

Appendix 7

Operational results of drill hole

Operational Results by Drill Hole

JMT-1

		Period		Number of Days	Actual Working Days	Day Off	Total Number of Workers
Working Period	Preparation	13th Spt. '87~16th Spt. '87		4	4	-	64
		20th Spt. '87~23rd Spt. '87		4	3.5	-	94
	Drilling	23rd Spt. '87~25th Spt. '87		3	2.5	-	44
	Removing			-	-	-	
	Total	13th Spt. '87~16th Spt. '87 20th Spt. '87~25th Spt. '87		11	10	-	202
Depth of Drilling				Core Recovery for each 100 m section			
Drilling Length	Planned Length	50.00 m	Over-burden	m	Depth of Hole	Section	Total
	Increase or Decrease in Length	0.30 m	Core Length	46.40 m	0 ~ 50.30 m	100 %	100 %
	Length Drilled	50.30 m	Core Recovery	100 %	m	%	%
Working Time	Drilling	32°00' ^H	53.3 %	24.3 %	m	%	%
	Out Drilling	28°00'	46.7	21.2	m	%	%
	Regain of Accident	-	-	-	Efficiency of Drilling		
	Total	60°00'	100	45.5	50.30 m/Working Period		4.57 m/day
	Construct	18°00'		13.6	50.30 m/Working Days		5.03 m/day
	take to pieces	9°00'		6.8	50.30 m/Drilling Period		16.76 m/day
	Moving of water	-		-	50.30 m/Net Drilling Days		20.12 m/day
	Road . others	45°00'		34.1	Total workers/ 50.30 m		4.01 Man/m
Casing Pipe Inserted	G . Total	132°00'		100			
	Pipe Size & Meterage	Inserted Length Drilling Length	%	Recovery of Casing Pipe	Total Drilling Workers/50.30 m		0.87 Man/m
					Drilling of Size		
	BW-CP 3.90 m	7.75 %		100 %	Bit size	BW	56-T
	m	%		%	Drilling	3.90 m	46.40 m
	%		%	Core Length	0.00	46.40	

Operational Results by Drill Hole

JMT-2

		Period		Number of Days	Actual Working Days	Day Off	Total Number of Workers
Working Period	Preparation	23rd Spt. '87~25th Spt. '87		3	3	-	71
	Drilling	26th Spt. '87~28th Spt. '87		3	2.5	-	104
	Removing			-		-	-
	Total	23rd Spt. '87~28th Spt. '87		6	5.5	-	175
Depth of Drilling				Core Recovery for each 100 m section			
Drilling Length	Planned Length	50.00 m	Over-burden	m	Depth of Hole	Section	Total
	Increase or Decrease in Length	0.30 m	Core Length	49.40 m	0 ~ 50.30 m	100 %	100 %
	Length Drilled	50.30 m	Core Recovery	100 %	m	%	%
Working Time	Drilling	36°00' ^H	60.0 %	41.4 %	m	%	%
	Out Drilling	24°00'	40.0	27.6	m	%	%
	Regain of Accident	-	-	-	Efficiency of Drilling		
	Total	60°00'	100	69.0	50.30 m/Working Period		8.38 m/day
	Construct	10°00'		11.5	50.30 m/Working Days		9.14 m/day
	take to pieces	8°00'		9.2	50.30 m/Drilling Period		16.76 m/day
	Moving of water	-		-	50.30 m/Net Drilling Days		20.12 m/day
Road · others	9°00'		10.3	Total workers/ 50.30 m		3.48 Man/m	
G · Total	87°00'		100	Total Drilling Workers/50.30 m		2.06 Man/m	
Casing Pipe Inserted	Pipe Size & Meterage	Inserted Length Drilling Length	%	Recovery of Casing Pipe	Drilling of Size		
	BW-CP 1.80 m	3.6	%	100 %	Bit size	BW	56-T
	m		%	%	Drilling	1.80 m	48.50 m
	m		%	%	Core Length	0.90	48.50

Operational Results by Drill Hole

JMT-3

Working Period		Period		Number of Days	Actual Working Days	Day Off	Total Number of Workers
		Preparation	28th Spt. '87~ 3rd Oct. '87		6	5.5	-
Drilling	3rd Oct. '87~ 5th Oct. '87		3	2.5	-	46	
Removing			-	-	-	-	
Total	28th Spt. '87~ 5th Oct. '87		9	8	-	190	
Depth of Drilling				Core Recovery for each 100 m section			
Drilling Length	Planned Length	50.00 m	Over-burden	m	Depth of Hole	Section Total	
	Increase or Decrease in Length	0.30 m	Core Length	50.30 m	0 ~ 50.30 m	100 %	100 %
	Length Drilled	50.30 m	Core Recovery	100 %	m	%	%
					m	%	%
Working Time	Drilling	36°00' ^H	60.0 %	31.6 %	m	%	%
	Out Drilling	24°00'	40.0	21.1	m	%	%
	Regain of Accident	-	-	-	Efficiency of Drilling		
	Total	60°00'	100	52.7	50.30 m/Working Period		5.58 m/day
	Construct	12°00'		10.5	50.30 m/Working Days		6.28 m/day
	take to pieces	18°00'		15.8	50.30 m/Drilling Period		16.76 m/day
	Moving of water	-		-	50.30 m/Net Drilling Days		20.12 m/day
Road · others	24°00'		21.0	Total workers/ 50.30 m		3.77 Man/m	
G · Total	114°00'		100	Total Drilling Workers/ 50.30 m		0.91 Man/m	
Casing Pipe Inserted	Pipe Size & Meterage	Inserted Length Drilling Length %	Recovery of Casing Pipe %	Drilling of Size			
	BW-CP 1.80 m	3.6 %	100 %	Bit size	BW	56-T	
	m	%	%	Drilling	1.80 m	48.50 m	
	m	%	%	Core Length	1.80	48.50	

Operational Results by Drill Hole

JMT-4

		Period		Number of Days	Actual Working Days	Day Off	Total Number of Workers
		Working Period		Preparation	24th Spt. '87~28th Spt. '87	5	4.5
		Drilling	28th Spt. '87~30th Spt. '87	3	2.5	-	110
		Removing		-		-	-
		Total	24th Spt. '87~30th Spt. '87	8	7	-	250
Depth of Drilling				Core Recovery for each 100 m section			
Drilling Length	Planned Length	50.00 m	Over-burden		Depth of Hole	Section	Total
	Increase or Decrease in Length	0.30 m	Core Length	47.90 m	0 ~ 50.30 m	98.2 %	98.2 %
	Length Drilled	50.30 m	Core Recovery	98.2 %	m	%	%
Working Time	Drilling	31°00' ^H	51.7 %	29.6 %	m	%	%
	Out Drilling	29°00'	48.3	27.6	m	%	%
	Regain of Accident	-	-	-	Efficiency of Drilling		
	Total	60°00'	100	57.2	50.30 m/Working Period		6.28 m/day
	Construct	13°00'		12.4	50.30 m/Working Days		7.18 m/day
	take to pieces	14°00'		13.3	50.30 m/Drilling Period		16.76 m/day
	Moving of water	-		-	50.30 m/Net Drilling Days		20.12 m/day
Road · others	18°00'		17.1	Total workers/ 50.30 m		4.97 Man/m	
Casing Pipe Inserted	G · Total	105°00'		100	Total Drilling Workers/ 50.30 m		2.18 Man/m
	Pipe Size & Meterage	Inserted Length Drilling Length	%	Recovery of Casing Pipe	Drilling of Size		
	BW-CP 4.0 m	8.0 %	100 %	Bit size	BW	56-T	
	m	%	%	Drilling	1.80 m	48.50 m	
	m	%	%	Core Length	0.30	47.60	

