30/20-5	35.0 m - 36.0 m	10.2	1780	41.7	41.7	8.7	20.86	90.17	1.72	0.22	0.37	7.52	36.41	32.83	0.63	0.08	0.13	2.74
171	MJBK-17	30/20-6	36.0 m - 37.0 m	13.5	4760	37.1	37.1	6.28	16.93	95.96	1.55	0.1	0.41	1.98	59.68	57.27	0.93	0.06	0.24	1.18
172	MJBK-17	30/20-7	37.0 m - 38.0 m	11.5	4245	33.1	33.2	4.16	12.53	79.1	1	0.05	0.09	19.76	46.25	36.59	0.46	0.02	0.04	9.14
173	MJBK-17	30/20-8	38.0 m - 38.5 m	5.4	1450	33.9	33.7	5.84	17.33	92.42	1.8	0.2	0.11	5.47	46.53	43	0.84	0.09	0.05	2.55
174	MJBK-17	30/20-9	38.5 m - 39.5 m	8.1	3440	40.3	40.2	4.03	10.02	92.25	2.06	0.11	0.46	5.12	42.57	39.25	0.9	0.05	0.19	2.18
175	MJBK-17	30/20-10	39.5 m - 40.0 m	3.6	1310	40.9	40.8	7.7	18.87	98.45	0.94	0.02	0.2	0.39	68.68	67.62	0.64	0.01	0.14	0.27
176	MJBK-17	30/20-11	40.0 m - 41.0 m	8.1	3755	29.3	29.1	3.27	11.24	94.68	1.44	0.07	0.77	3.04	52.09	49.32	0.75	0.04	0.4	1.58
177	MJBK-17	30/20-12	41.0 m - 41.5 m	7.7	3420	40	40	1.6	4	92.69	1.11	0.83	0.02	5.35	17.77	16.47	0.2	0.15	tr	0.95
178	MJBK-17	30/20-13	41.5 m - 43.0 m	16	5535	43.2	43	13.93	32.4	97.53	1.31	0.06	0.68	0.42	112.07	109.3	1.47	0.07	0.76	0.47
179	MJBK-17	30/20-14	43.0 m - 43.5 m	4.3	710	33.1	32.8	9.64	29.39	69.44	1.41	0.06	0.82	28.07	48.53	33.8	0.68	0.03	0.4	13.62
180	MJBK-17	30/20-15	43.5 m - 44.0 m	3.7	410	38.4	38.2	6.59	17.25	20.57	0.9	0.05	1.04	77.44	19.11	3.93	0.17	0.01	0.2	14.8
181	MJBK-17	30/20-16	44.0 m - 45.0 m	7	635	39.6	39.6	8.2	19.9	6.45	0.23	0.03	0.5	92.79	18.78	1.21	0.04	0.01	0.09	17.43
182	MJBK-17	30/20-17	45.0 m - 46.0 m	9	1600	37.5	37.4	2.21	5.91	14.08	0.5	0.04	2.9	82.48	10.51	1.48	0.05	tr	0.31	8.67

Appendix 2-5 Quantity Mineralogical Analysis of Usual and Check Samples (5)

No.	No. of drillholes	Sample No.	Depth (m)	Weight of dried sample (kg)	Weight of sand after sieving (-1.0 mm) (g)	Weight of sample for analysis (g)	Weight of sample for separation (g)	Weight of heavy fraction (g)	Content of heavy fraction (%)	Heavy fractions					Content of heavy fraction (kg/t)	Content of heavy fractions					Remarks
										Ilmenite (%)	Zircon (%)	Rutile (%)	Leucoxene (%)	the others (%)		Ilmenite (kg/t)	Zircon (kg/t)	Rutile (kg/t)	Leucoxene (kg/t)	the others (kg/t)	
1	MJBK-3	38/24-3 κ	28.5 m - 29.3 m	39.8	4820	37.6	37.6	4.17	11.09	81.61	1.81	0.22	0.71	15.65	13.43	10.96	0.24	0.03	0.10	2.10	Check for usual sample
2	MJBK-3	38/24-4 κ	29.3 m - 30.0 m	23.5	11000	42.9	42.5	4.67	10.99	90.82	1.58	0.23	0.34	7.03	51.43	46.71	0.81	0.12	0.17	3.62	Check for usual sample
3	MJBK-3	38/24-5 κ	30.0 m - 30.5 m	13.9	4015	31.3	31.3	3.61	11.53	88.71	1.60	0.15	0.44	9.1	33.31	29.55	0.53	0.05	0.15	3.03	Check for usual sample
4	MJBK-3	38/24-6 κ	30.5 m - 31.3 m	30.9	7380	42.4	42.4	7.35	17.33	95.43	1.77	0.13	0.38	2.29	41.39	39.50	0.73	0.05	0.16	0.95	Check for usual sample
5	MJBK-3	38/24-7 κ	31.3 m - 32.0 m	34.2	10050	39.2	39.2	7.55	19.26	92.99	1.49	0.11	0.26	5.15	56.60	52.63	0.84	0.06	0.15	2.92	Check for usual sample
6	MJBK-3	38/24-8 κ	32.0 m - 33.0 m	34.6	15770	30.8	30.8	4.91	15.94	83.29	1.19	0.11	0.16	15.25	72.66	60.52	0.86	0.08	0.12	11.08	Check for usual sample
7	MJBK-3	38/24-9 κ	33.0 m - 33.5 m	14.6	5440	42.5	42.5	8.6	20.24	82.74	1.09	0.07	0.09	16.01	75.4	62.39	0.82	0.05	0.07	12.07	Check for usual sample
8	MJBK-3	38/24-11 κ	33.7 m - 34.6 m	38.9	14480	42.1	42.1	10.36	24.61	95.27	1.47	0.21	0.47	2.58	91.6	87.27	1.35	0.19	0.43	2.36	Check for usual sample
9	MJBK-3	38/24-13 κ	35.2 m - 36.4 m	41.6	13595	39.3	39.3	6.68	17.00	94.16	1.97	0.19	0.38	3.3	55.55	52.31	1.09	0.11	0.21	1.83	Check for usual sample
10	MJBK-3	38/24-14 κ	36.4 m - 37.6 m	27.9	10830	42.3	42.3	12.96	12.64	75.94	1.03	0.03	0.02	22.98	118.93	90.32	1.22	0.04	0.02	27.33	Check for usual sample
11	MJBK-3	38/24-15 κ	37.6 m - 38.2 m	37.9	11285	33.0	33.0	9.11	27.61	94.0	0.94	0.06	0.24	4.76	82.2	77.27	0.77	0.05	0.2	3.91	Check for usual sample
12	MJBK-4	38/16(7-12)	29.6 m - 33.9 m	45.7	400	37.5	37.5	5.26	14.03	87.62	1.57	0.14	1.0	9.67	1.23	1.08	0.02	tr	0.01	0.12	Check for fine component (-1mm)
13	MJBK-2	38/28(3-7)	26.0 m - 30.2 m	38.2	269	33.6	33.6	5.61	16.7	88.45	1.64	0.13	0.27	9.51	1.18	1.04	0.02	tr	0.01	0.11	Check for fine component (-1mm)
14	MJBK-10	34/16-4 κ	28.5 m - 29.0 m	12.3	3840	30.0	29.9	4.05	13.55	90.34	2.23	0.31	0.50	6.62	42.29	38.21	0.94	0.13	0.21	2.80	Check for usual sample
15	MJBK-10	34/16-5 κ	29.0 m - 29.5 m	17.9	2865	33.5	33.6	4.82	14.35	69.33	1.69	0.32	0.63	28.03	22.96	15.92	0.39	0.07	0.14	6.44	Check for usual sample
16	MJBK-10	34/16-6 κ	29.5 m - 30.1 m	17.0	6950	40.6	40.6	5.40	13.30	92.08	1.37	0.06	0.04	6.45	54.38	50.07	0.75	0.03	0.02	3.51	Check for usual sample
17	MJBK-10	34/16-7 κ	30.1 m - 31.5 m	32.1	9570	37.3	37.3	6.34	17.00	91.54	1.72	0.19	0.35	6.20	50.67	46.38	0.87	0.10	0.18	3.14	Check for usual sample
18	MJBK-6	34/32-3 κ	25.7 m - 26.5 m	21.1	10560	39.7	39.6	2.59	6.54	89.5	1.30	0.13	0.39	8.68	32.73	29.29	0.43	0.04	0.13	2.84	Check for usual sample
19	MJBK-6	34/32-4 κ	26.5 m - 27.7 m	33.0	16710	30.4	29.2	3.07	10.51	92.55	1.43	0.09	0.26	5.67	53.24	49.27	0.76	0.05	0.14	3.02	Check for usual sample
20	MJBK-10	34/16-8 κ	31.5 m - 32.4 m	23.1	9560	37.3	37.24	6.56	17.62	92.72	1.51	0.13	1.91	3.73	72.92	67.61	1.10	0.09	1.40	2.72	Check for usual sample
21	MJBK-10	34/16-9 κ	32.4 m - 33.7 m	24.7	10280	40.1	39.96	6.86	17.17	97.91	0.65	0.08	0.73	0.63	73.41	71.88	0.48	0.06	0.53	0.46	Check for usual sample
22	MJBK-10	34/16-10 κ	33.7 m - 34.6 m	21.8	8375	32.7	32.65	6.87	21.04	95.92	1.46	0.11	0.52	1.99	80.83	77.53	1.18	0.09	0.42	1.61	Check for usual sample
23	MJBK-17	30/20-12	41.0 m - 41.5 m	7.7	520	32.5	32.7	0.02	0.06	25.69	0.12	0.11	-	74.08	0.04	0.01	tr	tr	-	0.03	Check for coarse component (-1mm)
24	MJBK-16	30/28-11	34.5 m - 35.5 m	10.6	160	40.0	40.2	0.05	0.12	47.57	0.09	-	0.04	52.30	0.02	0.01	tr	-	tr	0.01	Check for coarse component (-1mm)
25	MJBK-10	34/16-6 κ	29.5 m - 30.1 m	17.0	520	32.5	32.40	0.08	0.25	12.59	1.12	-	0.04	86.25	0.08	0.01	tr	-	tr	0.07	Check for coarse component (-1mm)
26	MJBK-10	34/16-10	33.7 m - 34.6 m	6.8	485	30.3	29.96	0.12	0.4	16.85	0.75	-	-	82.40	0.29	0.05	tr	-	-	0.24	Check for coarse component (-1mm)
27	MJBK-9	34/20-3	29.0 m - 30.0 m	8.2	80	40.0	39.54	3.86	9.76	0.81	0.15	0.01	tr	99.03	0.95	0.01	tr	tr	tr	0.94	Check for coarse component (-1mm)
28	MJBK-9	34/20-7	32.5 m - 33.7 m	11.4	245	30.6	30.34	0.29	0.96	13.58	0.76	0.16	0.33	85.17	0.21	0.03	tr	tr	tr	0.18	Check for coarse component (-1mm)
29	MJBK-8	34/24-14	36.5 m - 37.5 m	11.8	590	36.8	36.50	0.04	0.11	23.25	0.22	-	0.88	75.65	0.05	0.01	tr	-	tr	0.04	Check for coarse component (-1mm)
30	MJBK-7	34/28-10	33.6 m - 34.2 m	5.4	250	31.2	30.53	1.75	5.73	1.00	0.02	-	0.05	98.93	2.65	0.03	tr	-	tr	2.62	Check for coarse component (-1mm)
31	MJBK-6	34/32-3 κ	25.7 m - 26.5 m	21.1	385	36.0	36.14	0.04	0.11	28.3	3.18	0.32	0.18	68.02	0.02	0.005	tr	tr	tr	0.015	Check for coarse component (-1mm)
32	MJBK-3	38/24-6	30.5 m - 31.3 m	5.1	95	35.5	35.42	1.19	3.36	6.25	0.44	0.01	0.01	93.29	0.63	0.04	tr	tr	tr	0.59	Check for coarse component (-1mm)

**Appendix 2-6 Inside Geological Check of
Mineralogical Analysis**

Appendix 2-6 Inside Geological Check of Mineralogical Analysis (1)

No.	No. of drillholes	Sample No.	Primary weight of dry sample (kg)	Weight of black sand after sieving (g)	Weight of specimen for mineralogical analysis (g)	Specimen for separation (g)	Weight of heavy fraction (g)	Content of heavy fraction (kg/t)	Ilmenite		Zircon	
									Classes of content	Content (kg/t)	Classes of content	Content (kg/t)
									Basic	Checking	Basic	Checking
1	MJBK-2	38/28-3	8.5	2790	42.6	42.93	7.71	58.95	II	55.12	I	1.18
2	MJBK-2	38/28-4	7.6	3355	39.2	39.37	7.29	81.74	III	76.17	I	1.32
3	MJBK-2	38/28-5	6.1	1164	36.1	36.3	6.72	35.33	I	33.28	I	0.59
4	MJBK-2	38/28-6	10.1	780	35.4	35.34	6.8	14.86	I	14.26	I	0.22
5	MJBK-2	38/28-6	10.1	780	35.4	35.34	6.8	14.86	I	14.31	I	0.24
6	MJBK-2	38/28-7	5.9	945	36.8	36.2	6.45	28.54	I	27.04	I	0.49
7	MJBK-3	38/24-3	8.3	1855	39	39.27	4.35	24.76	I	21.34	I	0.44
8	MJBK-3	38/24-4	7.7	3775	37.5	37.5	4.44	58.05	II	54	I	1.07
9	MJBK-3	38/24-5	5.9	1250	40.2	40.5	7.54	39.44	I	36.02	I	0.71
10	MJBK-3	38/24-6	5.1	1180	37.1	37.28	8.23	51.08	II	48.38	I	0.71
11	MJBK-3	38/24-6	5.1	1180	37.1	37.28	8.23	51.08	I	47.29	I	1.07
12	MJBK-3	38/24-7	11.5	3165	37.4	38.43	8.06	57.72	II	54.85	I	0.96
13	MJBK-3	38/24-8	14.2	6175	35.5	35.2	7.91	97.72	III	88.34	I	1.22
14	MJBK-3	38/24-9	5	2150	32.1	32.2	6.27	83.72	III	73.73	I	0.95
15	MJBK-3	38/24-10	1.5	235	47.2	37.2	8.68	36.56	I	15.34	I	0.35
16	MJBK-3	38/24-11	16.9	5780	33.5	35.15	7.77	75.6	III	70.86	I	1.26
17	MJBK-3	38/24-12	8.2	1190	32.9	32.9	3.95	17.42	I	15.87	I	0.34
18	MJBK-3	38/24-13	14.4	4960	38.9	39.05	6.64	58.57	III	53.61	I	0.98
19	MJBK-3	38/24-13	14.4	4960	38.9	39.05	6.64	58.57	III	53.87	I	0.93
20	MJBK-3	38/24-14	16.6	5860	34.1	33.54	10.07	105.99	III	91.3	I	1.47
21	MJBK-3	38/24-15	6.5	2360	36.6	36.6	10.38	102.97	III	100.97	I	1.22
22	MJBK-4	38/16-5	12.3	2160	31.1	31.7	4.59	25.43	I	23.4	I	0.55
23	MJBK-4	38/16-6	6.1	1295	40.4	39.71	9.56	51.11	II	43.67	I	0.85
24	MJBK-4	38/16-7	11	3550	30.5	29.88	6.44	69.56	III	62.57	I	1.31
25	MJBK-4	38/16-8	8.9	2980	29.2	29.26	6.78	77.59	III	73.92	I	2.54
26	MJBK-4	38/16-9	5.4	2320	32.1	32.55	7.86	103.74	III	100.34	I	1.76

Classes of content:

Ilmenite: I 8.33-38.89 kg/t (15-70kg/m³) II 38.90-55.56 kg/t (70-100kg/m³) III > 55.56 kg/t (>100kg/m³)

Zircon: I 0.30-2.85 kg/t II 2.86-5.69 kg/t III >5.69 kg/t

Appendix 2-6 Inside Geological Check of Mineralogical Analysis (2)

No.	No. of drillholes	Sample No.	Primary weight of dry sample (kg)	Weight of black sand after sieving (g)	Weight of specimen for mineralogical analysis (g)	Specimen for separation (g)	Weight of heavy fraction (g)	Content of heavy fraction (kg/t)	Ilmenite		Zircon	
									Classes of content	Content (kg/t)	Classes of content	Content (kg/t)
27	MBK-4	38/16-10	6.7	2565	37.9	37.41	3.4	34.79	I	I	I	0.84
28	MBK-4	38/16-11	8.1	2460	38.1	30.22	4.9	49.24	III	II	I	1.02
29	MBK-4	38/16-11	8.1	2460	38.1	30.22	4.9	49.24	III	II	I	1.04
30	MBK-4	38/16-12	5.6	2450	39	37.8	11.07	128.13	III	III	I	0.42
31	MBK-5	38/12-8	9.1	500	31.4	30.18	8.15	14.84	I	I	<I	0.25
32	MBK-5	38/12-8	9.1	500	31.4	30.18	8.15	14.84	I	I	<I	0.27
33	MBK-5	38/12-9	6.6	1305	38.1	38.55	16.72	85.76	III	III	I	1.12
34	MBK-7	34/28-5	9.7	2153	33.4	33.2	8.34	55.76	II	II	I	0.99
35	MBK-7	34/28-6	6.6	3120	36.1	36.3	13.82	179.97	III	III	I	2.18
36	MBK-7	34/28-6	6.6	3120	36.1	36.3	13.82	179.97	III	III	I	2.18
37	MBK-7	34/28-7	10.2	2915	34.9	35.05	5.84	47.62	II	II	I	0.67
38	MBK-7	34/28-8	8.7	1120	34.9	34.8	6.18	22.86	I	I	I	0.43
39	MBK-7	34/28-9	8.6	4265	33	32.95	5.6	84.29	III	III	I	1.28
40	MBK-7	34/28-10	5.4	1340	41.2	41.82	5.33	31.63	I	I	I	0.6
41	MBK-7	34/28-11	6.6	3540	40.8	41.13	11.72	152.84	III	III	I	2.2
42	MBK-7	34/28-12	6.3	3030	35.1	35.52	11.24	152.19	III	III	I	1.77
43	MBK-7	34/28-13	11.3	4750	37.1	37.36	6.25	70.32	III	III	I	1.25
44	MBK-7	34/28-14	8.1	3525	41.5	41.72	11	114.74	III	III	I	1.68
45	MBK-8	34/24-3	7.1	1274.6	39.1	39	5.24	24.12	I	I	I	0.53
46	MBK-8	34/24-4	13.4	6640	37.1	37.5	5.16	68.18	III	III	I	1.21
47	MBK-8	34/24-5	13.8	1445	37.8	36.6	4.92	14.08	I	I	<I	0.26
48	MBK-8	34/24-5	13.8	1445	37.8	36.6	4.92	14.08	I	I	<I	0.27
49	MBK-8	34/24-6	7.3	2390	37.4	37.1	5	44.12	II	II	I	0.76
50	MBK-8	34/24-7	12.3	6945	41.1	41.33	11.88	162.3	III	III	I	1.59
51	MBK-8	34/24-8	11.1	1925	36.6	36.4	4.98	23.73	I	I	I	0.34
52	MBK-8	34/24-8	11.1	1925	36.6	36.4	4.98	23.73	I	I	II	0.35
53	MBK-8	34/24-9	10	1135	34	33.86	4.87	16.32	I	I	I	0.26
54	MBK-8	34/24-9	10	1135	34	33.86	4.87	16.32	I	I	I	0.29

Classes of content:

Ilmenite: I 8.33-38.89 kg/t (15-70kg/m³) II 38.90-55.56 kg/t (70-100kg/m³) III > 55.56 kg/t (>100kg/m³)

Zircon: I 0.30-2.85 kg/t II 2.86-5.69 kg/t III >5.69 kg/t

Appendix 2-6 Inside Geological Check of Mineralogical Analysis (3)

No.	No. of drillholes	Sample No.	Primary weight of dry sample (kg)	Weight of black sand after sieving (g)	Weight of specimen for mineralogical analysis (g)	Specimen for separation (g)	Weight of heavy fraction (g)	Content of heavy fraction (kg/t)	Ilmenite		Zircon		
									Classes of content	Content (kg/t)	Classes of content	Content (kg/t)	
									Basic	Checking	Basic	Checking	
55	MJBK-8	34/24-10	4.5	1160	35.9	36.28	8.84	62.81	II	III	I	I	0.93
56	MJBK-8	34/24-10	4.5	1160	35.9	36.28	8.84	62.81	II	III	I	I	1.01
57	MJBK-8	34/24-12	5.3	435	46.7	46.37	10.79	19.1	I	I	I	I	0.37
58	MJBK-8	34/24-13	4.9	815	37.9	37.73	7.99	35.22	I	I	I	I	0.71
59	MJBK-8	34/24-14	11.8	6020	35.1	34.8	9.12	133.7	III	III	I	I	1.52
60	MJBK-8	34/24-18	5.6	2085	33.5	33.62	11.4	126.25	III	III	I	I	1.78
61	MJBK-12	2GL/12-2	4.6	531.5	31.5	31.39	3.86	14.21	I	I	I	I	0.38
62	MJBK-12	2GL/12-4	5.1	790	37.1	36.58	5.02	21.26	I	I	I	I	0.57
63	MJBK-12	2GL/12-5	2.1	1055	32.2	33.35	4.64	69.9	III	III	I	I	1.61
64	MJBK-12	2GL/12-6	5.7	2205	34.8	34.57	6.24	69.83	III	III	I	I	1.68
65	MJBK-15	2GL/24-3	5.2	2915	34	34.25	3.53	57.78	III	II	I	I	1.38
66	MJBK-15	2GL/24-3	5.2	2915	34	34.25	3.53	57.78	III	II	I	I	1.42
67	MJBK-15	2GL/24-4	4.3	495	29.4	9.33	1.76	21.72	I	I	I	I	0.87
68	MJBK-15	2GL/24-5	5	1410	33.9	33.85	8.24	68.65	I	III	I	I	1.73
69	MJBK-15	2GL/24-5	5	1410	33.9	33.85	8.24	68.65	I	III	I	I	1.61
70	MJBK-15	2GL/24-6	3.2	1290	41	40.91	12.43	122.48	III	III	I	I	2.36
71	MJBK-16	30/28-13	6.2	2180	33	32.42	7.29	79.06	III	III	I	I	1.07
72	MJBK-16	30/28-16	9.1	4395	35.9	35.7	8.82	119.32	III	III	I	I	1.91
73	MJBK-17	30/20-4	11	945	36.8	36.5	3.44	8.1	I	I	I	<I	0.22
74	MJBK-17	30/20-4	11	945	36.8	36.5	3.44	8.1	I	I	I	<I	0.2
75	MJBK-17	30/20-5	10.2	1780	42.3	42.34	9.43	38.87	I	I	I	I	0.76
76	MJBK-17	30/20-6	13.5	4760	36.4	36.17	6.97	67.94	III	III	I	I	1.04
77	MJBK-17	30/20-7	11.5	4245	33.8	33.63	7.07	77.6	I	III	I	I	0.9
78	MJBK-17	30/20-7	11.5	4245	33.8	33.63	7.07	77.6	I	III	I	I	1.01
79	MJBK-17	30/20-8	5.4	1450	34.1	34.2	4.98	39.1	II	I	I	I	0.63
80	MJBK-17	30/20-8	5.4	1450	34.1	34.2	4.98	39.1	II	I	I	I	0.77
81	MJBK-17	30/20-9	8.1	3440	40.2	37.18	3.84	43.86	II	II	I	I	0.79
82	MJBK-17	30/20-10	3.6	1310	40.9	40.65	8.7	77.88	III	III	I	I	0.76

Classes of content:

Ilmenite: I 8.33-38.89 kg/t (15-70kg/m³) II 38.90-55.56 kg/t (70-100kg/m³) III > 55.56 kg/t (>100kg/m³)

Zircon: I 0.30-2.85 kg/t II 2.86-5.69 kg/t III > 5.69 kg/t

Appendix 2-6 Inside Geological Check of Mineralogical Analysis (4)

No.	No. of drillholes	Sample No.	Primary weight of dry sample (kg)	Weight of black sand after sieving (g)	Weight of specimen for mineralogical analysis (g)	Specimen for separation (g)	Weight of heavy fraction (g)	Content of heavy fraction (kg/t)	Ilmenite		Zircon	
									Classes of content	Content (kg/t)	Classes of content	Content (kg/t)
									Basic	Checking	Basic	Checking
83	MJBK-17	30/20-11	8.1	3755	31.8	31.8	3.54	51.61	II	I	I	0.75
84	MJBK-17	30/20-12	7.7	3420	39.5	39.4	3.04	34.27	I	I	I	0.51
85	MJBK-17	30/20-13	16	5535	42.9	43.02	13.95	112.18	III	I	I	1.25
86	MJBK-17	30/20-14	4.3	710	33.4	33.41	10.06	49.72	I	I	I	0.46
87	MJBK-3	38/24-4k	23.5	11000	40.1	40.33	5.62	65.23	II	III	I	1.27
88	MJBK-3	38/24-4k	23.5	11000	40.1	40.33	5.62	65.23	II	III	I	1.29
89	MJBK-3	38/24-6k	30.9	7380	40.1	40.71	7.54	44.24	II	II	I	0.89
90	MJBK-3	38/24-7k	34.2	10050	40.8	40.65	8.66	62.6	II	II	I	1.13
91	MJBK-3	38/24-13k	41.6	13595	35.1	35.54	6.34	58.3	II	II	I	0.94
92	MJBK-6	34/32-4k	33	16710	37.5	37.4	4.76	64.45	III	III	I	0.97
93	MJBK-6	34/32-4k	33	16710	37.5	37.4	4.76	64.45	III	III	I	0.9
94	MJBK-9	34/20-8	12.9	4425	13.4	13.36	1.89	48.53	II	II	I	0.72
95	MJBK-10	34/16-6	7.2	1710	41.6	41.54	5.25	30.02	I	I	I	0.65
96	MJBK-10	34/16-6k	17	6950	41.8	41.58	7.61	74.82	II	III	I	1.32
97	MJBK-10	34/16-6k	17	6950	41.8	41.58	7.61	74.82	II	III	I	1.38
98	MJBK-10	34/16-7k	32.1	9570	37.9	37.86	7.4	58.27	II	II	I	1.12
99	MJBK-16	30/28-11	10.6	4530	33.9	34	4.45	55.93	II	II	I	0.96
100	MJBK-16	30/28-14	6.1	1895	40.9	26.5	5.36	62.83	II	III	I	1.14
101	MJBK-16	30/28-14	6.1	1895	40.9	26.5	5.36	62.83	II	III	I	1.04

Classes of content:

Ilmenite: I 8.33-38.89 kg/t (15-70kg/m³) II 38.90-55.56 kg/t (70-100kg/m³) III > 55.56 kg/t (>100kg/m³)

Zircon: I 0.30-2.85 kg/t II 2.86-5.69 kg/t III >5.69 kg/t

**Appendix 2-7 Outside Geological Check of
Mineralogical Analysis**

Appendix 2-7 Outside Geological Check of Mineralogical Analysis (1)

No.	No. of drillholes	Sample No.	Primary weight of dry sample (kg)	Weight of black sand after sieving (g)	Weight of specimen for mineralogical analysis (g)	Specimen for separation (g)	Weight of heavy fraction (g)	Content of heavy fraction (kg/t)	Ilmenite		Zircon	
									Classes of content (ba sic)	Content (kg/t)	Classes of content (ba sic)	Content (kg/t)
1	MJBK-12	2GL/12-2	4.6	531.5	31	31	3.91	14.57	I	13.72	I	0.34
2	MJBK-12	2GL/12-4	5.1	790	37.8	36.5	4.75	20.16	I	19.1	I	0.55
3	MJBK-12	2GL/12-5	2.1	1055	31.9	31.7	4	63.39	III	60.54	I	1.11
4	MJBK-12	2GL/12-6	5.7	2205	33.4	33.2	5.85	68.16	III	63.27	I	1.51
5	MJBK-15	2GL/24-3	5.2	2915	33.9	33.8	3.48	55.53	III	54.74	II	1.49
6	MJBK-15	2GL/24-4	4.3	495	27.9	27.8	4.29	17.76	I	16.15	I	0.58
7	MJBK-15	2GL/24-5	5	1410	34.4	34.2	7.89	65.06	I	60.61	I	1.32
8	MJBK-15	2GL/24-6	3.2	1290	40	40.3	11.34	113.44	III	105.53	I	1.9
9	MJBK-16	30/28-13	6.2	2180	33.4	33.4	7.11	74.85	III	72.32	I	1.05
10	MJBK-16	30/28-16	9.1	4395	35.8	35.2	8.15	111.82	III	107.84	I	1.51
11	MJBK-17	30/20-4	11	945	37.1	37.3	4.17	96	I	8.96	I	0.27
12	MJBK-17	30/20-5	10.2	1780	40.8	38.4	8.3	37.72	I	34.54	I	0.73
13	MJBK-17	30/20-6	13.5	4760	37.2	37.9	7.35	68.38	III	66.05	I	0.93
14	MJBK-17	30/20-7	11.5	4245	34.1	34.1	6.67	72.8	I	67.66	I	0.87
15	MJBK-17	30/20-8	5.4	1450	33.9	33.9	5.12	40.56	II	38.18	I	0.63
16	MJBK-17	30/20-9	8.1	3440	41.1	40.4	4.24	44.57	II	43.31	I	0.63
17	MJBK-17	30/20-10	3.6	1310	41.1	39.3	8.17	75.65	III	72.96	I	0.65
18	MJBK-17	30/20-11	8.1	3755	31.2	31.3	3.39	50.21	II	48.43	I	0.89
19	MJBK-17	30/20-12	7.7	3420	40	38.4	2.76	31.92	I	31.11	I	0.35
20	MJBK-17	30/20-13	16	5535	42.3	42.6	13.07	106.14	III	101.51	I	1.22
21	MJBK-17	30/20-14	4.3	710	33.2	31.6	8.57	44.78	I	38.98	I	0.42
22	MJBK-2	38/28-3	8.5	2790	43.1	42.9	6.36	48.66	II	46.21	I	0.99
23	MJBK-2	38/28-4	7.6	3355	40.1	39.9	7.18	79.44	III	77.11	I	1

Classes of content:

Ilmenite: I 8.33-38.89 kg/t (15-70kg/m³) II 38.90-55.56 kg/t (70-100kg/m³) III > 55.56 kg/t (>100kg/m³)

Zircon: I 0.30-2.85 kg/t II 2.86-5.69 kg/t III >5.69 kg/t

Appendix 2-7 Outside Geological Check of Mineralogical Analysis (2)

No.	No. of drillholes	Sample No.	Primary weight of dry sample (kg)	Weight of black sand after sieving (g)	Weight of specimen for mineralogical analysis (g)	Specimen for separation (g)	Weight of heavy fraction (g)	Content of heavy fraction (kg/t)	Ilmenite		Zircon	
									Classes of content (basic)	Content (kg/t)	Classes of content (basic)	Content (kg/t)
24	MJBK-2	38/28-5	6.1	1164	35.8	35.9	6.1	32.42	I	31.31	I	0.43
25	MJBK-2	38/28-6	10.1	780	36.4	36.3	6.69	14.23	I	13.68	I	0.21
26	MJBK-2	38/28-	5.9	945	37.1	37.2	6.53	28.12	I	26.91	I	0.47
27	MJBK-3	38/24-3	8.3	1855	38.1	37.9	4	23.59	I	22.41	I	0.35
28	MJBK-3	38/24-4	7.7	3775	38	37.9	4.4	56.92	II	54.85	I	0.9
29	MJBK-3	38/24-5	5.9	1250	41.9	41.6	7.51	38.25	I	36.31	I	0.61
30	MJBK-3	38/24-6	5.1	1180	38.5	38.5	8.46	50.84	I	47.9	I	1.08
31	MJBK-3	38/24-7	11.5	3165	36.6	37.1	7.52	55.79	II	53.56	I	0.82
32	MJBK-3	38/24-8	14.2	6175	35.3	35.3	7.65	94.24	III	88.94	I	1.23
33	MJBK-3	38/24-9	5	2150	31.5	31.2	5.67	78.14	III	73.04	I	0.96
34	MJBK-3	38/24-10	1.5	235	46.5	46.3	5.63	19.05	I	13.2	I	0.3
35	MJBK-3	38/24-11	16.9	5780	33.3	34.6	7.38	72.95	III	69.89	I	0.79
36	MJBK-3	38/24-12	8.2	1190	32.4	32.2	3.65	16.45	I	15.68	I	0.36
37	MJBK-3	38/24-13	14.4	4960	38.2	38	6.34	57.47	III	54.39	I	0.73
38	MJBK-3	38/24-14	16.6	5860	34.2	34.1	9.72	100.62	III	92.65	I	1.04
39	MJBK-3	38/24-15	6.5	2360	37.1	36.9	9.73	95.74	III	92.2	I	1.08
40	MJBK-4	38/16-5	12.3	2160	32.9	33.1	3.49	18.52	I	17.51	I	0.27
41	MJBK-4	38/16-6	6.1	1295	38.3	38.5	8.51	46.93	II	44.39	I	0.55
42	MJBK-4	38/16-7	11	3550	32.2	32.1	8.26	83.04	III	79.92	I	0.8
43	MJBK-4	38/16-8	8.9	2980	30.6	31	7.41	80.04	III	76.9	I	0.97
44	MJBK-4	38/16-9	5.4	2320	37.1	37.1	9.23	106.89	III	103.41	I	1.39
45	MJBK-4	38/16-10	6.7	2565	40.5	40.6	2.18	20.56	I	19.52	I	0.38
46	MJBK-4	38/16-11	8.1	2460	36.8	36.4	5.29	44.14	III	41.72	I	0.83

Classes of content:

Ilmenite: I 8.33-38.89 kg/t (15-70kg/m³) II 38.90-55.56 kg/t (70-100kg/m³) III > 55.56 kg/t (>100kg/m³)

Zircon: I 0.30-2.85 kg/t II 2.86-5.69 kg/t III >5.69 kg/t

Appendix 2-7 Outside Geological Check of Mineralogical Analysis (3)