Operational Results by Drill Hole

JMT-5

		Period		Number of Days	Actual Working Days	Day Off	Total Number of Workers	
		Working Period		Preparation	27th Spt. '87~30th Spt. '87	4	4	-
Drilling	1st Oct. '87~ 3rd Oct. '87			3	2.5	-	99	
Removing				-	-	-	-	
Total	27th Oct. '87~ 3rd Oct. '87			7	6.5	-	186	
Depth of Drilling				Core Recovery for each 100 m section				
Drilling Length		Planned Length	50.00 m	Over-burden		Depth of Hole	Section	Total
		Increase or Decrease in Length	0.30 m	Core Length	49.00 m	0 ~ 50.30 m	99.4 %	99.4 %
		Length Drilled	50.30 m	Core Recovery	99.4 %			
		Drilling	36°00' ^H	60.0 %	37.5 %			
Working Time		Out Drilling	24°00'	40.0	25.0			
		Regain of Accident	-	-	-	Efficiency of Drilling		
		Total	60°00'	100	62.5	50.30 m/Working Period		7.18 m/day
		Construct	13°00'		13.5	50.30 m/Working Days		7.73 m/day
		take to pieces	9°00'		9.4	50.30 m/Drilling Period		16.76 m/day
		Moving of water	-		-	50.30 m/Net Drilling Days		20.12 m/day
		Road & others	14°00'		14.6	Total workers/ 50.30 m		3.69 Man/m
		G Total	96°00'		100	Total Drilling Workers/50.30 m		1.96 Man/m
Casing Pipe Inserted		Pipe Size & Meterage	Inserted Length Drilling Length %	Recovery of Casing Pipe %	Drilling of Size			
		BW-CP 1.80 m	3.6 %	100 %	Bit size	BW	56-T	
		m	%	%	Drilling	1.80 m	48.50 m	
		m	%	%	Core Length	0.50	48.50	

Operational Results by Drill Hole

JMT-6

		Period		Number of Days	Actual Working Days	Day Off	Total Number of Workers		
		Working Period		Preparation	4th Oct. '87~5th Oct. '87	2	2	-	81
Drilling	6th Oct. '87~8th Oct. '87			3	2.5	-	61		
Removing				-	-	-	-		
Total	4th Oct. '87~8th Oct. '87			5	4.5	-	142		
Depth of Drilling				Core Recovery for each 100 m section					
Drilling Length		Planned Length	50.00 m	Overburden		Depth of Hole	Section	Total	
		Increase or Decrease in Length	0.40 m	Core Length	49.00 m	0 ~ 50.40 m	99.6 %	99.6 %	
		Length Drilled	50.40 m	Core Recovery	99.6 %	m	%	%	
						m	%	%	
Working Time		Drilling	38°00' ^H	63.3 %	48.7 %	m	%	%	
		Out Drilling	22°00'	36.7	28.2	m	%	%	
		Regain of Accident	-	-	-	Efficiency of Drilling			
		Total	60°00'	100	76.9	50.40 m/Working Period		10.08 m/day	
		Construct	5°00'		6.4	50.40 m/Working Days		11.20 m/day	
		take to pieces	13°00'		16.7	50.40 m/Drilling Period		16.80 m/day	
		Moving of water	-		-	50.40 m/Net Drilling Days		20.16 m/day	
		Road : others	-		-	Total workers/ 50.40 m		2.81 Man/m	
Casing Pipe Inserted		G · Total	78°00'		100	Total Drilling Workers/ 50.40 m		1.21 Man/m	
		Pipe Size & Meterage	Inserted Length : Drilling Length %	Recovery of Casing Pipe %	Drilling of Size				
		BW-CP 1.80 m	3.6 %	100 %	Bit size	BW	56-T		
		m	%	%	Drilling	1.80 m	48.60 m		
				Core Length	0.60	48.40			

Operational Results by Drill Hole

JMT-7

		Period		Number of Days	Actual Working Days	Day Off	Total Number of Workers
Working Period	Preparation	1st Nov. '87~3rd Nov. '87		3	2.5	-	86
	Drilling	3rd Nov. '87~5th Nov. '87		3	2.5	-	43
	Removing						
	Total	1st Nov. '87~5th Nov. '87		6	5	-	129
Depth of Drilling				Core Recovery for each 100 m section			
Drilling Length	Planned Length	50.00 m	Overburden		Depth of Hole	Section	Total
	Increase or Decrease in Length	0.20 m	Core Length	47.00 m	0 ~ 50.20 m	99.2 %	99.2 %
	Length Drilled	50.20 m	Core Recovery	99.2 %	m	%	%
Working Time	Drilling	33°00' ^H	55.0 %	37.9 %	m	%	%
	Out Drilling	27°00'	45.0	31.0	m	%	%
	Regain of Accident	-	-	-	Efficiency of Drilling		
	Total	60°00'	100	68.9	50.20 m/Working Period		8.36 m/day
	Construct	21°00'		24.1	50.20 m/Working Days		10.04 m/day
	take to pieces	6°00'		7.0	50.20 m/Drilling Period		16.73 m/day
	Moving of water	-		-	50.20 m/Net Drilling Days		20.08 m/day
Road · others	-		-				
G · Total	87°00'		100	Total workers/ 50.20 m		2.66 Man/m	
Casing Pipe Inserted	Pipe Size & Meterage	Inserted Length Drilling Length	%	Recovery of Casing Pipe	Total Drilling Workers/ 50.20 m		0.10 Man/m
	BW-CP 2.80 m	5.6 %	100 %	Drilling of Size			
	m	%	%	Bit size	BW	56-T	
	m	%	%	Drilling	2.80 m	47.40 m	
				Core Length	0	47.00	

Operational Results by Drill Hole

JMT-8

Working Period	Period		Number of Days	Actual Working Days	Day Off	Total Number of Workers	
	Preparation	29th Oct. '87~1st Nov. '87	4	3.5	-	80	
	Drilling	1st Nov. '87~3rd Nov. '87	3	2.5	-	53	
	Removing		-	-	-	-	
	Total	29th Oct. '87~3rd Nov. '87	7	6	-	133	
Depth of Drilling				Core Recovery for each 100 m section			
Drilling Length	Planned Length	50.00 ^m	Over-burden		Depth of Hole	Section	Total
	Increase or Decrease in Length	0.20 ^m	Core Length	48.10 ^m	0 ~ 50.20 m	98.4 %	98.4 %
	Length Drilled	50.20 ^m	Core Recovery	98.4 %	m	%	%
					m	%	%
Working Time	Drilling	31°00' ^H	56.4 %	25.2 %	m	%	%
	Out Drilling	24°00'	43.6	19.5	m	%	%
	Regain of Accident	-	-	-	Efficiency of Drilling		
	Total	55°00'	100	44.7	50.20 m/Working Period		7.17 m/day
	Construct	32°00'		26.0	50.20 m/Working Days		8.36 m/day
	take to pieces	-		-	50.20 m/Drilling Period		16.73 m/day
	Moving of water	-		-	50.20 m/Net Drilling Days		20.08 m/day
	Road - others	36°00'		29.3	Total workers/ 50.20 m		2.64 Man/m
G . Total	123°00'		100	Total Drilling Workers/ 50.20 m		1.05 Man/m	
Casing Pipe Inserted	Pipe Size & Meterage	Inserted Length Drilling Length	%	Recovery of Casing Pipe	Drilling of Size		
	BW-CP 2.10 m	4.2 %		100 %	Bit size	BW	56-T
	m	%		%	Drilling	2.10 ^m	48.10 ^m
	m	%		%	Core Length	0.80	47.30