No.	No. of drillholes	Sample No.	Primary weight of dry sample (kg)	Weight of black sand after sieving (g)	Weight of specimen for mineralogical analysis (g)	Specimen for separation (g)	Weight of heavy fraction (g)	Content of heavy fraction (kg/t)	Ilmenite		Zircon	
									Classes of content (ba sic)	Content (kg/t)	Classes of content (ba sic)	Content (kg/t)
47	MJBK-4	38/16-12	5.6	2450	37.2	37.5	9.75	113.75	III	108.03	I	1.4
48	MJBK-5	38/12-8	9.1	500	29.9	29.9	9.08	16.69	I	15.71	I	0.2
49	MJBK-5	38/12-9	6.6	1305	39.3	39.2	16.4	82.72	III	78.43	I	1.01
50	MJBK-7	34/28-5	9.7	2153	33.1	33.3	8.11	54.06	II	50.32	I	0.8
51	MJBK-7	34/28-6	6.6	3120	36.7	37.6	13.31	167.34	III	156.78	I	2.39
52	MJBK-7	34/28-7	10.2	2915	34.5	34.8	5.49	45.08	II	43.36	I	0.57
53	MJBK-7	34/28-8	8.7	1120	34.5	34.1	5.34	20.16	I	19.37	I	0.34
54	MJBK-7	34/28-9	8.6	4265	33.1	33.4	5.14	76.32	III	74.24	I	1.04
55	MJBK-7	34/28-10	5.4	1340	40.1	41.6	4.09	24.4	I	23.26	I	0.36
56	MJBK-7	34/28-11	6.6	3540	41.3	41.7	11.6	149.2	III	142.39	I	1.8
57	MJBK-7	34/28-12	6.3	3030	34.5	34.7	10.24	141.93	III	135.42	I	1.39
58	MJBK-7	34/28-13	11.3	4750	36.8	36.9	5.16	58.78	III	55.71	I	0.91
59	MJBK-7	34/28-14	8.1	3525	40.7	40.8	9.43	100.58	III	94.4	I	1.18
60	MJBK-8	34/24-3	7.1	1274.6	39.4	39.3	4.52	20.65	I	19.87	I	0.27
61	MJBK-8	34/24-4	13.4	6640	34.5	34.4	4.49	64.68	III	62.52	I	1.01
62	MJBK-8	34/24-5	13.8	1445	38.1	38.1	3.94	10.83	I	10.25	I	0.16
63	MJBK-8	34/24-6	7.3	2390	36.9	36.7	3.95	35.24	II	33.36	I	0.71
64	MJBK-8	34/24-7	12.3	6945	40.7	41	11.18	153.97	III	148.32	I	1.65
65	MJBK-8	34/24-8	11.1	1925	35.4	35.2	3.95	19.49	I	17	II	0.22
66	MJBK-8	34/24-9	10	1135	34.7	34.5	4.35	14.31	I	13.92	I	0.16
67	MJBK-8	34/24-10	4.5	1160	35.5	36.5	8.87	62.64	II	61.23	I	0.64
68	MJBK-8	34/24-12	5.3	435	49.4	49.3	10.28	17.11	I	16.36	I	0.27
69	MJBK-8	34/24-13	4.9	815	38	37.8	7.52	33.13	I	31.51	I	0.4

Classes of content:

Ilmenite: I 8.33-38.89 kg/t (15-70kg/m³) II 38.90-55.56 kg/t (70-100kg/m³) III > 55.56 kg/t (>100kg/m³)

Zircon: I 0.30-2.85 kg/t II 2.86-5.69 kg/t III >5.69 kg/t

Appendix 2-7 Outside Geological Check of Mineralogical Analysis (4)

No.	No. of drillholes	Sample No.	Primary weight of dry sample (kg)	Weight of black sand after sieving (g)	Weight of specimen for mineralogical analysis (g)	Specimen for separation (g)	Weight of heavy fraction (g)	Content of heavy fraction (kg/t)	Ilmenite		Zircon	
									Classes of content (ba sic)	Content (kg/t)	Classes of content (ba sic)	Content (kg/t)
70	MJBK-8	34/24-14	11.8	6020	34.2	31.2	7.8	127.54	III	120.67	I	1.96
71	MJBK-8	34/24-18	5.6	2085	34.4	34.1	10.33	112.79	III	107	I	1.2
72	MJBK-12	2GL/12-2	4.6	531.5	31	31	3.91	14.57	I	13.72	I	0.34
73	MJBK-12	2GL/12-4	5.1	790	37.8	36.5	4.75	20.16	I	19.1	I	0.55
74	MJBK-12	2GL/12-5	2.1	1055	31.9	31.7	4	63.39	III	60.54	I	1.11
75	MJBK-12	2GL/12-6	5.7	2205	33.4	33.2	5.85	68.16	III	63.27	I	1.51
76	MJBK-15	2GL/24-3	5.2	2915	33.9	33.8	3.48	55.53	III	54.74	II	1.49
77	MJBK-15	2GL/24-4	4.3	495	27.9	27.8	4.29	17.76	I	16.15	I	0.58
78	MJBK-15	2GL/24-5	5	1410	34.4	34.2	7.89	65.06	I	60.61	I	1.32
79	MJBK-15	2GL/24-6	3.2	1290	40	40.3	11.34	113.44	III	105.53	I	1.9
80	MJBK-16	30/28-13	6.2	2180	33.4	33.4	7.11	74.85	III	72.32	I	1.05
81	MJBK-16	30/28-16	9.1	4395	35.8	35.2	8.15	111.82	III	107.84	I	1.51
82	MJBK-17	30/20-4	11	945	37.1	37.3	4.17	96	I	8.96	I	0.27
83	MJBK-17	30/20-5	10.2	1780	40.8	38.4	8.3	37.72	I	34.54	I	0.73
84	MJBK-17	30/20-6	13.5	4760	37.2	37.9	7.35	68.38	III	66.05	I	0.93
85	MJBK-17	30/20-7	11.5	4245	34.1	34.1	6.67	72.8	I	67.66	I	0.87
86	MJBK-17	30/20-8	5.4	1450	33.9	33.9	5.12	40.56	II	38.18	I	0.63
87	MJBK-17	30/20-9	8.1	3440	41.1	40.4	4.24	44.57	II	43.31	I	0.63
88	MJBK-17	30/20-10	3.6	1310	41.1	39.3	8.17	75.65	III	72.96	I	0.65
89	MJBK-17	30/20-11	8.1	3755	31.2	31.3	3.39	50.21	II	48.43	I	0.89
90	MJBK-17	30/20-12	7.7	3420	40	38.4	2.76	31.92	I	31.11	I	0.35
91	MJBK-17	30/20-13	16	5535	42.3	42.6	13.07	106.14	III	101.51	I	1.22
92	MJBK-17	30/20-14	4.3	710	33.2	31.6	8.57	44.78	I	38.98	I	0.42

Classes of content:

Ilmenite: I 8.33-38.89 kg/t (15-70kg/m³) II 38.90-55.56 kg/t (70-100kg/m³) III > 55.56 kg/t (>100kg/m³)

Zircon: I 0.30-2.85 kg/t II 2.86-5.69 kg/t III >5.69 kg/t

Appendix 2-7 Outside Geological Check of Mineralogical Analysis (5)

No.	No. of drillholes	Sample No.	Primary weight of dry sample (kg)	Weight of black sand after sieving (g)	Weight of specimen for mineralogical analysis (g)	Specimen for separation (g)	Weight of heavy fraction (g)	Content of heavy fraction (kg/t)	Ilmenite		Zircon	
									Classes of content (basic)	Content (kg/t)	Classes of content (basic)	Content (kg/t)
93	MJBK-3	38/24-4k	23.5	11000	41.2	41.8	5.15	57.67	II	55.77	I	0.67
94	MJBK-3	38/24-6k	30.9	7380	42.6	42.5	6.7	37.65	II	36.42	I	0.48
95	MJBK-3	38/24-7k	34.2	10050	38.6	39.1	7.65	57.49	II	53.89	I	0.9
96	MJBK-3	38/24-13k	41.6	13595	39.2	39.9	5.64	46.19	II	40.07	I	0.66
97	MJBK-6	34/32-4k	33	16710	35.5	35.6	4.22	60.02	II	56.89	I	0.71
98	MJBK-9	34/20-8	12.9	4425	13.8	13.6	1.66	41.87	II	39.09	I	0.63
99	MJBK-10	34/16-6	7.2	1710	41.5	41.2	4.97	28.65	I	27.09	I	0.46
100	MJBK-10	34/16-6k	17	6950	41.5	41.2	6.75	66.98	II	63.9	I	0.99
101	MJBK-10	34/16-7k	32.1	9570	37.8	36.8	6.63	53.71	II	50.71	I	1.05
102	MJBK-16	30/28-11	10.6	4530	32	31.9	3.46	46.35	II	42.34	I	0.8
103	MJBK-16	30/28-14	6.1	1895	40.8	40.4	6.8	52.29	II	48.67	I	0.62

Classes of content:

Ilmenite: I 8.33-38.89 kg/t (15-70kg/m³) II 38.90-55.56 kg/t (70-100kg/m³) III > 55.56 kg/t (>100kg/m³)

Zircon: I 0.30-2.85 kg/t II 2.86-5.69 kg/t III >5.69 kg/t

**Appendix 2-8 Chemical Analysis of Check Samples
for TiO₂ and ZrO₂**

Appendix 2-8 Chemical Analysis of Check Samples for TiO₂ and ZrO₂

No.	No. of drillholes	Sample No.	Sampling position (m)		Assay results (%)		
					X-Ray spectral		Chemical analysis
			from	to	ZrO ₂	TiO ₂	TiO ₂
1	MJBK-9	34/20-3K	29.0	~ 30.0	0.035	2.49	2.64
2	MJBK-9	34/20-4K	30.0	~ 31.0	0.037	4.65	4.59
3	MJBK-9	34/20-5K	31.0	~ 31.5	0.034	3.91	4.12
4	MJBK-9	34/20-6K	31.5	~ 32.5	0.027	2.27	2.37
					0.030	2.32	2.56
5	MJBK-9	34/20-7K	32.5	~ 33.7	0.020	5.39	5.60
6	MJBK-9	34/20-8K	33.7	~ 35.0	0.037	4.38	4.63
7	MJBK-9	34/20-9K	35.0	~ 36.5	0.032	5.95	6.14
8	MJBK-9	34/20-10K	36.5	~ 37.7	0.038	7.65	7.54
9	MJBK-8	34/24-3K	25.3	~ 26.0	0.044	3.17	3.02
10	MJBK-8	34/24-4K	26.0	~ 27.2	0.071	5.34	5.13
					0.070	5.29	5.05
11	MJBK-8	34/24-5K	27.2	~ 28.5	0.048	2.29	2.44
12	MJBK-8	34/24-6K	28.5	~ 29.3	0.059	3.18	3.06
13	MJBK-8	34/24-7K	29.3	~ 30.6	0.041	9.43	9.63
14	MJBK-8	34/24-8K	30.6	~ 32.0	0.030	1.85	1.93
15	MJBK-8	34/24-9K	32.0	~ 33.0	0.036	2.25	2.43
16	MJBK-8	34/24-10K	33.0	~ 33.5	0.052	4.91	4.82
17	MJBK-8	34/24-11K	33.5	~ 34.9	0.022	1.47	1.42
18	MJBK-8	34/24-12K	34.9	~ 35.7	0.026	2.22	2.47
19	MJBK-8	34/24-13K	35.7	~ 36.5	0.051	3.29	3.50
20	MJBK-8	34/24-14K	36.5	~ 37.5	0.039	7.28	7.31
21	MJBK-2	38/28-3K	26.0	~ 26.8	0.063	4.09	4.04
					0.058	4.12	4.12
22	MJBK-2	38/28-4K	26.8	~ 27.4	0.043	5.70	5.70
23	MJBK-2	38/28-5K	27.4	~ 28.3	0.039	2.93	3.23
24	MJBK-2	38/28-6K	28.3	~ 29.5	0.027	2.33	2.46
25	MJBK-2	38/28-7K	29.5	~ 30.2	0.041	4.07	4.00
26	MJBK-12	2GL/12-3	25.3	~ 26.9	0.075	3.68	3.79
27	MJBK-12	2GL/12-4	26.9	~ 28.0	0.060	3.57	3.46
28	MJBK-12	2GL/12-5	28.0	~ 28.5	0.094	4.28	4.12
29	MJBK-12	2GL/12-6	28.5	~ 29.9	0.088	4.98	5.21
					0.088	5.06	5.17
30	MJBK-15	2GL/27-5	27.2	~ 28.2	0.066	6.31	6.49
31	MJBK-15	2GL/24-6	28.2	~ 28.9	0.055	8.45	9.15

**Appendix 2-9 Grainmetric Analysis of
Monomineral Fraction of Ilmenite**

Appendix 2-9 Grainmetric Analysis of Monomineral Fraction of Ilmenite

Class of granulation (mm)	Sample No.												
	Depth (m)												
	Grain distribution (%)												
	MJBK-2	MJBK-3	MJBK-4	MJBK-5	MJBK-7	MJBK-8	MJBK-8	MJBK-8	MJBK-9	MJBK-10	MJBK-16	MJBK-17	
	26.0-27.4	29.3-38.2	29.2-33.9	28.0-29.9	30.2-37.3	26.0-30.6	40.4-41.0	30.0-37.7	29.0-34.6	34.0-39.0	36.0-43.0		
+ 0.44	0.11	0.84	0.82	0.62	0.96	0.58	4.62	1.38	0.63	1.16	0.83		
- 0.44+ 0.315	0.31	4.42	4.28	2.60	4.77	2.70	13.50	5.69	3.51	5.93	5.05		
- 0.315 + 0.2	8.37	33.16	25.54	29.02	36.12	23.19	49.22	37.33	26.18	33.95	37.42		
- 0.2 + 0.1	58.66	47.73	51.12	48.46	43.05	43.34	27.23	43.31	45.64	45.02	44.78		
- 0.1 + 0.071	20.85	9.97	10.75	13.36	10.46	16.93	4.18	9.08	12.13	8.58	8.05		
- 0.071 + 0.04	10.26	3.40	6.23	4.76	3.88	10.68	1.09	2.72	8.52	4.32	3.22		
- 0.04 + 0	1.44	0.48	1.26	1.18	0.76	2.58	0.16	0.49	3.39	1.04	0.65		
Total	100	100	100	100	100	100	100	100	100	100	100	100	

**Appendix 2-10 Grainmetric Analysis of
Monomineral Fraction of Zircon**

Appendix 2-10 Grainmetric Analysis of Monomineral Fraction of Zircon

Class of granulation (mm)	Sample No.												
	Depth (m)												
	Grain distribution (%)												
	MJBK-2	MJBK-3	MJBK-4	MJBK-5	MJBK-7	MJBK-8	MJBK-8	MJBK-8	MJBK-9	MJBK-10	MJBK-16	MJBK-17	
	26.0-27.4	29.3-38.2	29.2-33.9	28.0-29.9	30.2-37.3	26.0-30.6	40.4-41.0	30.0-37.7	29.0-34.6	34.0-39.0	36.0-43.0		
+0.4	0.28	1.12	0.84	0.68	1.17	0.95	5.77	0.39	0.48	0.82	0.72		
- 0.4 + 0.315	0.56	1.37	0.96	0.31	0.95	0.60	4.54	2.55	1.03	1.00	0.73		
- 0.315 + 0.25	0.86	14.11	9.32	10.01	19.28	14.99	33.20	9.32	7.29	12.96	29.25		
- 0.25 + 0.14	24.19	53.31	36.96	41.06	45.42	43.06	41.59	35.64	37.33	38.12	42.10		
- 0.14 + 0.071	67.26	25.49	48.30	41.29	26.94	35.13	14.16	47.83	46.64	41.14	23.77		
- 0.071 + 0	6.85	4.60	3.62	6.65	6.24	5.27	0.74	4.27	7.23	5.96	3.43		
Total	100	100	100	100	100	100	100	100	100	100	100	100	

**Appendix 2-11 Chemical and Spectral Quantity Analysis
of Ilmenite**

Appendix 2-11 Chemical and Spectral Quantity Analysis of Ilmenite

No.	Drillhole No.	Depth of sampling from - to (m)	Content (%)													
			Al ₂ O ₃	SiO ₂	P ₂ O ₅	TiO ₂ (X-Ray spectral)	Fe (primary)	Sc ₂ O ₃	Cr ₂ O ₃	V ₂ O ₅	Ta ₂ O ₅	Nb ₂ O ₃	FeO	Fe ₂ O ₃	ΣTR ₂ O ₃ + Y	TiO ₂ (chemical)
1	MJBK-2	26.0-27.4	1.45	3.53	0.03	57.52	34.68	0.0015	0.0175	0.17	< 0.005	< 0.004	19.1	13.67	0.02	54.5
2	MJBK-3	29.3-38.2	1.03	2.28	0.02	57.46	36.01	0.0017	0.019	0.172	< 0.005	< 0.004	24.34	9.24	0.08	51.6
3	MJBK-4	29.2-33.9	0.88	1.84	0.02	57.83	36.54	0.0017	0.0219	0.172	< 0.005	< 0.004	15.1	19.93	0.02	54.29
4	MJBK-5	28.0-29.9	1.01	1.96	0.01	58.55	36.37	0.0017	0.02	0.196	< 0.005	< 0.004	18.27	16.09	0.17	54.5
5	MJBK-7	30.2-37.3	0.94	1.95	0.01	58.72	36.41	0.0012	0.0175	0.172	< 0.005	< 0.004	22.51	11.65	0.03	54.87
6	MJBK-8	26.0-30.6	1.09	2.11	0.02	56.7	37.11	0.001	0.0219	0.178	< 0.005	< 0.004	22.07	12.83	0.05	52.32
7	MJBK-8	40.4-41.0	0.8	1.77	0.02	58.56	34.34	0.0012	0.0146	0.185	< 0.005	< 0.004	17.14	15.32	0.15	51.96
8	MJBK-9	30.0-37.7	1	2.06	0.02	58.51	35.88	0.0018	0.0204	0.171	< 0.005	< 0.004	15.81	18.33	0.05	55.23
9	MJBK-10	29.0-34.6	1.05	2.16	0.03	58.24	35.91	0.0017	0.026	0.208	< 0.005	< 0.004	16.61	17.47	0.06	53.05
10	MJBK-16	34.0-39.0	0.8	1.66	0.02	53.37	36.67	0.0011	0.0161	0.144	< 0.005	< 0.004	26.74	6.99	0.05	52.47
11	MJBK-17	36.0-43.0	1.05	2.35	0.01	58.23	35.52	0.0015	0.026	0.196	< 0.005	< 0.004	16.5	17.37	0.06	54.5

**Appendix 2-12 Chemical and Spectral Quantity Analysis
of Zircon**

Appendix 2-12 Chemical and Spectral Quantity Analysis of Zircon

No.	Drillhole No.	Depth of sampling from - to (m)	Content (%)						
			Y	Sc ₂ O ₃	Hf	Th	ZrO ₂	Σ TR ₂ O ₃ +Y	
1	MJBK-2	26.0-27.4	0.029	0.0096	0.55	< 0.01	64.71	0.23	
2	MJBK-3	29.3-38.2	0.038	0.0109	0.59	< 0.01	64.53	0.21	
3	MJBK-4	29.2-33.9	0.038	0.0107	0.52	< 0.01	59.28	0.17	
4	MJBK-5	28.0-29.9	0.03	0.0139	0.54	< 0.01	66.26	0.18	
5	MJBK-7	30.2-37.3	0.032	0.0116	0.48	< 0.01	63.37	0.17	
6	MJBK-8	26.0-30.6	0.034	0.0113	0.41	< 0.01	61.88	0.1	
7	MJBK-8	40.4-41.0	0.025	0.0107	0.66	< 0.01	56.56	0.08	
8	MJBK-9	30.0-37.7	0.042	0.0133	0.46	< 0.01	64.28	0.18	
9	MJBK-10	29.0-34.6	0.04	0.0136	0.54	< 0.01	66.37	0.17	
10	MJBK-16	34.0-39.0	0.041	0.0121	0.44	< 0.01	64.47	0.21	
11	MJBK-17	36.0-43.0	0.03	0.011	0.55	< 0.01	64.68	0.21	

**Appendix 2-13 Determination of
Zircon Radioactivity**

Appendix 2-13 Determination of Zircon Radioactivity

No.	Drillhole	Depth of sampling	Alpha integral		Beta integral	
	No.	from - to (m)	Becquerel/kg	±	Becquerel/kg	±
1	MJBK-2	26.0-27.4	<880		610	150
2	MJBK-3	29.3-38.2	<880		440	140
3	MJBK-4	29.2-33.9	<710		830	150
4	MJBK-5	28.0-29.9	<850		700	150
5	MJBK-7	30.2-37.3	<670		480	170
6	MJBK-8	26.0-30.6	<720		370	140
7	MJBK-8	40.4-41.0	760	690	870	150
8	MJBK-9	30.0-37.7	<900		710	170
9	MJBK-10	29.0-34.6	<660		680	170
10	MJBK-16	34.0-39.0	870	700	700	190
11	MJBK-17	36.0-43.0	<770		420	170

**Appendix 2-14 Chemical Analysis of
Water Sample**

Appendix 2-14 Chemical Analysis Of Water Samples

Sample No.	Spot of sampling (borehole No.)	Cation content													Sum of Mg ⁻ equivalent of cation		Hardness		
		Ca ⁺²		Mg ⁺²		Na ⁺		K ⁺		NH ⁴⁺	Fe total	SiO ₂	Aggressivity CO ₂	Carbonate	Total				
		Mg-l	Mg ⁻ equivalent	Mg-l	Mg ⁻ equivalent	Mg-l	Mg ⁻ equivalent	Mg-l	Mg ⁻ equivalent	Mg-l	Mg-l	Mg-l	Mg-l	Mg ⁻ equivalent	Mg ⁻ equivalent				
1	13G		8.90		5.20		7.00		6.00								21.16	3.20	14.10
	38-42	178.36		63.19		160.87		2.28		6.00	1.00	14.00	17.60						
2	13G		8.90		5.10		6.89		6.00									3.10	14.00
	29-37.7	178.36		61.98		157.25		2.42		7.00	1.00	13.00	4.40						
3	13G		8.90		4.80		6.43		6.00									3.00	13.70
	6.44-8.0	178.36		58.33		148.00		2.48		5.00	1.00	10.00	4.40						
4	12G		8.35		4.45		8.04		7.00									3.20	12.80
	28.5-38	167.33		54.08		185.00		2.61		6.00	1.00	13.00	2.20						
6	12G		4.20		2.50		1.48		4.00									4.10	6.70
	6.6-10.3	84.07		30.38		34.00		1.63		2.00	1.00	16.00	N/D						
6K	12G		4.20		2.55		1.43		4.00									4.10	6.75
	6.6-10.3	84.07		30.99		33.00		1.62		2.00	1.00	15.00	N/D						

Note: N/D - not detected

**Appendix 2-15 Chemical Analysis of Water Sample According to
the State Standard (GOST) “Drinking Water”**

Appendix 2-15 Chemical Analysis of Water Sample According to
the State Standard (GOST) "Drinking Water"

No.	Component to be defined (dm ³)	Sample No.2		Sample No.6	
1	Copper	0.0148		0.0075	0.0070
2	Lead	<0.025		<0.025	<0.025
3	Zinc	0.0158		0.0188	0.0188
4	Cadmium	0.0025		0.001	0.001
5	Lithium			0.02	
6	Arsenic	<0.1	<0.1	0.1	0.1
7	Fluorine	0.30	0.32	0.43	0.43
8	Molybdenum	0.0080	0.010	<0.0025	<0.0025
9	Selenium	<0.0005	<0.0005	0.0009	0.0008
10	Strontium	1.0	0.98	0.5	
11	Thallium	0.0001		<0.0001	<0.0001
12	Beryllium	<0.00005	<0.00005	<0.00005	<0.00005
13	Vanadium	<0.02	<0.02	<0.02	<0.02
14	Manganese	<0.05		<0.05	
15	Cobalt	0.0125		<0.0125	<0.0125
16	Mercury	<0.0003	<0.0003	<0.0003	
17	Titanium	0.013	0.010	0.012	0.012
18	Boron	0.06	0.07	0.1	0.1

Appendix 2-16 Physical-Mechanical Test of Rock

Appendix 2-16 Physical – Mechanical Test of Rock (1)

Definition of ground density, moisture content and density of dry ground

Complex No.1

Table No.1

No	No. of samples	Place of selection	Interval (m)	Ground density (g/cm ³)	Moisture content (%)		Density of dry ground (g/cm ³)
1	5	Hole 18i	8.5-9.0	1.92	29.7	29.5	1.48
				1.92	29.4		
				1.92	29.4		
2	7	Hole 18i	223-226	2.09	18.7	19.0	1.76
				2.10	19.2		
				2.12	19.0		
3	10	Hole 18i	35.8-36	2.0	21.7	21.4	1.67
				2.03	20.1		
				2.06	22.5		
4	14	Hole 19i	13.7-14.0	1.86	31.3	31.2	1.4
				1.84	31.0		
				1.82	31.2		
5	16	Hole 19i	25.7-26.0	1.81	34.1	34.1	1.36
				1.82	34.1		
				1.82	34.2		
6	17	Hole 19i	29.2-29.5	2.02	18.5	18.7	1.71
				2.03	19.0		
				2.05	18.5		
7	19	Hole 19i	35.0-35.3	2.10	16.7	15.8	1.83
				2.12	14.8		
				2.13	15.9		

Appendix 2-16 Physical – Mechanical Test of Rock (2)

Degree of maceration, moisture content

Complex No.1

Table No.2

No.	No. of samples	Place of selection	Selection interval (m)	Moisture content (%)	Degree of maceration depending on the time in %										
					1 min.	5 min.	10 min.	30 min.	1 hour	3 hours	24 hours	48 hours	72 hours		
1	5	Hole 18	8.5-9.0	30.2	-	0.1	0.1	10	12	12	12	12	15	15	
2	7	Hole 18	22.3-22.6	18.7	There is no failure, sample is dense										
3	10	ditto	35.8-36	20.7	5	20	35	80	Fully macerated in 40 minutes						
4	14	Hole 19	13.7-14.0	30.2	There is no failure, sample is dense										
5	16	ditto	25.7-26	34	0.1	3	7	12	25	30	40	40	40	40	
6	17	ditto	29.2-29.5	18.5	10	15	60	85	90	90	95	95	95	95	
7	19	ditto	35-35.3		2	10	20	30	40	45	52	52	52	52	

Complex No.2

Table No.3

No.	No. of samples	Place of selection	Selection interval (m)	Moisture content (%)	Degree of maceration depending on the time in %										
					1 min.	5 min.	10 min.	30 min.	1 hour	3 hours	24 hours	48 hours	72 hours		
1	4	Hole 18 ch	11.7-12	29.1	Failure is not seen, sample is dense										
2	6	ditto	19.5-20.0	28.5	There is no failure, sample is dense										
3	8	ditto	25.3-25.8	21.3	-	0.9	2	10	15	22	25	32	32		
4	9	ditto	30.3-30.5	22.4	0.9	5	30	Fully macerated in 20 minutes							
5	15	Hole 19 ch	19.5-20	37.5	-	-	-	3	3	5	8	10	10		
6	18	ditto	29.5-29.75	17.6	10	2.5	50	70	85	87	87	87	87		
7	20	ditto	37.7-38	18.4	-	0.5	1	2	3	7	7	7	7		
8	21	ditto	41.2-41.5	24.5	1	10	15	35	47	55	60	70	75		

Appendix 2-16 Physical – Mechanical Test of Rock (3)

Results of definition of grainmetric composition of grounds – 1

Complex No.2

Table No.4

No.	No. of samples	Place of selection	Selection interval (m)	Grainmetric composition (mm)														
				content of fractions (%)														
				40	40-20	20-10	10-5	5-2	2-1	1-0.5	0.5-0.25	0.25-0.1	0.1-0.05	0.05-0.01	0.01-0.005	0.005-0.001	<0.001	
1	5	Hole 18i	8.9-9	-	-	-	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.4	8.7	7.5	17.5	64.5
2	7	18 i	22.3-22.6	-	-	-	-	-	-	<0.1	0.1	1.8	4.8	13.4	16	10.4	10.1	43.4
3	10	18 i	35.8-36.7	-	-	1.9	1.3	1.2	1	1	1	7.1	9.4	20.3	10.8	9.6	21.6	14.8
4	14	Hole 19i	3.7-14	-	-	-	<0.1	<0.1	<0.1	0.1	0.1	0.2	0.2	4.1	6.7	5.5	9.7	73.4
5	16	19i	25.7-26	-	-	-	-	-	-	<0.1	<0.1	0.1	0.1	1.4	3.2	1.6	1.2	92.4
6	17	19i	29.2-29.5	-	-	-	-	0.1	0.2	0.8	5.4	23.1	31.6	5.6	2.1	5.2	25.9	
7	19	19i	35-35.3	-	-	-	-	0.1	0.5	4.1	12	17.6	30	5.4	6.2	8.7	15.4	
Check:																		
1	10	Hole 18i	35.8-36.7	-	-	1.9	1.3	1.2	1	1	1	7.1	9.4	20.2	10.6	10.3	20.7	15.3
2	19	19i	35-35.3	-	-	-	-	0.1	0.5	4.1	12	17.6	31.2	6.2	4.6	7.7	16	
7	20	19i	37.7-38.0	2.03	20.1	20.1	0.48											
				2	20.9	0.52												
				1.97	26.0	0.18												
8	21	19i	1.2-41.5	1.92	19.5	0.26	0.22	1.9	19.3	0.19	1.16							
				1.93	26.5	0.22												

Comments: Samples No. 4,6,8,15 have the broken structure, sleeve making is impossible.
When the samples were tested for compression, slip area was not clearly identified.

Appendix 2-16 Physical – Mechanical Test of Rock (3)

Results of definition of grainmetric composition of grounds – 2

Complex No.2

Table No.5

No.	No. of samples	Place of selection	Selection interval (m)	Grainmetric composition (mm) content of fractions (%)													
				40	40-20	20-10	10-5	5-2	2-1	1-0.5	0.5-0.25	0.25-0.1	0.1-0.05	0.05-0.01	0.01-0.005	0.005-0.001	<0.001
1	4	Hole 18i	11.7-12.0			<0.1	0.5	0.3	0.1	0.1	0.1	0.2	4.9	6.5	11.3	76	
2	6	18i	19.5-20				<0.1	<0.1	<0.1	0.2	0.3	0.4	6	4.8	12.7	75.6	
3	8	18i	25.3-25.8			1.7	3.5	2.7	1.3	1.4	3.7	7.4	19.7	16.7	4.5	10	27.4
4	9	18i	30.3-31.2			3.8	5.2	4	1.9	1.3	3.8	8.4	17.1	10.9	9.3	18.6	15.7
5	15	Hole 19i	19.5-20				0.1	0.1	0.1	0.2	0.3	0.5	4.1	1.6	8.5	8.9	75.6
6	18	19i	30.25-30.95			<0.1	0.2	0.3	3.1	11.1	17	26.8	18.2	9.6	3.7	9.6	
7	20	19i	37.7-38.3			0.1	0.2	0.6	0.6	0.7	0.8	1.8	12	10.1	11.2	24.2	37.7
8	21	19i	41.2-42			0.5	2.9	2.6	1.7	1.2	1.3	0.9	17.6	17.4	11.6	26.3	16
Control:																	
1	21	194	41.1-42			0.5	2.9	2.6	1.7	1.2	1.3	0.9	18	18.1	11.4	25.4	16
2	4	Hole 184	11.7-12.0			<0.1	0.5	0.3	0.1	0.1	0.1	0.1	0.1	4.9	6.6	11.3	76

Comments: Samples No. 4,6,8,15 have the broken structure, sleeve making is impossible.
When the samples were tested for compression, slip area was not clearly identified.