Operational Results by Drill Hole

JMT-9

		Period		Number of Days	Actual Working Days	Day Off	Total Number of Workers
Working Period	Preparation	11th Oct. '87~14th Oct. '87		4	3.5	-	98
	Drilling	14th Oct. '87~16th Oct. '87		3	2	-	54
	Removing			-	-	-	-
	Total	11th Oct. '87~16th Oct. '87		7	5.5	-	152
Depth of Drilling				Core Recovery for each 100 m section			
Drilling Length	Planned Length	50.00 m	Over-burden		Depth of Hole	Section	Total
	Increase or Decrease in Length	0.10 m	Core Length	48.10 m	0 ~ 50.10 m	98.6 %	98.6 %
	Length Drilled	50.10 m	Core Recovery	98.6 %	m	%	%
					m	%	%
Working Time	Drilling	29°00' ^H	60.4 %	34.5 %	m	%	%
	Out Drilling	19°00'	39.6	22.6	m	%	%
	Regain of Accident	-	-	-	Efficiency of Drilling		
	Total	48°00'	100	57.1	50.10 m/Working Period		7.15 m/day
	Construct	14°00'		16.7	50.10 m/Working Days		9.10 m/day
	take to pieces	9°00'		10.7	50.10 m/Drilling Period		16.70 m/day
	Moving of water	-		-	50.10 m/Net Drilling Days		25.05 m/day
	Road · others	13°00'		15.5	Total workers/ 50.10 m		3.03 Man/m
	G · Total	84°00'		100	Total Drilling Workers/ 50.10 m		1.07 Man/m
	Casing Pipe Inserted	Pipe Size & Meterage	Inserted Length Drilling Length	%	Recovery of Casing Pipe	Drilling of Size	
BW-CP 1.80 m		3.6 %	100 %	Bit size	BW	56-T	
m		%	%	Drilling	1.80 m	48.30 m	
m		%	%	Core Length	0.50	47.60	

Operational Results by Drill Hole

JMT-10

Working Period	Period		Number of Days	Actual Working Days	Day Off	Total Number of Workers					
	Preparation	13th Oct. '87~16th Oct. '87		4	3.5	-	88				
	Drilling	16th Oct. '87~18th Oct. '87		3	2.5	-	57				
	Removing			-	-	-	-				
Total	13th Oct. '87~18th Oct. '87		7	6	-	145					
Depth of Drilling				Core Recovery for each 100 m section							
Drilling Length	Planned Length	50.00 m	Over-burden		Depth of Hole		Section		Total		
	Increase or Decrease in Length	0.10 m	Core Length	48.40 m	0 ~ 50.10 m	99.6 %		99.6 %			
	Length Drilled	50.10 m	Core Recovery	99.6 %		%		%			
Working Time	Drilling	36°00' ^H	60.0 %	34.3 %							
	Out Drilling	24°00'	40.0	22.9							
	Regain of Accident	-	-	-	Efficiency of Drilling						
	Total	60°00'	100	57.2	50.10 m/Working Period		7.15 m/day				
	Construct	16°00'		15.2	50.10 m/Working Days		8.35 m/day				
	take to pieces	9°00'		8.6	50.10 m/Drilling Period		16.70 m/day				
	Moving of water	-		-	50.10 m/Net Drilling Days		20.04 m/day				
	Road · others	20°00'		19.0	Total workers/ 50.10 m		2.89 Man/m				
G · Total	105°00'		100								
Casing Pipe Inserted	Pipe Size & Meterage		Inserted Length Drilling Length	%	Recovery of Casing Pipe	%	Total Drilling Workers/ 50.10 m				1.13 Man/m
							Drilling of Size				
	BW-CP 1.80 m	3.6 %	100 %		Bit size	BW	56-T				
	m	%	%		Drilling	1.80 m	48.30 m				
m	%	%		Core Length	0.30	48.10					

Operational Results by Drill Hole

JMT-11

		Period		Number of Days	Actual Working Days	Day Off	Total Number of Workers
Working Period	Preparation	9th Oct. '87~12th Oct. '87		4	3.5	-	125
	Drilling	12th Oct. '87~14th Oct. '87		3	2	-	52
	Removing			-	-	-	-
	Total	9th Oct. '87~14th Oct. '87		7	5.5	-	177
Depth of Drilling				Core Recovery for each 100 m section			
Drilling Length	Planned Length	50.00 m	Over-burden		Depth of Hole	Section	Total
	Increase or Decrease in Length	0.20 m	Core Length	48.80 m	0 ~ 50.20 m	99.2 %	99.2 %
	Length Drilled	50.20 m	Core Recovery	99.2 %			
Working Time	Drilling	25°30' ^H	53.1 %	19.3 %			
	Out Drilling	22°30'	46.9	17.1			
	Regain of Accident	-	-	-	Efficiency of Drilling		
	Total	48°00'	100	36.4	50.20 m/Working Period		7.17 m/day
	Construct	15°00'		11.4	50.20 m/Working Days		9.12 m/day
	Take to pieces	9°00'		6.8	50.20 m/Drilling Period		16.73 m/day
Moving of water	-		-	50.20 m/Net Drilling Days		25.1 m/day	
Road - others	60°00'		45.4	Total workers/ 50.20 m		3.52 Man/m	
G - Total	132°00'		100	Total Drilling Workers/ 50.20 m		1.03 Man/m	
Casing Pipe Inserted	Pipe Size & Meterage	Inserted Length Drilling Length	%	Recovery of Casing Pipe	Drilling of Size		
	BW-CP 1.80 m	3.6 %		100 %	Bit size	BW	56-T
	m	%		%	Drilling	1.80 m	48.40 m
	m	%		%	Core Length	0.80	48.00

Operational Results by Drill Hole

JMT-12

Working Period	Period				Number of Days	Actual Working Days	Day Off	Total Number of Workers				
	Preparation	5th Oct. '87 ~ 8th Oct. '87							4	3.5	-	106
	Drilling	8th Oct. '87 ~ 10th Oct. '87							3	2	-	37
	Removing								-	-	-	-
Total	5th Oct. '87 ~ 10th Oct. '87			7	5.5	-	143					
Depth of Drilling				Core Recovery for each 100 m section								
Drilling Length	Planned Length	m	Over-burden	m	Depth of Hole	Section	Total					
	Increase or Decrease in Length	0.20	Core Length	47.00	0 ~ 50.20 m	100 %	100 %					
	Length Drilled	50.20	Core Recovery	100 %	m	%	%					
Working Time	Drilling	26°00' ^H	54.2 %	31.0 %	m	%	%					
	Out Drilling	22°00'	45.8	26.2	m	%	%					
	Regain of Accident	-	-	-	Efficiency of Drilling							
	Total	48°00'	100	57.2	50.20 m/Working Period		7.17 m/day					
	Construct	9°00'		10.7	50.20 m/Working Days		9.12 m/day					
	take to pieces	18°00'		21.4	50.20 m/Drilling Period		16.73 m/day					
	Moving of water	-		-	50.20 m/Net Drilling Days		25.10 m/day					
	Road · others	9°00'		10.7	Total workers/ 50.20 m		2.84 Man/m					
G · Total	84°00'		100	Total Drilling Workers/ 50.20 m		0.73 Man/m						
Casing Pipe Inserted	Pipe Size & Meterage	Inserted Length Drilling Length	%	Recovery of Casing Pipe	Drilling of Size							
	BW-CP 4.40 m	8.8	%	100 %	Bit size	BW	56-T					
	m		%	%	Drilling	3.80 ^m	46.40 ^m					
	m		%	%	Core Length	0.60	46.40					

Operational Results by Drill Hole

JMT-13

		Period		Number of Days	Actual Working Days	Day Off	Total Number of Workers
Working Period	Preparation	8th Oct. '87~10th Oct. '87		3	2.5	-	65
	Drilling	10th Oct. '87~12th Oct. '87		3	2	-	50
	Removing			-	-	-	
	Total	8th Oct. '87~12th Oct. '87		6	4.5	-	115
Depth of Drilling				Core Recovery for each 100 m section			
Drilling Length	Planned Length	50.00 m	Overburden	m	Depth of Hole	Section	Total
	Increase or Decrease in Length	0.30 m	Core Length	49.00 m	0 ~ 50.30 m	100 %	100 %
	Length Drilled	50.30 m	Core Recovery	100 %	m	%	%
					m	%	%
Working Time	Drilling	27°00' ^H	56.3 %	29.0 %	m	%	%
	Out Drilling	21°00'	43.7	22.5	m	%	%
	Regain of Accident	-	-	-	Efficiency of Drilling		
	Total	48°00'	100	51.5	50.30 m/Working Period		8.38 m/day
	Construct	18°00'		19.4	50.30 m/Working Days		11.17 m/day
	take to pieces	9°00'		9.7	50.30 m/Drilling Period		16.76 m/day
	Moving of water	-		-	50.30 m/Net Drilling Days		25.15 m/day
	Road · others	18°00'		19.4	Total workers/ 50.30 m		2.28 Man/m
G · Total	93°00'		100				
Casing Pipe Inserted	Pipe Size & Meterage	Inserted Length Drilling Length	%	Recovery of Casing Pipe	Total Drilling Workers/ 50.30 m		0.99 Man/m
	BW-CP 1.80 m	3.6	%	100 %	Drilling of Size		
	m		%	%	Bit size	BW	56-T
	m		%	%	Drilling	1.80 m	48.50 m
					Core Length	0.50	48.50

Operational Results by Drill Hole

JMT-14

		Period		Number of Days	Actual Working Days	Day Off	Total Number of Workers
Working Period	Preparation	4th Nov. '87~5th Nov. '87		2	2	-	59
	Drilling	6th Nov. '87~7th Nov. '87		2	2	-	32
	Removing			-	-	-	-
	Total	4th Nov. '87~7th Nov. '87		4	4	-	91
Depth of Drilling				Core Recovery for each 100 m section			
Drilling Length	Planned Length	50.00 m	Overburden		Depth of Hole	Section	Total
	Increase or decrease in Length	0.20 m	Core Length	49.90 m	0 ~ 50.20 m	99.4 %	99.4 %
	Length Drilled	50.20 m	Core Recovery	99.4 %	m	%	%
					m	%	%
Working Time	Drilling	28°00' ^H	58.3 %	37.8 %	m	%	%
	Cut Drilling	20°00'	41.7	27.1	m	%	%
	Regain of Accident	-	-	-	Efficiency of Drilling		
	Total	48°00'	100	64.9	50.20 m/Working Period		12.55 m/day
	Construct	12°00'		16.2	50.20 m/Working Days		12.55 m/day
	Take to pieces	10°00'		13.5	50.20 m/Drilling Period		25.10 m/day
	Moving of water	-		-	50.20 m/Net Drilling Days		25.10 m/day
	Road & others	4°00'		5.4	Total workers/ 50.20 m		1.81 Man/m
Casing Pipe Inserted	G · Total	74°00'		100	Total Drilling Workers/ 50.20 m		0.63 Man/m
	Pipe Size & Meterage	Inserted Length Drilling Length	%	Recovery of Casing Pipe	Drilling of Size		
	BW-CP 1.60 m	3.2 %	100 %	Bit size	BW	56-T	
	m	%	%	Drilling	1.60 m	48.60 m	
	m	%	%	Core Length	1.60	48.30	

Operational Results by Drill Hole

JMT-15

		Period		Number of Days	Actual Working Days	Day Off	Total Number of Workers
		Working Period		Preparation	27th Oct. '87~29th Oct. '87	3	3
		Drilling	30th Oct. '87~31st Oct. '87	2	2	-	34
		Removing		-	-	-	-
		Total	27th Oct. '87~31st Oct. '87	5	5	-	126
Depth of Drilling				Core Recovery for each 100 m section			
Drilling Length	Planned Length	50.00 m	Over-burden		Depth of Hole	Section	Total
	Increase or Decrease in Length	0.20 m	Core Length	50.20 m	0 ~ 50.20 m	100 %	100 %
	Length Drilled	50.20 m	Core Recovery	100 %	m	%	%
Working Time	Drilling	29°00' ^H	60.4 %	34.5 %	m	%	%
	Out Drilling	19°00'	39.6	22.6	m	%	%
	Regain of Accident	-	-		Efficiency of Drilling		
	Total	48°00'	100	57.1	50.20 m/Working Period		10.04 m/day
	Construct	13°00'		15.5	50.20 m/Working Days		10.04 m/day
	take to pieces	14°00'		16.7	50.20 m/Drilling Period		25.10 m/day
	Moving of water	-		-	50.20 m/Net Drilling Days		25.10 m/day
Road · others	9°00'		10.7	Total workers/ 50.20 m		2.50 Man/m	
Casing Pipe Inserted	G · Total	84°00'		100	Total Drilling Workers/ 50.20 m		0.67 Man/m
	Pipe Size & Meterage	Inserted Length Drilling Length	%	Recovery of Casing Pipe	Drilling of Size		
	BW-CP 1.90 m	3.8 %		100 %	Bit size	BW	56-T
	m	%		%	Drilling	1.90 m	48.30 m
					Core Length	1.90	48.30

Operational Results by Drill Hole

JMT-16

		Period		Number of Days	Actual Working Days	Day Off	Total Number of Workers
Working Period	Preparation	22nd Oct. '87~24th Oct. '87		3	3	-	102
	Drilling	25th Oct. '87~27th Oct. '87		3	2.5	-	47
	Removing			-	-	-	-
	Total	22nd Oct. '87~27th Oct. '87		6	5.5	-	149
Depth of Drilling				Core Recovery for each 100 m section			
Drilling Length	Planned Length	50.00 m	Over-burden		Depth of Hole	Section	Total
	Increase or Decrease in Length	0.10 m	Core Length	49.10 m	0 ~ 50.10 m	100 %	100 %
	Length Drilled	50.10 m	Core Recovery	100 %	m	%	%
Working Time	Drilling	34°00' ^H	56.7 %	29.8 %	m	%	%
	Out Drilling	26°00'	43.3	22.8	m	%	%
	Regain of Accident	-	-	-	Efficiency of Drilling		
	Total	60°00'	100	52.6	50.10 m/Working Period		8.35 m/day
	Construct	14°00'		12.3	50.10 m/Working Days		9.10 m/day
	take to pieces	13°00'		11.4	50.10 m/Drilling Period		16.70 m/day
	Moving of water	-		-	50.10 m/Net Drilling Days		20.04 m/day
	Road - others	27°00'		23.7	Total workers/ 50.10 m		2.97 Man/m
G - Total	114°00'		100	Total Drilling Workers/ 50.10 m		0.93 Man/m	
Casing Pipe Inserted	Pipe Size & Meterage	Inserted Length Drilling Length	%	Recovery of Casing Pipe	Drilling of Size		
	BW-CP 1.80 m	3.6 %	100 %	Bit size	BW	56-T	
	m	%	%	Drilling	1.80 m	48.30 m	
	m	%	%	Core Length	0.80	48.30	

Operational Results by Drill Hole

JMT-17

Working Period	Period		Number of Days	Actual Working Days	Day Off	Total Number of Workers	
	Preparation	11th Oct. '87~19th Oct. '87	9	9	-	149	
	Drilling	20th Oct. '87~22nd Oct. '87	3	2.5	-	48	
	Removing		-	-	-	-	
	Total	11th Oct. '87~22nd Oct. '87	12	11.5	-	197	
Depth of Drilling				Core Recovery for each 100 m section			
Drilling Length	Planned Length	50.00 m	Over-burden		Depth of Hole	Section	Total
	Increase or Decrease in Length	0.10 m	Core Length	47.40 m	0 ~ 50.10 m	97.7 %	97.7 %
	Length Drilled	50.10 m	Core Recovery	97.7 %	m	%	%
					m	%	%
Working Time	Drilling	33°00' ^H	55.0 %	16.9 %	m	%	%
	Out Drilling	27°00'	45.0	13.8	m	%	%
	Regain of Accident	-	-	-	Efficiency of Drilling		
	Total	60°00'	100	30.7	50.10 m/Working Period		4.17 m/day
	Construct	14°00'		7.2	50.10 m/Working Days		4.35 m/day
	take to pieces	17°00'		8.7	50.10 m/Drilling Period		16.70 m/day
	Moving of water	-		-	50.10 m/Net Drilling Days		20.04 m/day
	Road - others	104°00'		53.4	Total workers/ 50.10 m		3.93 Man/m
G - Total	195°00'		100				
Casing Pipe Inserted	Pipe Size & Meterage	Inserted Length Drilling Length	%	Recovery of Casing Pipe	Total Drilling Workers/ 50.10 m		0.96 Man/m
					Drilling of Size		
	BW-CP 1.80 m	3.6 %	100 %	Bit size	BW	56-T	
	m	%	%	Drilling	1.80 m	48.30 m	
	m	%	%	Core Length	0.20	47.20	