Appendix 2-16 Physical – Mechanical Test of Rock (4)

Results of ground tests – 1

Complex No.2

Table No. 6

No.	No. of samples	Place of selection	Interval (m)	Ground humidity (%)		Ground density (g/cm ³)		Particles density (g/cm ³)		Dry ground density (g/cm ³)	Porosity (%)	Porosity ratio	Maceration	
				Def.	Aver.	Def.	Aver.	Def.	Aver.				Maceration humidity	Relative maceration ratio
1	4	18i	11.7-12	29.3	30.5	1.86	1.87	2.66	2.655	1.43	46.1	0.857	45.4	0.1949
				32.2		1.88		2.69	1.43					
				33.7		1.86								
				33.1		1.89								
				28.6		1.86								
				32.2		1.84								
				27.7		1.86								
29.1		1.86												
28.3		1.90												
2	6	18i	19.5-20	29.2	29.9	1.87	1.86	2.65	2.64	1.43	45.8	0.846	44.1	0.0979
				29.9		1.89		2.64						
				28.5		1.85								
				27.9		1.84								
				33.0		1.87								
				33.4		1.87								
				27.8		1.86								
29.5		1.86												
30.2		1.86												
3	8	18i	25.3-25.8	18.2	18.2	2.05	2.04	2.71	2.72	1.73	36.4	0.572	27.6	0.1138
				22.1		2.01		2.73						
				18.6		2.06								
				18.9		2.03								
				18.6		2.04								
				18.8		2.04								
				16.7		2.05								
16.2		2.04												
15.4		2.03												

Appendix 2-16 Physical – Mechanical Test of Rock (4)

Results of ground tests - 2

Complex No.2

Table No.7

No.	No. of samples	Place of selection	Interval (m)	Ground humidity (%)		Ground density (g/cm ³)		Particles density (g/cm ³)		Dry ground density (g/cm ³)	Porosity (%)	Porosity ratio	Maceration	
				Def.	Aver.	Def.	Aver.	Def.	Aver.				Maceration humidity	Relative maceration ratio
4	9	18i	30.3-30.5	21.2	19.7	2.01	1.99	2.79	2.79	1.66	40.5	0.681	38.8	0.2011
				21.4										
				20.9										
				21.1										
				21.1										
				23.0										
				12.2										
				15.5										
				20.5										
5	15	19i	19.5-20	29.4	32.4	1.89	1.85	2.74	2.75	1.4	49.1	0.964	53.2	0.1168
				30.6										
				30.6										
				34.7										
				36.3										
				36.7										
				31.3										
				30.9										
				31.1										
				31.1										
6	18	19i	29.5-29.75	17.9	14.8	2.04	2.19	3.05	3.06	1.91	37.6	0.602	22.1	0.021
				18.4										
				11.4										
				16.4										
				10.1										
				17.2										
				13.0										
				12.3										
				16.5										
				16.5										

Appendix 2-16 Physical – Mechanical Test of Rock (4)

Results of ground tests – 3

Complex No.2

Table No. 8

No.	No. of samples	Place of selection	Interval (m)	Ground humidity (%)		Ground density (g/cm ³)		Particles density (g/cm ³)		Dry ground density (g/cm ³)	Porosity (%)	Porosity ratio	Maceration	
				Def.	Aver.	Def.	Aver.	Def.	Aver.				Maceration humidity	Relative maceration ratio
7	20	19i	37.7-38.0	17.3	19.5	2.06	2.64	2.64	2.64	1.72	34.8	0.535	35.1	0.102
				24.4										
				19.0										
				18.3										
				19.4										
				18.8										
				18.0										
20.0														
20.9														
8	21	19i	41.2-41.5	24.6	24.4	1.92	2.69	2.69	2.69	1.54	42.7	0.747	39.7	0.1821
				23.6										
				25.3										
				24.1										
				24.9										
				24.8										
				26.0										
19.5														
26.5														

Appendix 2-16 Physical - Mechanical Test of Rock (5)

Filtration ratio (method of cutting ring)

Complex No.2

Table No.9

No.	No. of samples	Place of selection	Selection Interval (m)	Filtration ratio K10 (m/24 hours)	Humidity after the test, (%)
1	4	Hole 18i	11.7-12	$9.96 \cdot 10^{-6}$	34.6
2	6	18i	19.5-20	$1.73 \cdot 10^{-5}$	29.4
3	8	18i	25.3-25.8	$6.4 \cdot 10^{-5}$	20.7
4	9	18i	30.3-31.2	$1.24 \cdot 10^{-4}$	28.0
5	15	Hole 19i	19.5-20	$2.17 \cdot 10^{-6}$	33.3
6	18	19i	30.25-30.95	$7.12 \cdot 10^{-6}$	17.9
7	20	19i	37.7-38.3	$2.62 \cdot 10^{-6}$	20.0
8	21	19i	41.2-42	$1.72 \cdot 10^{-5}$	27.0

Appendix 2-16 Physical - Mechanical Test of Rock (6)

Result of plasticity definition - 1

Complex No.2

Table No.10

No.	No. of samples	Place of selection	Selection Interval (m)	Flow limit (%)	Plasticity limit (%)	Number of plasticity	Plasticity ratio (%)
1	4	Hole 18i	11.7-12	83.1	32.4	50.7	-0.037
2	6	18i	19.5-20.0	72.5	33.4	39.1	-0.089
3	8	18i	25.3-25.8	39.6	16.9	22.7	0.057
4	9	18i	30.3-30.5	48.3	31.2	17.1	-0.672
5	15	19i	19.5-20.0	74.4	32.7	41.7	-0.007
6	18	19i	29.5-29.75	32.0	14.9	17.1	-0.006
7	20	19i	37.7-38.0	48.0	27.3	20.7	-0.377
8	21	19i	41.2-41.5	49.7	33.3	16.4	-0.543

Result of plasticity definition - 2

Complex No.1

Table No.11

No.	No. of samples	Place of selection	Selection Interval (m)	Flow limit (%)	Plasticity limit (%)	Number of plasticity	Plasticity ratio (%)
1	5	Hole 18i	8.5-9.0	69.8	29.4	40.4	0.002
2	7	18i	22.3-22.6	47.4	21.0	26.4	-0.076
3	10	18i	35.8-36.0	44.7	28.6	16.1	-0.447
4	14	19i	13.7-14.0	77.0	31.8	45.2	-0.013
5	16	19i	25.7-26.0	71.6	35.8	35.8	-0.047
6	17	19i	29.2-29.5	36.8	17.8	19.0	0.047
7	19	19i	35.0-35.3	35.1	16.9	18.2	0.692

Appendix 2-16 Physical - Mechanical Test of Rock (7)

Results of definition of grainmetric composition of ground

Complex No.3

Table No.12

No	No. of samples	Place of selection	Selection Interval (m)	Grainmetric composition (mm)												
				Content of fractions (%)												
				100	100-	60-	40-	20-	10-5	5-2	2-1	1-	0.5-	0.25	<0.1	
1	2	Hole 18i	0.3-3.4	18.2	6.9	10.8	16.6	13.2	12.9	3.3	2.7	2.0	2.2	2.3	8.9	
2	12	19 i	0.4-4.5	-	-	-	2.9	1.8	1.7	3.7	6.6	5.5	4.9	4.7	68.2	
3	18	19 i	30.95-31.	-	-	-	-	-	-	0.3	2.0	10.4	26.0	22.8	38.5	
4	1	18i	0.0-0.3	-	-	1.2	2.9	7.3	7.9	2.8	2.4	2.6	2.7	3.5	66.7	
5	11	19i	0.0-0.4	-	3.1	8.2	15.3	17.0	21.3	5.3	6.2	4.6	4.0	3.5	11.5	

Appendix 2-16 Physical - Mechanical Test of Rock (8)

Results of definition of natural repose angle, density of dry ground

Complex No.3

Table No.13

NN.	No. of samples	Place of selection	Selection interval (m)	Angle of natural repose (degree)		Volume-filling mass (g/cm ³)	
				In air-dry conditions	Under the water	Loose structure	Dense structure
1	2	Hole 18i	0.3-3.4	35°	44°		
2	12	19i	0.4-4.5	38°	45°		
3	18	19i	30.95-31.0	35°	45°		
4	1	18i	0.0-0.3	38°	44°	1.15	1.25
5	11	19i	0.0-0.4	36°	40.5°	1.36	1.41

Appendix 2-16 Physical - Mechanical Test of Rock (9)

Definition of full moisture capacity, maximum molecular moisture capacity,
yield of water, filtration ratio and angle of natural repose

Complex No.4

Table No.14

No.	No. of samples	Place of Selection	Selection Interval (m)	Full moisture capacity (%)	Maximum molecular moisture capacity (%)	Yield of water (%)	Filtration Ratio (m/24 hours)	Angle of natural repose, degree	
								In dry condition	Under water
1	3	18i	3.4-7.8	18.9	13.3	5.6	189.2	35°	30°
2	13	19i	4.5-9.2	24.1	16.4	7.7	1.70	38°	45°

Appendix 3. Miscellaneous Data for the Drilling Survey

Appendix 3-1 List of the Used Equipment for Drilling

Appendix 3-1 List of the Used Equipment for Drilling (1)

No.1 machine

Item	Model, type and specification	Quantity	Note
Drilling machine	UGB-3UK,	1	percussion
Motor for Drilling machine	22kw	1	
Generator	60KVA	1	
Tank for water	3m ³	1	
Tank for fuel	1m ³	1	
Tanker for water	3m ³	1	
Trailer house	6 passengers	1	
Casing pipes	12" L= 6.70m	5	
	10" L= 6.70m	10	
	8" L= 2.00m	20	
Bailer	φ 300mm L= 3.80m	1	
	φ 240mm L= 3.50m	1	
	φ 240mm L= 2.20m	1	ball valve
Sampler	φ 190mm L= 5.00m	1	
Hanmer with chain	W=1,000kg	1	used for driving casing pipes
Tripod derrick	H= 9.0m	1	used for recovering casing pipes
Implements		1	

Appendix 3-1 List of the Used Equipment for Drilling (2)

No.2 machine

Item	Model, type and specification	Quantity	Note
Drilling machine	UGB-3UK,	1	percussion
Motor for Drilling machine	22kw	1	
Generator	40KVA, 400V, 52A	1	
Tank for water	3m ³	1	
Tank for fuel	1.5m ³	1	
Tanker for water	3m ³	1	
Trailer house	6 passengers	1	
Casing pipes	12" L= 6.70m	5	
	10" L= 6.70m	10	
	8" L= 2.00m	30	
Bailer	φ 300mm L= 3.80m	1	
	φ 240mm L= 3.50m	1	
	φ 240mm L= 2.20m	1	ball valve
Sampler	φ 190mm L= 5.00m	1	
Hanmer with chain	W=1,000kg	1	used for driving casing pipes
Tripod derrick	H= 9.0m	1	used for recovering casing pipes
Implements		1	

Appendix 3-1 List of the Used Equipment for Drilling (3)

No.3 machine

Item	Model, type and specification	Quantity	Note
Drilling machine	UGB-2A-2	1	rotary
Motor for Drilling machine	MJBOK-13, 131HP	1	
Drilling Pump	MB-50, 50m ³ /h	1	
Pump for water	100L/min	1	
Generator	3KVA	1	
Tank for water	2m ³	1	
Tank for fuel	1m ³	1	
Tanker for water	3m ³	1	
Tractor		1	
Truck	4t, 10t	2	
Bus		1	
Rods	φ 50mm L= 6.70m	20	
Casing pipes	φ 127mm L= 3.00m	5	
	φ 144mm L= 4.50m	20	
	φ 98mm L= 1.50m	5	
Core tube assembly	φ 127mm L= 1.50m	3	
	φ 89mm L= 3.00m	3	
Implements		1	

**Appendix 3-2 Miscellaneous Results of Drilling Works
on Individual Drillhole**

Appendix 3-2 Miscellaneous Results of Individual Drillhole (MJBK-1)

	Survey period		Breakdown of period		Total workers	
	Period	Total days	Working days	No working days	Engineers	Workers
Preparation	21 Sept., '00 ~ 21 Sept., '00	1.0	1.0	—	3	8
Drilling	22 Sept., '00 ~ 26 Sept., '00	5.0	Drilling : 5.0	—	27	46
			Accident: 0.0	—	—	—
Dismount	27 Sept., '00 ~ 27 Sept., '00	1.0	1.0	—	3	6
Total	21 Sept., '00 ~ 27 Sept., '00	7.0	7.0	—	33	60
Drilling Length						
Programmed length	35.00 m	Overburden, sand & gravel, Quarternary			12.80 m	
Prolongation	-3.00 m	Core length			19.20 m	
Effective length	32.00 m	Core recovery			100.0 %	
Working hours				Core recovery by each 10 meters		
Drilling	16.0 hrs	23.50%	17.4%	Length (m)	Each (%)	Cumula. (%)
Supplemental drilling work	52.0 hrs	76.50%	56.5%	0 - 12.8	None core	None core
Recovery from accident	—	—	—	12.8 - 20.0	100.0	100.0
Subtotal	68.0 hrs	100%	73.9%	20.0 - 32.0	100.0	100.0
Preparation/setting up	8.0 hrs	—	8.7%			
Dismount/mobilization	4.0 hrs	—	4.4%			
Transportation of water	12.0 hrs	—	13.0%	Efficiency		
Others				Effective length / Working drilling days		
				= 32.00m/3 days = 10.67 m/d		
				Effective length / Total drilling shifts =		
Total	92.0 hrs	—	100%	= 32.00m/6 shifts = 5.33 m/shift		
Drilling length by diameter						
Bit diameter	240mm ϕ	190mm ϕ				Total
Drilling length	12.80m	19.20m				32.00m
Core length	None core	19.20m				19.20m
Inserted casing pipes						
Inserted length by diameter		Inserted length / Drilling length		Casing recovery		
270mm ϕ	13.00m	40.60%		53.80%		

Appendix 3-2 Miscellaneous Results of Individual Drillhole (MJBK-2)

	Survey period		Breakdown of period		Total workers	
	Period	Total days	Working days	No working days	Engineers	Workers
Preparation	18 Sept., '00 ~ 18 Sept., '00	1.0	1.0	—	3	8
Drilling	19 Sept., '00 ~ 20 Sept., '00	2.0	Drilling : 2.0	—	9	22
			Accident: 0.0	—	—	—
Dismount	21 Sept., '00 ~ 21 Sept., '00	1.0	1.0	—	3	5
Total	18 Sept., '00 ~ 21 Sept., '00	4.0	4.0	—	15	35
Drilling Length						
Programmed length	35.00 m	Overburden, sand & gravel, Quarternary			12.00 m	
Prolongation	9.00 m	Core length			32.00 m	
Effective length	44.00 m	Core recovery			100.0 %	
Working hours				Core recovery by each 10 meters		
Drilling	18.0 hrs	50.00%	28.1%	Length (m)	Each (%)	Cumula. (%)
Supplemental drilling work	18.0 hrs	50.00%	28.1%	0 - 12.0	None core	None core
Recovery from accident	—	—	—	12.0 - 20.0	100.0	100.0
Subtotal	36.0 hrs	100%	56.2%	20.0 - 30.0	100.0	100.0
Preparation/setting up	16.0 hrs	—	25.0%	30.0 - 44.0	100.0	100.0
Dismount/mobilization	4.0 hrs	—	6.3%			
Transportation of water	8.0 hrs	—	12.5%	Efficiency		
Others	—		0.0%	Effective length / Working drilling days		
				= 44.00m/2 days = 22.00 m/d		
				Effective length / Total drilling shifts		
Total			100%	= 44.00m/4 shifts = 11.00 m/shift		
Drilling length by diameter						
Bit diameter	240mm ϕ	190mm ϕ				Total
Drilling length	12.00m	32.00m				44.00m
Core length	None core	32.00m				32.00m
Inserted casing pipes						
Inserted length by diameter		Inserted length / Drilling length		Casing recovery		
270mm ϕ	13.00m	29.50%		53.80%		

Appendix 3-2 Miscellaneous Results of Individual Drillhole (MJBK-3)

	Survey period		Breakdown of period		Total workers	
	Period	Total days	Working days	No working days	Engineers	Workers
Preparation	30 Aug., '00 ~ 31 Aug., '00	2.0	2.0	—	6	10
Drilling	01 Sept., '00 ~ 04 Sept., '00	3.6	Drilling : 3.6	—	22	35
			Accident: 0.0	—	—	—
Dismount	04 Sept., '00 ~ 04 Sept., '00	0.4	0.4	—	2	5
Total	21 Sept., '00 ~ 27 Sept., '00	6.0	6.0	—	30	50
Drilling Length						
Programmed length	35.00 m	Overburden, sand & gravel, Quarternary			13.40 m	
Prolongation	6.00 m	Core length			41.00 m	
Effective length	41.00 m	Core recovery			100.0 %	
Working hours				Core recovery by each 10 meters		
Drilling	26.0 hrs	44.80%	27.1%	Length (m)	Each (%)	Cumula. (%)
Supplemental drilling work	32.0 hrs	55.20%	33.3%	0 - 13.4	None core	None core
Recovery from accident	—	—	—	13.4 - 20.0	100.0	100.0
Subtotal	58.0 hrs	100%	60.4%	20.0 - 30.0	100.0	100.0
Preparation/setting up	16.0 hrs	—	16.6%	30.0 - 41.0	100.0	100.0
Dismount/mobilization	6.0 hrs	—	6.4%			
Transportation of water	16.0 hrs	—	16.6%	Efficiency		
Others				Effective length / Working drilling days = 41.00m/4 days = 10.25 m/d		
Total	96.0 hrs	—	100%	Effective length / Total drilling shifts = = 41.00m/8 shifts = 5.12 m/shift		
Drilling length by diameter						
Bit diameter	190mm ϕ					Total
Drilling length	41.00m					41.00m
Core length	41.00m					41.00m
Inserted casing pipes						
Inserted length by diameter		Inserted length / Drilling length		Casing recovery		
400mm ϕ	13.00m	31.70%		69.20%		
270mm ϕ	13.00m	31.70%		100.00%		

Appendix 3-2 Miscellaneous Results of Individual Drillhole (MJBK-4)

	Survey period		Breakdown of period		Total workers	
	Period	Total days	Working days	No working days	Engineers	Workers
Preparation	05 Sept., '00 ~ 05 Sept., '00	1.0	1.0	—	3	10
Drilling	06 Sept., '00 ~ 12 Sept., '00	7.0	Drilling : 7.0	—	39	70
			Accident: 0.0	—	—	—
Dismount	13 Sept., '00 ~ 14 Sept., '00	2.0	2.0	—	3	15
Total	05 Sept., '00 ~ 14 Sept., '00	10.0	10.0	—	45	95
Drilling Length						
Programmed length	35.00 m	Overburden, sand & gravel, Quarternary			9.00 m	
Prolongation	1.00 m	Core length			27.00 m	
Effective length	36.00 m	Core recovery			100.0 %	
Working hours				Core recovery by each 10 meters		
Drilling	18.0 hrs	14.70%	10.7%	Length (m)	Each (%)	Cumula. (%)
Supplemental drilling work	100.0 hrs	82.00%	59.5%	0 - 9.0	None core	None core
Recovery from accident	4.0 hrs	3.30%	2.4%	9.0 - 20.0	100.0	100.0
Subtotal	122.0 hrs	100%	72.6%	20.0 - 30.0	100.0	100.0
Preparation/setting up	16.0 hrs	—	9.5%	30.0 - 36.0	100.0	100.0
Dismount/mobilization	6.0 hrs	—	3.6%			
Transportation of water	24.0 hrs	—	14.3%	Efficiency		
Others	—		0.0%	Effective length / Working drilling days		
				= 36.00m/7 days = 5.40 m/d		
				Effective length / Total drilling shifts		
Total	168.0 hrs		100%	= 36.00m/13 shifts = 2.77 m/shift		
Drilling length by diameter						
Bit diameter	240mm ϕ	190mm ϕ				Total
Drilling length	9.00m	27.00m				36.00m
Core length	None core	27.00m				27.00m
Inserted casing pipes						
Inserted length by diameter		Inserted length / Drilling length		Casing recovery		
270mm ϕ	9.20m	25.50%		100.00%		
220mm ϕ	33.00m	91.60%		84.80%		