Operational Results by Drill Hole

JMT-18

		Period		Number of Days	Actual Working Days	Day Off	Total Number of Workers
Working Period	Preparation	19th Oct. '87~21st Oct. '87		3	3	-	85
	Drilling	22nd Oct. '87~24th Oct. '87		3	2.5	-	48
	Removing			-	-	-	-
	Total	19th Oct. '87~24th Oct. '87		6	5.5	-	133
Depth of Drilling				Core Recovery for each 100 m section			
Drilling Length	Planned Length	50.00 ^m	Overburden		Depth of Hole	Section	Total
	Increase or Decrease in Length	0.10 ^m	Core Length	49.80 ^m	0 ~ 50.10 ^m	99.8 %	99.8 %
	Length Drilled	50.10 ^m	Core Recovery	99.8 %		%	%
Working Time	Drilling	35°00' ^H	58.3 %	33.0 %		%	%
	Out Drilling	25°00'	41.7	23.6		%	%
	Regain of Accident	-	-	-	Efficiency of Drilling		
	Total	60°00'	100	56.6	50.10 m/Working Period		8.35 m/day
	Construct	15°00'		14.2	50.10 m/Working Days		9.10 m/day
	take to pieces	13°00'		12.3	50.10 m/Drilling Period		16.70 m/day
	Moving of water	-		-	50.10 m/Net Drilling Days		20.04 m/day
Road - others	18°00'		16.9	Total workers/ 50.10 m		2.65 Man/m	
G · Total	106°00'		100				
Casing Pipe Inserted	Pipe Size & Meterage	Inserted Length Drilling Length	%	Recovery of Casing Pipe	Total Drilling Workers/ 50.10 m		0.95 Man/m
	BW-CP 1.90 m	3.8 %	100 %	Drilling of Size			
	m	%	%	Bit size	BW	56-T	
	m	%	%	Drilling	1.90 ^m	48.20 ^m	
				Core Length	1.70	48.10	

Operational Results by Drill Hole

JMT-19

Working Period	Period			Number of Days	Actual Working Days	Day Off	Total Number of Workers
	Preparation	25th Oct. '87~27th Oct. '87		3	5	-	170
		6th Nov. '87~ 7th Nov. '87		2			
	Drilling	28th Oct. '87~ 5th Nov. '87		9	13	-	120
		8th Nov. '87~11th Nov. '87		4			
Removing				-	-	-	-
Total	25th Oct. '87~11th Nov. '87			18	18	-	290
Depth of Drilling				Core Recovery for each 100 m section			
Drilling Length	Planned Length	m	Overburden	m	Depth of Hole	Section	Total
		50.00			0 ~ 50.10 m	83.1 %	83.1 %
	Increase or Decrease in Length	m	Core Length	m		%	%
		0.10		38.90			
Working Time	Length Drilled	m	Core Recovery	%		%	%
		50.10		83.1			
	Drilling	84°30' ^H	39.5 %	32.2 %			
	Out Drilling	69°30'	32.5	26.4			
Working Time	Regain of Accident	60°00'	28.0	22.8	Efficiency of Drilling		
	Total	214°00'	100	81.4	50.10 m/Working Period		2.78 m/day
	Construct	18°00'		6.8	50.10 m/Working Days		2.78 m/day
	take to pieces	27°00'		10.3	50.10 m/Drilling Period		3.85 m/day
	Moving of water	-		-	50.10 m/Net Drilling Days		3.85 m/day
	Road · others	4°00'		1.5	Total workers/ 50.10 m		5.78 Man/m
	G · Total	263°00'		100			
	Casing Pipe Inserted	Pipe Size & Meterage	Inserted Length Drilling Length	%	Recovery of Casing Pipe	Total Drilling Workers/ 50.10 m	
					Drilling of Size		
BW-CP 11.30m		22.6	%	100	Bit size	BW	56-T
m			%	%	Drilling	3.30 m	46.80 m
m			%	%	Core Length	0.00	38.90

Operational Results by Drill Hole

JMT-20

Working Period	Period			Number of Days	Actual Working Days	Day Off	Total Number of Workers
	Preparation	19th Nov. '87~21st Nov. '87		3	2.5	-	68
	Drilling	21st Nov. '87~23th Nov. '87		3	2.5	-	56
	Removing	22nd Nov. '87~30th Nov. '87		9	9	-	-
	Total	19th Nov. '87~30th Nov. '87		15	14	-	124
Depth of Drilling				Core Recovery for each 100 m section			
Drilling Length	Planned Length	50.00 ^m	Over-burden		Depth of Hole	Section	Total
	Increase or Decrease in Length	0.20 ^m	Core Length	48.20 ^m	0 ~ 50.20 m	99.2 %	99.2 %
	Length Drilled	50.20 ^m	Core Recovery	99.2 %	m	%	%
					m	%	%
Working Time	Drilling	34°00' ^H	56.7 %	39.1 %	m	%	%
	Out Drilling	26°00'	43.3	29.9	m	%	%
	Regain of Accident	-	-	-	Efficiency of Drilling		
	Total	60°00'	100	69.0	50.20 m/Working Period		3.34 m/day
	Construct	18°00'		20.7	50.20 m/Working Days		3.58 m/day
	take to pieces	9°00'		10.3	50.20 m/Drilling Period		16.73 m/day
	Moving of water	-		-	50.20 m/Net Drilling Days		20.08 m/day
	Road · others	-		-	Total workers/ 50.20 m		2.47 Man/m
G · Total	87°00'		100	Total Drilling Workers/ 50.20 m		1.11 Man/m	
Casing Pipe Inserted	Pipe Size & Meterage	Inserted Length Drilling Length	%	Recovery of Casing Pipe	Drilling of Size		
	BW-CP 1.90 m	3.8	%	100 %	Bit size	BW	55-T
	m		%	%	Drilling	1.90 ^m	48.30 ^m
	m		%	%	Core Length	0.30	47.90

Operational Results by Drill Hole

JMT-21

Working Period	Period			Number of Days	Actual Working Days	Day Off	Total Number of Workers	
	Preparation	17th Nov. '87~19th Nov. '87		3	2.5	-	76	
	Drilling	19th Nov. '87~21st Nov. '87		3	2	-	44	
	Removing			-	-	-	-	
	Total	17th Nov. '87~21st Nov. '87		6	4.5	-	120	
Depth of Drilling				Core Recovery for each 100 m section				
Drilling Length	Planned Length	50.00 m	Overburden		Depth of Hole	Section	Total	
	Increase or Decrease in Length	0.10 m	Core Length	49.30 m	0 ~ 50.10 m	98.4 %	98.4 %	
	Length Drilled	50.10 m	Core Recovery	98.4 %	m	%	%	
Working Time	Drilling	27°30' ^H	57.3 %	32.7 %	m	%	%	
	Out Drilling	20°30'	42.7	24.4	m	%	%	
	Regain of Accident	-	-	-	Efficiency of Drilling			
	Total	48°00'	100	57.1	50.10 m/Working Period		8.35 m/day	
	Construct	18°00'		21.5	50.10 m/Working Days		11.13 m/day	
	Take to pieces	9°00'		10.7	50.10 m/Drilling Period		16.76 m/day	
	Moving of water	-		-	50.10 m/Net Drilling Days		25.05 m/day	
Road others	9°00'		10.7	Total workers/ 50.10 m		2.39 Man/m		
G Total	84°00'		100					
Casing Pipe Inserted	Pipe Size & Meterage	Inserted Length Drilling Length	%	Recovery of Casing Pipe	Total Drilling Workers/ 50.10m			
					1.13 Man/m			
					Drilling of Size			
	BW-CP 2.00 m	4.00 m	%	100 %	Bit size	BW	56-T	
		%	%	Drilling	2.00 m	48.10 m		
		%	%	Core Length	2.00	47.30		