Appendix 3-2 Miscellaneous Results of Individual Drillhole (MJBK-5)

	Survey period		Breakdown of period		Total workers	
	Period	Total days	Working days	No working days	Engineers	Workers
Preparation	14 Sept., '00 ~ 15 Sept., '00	1.5	1.5	—	3	10
Drilling	15 Sept., '00 ~ 17 Sept., '00	2.0	Drilling : 2.0	—	6	20
			Accident: 0.0	—	—	—
Dismount	17 Sept., '00 ~ 17 Sept., '00	0.5	0.5	—	3	5
Total	14 Sept., '00 ~ 17 Sept., '00	4.0	4.0	—	12	35
Drilling Length						
Programmed length	35.00 m	Overburden, sand & gravel, Quarternary			7.80 m	
Prolongation	2.00 m	Core length			29.20 m	
Effective length	37.00 m	Core recovery			100.0 %	
Working hours				Core recovery by each 10 meters		
Drilling	16.0 hrs	44.40%	24.6%	Length (m)	Each (%)	Cumula. (%)
Supplemental drilling work	20.0 hrs	55.60%	30.8%	0 - 7.8	None core	None core
Recovery from accident	—	—	—	7.8 - 20.0	100.0	100.0
Subtotal	36.0 hrs	100%	55.4%	20.0 - 30.0	100.0	100.0
Preparation/setting up	16.0 hrs	—	24.6%	30.0 - 37.0	100.0	100.0
Dismount/mobilization	4.0 hrs	—	6.2%			
Transportation of water	9.0 hrs	—	13.8%	Efficiency		
Others				Effective length / Working drilling days = 37.00m/2 days = 18.50 m/d		
Total	65.0 hrs	—	100%	Effective length / Total drilling shifts = = 37.00m/4 shifts = 9.25 m/shift		
Drilling length by diameter						
Bit diameter	240mm ϕ	190mm ϕ				Total
Drilling length	7.80m	29.20m				37.00m
Core length	None core	29.20m				29.20m
Inserted casing pipes						
Inserted length by diameter		Inserted length / Drilling length		Casing recovery		
270mm ϕ	6.70m	18.10%		100.00%		

Appendix 3-2 Miscellaneous Results of Individual Drillhole (MJBK-6)

	Survey period		Breakdown of period		Total workers	
	Period	Total days	Working days	No working days	Engineers	Workers
Preparation	27 Sept., '00 ~ 27 Sept., '00	0.5	0.5	—	1	5
Drilling	27 Sept., '00 ~ 29 Sept., '00	2.0	Drilling : 2.0	—	7	20
			Accident: 0.0	—	—	—
Dismount	29 Sept., '00 ~ 29 Sept., '00	0.5	0.5	—	1	5
Total	27 Sept., '00 ~ 29 Sept., '00	3.0	3.0	—	9	30
Drilling Length						
Programmed length	35.00 m	Overburden, sand & gravel, Quarternary			8.80 m	
Prolongation	-5.00 m	Core length			21.20 m	
Effective length	30.00 m	Core recovery			100.0 %	
Working hours				Core recovery by each 10 meters		
Drilling	18.0 hrs	50.00%	32.7%	Length (m)	Each (%)	Cumula. (%)
Supplemental drilling work	18.0 hrs	50.00%	32.7%	0 - 8.8	None core	None core
Recovery from accident	—	—	—	8.8 - 20.0	100.0	100.0
Subtotal	36.0 hrs	100%	65.4%	20.0 - 30.0	100.0	100.0
Preparation/setting up	4.0 hrs	—	7.3%			
Dismount/mobilization	8.0 hrs	—	14.6%			
Transportation of water	7.0 hrs	—	12.7%	Efficiency		
Others	—		0.0%	Effective length / Working drilling days		
				= 30.00m/2 days = 15.00 m/d		
				Effective length / Total drilling shifts		
Total			100%	= 30.00m/4 shifts = 7.50 m/shift		
Drilling length by diameter						
Bit diameter	240mm ϕ	190mm ϕ				Total
Drilling length	8.80m	21.20m				30.00m
Core length	None core	21.20m				21.20m
Inserted casing pipes						
Inserted length by diameter		Inserted length / Drilling length		Casing recovery		
270mm ϕ	9.10m	30.30%		100.00%		

Appendix 3-2 Miscellaneous Results of Individual Drillhole (MJBK-7)

	Survey period		Breakdown of period		Total workers	
	Period	Total days	Working days	No working days	Engineers	Workers
Preparation	23 Sept., '00 ~ 23 Sept., '00	0.5	0.5	—	1	5
Drilling	23 Sept., '00 ~ 26 Sept., '00	3.0	Drilling : 2.92	—	9.5	27
			Accident: 0.08	—	0.5	3
Dismount	26 Sept., '00 ~ 26 Sept., '00	0.5	0.5	—	1	5
Total	23 Sept., '00 ~ 26 Sept., '00	4.0	4.0	—	12	40
Drilling Length						
Programmed length	35.00 m	Overburden, sand & gravel, Quarternary			8.50 m	
Prolongation	8.00 m	Core length			34.50 m	
Effective length	43.00 m	Core recovery			100.0 %	
Working hours				Core recovery by each 10 meters		
Drilling	25.0 hrs	48.10%	33.8%	Length (m)	Each (%)	Cumula. (%)
Supplemental drilling work	25.0 hrs	48.10%	33.3%	0 - 13.4	None core	None core
Recovery from accident	2.0 hrs	3.80%	2.7%	13.4 - 20.0	100.0	100.0
Subtotal	52.0 hrs	100%	70.3%	20.0 - 30.0	100.0	100.0
Preparation/setting up	5.0 hrs	—	6.7%	30.0 - 41.0	100.0	100.0
Dismount/mobilization	7.0 hrs	—	9.5%			
Transportation of water	10.0 hrs	—	13.5%	Efficiency		
Others				Effective length / Working drilling days		
				= 43.00m/3 days = 14.33 m/d		
				Effective length / Total drilling shifts =		
Total	74.0 hrs	—	100%	= 43.00m/6 shifts = 7.16 m/shift		
Drilling length by diameter						
Bit diameter	240mm ϕ	190mm ϕ				Total
Drilling length	8.50m	34.50m				43.00m
Core length	None core	34.50m				34.50m
Inserted casing pipes						
Inserted length by diameter		Inserted length / Drilling length		Casing recovery		
270mm ϕ	8.50m	19.80%		100.00%		

Appendix 3-2 Miscellaneous Results of Individual Drillhole (MJBK-8)

	Survey period		Breakdown of period		Total workers	
	Period	Total days	Working days	No working days	Engineers	Workers
Preparation	14 Sept., '00 ~ 15 Sept., '00	2.0	2.0	—	3	12
Drilling	16 Sept., '00 ~ 22 Sept., '00	6.5	Drilling : 4.8	—	21.5	53
			Accident: 1.7	—	1.5	10
Dismount	22 Sept., '00 ~ 22 Sept., '00	0.5	0.5	—	1	5
Total	14 Sept., '00 ~ 22 Sept., '00	9.0	9.0	—	27	80
Drilling Length						
Programmed length	35.00 m	Overburden, sand & gravel, Quarternary			8.00 m	
Prolongation	8.00 m	Core length			35.00 m	
Effective length	43.00 m	Core recovery			100.0 %	
Working hours				Core recovery by each 10 meters		
Drilling	23.0 hrs	27.40%	19.8%	Length (m)	Each (%)	Cumula. (%)
Supplemental drilling work	21.0 hrs	25.00%	18.1%	0 - 8.0	None core	None core
Recovery from accident	40.0 hrs	47.60%	34.5%	8.0 - 20.0	100.0	100.0
Subtotal	84.0 hrs	100%	72.4%	20.0 - 30.0	100.0	100.0
Preparation/setting up	16.0 hrs	—	13.8%	30.0 - 40.0	100.0	100.0
Dismount/mobilization	4.0 hrs	—	3.5%	40.0 - 43.0	100.0	100.0
Transportation of water	12.0 hrs	—	10.3%	Efficiency		
Others	—		0.0%	Effective length / Working drilling days		
				= 43.00m/6.5 days = 6.61 m/d		
				Effective length / Total drilling shifts		
Total	116.0 hrs		100%	= 43.00m/10 shifts = 4.30 m/shift		
Drilling length by diameter						
Bit diameter	240mm ϕ	190mm ϕ				Total
Drilling length	8.00m	35.00m				43.00m
Core length	None core	35.00m				35.00m
Inserted casing pipes						
Inserted length by diameter		Inserted length / Drilling length		Casing recovery		
270mm ϕ	13.00m	30.20%		53.80%		

Appendix 3-2 Miscellaneous Results of Individual Drillhole (MJBK-9)

	Survey period		Breakdown of period		Total workers	
	Period	Total days	Working days	No working days	Engineers	Workers
Preparation	27 Sept., '00 ~ 29 Sept., '00	2.5	2.5	—	3	15
Drilling	29 Sept., '00 ~ 1 Oct., '00	2.5	Drilling : 2.5	—	11	29
			Accident: -	—	—	—
Dismount	2 Oct., '00 ~ 2 Oct., '00	1.0	1.0	—	2	6
Total	14 Sept., '00 ~ 22 Sept., '00	6.0	6.0	—	16	50
Drilling Length						
Programmed length	35.00 m	Overburden, sand & gravel, Quarternary			8.00 m	
Prolongation	7.00 m	Core length			34.00 m	
Effective length	42.00 m	Core recovery			100.0 %	
Working hours				Core recovery by each 10 meters		
Drilling	20.0 hrs	41.70%	23.3%	Length (m)	Each (%)	Cumula. (%)
Supplemental drilling work	16.0 hrs	33.30%	18.6%	0 - 8.0	None core	None core
Recovery from accident	12.0 hrs	25.00%	13.9%	8.0 - 20.0	100.0	100.0
Subtotal	48.0 hrs	100%	55.8%	20.0 - 30.0	100.0	100.0
Preparation/setting up	8.0 hrs	—	9.3%	30.0 - 40.0	100.0	100.0
Dismount/mobilization	16.0 hrs	—	18.6%	40.0 - 42.0	100.0	100.0
Transportation of water	14.0 hrs	—	16.3%	Efficiency		
Others	—	—	0.0%	Effective length / Working drilling days		
				= 42.00m/2.5 days = 16.8 m/d		
				Effective length / Total drilling shifts		
				= 42.00m/5 shifts = 8.40 m/shift		
Total	116.0 hrs		100%			
Drilling length by diameter						
Bit diameter	240mm ϕ	190mm ϕ				Total
Drilling length	8.00m	34.00m				42.00m
Core length	None core	34.00m				34.00m
Inserted casing pipes						
Inserted length by diameter		Inserted length / Drilling length		Casing recovery		
270mm ϕ	13.00m	30.90%		53.80%		

Appendix 3-2 Miscellaneous Results of Individual Drillhole (MJBK-10)

	Survey period		Breakdown of period		Total workers	
	Period	Total days	Working days	No working days	Engineers	Workers
Preparation	2 Oct., '00 ~ 2 Oct., '00	0.5	2.5	—	1	8
Drilling	3 Oct., '00 ~ 6 Oct., '00	4.0	Drilling : 2.5	—	8	24
			Accident: —	—	3	10
Dismount	7 Oct., '00 ~ 7 Oct., '00	1.0	1.0	—	2	8
Total	2 Oct., '00 ~ 7 Oct., '00	5.5	6.0	—	14	50
Drilling Length						
Programmed length	35.00 m	Overburden, sand & gravel, Quarternary			8.00 m	
Prolongation	1.00 m	Core length			28.00 m	
Effective length	36.00 m	Core recovery			100.0 %	
Working hours				Core recovery by each 10 meters		
Drilling	27.0 hrs	45.00%	27.6%	Length (m)	Each (%)	Cumula. (%)
Supplemental drilling work	17.0 hrs	28.30%	17.3%	0 - 8.0	None core	None core
Recovery from accident	12.0 hrs	26.70%	16.3%	8.0 - 20.0	100.0	100.0
Subtotal	60.0 hrs	100%	61.2%	20.0 - 30.0	100.0	100.0
Preparation/setting up	8.0 hrs	—	8.2%	30.0 - 32.0	100.0	100.0
Dismount/mobilization	12.0 hrs	—	12.2%			
Transportation of water	18.0 hrs	—	18.4%	Efficiency		
Others	—		0.0%	Effective length / Working drilling days		
				= 36.00m/4.0 days = 9.00 m/d		
				Effective length / Total drilling shifts		
Total	116.0 hrs		100%	= 36.00m/7 shifts = 5.14 m/shift		
Drilling length by diameter						
Bit diameter	240mm ϕ	190mm ϕ				Total
Drilling length	8.00m	28.00m				36.00m
Core length	None core	28.00m				28.00m
Inserted casing pipes						
Inserted length by diameter		Inserted length / Drilling length		Casing recovery		
270mm ϕ	9.00m	25.00%		100.00%		

Appendix 3-2 Miscellaneous Results of Individual Drillhole (MJBK-11)

	Survey period		Breakdown of period		Total workers	
	Period	Total days	Working days	No working days	Engineers	Workers
Preparation	20 Sept., '00 ~ 17 Sept., '00	0.2	0.2	—	0.5	3
Drilling	20 Sept., '00 ~ 20 Sept., '00	0.6	Drilling : 0.6	—	3	4
			Accident: —	—	—	—
Dismount	20 Sept., '00 ~ 20 Sept., '00	0.2	0.2	—	0.5	3
Total	20 Sept., '00 ~ 20 Sept., '00	1.0	1.0	—	4	10
Drilling Length						
Programmed length	50.00 m	Overburden, sand & gravel, Quarternary			13.00 m	
Prolongation	-13.00 m	Core length			24.00 m	
Effective length	37.00 m	Core recovery			100.0 %	
Working hours				Core recovery by each 10 meters		
Drilling	14.0 hrs	77.80%	50.0%	Length (m)	Each (%)	Cumula. (%)
Supplemental drilling work	4.0 hrs	22.20%	14.3%	0 - 8.0	None core	None core
Recovery from accident	—	—	—	8.0 - 20.0	100.0	100.0
Subtotal	18.0 hrs	100%	64.3%	20.0 - 30.0	100.0	100.0
Preparation/setting up	3.0 hrs	—	10.7%	30.0 - 37.0	100.0	100.0
Dismount/mobilization	3.0 hrs	—	10.7%			
Transportation of water	4.0 hrs	—	14.3%	Efficiency		
Others	—		0.0%	Effective length / Working drilling days		
				= 37.00m/0.6 days = 61.66 m/d		
				Effective length / Total drilling shifts		
Total	28.0 hrs		100%	= 37.00m/2 shifts = 18.50 m/shift		
Drilling length by diameter						
Bit diameter	4" T.B.	92mm ϕ				Total
Drilling length	13.00m	24.00m				24.00m
Core length	None core	24.00m				24.00m
Inserted casing pipes						
Inserted length by diameter		Inserted length / Drilling length		Casing recovery		
127mm ϕ	13.00m	35.10%		100.00%		

Appendix 3-2 Miscellaneous Results of Individual Drillhole (MJBK-12)

	Survey period		Breakdown of period		Total workers	
	Period	Total days	Working days	No working days	Engineers	Workers
Preparation	17 Sept., '00 ~ 17 Sept., '00	0.5	0.5	—	1	6
Drilling	17 Sept., '00 ~ 19 Sept., '00	2.0	Drilling : 2.0	—	10	18
			Accident: —	—	—	—
Dismount	19 Sept., '00 ~ 19 Sept., '00	0.5	0.5	—	1	6
Total	17 Sept., '00 ~ 19 Sept., '00	3.0	3.0	—	12	30
Drilling Length						
Programmed length	50.00 m	Overburden, sand & gravel, Quarternary			14.00 m	
Prolongation	-8.50 m	Core length			27.50 m	
Effective length	41.50 m	Core recovery			100.0 %	
Working hours				Core recovery by each 10 meters		
Drilling	32.0 hrs	78.00%	47.8%	Length (m)	Each (%)	Cumula. (%)
Supplemental drilling work	9.0 hrs	22.20%	13.4%	0 - 14.0	None core	None core
Recovery from accident	—	—	—	14.0 - 20.0	100.0	100.0
Subtotal	41.0 hrs	100%	61.2%	20.0 - 30.0	100.0	100.0
Preparation/setting up	8.0 hrs		11.9%	30.0 - 41.5	100.0	100.0
Dismount/mobilization	7.0 hrs		10.5%			
Transportation of water	11.0 hrs		16.4%	Efficiency		
Others	—		0.0%	Effective length / Working drilling days		
				= 41.50m/2.0 days = 20.75 m/d		
				Effective length / Total drilling shifts		
Total	67.0 hrs		100%	= 41.50m/3 shifts = 13.83 m/shift		
Drilling length by diameter						
Bit diameter	4" T.B.	92mm ϕ				Total
Drilling length	14.00m	27.50m				41.50m
Core length	None core	27.50m				27.50m
Inserted casing pipes						
Inserted length by diameter		Inserted length / Drilling length		Casing recovery		
127mm ϕ	13.50m	32.50%		77.80%		