Operational Results by Drill Hole

JMT-22

Working Period	Period		Number of Days	Actual Working Days	Day Off	Total Number of Workers	
	Preparation	8th Nov. '87~11th Nov. '87		4	3	1	70
	Drilling	12th Nov. '87~14th Nov. '87		3	2.5	-	45
	Removing			-	-	-	-
Total	8th Nov. '87~14th Nov. '87		7	5.5	1	115	
Depth of Drilling				Core Recovery for each 100 m section			
Drilling Length	Planned Length	50.00 ^m	Over-burden		Depth of Hole	Section	Total
	Increase or Decrease in Length	0.20 ^m	Core Length	41.80 ^m	0 ~ 50.20 m	86.4 %	86.4 %
	Length Drilled	50.20 ^m	Core Recovery	86.4 %		%	%
						%	%
Working Time	Drilling	35°30' ^H	59.2 %	45.5 %		%	%
	Out Drilling	24°30'	40.8	31.4		%	%
	Regain of Accident	-	-	-	Efficiency of Drilling		
	Total	60°00'	100	76.9	50.20 m/Working Period		7.17 m/day
	Construct	12°00'		15.4	50.20 m/Working Days		9.12 m/day
	take to pieces	6°00'		7.7	50.20 m/Drilling Period		16.73 m/day
	Moving of water	-		-	50.20 m/Net Drilling Days		20.08 m/day
	Road & others	-		-	Total workers/ 50.20 m		2.29 Man/m
G · Total	78°00'		100				
Casing Pipe Inserted	Pipe Size & Meterage	Inserted Length Drilling Length	%	Recovery of Casing Pipe	Total Drilling Workers/ 50.20 m		0.89 Man/m
					Drilling of Size		
	BW-CP 2.80 m	5.6	%	100 %	Bit size	BW	56-T
	m		%	%	Drilling	2.00 ^m	48.20 ^m
		%	%	Core Length	0.20	41.60	

Operational Results by Drill Hole

JMT-23

		Period		Number of Days	Actual Working Days	Day Off	Total Number of Workers
Working Period	Preparation	15th Nov. '87~16th Nov. '87		2	2	-	83
	Drilling	17th Nov. '87~19th Nov. '87		3	2.5	-	55
	Removing			-	-	-	-
	Total	15th Nov. '87~19th Nov. '87		5	4.5	-	138
Depth of Drilling				Core Recovery for each 100 m section			
Drilling Length	Planned Length	50.00 m	Over-burden	m	Depth of Hole	Section	Total
	Increase or Decrease in Length	0.20 m	Core Length	45.70 m	0 ~ 50.20 m	95.4 %	95.4 %
	Length Drilled	50.20 m	Core Recovery	95.4 %	m	%	%
Working Time	Drilling	33°30' ^H	55.8 %	38.5 %	m	%	%
	Out Drilling	26°30'	44.2	30.5	m	%	%
	Regain of Accident	-	-	-	Efficiency of Drilling		
	Total	60°00'	100	69.0	50.20 m/Working Period		10.04 m/day
	Construct	11°00'		12.6	50.20 m/Working Days		11.15 m/day
	take to pieces	7°00'		8.1	50.20 m/Drilling Period		16.73 m/day
	Moving of water	-		-	50.20 m/Net Drilling Days		20.08 m/day
	Road · others	9°00'		10.3	Total workers/ 50.20 m		2.74 Man/m
Casing Pipe Inserted	G · Total	87°00'		100	Total Drilling Workers/ 50.20 m		1.09 Man/m
	Pipe Size & Meterage	Inserted Length Drilling Length	%	Recovery of Casing Pipe	Drilling of Size		
	BW-CP 2.30 m	4.6 %		100 %	Bit size	BW	56-T
	m	%		%	Drilling	2.30 m	47.90 m
	m	%		%	Core Length	0.00	45.70

Operational Results by Drill Hole

JMT-24

		Period		Number of Days	Actual Working Days	Day Off	Total Number of Workers
Working Period	Preparation	12th Nov. '87~14th Nov. '87		3	2.5	-	84
	Drilling	14th Nov. '87~16th Nov. '87		3	2.5	-	54
	Removing			-	-	-	-
	Total	12th Nov. '87~16th Nov. '87		6	5.0	-	138
Depth of Drilling				Core Recovery for each 100 m section			
Drilling Length	Planned Length	50.00 m	Over-burden		Depth of Hole	Section	Total
	Increase or Decrease in Length	0.10 m	Core Length	44.70 m	0 ~ 50.10 m	91.6 %	91.6 %
	Length Drilled	50.10 m	Core Recovery	91.6 %	m	%	%
Working Time	Drilling	31°30' ^H	52.5 %	36.2 %	m	%	%
	Out Drilling	28°30'	47.5	32.8	m	%	%
	Regain of Accident	-	-	-	Efficiency of Drilling		
	Total	60°00'	100	69.0	50.10 m/Working Period		8.35 m/day
	Construct	18°00'		20.7	50.10 m/Working Days		10.02 m/day
	take to pieces	9°00'		10.3	50.10 m/Drilling Period		16.70 m/day
	Moving of water	-		-	50.10 m/Net Drilling Days		20.04 m/day
Road - others	-		-				
G - Total	87°00'		100	Total workers/ 50.10 m		2.75 Man/m	
Casing Pipe Inserted	Pipe Size & Meterage	Inserted Length Drilling Length	%	Recovery of Casing Pipe	Total Drilling Workers/ 50.10 m		1.07 Man/m
	Drilling of Size						
	BW-CP 1.80 m	3.6 %		100 %	Bit size	BW	56-T
	m	%		%	Drilling	1.80 m	48.30 m
	m	%		%	Core Length	0.50	44.20

Operational Results by Drill Hole

JMS-1

Working Period	Period			Number of Days	Actual Working Days	Day Off	Total Number of Workers	
	Preparation	6th Aug. '87~12th Aug. '87			7	7	-	236
	Drilling	13th Aug. '87~16th Aug. '87			4	4	-	43
	Removing	17th Aug. '87~17th Aug. '87			1	1	-	16
	Total	6th Aug. '87~17th Aug. '87			12	12	-	295
Depth of Drilling				Core Recovery for each 100 m section				
Drilling Length	Planned Length	m	Over-burden	m	Depth of Hole	Section	Total	
	Increase or Decrease in Length	0.45	Core Length	48.95	0 ~ 50.45 m	97.8 %	97.8 %	
	Length Drilled	50.45	Core Recovery	97.8 %	m	%	%	
					m	%	%	
Working Time	Drilling	35°00'	68.6 %	23.5 %	m	%	%	
	Out Drilling	16°00'	31.4	10.7	m	%	%	
	Regain of Accident	-	-	-	Efficiency of Drilling			
	Total	51°00'	100	34.2	50.45 m/Working Period		4.20 m/day	
	Construct	18°00'	-	12.1	50.45 m/Working Days		4.20 m/day	
	take to pieces	4°00'	-	2.7	50.45 m/Drilling Period		12.61 m/day	
	Moving of water	-	-	-	50.45 m/Net Drilling Days		12.61 m/day	
Road · others	76°00'	-	51.0	Total workers/ 50.45 m		5.84 Man/m		
G · Total	149°00'	-	100	Total Drilling Workers/ 50.45 m		0.85 Man/m		
Casing Pipe Inserted	Pipe Size & Meterage	Inserted Length Drilling Length	%	Recovery of Casing Pipe	Drilling of Size			
	BW-CP 1.80 m	3.6	%	100 %	Bit size	BW	56-T	
	m		%	%	Drilling	1.80 m	48.65 m	
	m		%	%	Core Length	1.40	47.55	

Operational Results by Drill Hole

JMS-2

Working Period	Period			Number of Days	Actual Working Days	Day Off	Total Number of Workers	
	Preparation	13th Aug. '87~16th Aug. '87		4	4	-	100	
	Drilling	17th Aug. '87~22nd Aug. '87		6	5	-	126	
	Removing			-	-	-	-	
Total	13th Ago. '87~22nd Aug. '87		10	9	-	226		
Depth of Drilling				Core Recovery for each 100 m section				
Drilling Length	Planned Length	50.00 ^m	Over-burden		Depth of Hole	Section	Total	
	Increase or Decrease in Length	0.10 ^m	Core Length	47.50 ^m	0 ~ 50.10 m	97.5 %	97.5 %	
	Length Drilled	50.10 ^m	Core Recovery	97.5 %	m	%	%	
Working Time	Drilling	51°00' ^H	42.5 %	29.3 %	m	%	%	
	Out Drilling	69°00'	57.5	39.7	m	%	%	
	Regain of Accident	-	-	-	Efficiency of Drilling			
	Total	120°00'	100	69.0	50.10 m/Working Period		5.01 m/day	
	Construct	9°00'	-	5.2	50.10 m/Working Days		5.56 m/day	
	take to pieces	18°00'	-	10.3	50.10 m/Drilling Period		8.35 m/day	
	Moving of water	-	-	-	50.10 m/Net Drilling Days		10.02 m/day	
Road . others	27°00'	-	15.5	Total workers/ 50.10 m		4.51 Man/m		
G . Total	174°00'	-	100					
Casing Pipe Inserted	Pipe Size & Meterage	Inserted Length Drilling Length	%	Recovery of Casing Pipe	Total Drilling Workers/50.10 m			
					2.51 Man/m			
					Drilling of Size			
	BW-CP 12.90 m	25.7	%	100 %	Bit size	BW	56-T	
m		%	%	Drilling	1.90 ^m	48.20 ^m		
m		%	%	Core Length	0.50	47.00		

Operational Results by Drill Hole

JMS-3

Working Period	Period			Number of Days	Actual Working Days	Day Off	Total Number of Workers	
	Preparation	17th Aug. '87~20th Aug. '87			4	4	-	99
	Drilling	23rd Aug. '87~26th Aug. '87			4	4	-	82
	Removing	27th Aug. '87~27th Aug. '87			1	1	-	11
Total	17th Aug. '87~20th Aug. '87 23rd Aug. '87~27th Aug. '87			9	9	-	192	
Depth of Drilling				Core Recovery for each 100 m section				
Drilling Length	Planned Length	50.00 m	Over-burden		Depth of Hole	Section	Total	
	Increase or Decrease in Length	8.00 m	Core Length	55.90 m	0 ~ 58.00 m	99.6 %	99.6 %	
	Length Drilled	58.00 m	Core Recovery	99.6 %				
Working Time	Drilling	48°00' ^H	50.0 %	35.3 %				
	Out Drilling	48°00'	50.0	35.3				
Regain of Accident	-	-	-	-	Efficiency of Drilling			
Total	96°00'	100	70.6	58.00 m/Working Period	6.44 m/day			
Construct	15°00'	-	11.0	58.00 m/Working Days	6.44 m/day			
Take to pieces	16°00'	-	11.8	58.00 m/Drilling Period	14.50 m/day			
Moving of water	-	-	-	58.00 m/Net Drilling Days	14.50 m/day			
Road - others	9°00'	-	6.6	Total workers/ 58.00 m	3.31 Man/m			
G - Total	136°00'	-	100	Total Drilling Workers/58.00 m	1.41 Man/m			
Casing Pipe Inserted	Pipe Size & Meterage	Inserted Length Drilling Length	%	Recovery of Casing Pipe	Drilling of Size			
	BW-CP 16.20 m	27.9	%	100 %	Bit size	BW	56-T	
	m		%	%	Drilling	2.90 m	55.10 m	
	m		%	%	Core Length	1.00	54.90	

Operational Results by Drill Hole

JMS-4

Working Period	Period				Number of Days	Actual Working Days	Day Off	Total Number of Workers	
	Preparation	30th Aug. '87~3rd Sep. '87				5	4.5	-	143
	Drilling	3rd Sep. '87~5th Sep. '87				3	2.5	-	64
	Removing					-	-	-	-
Total	30th Aug. '87~5th Sep. '87				8	7	-	207	
Depth of Drilling					Core Recovery for each 100 m section				
Drilling Length	Planned Length	50.00 m	Over-burden		Depth of Hole	Section	Total		
	Increase or Decrease in Length	3.30 m	Core Length	50.80 m	0 ~ 53.30 m	95.7 %	95.7 %		
	Length Drilled	53.30 m	Core Recovery	95.7 %	m	%	% %		
Working Time	Drilling	37°00' ^H	51.4 %	34.3 %	m	%	% %		
	Out Drilling	35°00'	48.6	32.4	m	%	% %		
	Regain of Accident	-	-	-	Efficiency of Drilling				
	Total	72°00'	100	66.7	53.30 m/Working Period		6.66 m/day		
	Construct	14°00'	-	13.0	53.30 m/Working Days		7.61 m/day		
	take to pieces	22°00'	-	20.3	53.30 m/Drilling Period		17.76 m/day		
	Moving of water	-	-	-	53.30 m/Net Drilling Days		21.32 m/day		
	Road · others	-	-	-	Total workers/ 53.30 m		3.88 Man/m		
G · Total	108°00'	-	100	Total Drilling Workers/53.30 m		1.20 Man/m			
Casing Pipe Inserted	Pipe Size & Meterage	Inserted Length Drilling Length	%	Recovery of Casing Pipe	Drilling of Size				
	BW-CP 1.80 m	3.4	%	100 %	Bit size	BW	56-T		
	m		%	%	Drilling	1.80 m	51.50 m		
	m		%	%	Core Length	1.60	49.20		

Operational Results by Drill Hole

JMS-5

Working Period	Period		Number of Days	Actual Working Days	Day Off	Total Number of Workers	
	Preparation	21st Aug. '87~24th Aug. '87	4	4	-	137	
	Drilling	27th Aug. '87~29th Ago. '87	3	3	-	63	
	Removing		-	-	-	-	
Total	21st Aug. '87~24th Aug. '87 27th Aug. '87~29th Aug. '87	7	7	-	200		
Depth of Drilling				Core Recovery for each 100 m section			
Drilling Length	Planned Length	50.00 m	Over-burden		Depth of Hole	Section	Total
	Increase or Decrease in Length	3.20 m	Core Length	51.30 m	0 ~ 53.20 m	100 %	100 %
	Length Drilled	53.20 m	Core Recovery	100 %	m	%	%
					m	%	%
Working Time	Drilling	32°00' ^H	44.4 %	18.7 %	m	%	%
	Out Drilling	40°00'	55.6	23.4	m	%	%
	Regain of Accident	-	-	-	Efficiency of Drilling		
	Total	72°00'	100	42.1	53.20 m/Working Period		7.60 m/day
	Construct	27°00'	-	15.8	53.20 m/Working Days		7.60 m/day
	take to pieces	9°00'	-	5.3	53.20 m/Drilling Period		17.73 m/day
	Moving of water	-	-	-	53.20 m/Net Drilling Days		17.73 m/day
	Road - others	63°00'	-	36.8	Total workers/ 53.20 m		3.75 Man/m
G - Total	171°00'	-	100				
Casing Pipe Inserted	Pipe Size & Meterage	Inserted Length Drilling Length	%	Recovery of Casing Pipe	Total Drilling Workers/ 53.20 m		
	BW-CP 2.10 m	3.9 m	%	100 %	1.18 Man/m		
			%	%	Drilling of Size		
			%	%	Bit size	BW	56-T
		%	%	Drilling	1.90 m	51.30 m	
		%	%	Core Length	0.00	51.30	