Appendix 3-2 Miscellaneous Results of Individual Drillhole (MJBK-13)

	Survey period		Breakdown of period		Total workers	
	Period	Total days	Working days	No working days	Engineers	Workers
Preparation	11 Sept., '00 ~ 13 Sept., '00	3.0	3.0	—	2	10
Drilling	14 Sept., '00 ~ 16 Sept., '00	2.6	Drilling : 2.6	—	21	45
			Accident: —	—	—	—
Dismount	16 Sept., '00 ~ 16 Sept., '00	0.4	0.4	—	1	5
Total	11 Sept., '00 ~ 16 Sept., '00	6.0	6.0	—	24	60
Drilling Length						
Programmed length	50.00 m	Overburden, sand & gravel, Quarternary			9.00 m	
Prolongation	-11.00 m	Core length			30.00 m	
Effective length	39.00 m	Core recovery			100.0 %	
Working hours				Core recovery by each 10 meters		
Drilling	42.0 hrs	70.00%	47.7%	Length (m)	Each (%)	Cumula. (%)
Supplemental drilling work	18.0 hrs	30.00%	20.5%	0 - 9.0	None core	None core
Recovery from accident	—	—	—	9.0 - 20.0	100.0	100.0
Subtotal	60.0 hrs	100%	68.2%	20.0 - 30.0	100.0	100.0
Preparation/setting up	16.0 hrs	—	18.2%	30.0 - 39.0	100.0	100.0
Dismount/mobilization	4.0 hrs	—	4.5%			
Transportation of water	8.0 hrs	—	9.1%	Efficiency		
Others	—		0.0%	Effective length / Working drilling days		
				= 39.00m/2.6 days = 15.00 m/d		
				Effective length / Total drilling shifts		
Total	88.0 hrs		100%	= 39.00m/4.5 shifts = 8.66 m/shift		
Drilling length by diameter						
Bit diameter	4" T.B.	92mm ϕ				Total
Drilling length	9.00m	30.00m				43.00m
Core length	None core	30.00m				35.00m
Inserted casing pipes						
Inserted length by diameter		Inserted length / Drilling length		Casing recovery		
127mm ϕ	11.00m	28.20%		54.50%		

Appendix 3-2 Miscellaneous Results of Individual Drillhole (MJBK-14)

	Survey period		Breakdown of period		Total workers	
	Period	Total days	Working days	No working days	Engineers	Workers
Preparation	21 Sept., '00 ~ 21 Sept., '00	0.5	0.5	—	1	5
Drilling	21 Sept., '00 ~ 22 Sept., '00	1.5	Drilling : 1.5	—	9	15
			Accident: —	—	—	—
Dismount	23 Sept., '00 ~ 23 Sept., '00	1.0	1.0	—	1	5
Total	21 Sept., '00 ~ 23 Sept., '00	3.0	3.0	—	11	25
Drilling Length						
Programmed length	50.00 m	Overburden, sand & gravel, Quarternary			13.00 m	
Prolongation	-18.00 m	Core length			14.50 m	
Effective length	32.00 m	Core recovery			76.3 %	
Working hours				Core recovery by each 10 meters		
Drilling	27.0 hrs	58.70%	38.5%	Length (m)	Each (%)	Cumula. (%)
Supplemental drilling work	13.0 hrs	28.30%	18.6%	0 - 13.0	None core	None core
Recovery from accident	6.0 hrs	13.00%	8.6%	13.0 - 20.0	100.0	100.0
Subtotal	46.0 hrs	100%	65.7%	20.0 - 30.0	100.0	100.0
Preparation/setting up	7.0 hrs	—	9.7%	30.0 - 32.0	100.0	100.0
Dismount/mobilization	7.0 hrs	—	9.7%			
Transportation of water	10.0 hrs	—	13.9%	Efficiency		
Others	—		0.0%	Effective length / Working drilling days		
				= 32.00m/1.5 days = 21.33 m/d		
				Effective length / Total drilling shifts		
Total	88.0 hrs		100%	= 32.00m/3 shifts = 10.66 m/shift		
Drilling length by diameter						
Bit diameter	4" T.B.	92mm ϕ				Total
Drilling length	13.00m	19.00m				32.00m
Core length	None core	14.50m				14.50m
Inserted casing pipes						
Inserted length by diameter		Inserted length / Drilling length		Casing recovery		
127mm ϕ	16.00m	50.00%		62.50%		

Appendix 3-2 Miscellaneous Results of Individual Drillhole (MJBK-15)

	Survey period		Breakdown of period		Total workers	
	Period	Total days	Working days	No working days	Engineers	Workers
Preparation	24 Sept., '00 ~ 24 Sept., '00	0.5	0.5	—	2	5
Drilling	24 Sept., '00 ~ 26 Sept., '00	2.0	Drilling : 2.0	—	10	25
			Accident: —	—	—	—
Dismount	26 Sept., '00 ~ 27 Sept., '00	1.5	1.5	—	4	10
Total	24 Sept., '00 ~ 27 Sept., '00	4.0	4.0	—	16	40
Drilling Length						
Programmed length	50.00 m	Overburden, sand & gravel, Quarternary			12.00 m	
Prolongation	-15.50 m	Core length			21.10 m	
Effective length	34.50 m	Core recovery			93.7 %	
Working hours				Core recovery by each 10 meters		
Drilling	18.0 hrs	45.00%	20.9%	Length (m)	Each (%)	Cumula. (%)
Supplemental drilling work	22.0 hrs	55.00%	25.6%	0 - 13.0	None core	None core
Recovery from accident	—	—	—	13.0 - 20.0	100.0	100.0
Subtotal	40.0 hrs	100%	46.5%	20.0 - 30.0	86.0	92.2
Preparation/setting up	8.0 hrs	—	9.3%	30.0 - 34.5	100.0	93.7
Dismount/mobilization	24.0 hrs	—	27.9%			
Transportation of water	14.0 hrs	—	16.3%	Efficiency		
Others	—		0.0%	Effective length / Working drilling days		
				= 34.50m/2.0 days = 17.25 m/d		
				Effective length / Total drilling shifts		
Total	86.0 hrs		100%	= 34.50m/4 shifts = 8.62 m/shift		
Drilling length by diameter						
Bit diameter	4" T.B.	92mm ϕ				Total
Drilling length	12.00m	22.50m				34.50m
Core length	None core	21.10m				21.10m
Inserted casing pipes						
Inserted length by diameter		Inserted length / Drilling length		Casing recovery		
127mm ϕ	12.00m	34.80%		58.30%		

Appendix 3-2 Miscellaneous Results of Individual Drillhole (MJBK-16)

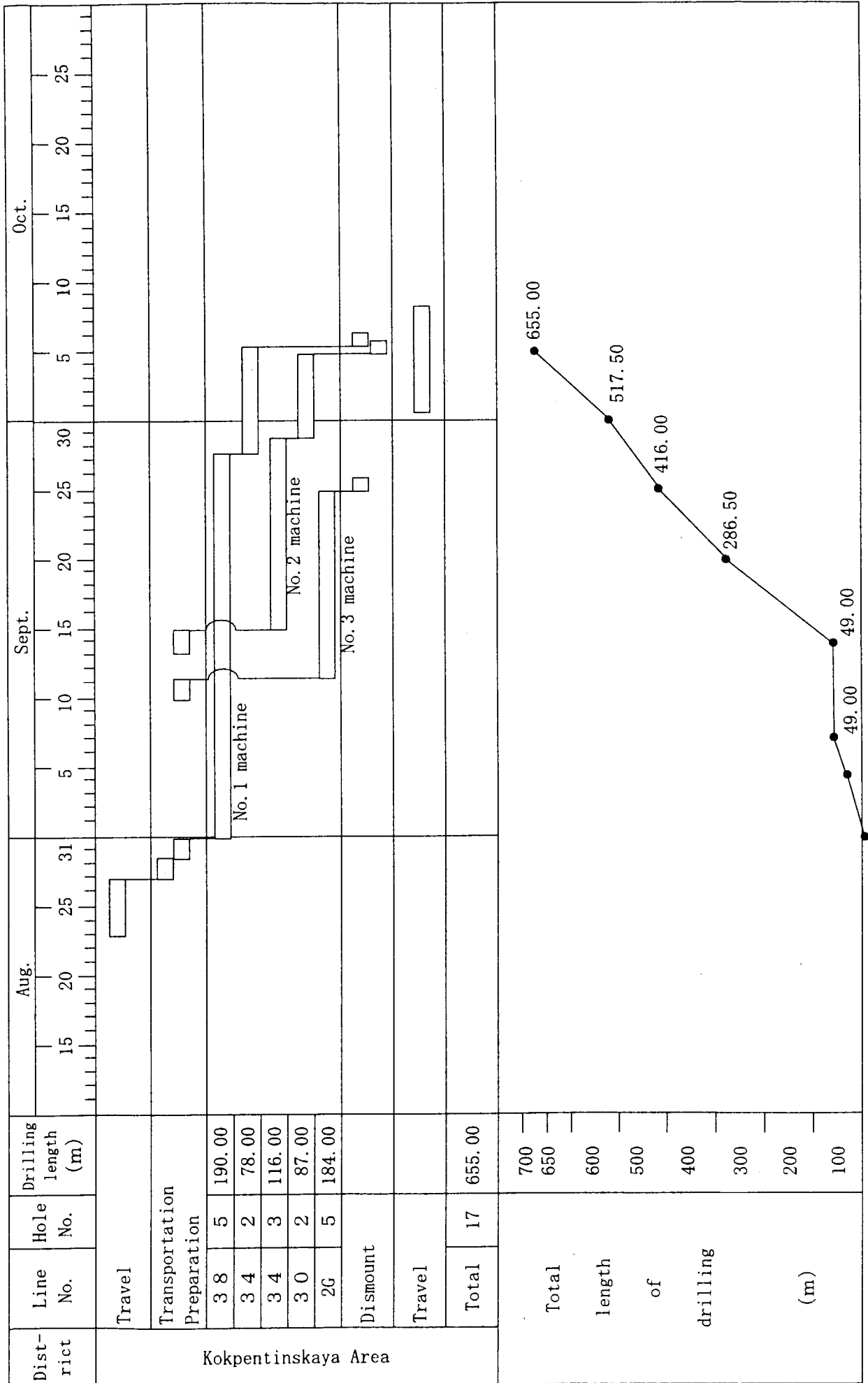
	Survey period		Breakdown of period		Total workers	
	Period	Total days	Working days	No working days	Engineers	Workers
Preparation	30 Sept., '00 ~ 30 Sept., '00	0.5	0.5	—	0.5	5
Drilling	30 Sept., '00 ~ 1 Oct., '00	1.5	Drilling : 1.5	—	6.5	20
			Accident: —	—	—	—
Dismount	2 Oct., '00 ~ 2 Oct., '00	1.0	1.0	—	1	5
Total	30 Sept., '00 ~ 2 Oct., '00	3.0	3.0	—	8	30
Drilling Length						
Programmed length	35.00 m	Overburden, sand & gravel, Quarternary			9.50 m	
Prolongation	6.00 m	Core length			31.50 m	
Effective length	41.00 m	Core recovery			100.0 %	
Working hours				Core recovery by each 10 meters		
Drilling	17.0 hrs	60.70%	34.0%	Length (m)	Each (%)	Cumula. (%)
Supplemental drilling work	11.0 hrs	39.30%	22.0%	0 - 9.5	None core	None core
Recovery from accident	—	—	—	9.5 - 20.0	100.0	100.0
Subtotal	28.0 hrs	100%	56.0%	20.0 - 30.0	100.0	100.0
Preparation/setting up	4.0 hrs	—	8.0%	30.0 - 40.0	100.0	100.0
Dismount/mobilization	8.0 hrs	—	16.0%	40.0 - 41.0	100.0	100.0
Transportation of water	10.0 hrs	—	20.0%	Efficiency		
Others	—	—	0.0%	Effective length / Working drilling days		
				= 34.50m/1.5 days = 23.00 m/d		
				Effective length / Total drilling shifts		
Total	50.0 hrs		100%	= 34.50m/3 shifts = 11.50 m/shift		
Drilling length by diameter						
Bit diameter	240mm ϕ	190mm ϕ				Total
Drilling length	9.50m	31.50m				41.00m
Core length	None core	31.50m				31.50m
Inserted casing pipes						
Inserted length by diameter		Inserted length / Drilling length		Casing recovery		
270mm ϕ	10.50m	25.60%		47.60%		

Appendix 3-2 Miscellaneous Results of Individual Drillhole (MJBK-17)

	Survey period		Breakdown of period		Total workers	
	Period	Total days	Working days	No working days	Engineers	Workers
Preparation	2 Oct., '00 ~ 2 Oct., '00	0.5	0.5	—	0.5	6
Drilling	3 Oct., '00 ~ 4 Oct., '00	2.0	Drilling : 1.5	—	4.5	21
			Accident: —	—	—	—
Dismount	5 Oct., '00 ~ 6 Oct., '00	2.0	1.0	—	2	13
Total	2 Oct., '00 ~ 6 Oct., '00	4.5	3.0	—	7	40
Drilling Length						
Programmed length	35.00 m	Overburden, sand & gravel, Quarternary			9.00 m	
Prolongation	11.00 m	Core length			37.00 m	
Effective length	46.00 m	Core recovery			100.0 %	
Working hours				Core recovery by each 10 meters		
Drilling	23.0 hrs	63.90%	32.8%	Length (m)	Each (%)	Cumula. (%)
Supplemental drilling work	13.0 hrs	36.10%	18.6%	0 - 9.0	None core	None core
Recovery from accident	—	—	—	9.0 - 20.0	100.0	100.0
Subtotal	36.0 hrs	100%	51.0%	20.0 - 30.0	100.0	100.0
Preparation/setting up	6.0 hrs	—	8.6%	30.0 - 40.0	100.0	100.0
Dismount/mobilization	16.0 hrs	—	22.9%	40.0 - 46.0	100.0	100.0
Transportation of water	12.0 hrs	—	17.1%	Efficiency		
Others	—	—	0.0%	Effective length / Working drilling days		
				= 46.00m/2 days = 23.00 m/d		
				Effective length / Total drilling shifts		
Total	88.0 hrs		100%	= 46.00m/4 shifts =11.50 m/shift		
Drilling length by diameter						
Bit diameter	240mm ϕ	190mm ϕ				Total
Drilling length	9.00m	37.00m				46.00m
Core length	None core	37.00m				37.00m
Inserted casing pipes						
Inserted length by diameter		Inserted length / Drilling length		Casing recovery		
270mm ϕ	10.50m	21.70%		60.00%		

Appendix 3-3 Progress Record of Drilling

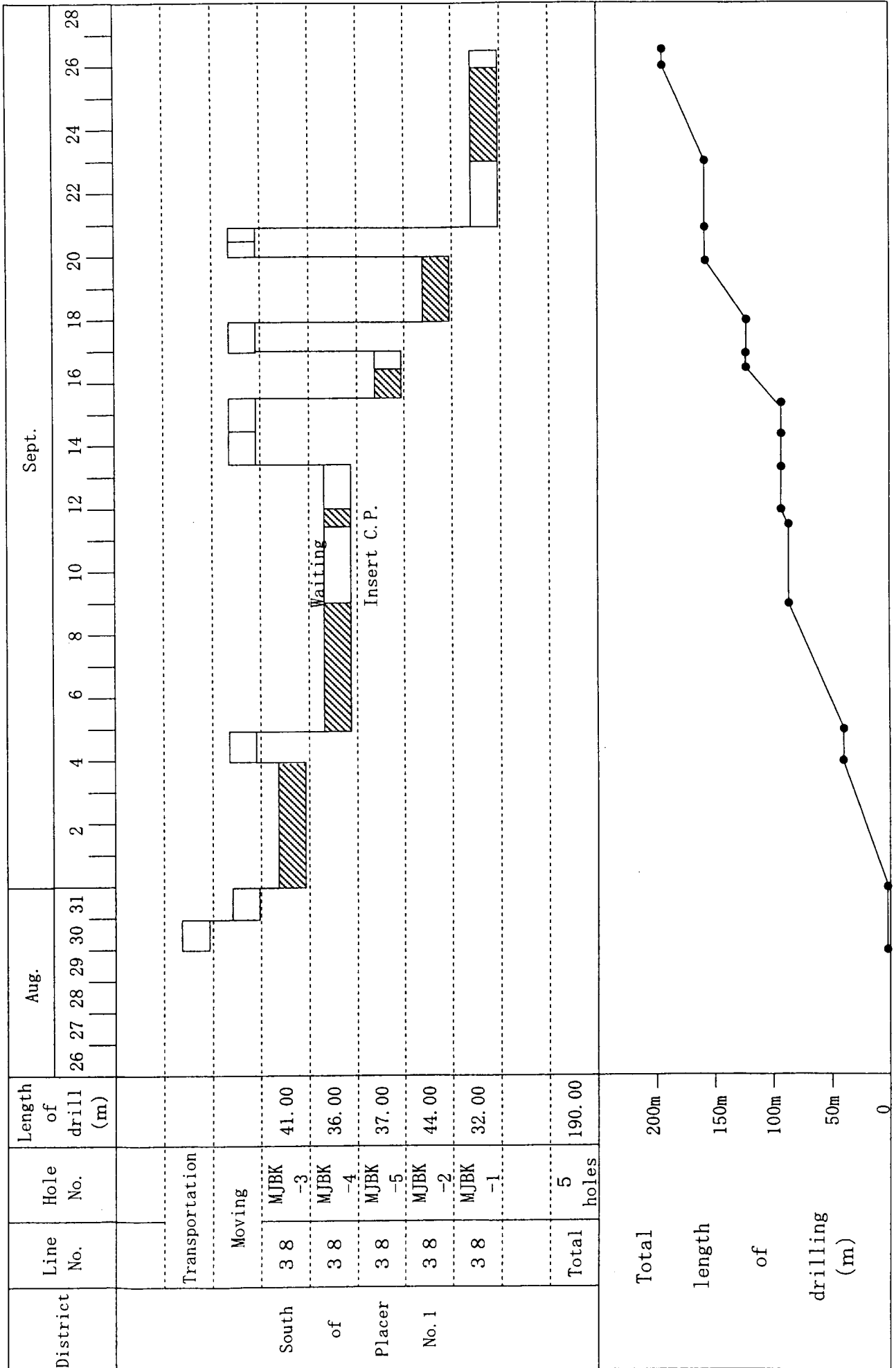
Appendix 3-3 Progress Record of Drilling (1)



Appendix 3-3 Progress Record of Drilling (2)

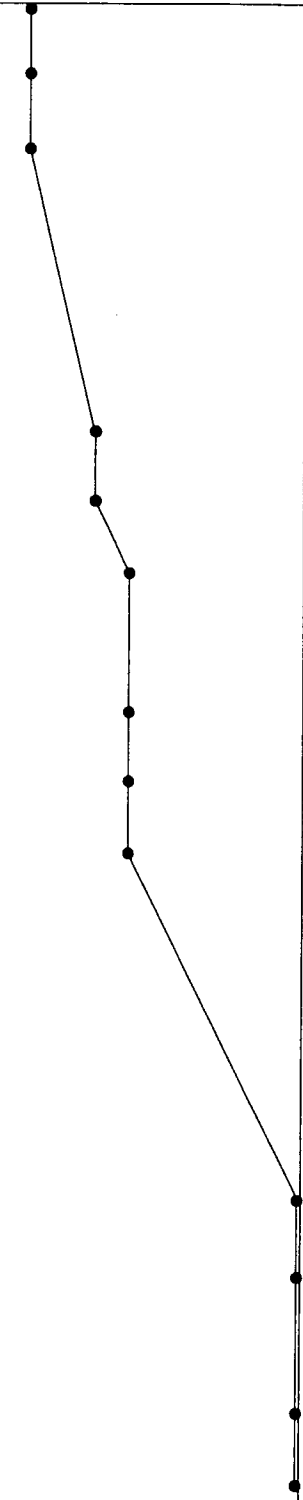
Item of the survey	Quantity of works	2000				2001
		July	Aug.	Sept.	Nov. - Jan.	
Travel (Japan to Kazakhstan)			23 24 □ 23 27 ▨			
Transportation of materials and preparation			25 5 □ 30 31 ▨	14 15 ▨ 11 12 ▨		
Drilling survey	No. 1 machine		1 6 □ ▨			
	No. 2 machine			6 5 ▨ ▨		
	No. 3 machine			13 26 ▨ ▨		
	total					
Dismount	No. 1 machine			2 6 □ ▨		
	No. 2 machine					
	No. 3 machine			27 27 ▨ ▨		
Travel (Kazakhstan to Japan)	No. 1, 2			7 8 □ ▨		
	No. 3			2 8 ▨ 2 8 ▨		
Report making				9 31 □ ▨		
				9 31 ▨ ▨		

Appendix 3-3 Progress Record of Drilling (3) [Drilling Machine No.1(1)]

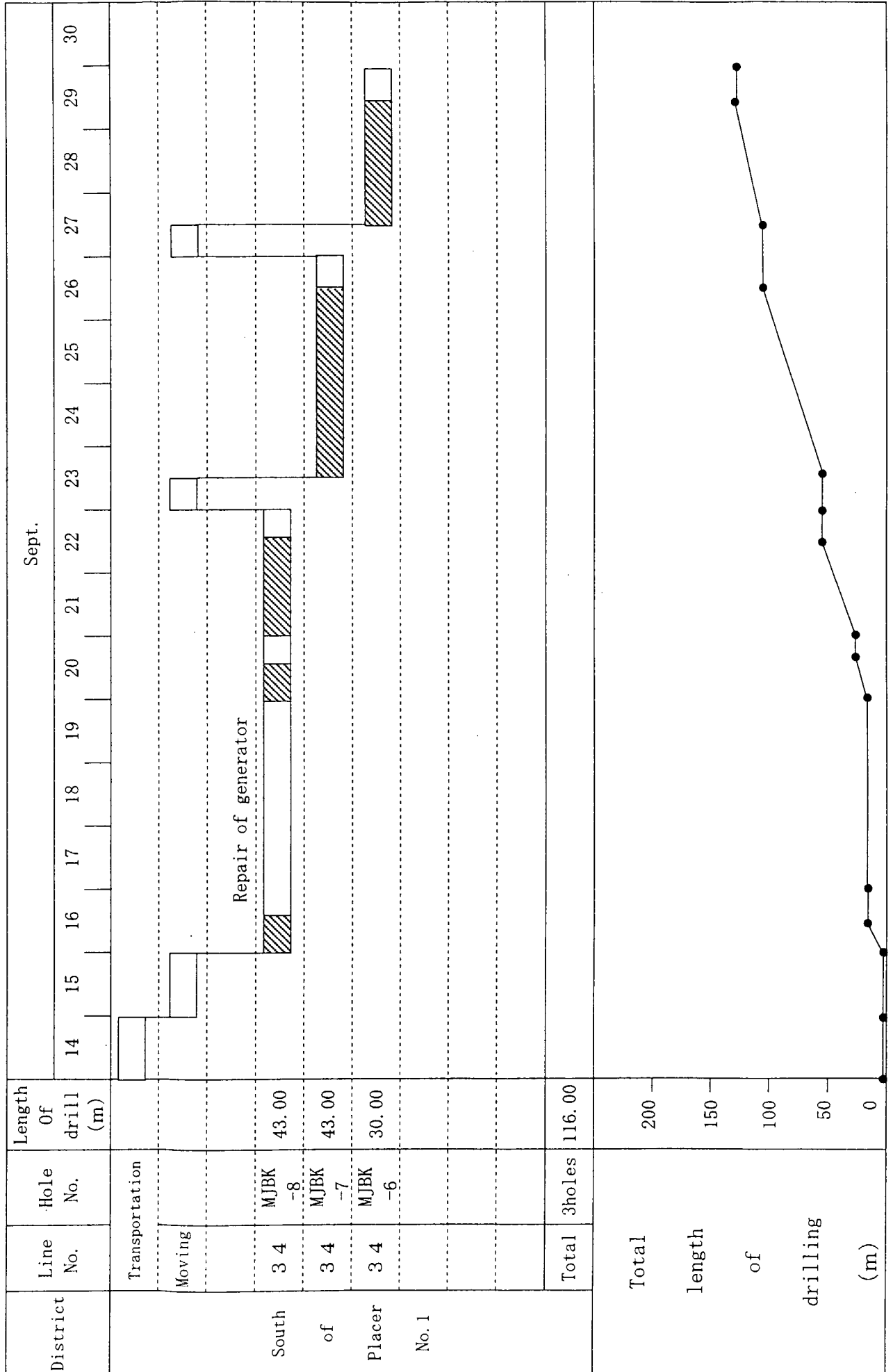


Appendix 3-3 Progress Record of Drilling (4) [Drilling Machine No. 1(2)]

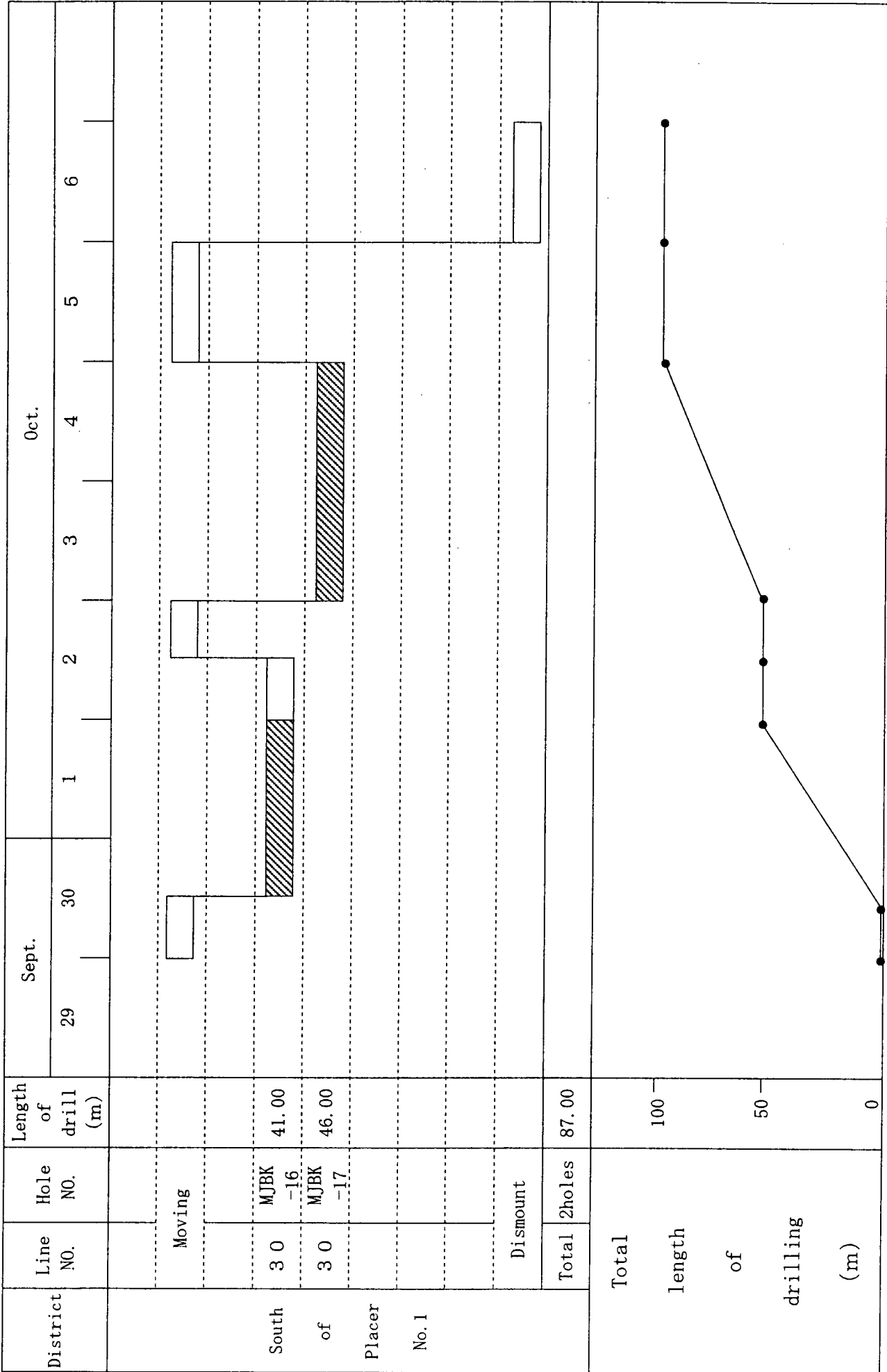
District	Line No.	Hole No.	Length of drill (m)	Sept.							Oct.								
				27	28	29	30	1	2	3	4	5	6	7					
South of Placer No. 1	Moving																		
	3 4	MJBK -9	42.00																
	3 4	MJBK -10	36.00																
		Dismount																	
Total			2holes	78.00															
Total length of drilling (m)																			



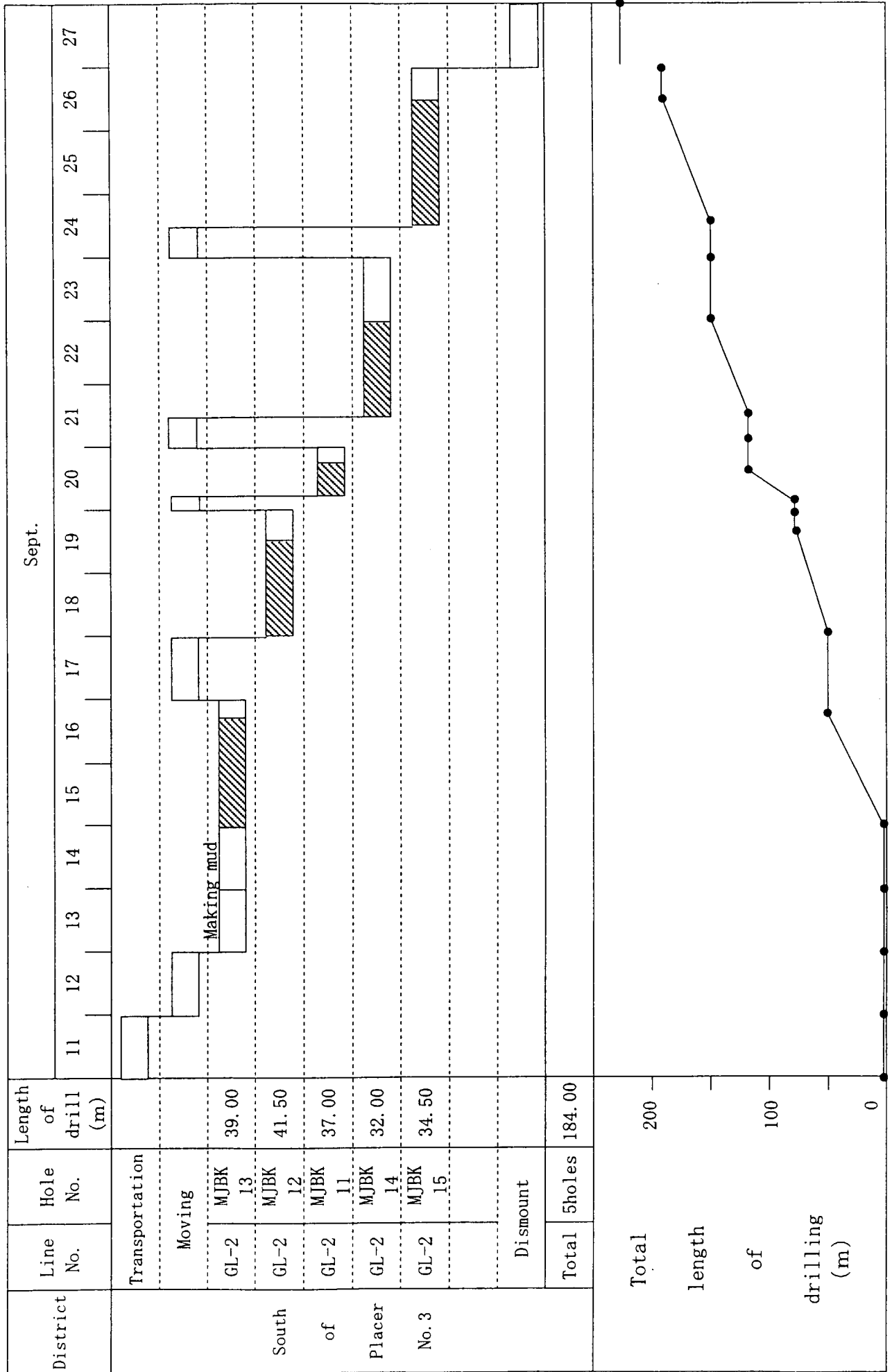
Appendix 3-3 Progress Record of Drilling (5) [Drilling Machine No. 2(1)]



Appendix 3-3 Progress Record of Drilling (6) [Drilling Machine No.2(2)]



Appendix 3-3 Progress Record of Drilling (7) [Drilling Machine No. 3]



**Appendix 4. Amount of Exploration Works
by the Kazakh Side**

Appendix 4. Amount of Exploration Works by the Kazakh Side

Placer deposit	Exploration method	Quantities
1 . Bektemir (Satpaev) deposit		
①	Grid drilling (C ₂ Category)	250 x 100 m
②	Grid drilling (C ₁ Category)	500 x 100 m
③	Grid drilling (B Category)	125 x 50 m
④	Percussion drilling	3,894 m (187 drillholes)
⑤	Pit	98 m (6 pits)
2 . Karaotkel deposit		
①	Grid drilling (C ₁ Category)	400 x 100 m
②	Grid drilling (B Category)	200 x 50 m
③	Percussion drilling	48,929 m (2,879 drillholes)
④	Pit and water well (ϕ 700 mm)	1,971 m (121 wells)
⑤	Pit for samples of separation test	12,000 m ³ (4 pits)