Operational Results by Drill Hole

JMS-6

		Period		Number of Days	Actual Working Days	Day Off	Total Number of Workers
Working Period	Preparation	24th Aug. '87~29th Ago. '87		6	6	-	190
	Drilling	30th Aug. '87~ 2nd Sep. '87		4	3.5	-	109.5
	Removing	2nd Sep. '87~ 2nd Sep. '87		1	0.5	-	10.5
	Total	24th Aug. '87~ 2nd Sep. '87		11	10	-	310
Depth of Drilling				Core Recovery for each 100 m section			
Drilling Length	Planned Length	50.00 m	Over-burden		Depth of Hole	Section	Total
	Increase or Decrease in Length	0.10 m	Core Length	43.20 m	0 ~ 50.10 m	97.1 %	97.1 %
	Length Drilled	50.10 m	Core Recovery	97.1 %			
Working Time	Drilling	42°00' ^H	46.7 %	28.6 %			
	Out Drilling	48°00'	53.3	32.7			
	Regain of Accident	-	-	-	Efficiency of Drilling		
	Total	90°00'	100	61.3	50.10 m/Working Period		4.55 m/day
	Construct	14°00'	-	9.5	50.10 m/Working Days		5.01 m/day
	take to pieces	16°00'	-	10.9	50.10 m/Drilling Period		12.52 m/day
	Moving of water	-	-	-	50.10 m/Net Drilling Days		14.31 m/day
Road · others	27°00'	-	18.3	Total workers/ 50.10 m		6.18 Man/m	
G · Total	147°00'	-	100				
Casing Pipe Inserted	Pipe Size & Meterage	Inserted Length Drilling Length	%	Recovery of Casing Pipe	Total Drilling Workers/50.10 m		2.18 Man/m
	BW-CP 5.60 m	11.2 %		100 %	Drilling of Size		
	m	%		%	Bit size	BW	55-T
	m	%		%	Drilling	5.60 m	44.50 m
					Core Length	0.00	43.20

Operational Results by Drill Hole

JMS-7

		Period		Number of Days	Actual Working Days	Day Off	Total Number of Workers	
Working Period	Preparation	11th Sep. '87~13th Sep. '87		3	3	-	78	
	Drilling	14th Sep. '87~16th Sep. '87		3	3	-	76	
	Removing			-	-	-	-	
	Total	11th Sep. '87~16th Sep. '87		6	6	-	154	
Depth of Drilling				Core Recovery for each 100 m section				
Drilling Length	Planned Length	50.00 m	Overburden	m	Depth of Hole	Section	Total	
	Increase or Decrease in Length	0.10 m	Core Length	40.90 m	0 ~ 50.10 m	84.3 %	84.3 %	
	Length Drilled	50.10 m	Core Recovery	84.3 %	m	%	%	
Working Time	Drilling	33°00' ^H	45.8 %	25.5 %	m	%	%	
	Out Drilling	39°00'	54.2	30.2	m	%	%	
	Regain of Accident	-	-	-	Efficiency of Drilling			
	Total	72°00'	100	55.7	50.10 m/Working Period		8.35 m/day	
	Construct	21°00'	-	16.3	50.10 m/Working Days		8.35 m/day	
	take to pieces	18°00'	-	14.0	50.10 m/Drilling Period		16.70 m/day	
	Moving of water	-	-	-	50.10 m/Net Drilling Days		16.70 m/day	
	Road : others	18°00'	-	14.0	Total workers/ 50.10 m		3.07 Man/m	
Casing Pipe Inserted	Pipe Size & Meterage	Inserted Length Drilling Length	%	Recovery of Casing Pipe	%	Total Drilling Workers/50.10 m		1.51 Man/m
						Drilling of Size		
	BW-CP 2.00 m	4.0 %	100 %	Bit size	BW	56-T		
	m	%	%	Drilling	2.00 m	48.10 m		
	m	%	%	Core Length	0.40	40.50		

Operational Results by Drill Hole

JMS-8

Working Period		Period		Number of Days	Actual Working Days	Day Off	Total Number of Workers
Preparation		8th Sep. '87~11th Sep. '87		4	3.5	-	121
Drilling		11th Sep. '87~13th Sep. '87		3	2.5	-	79
Removing				-	-	-	-
Total		8th Sep. '87~13th Sep. '87		7	6	-	200
Depth of Drilling				Core Recovery for each 100 m section			
Drilling Length	Planned Length	50.00 m	Over-burden		Depth of Hole	Section	Total
	Increase or Decrease in Length	7.80 m	Core Length	38.35 m	0 ~ 42.20 m	94.5 %	94.5 %
	Length Drilled	42.20 m	Core Recovery	94.5 %	m	%	%
Working Time	Drilling	26°00' ^H	43.3 %	27.1 %	m	%	%
	Out Drilling	34°00'	56.7	35.4	m	%	%
	Regain of Accident	-	-	-	Efficiency of Drilling		
	Total	60°00'	100	62.5	42.20 m/Working Period		6.02 m/day
	Construct	17°00'	-	17.7	42.20 m/Working Days		7.03 m/day
	take to pieces	10°00'	-	10.4	42.20 m/Drilling Period		14.06 m/day
	Moving of water	-	-	-	42.20 m/Net Drilling Days		16.88 m/day
Road & others	9°00'	-	9.4	Total workers/ 42.20 m		4.73 Man/m	
G - Total	96°00'	-	100	Total Drilling Workers/ 42.20 m		1.87 Man/m	
Casing Pipe Inserted	Pipe Size & Meterage	Inserted Length Drilling Length	%	Recovery of Casing Pipe	Drilling of Size		
	BW-CP 2.00 m	4.7	%	100 %	Bit size	BW	56-T
	m		%	%	Drilling	2.00 m	40.20 m
	m		%	%	Core Length	0.30	38.05

Operational Results by Drill Hole

JMS-9

		Period		Number of Days	Actual Working Days	Day Off	Total Number of Workers
Working Period	Preparation	2nd Sep. '87~ 5th Sep. '87		4	4	-	108
	Drilling	6th Sep. '87~ 8th Sep. '87		3	3	-	105
	Removing			-	-	-	-
	Total	2nd Sep. '87~ 8th Sep. '87		7	7	-	213
Depth of Drilling				Core Recovery for each 100 m section			
Drilling Length	Planned Length	50.00 m	Over-burden		Depth of Hole	Section	Total
	Increase or Decrease in Length	0.20 m	Core Length	44.30 m	0 ~ 50.20 m	90.0 %	90.0 %
	Length Drilled	50.20 m	Core Recovery	90.0 %			
Working Time	Drilling	32°00' ^H	44.4 %	25.4 %			
	Out Drilling	40°00'	55.6	31.8			
	Regain of Accident	-	-	-	Efficiency of Drilling		
	Total	72°00'	100	57.2	50.20 m/Working Period		7.17 m/day
	Construct	14°00'	-	11.1	50.20 m/Working Days		7.17 m/day
	take to pieces	13°00'	-	10.3	50.20 m/Drilling Period		16.73 m/day
	Moving of water	-	-	-	50.20 m/Net Drilling Days		16.73 m/day
Road . others	27°00'	-	21.4	Total workers/ 50.20 m		4.23 Man/m	
G · Total	126°00'	-	100	Total Drilling Workers/ 50.20 m		2.09 Man/m	
Casing Pipe Inserted	Pipe Size & Meterage	Inserted Length Drilling Length	%	Recovery of Casing Pipe	Drilling of Size		
	BW-CP 1.80 m	3.6	%	100 %	Bit size	BW	56-T
	m		%	%	Drilling	1.80 m	48.40 m
	m		%	%	Core Length	0.80	43.50

Operational Results by Drill Hole

JMS-10

		Period		Number of Days	Actual Working Days	Day Off	Total Number of Workers
Working Period	Preparation	5th Sep. '87 ~ 8th Sep. '87		4	4	-	127
	Drilling	9th Sep. '87 ~ 11th Sep. '87		3	3	-	32
	Removing			-	-	-	-
	Total	5th Sep. '87 ~ 11th Sep. '87		7	7	-	159
Depth of Drilling				Core Recovery for each 100 m section			
Drilling Length	Planned Length	50.00 m	Over-burden		Depth of Hole	Section	Total
	Increase or Decrease in Length	1.00 m	Core Length	47.10 m	0 ~ 51.00 m	91.9 %	91.9 %
	Length Drilled	51.00 m	Core Recovery	91.9 %	m	%	%
					m	%	%
Working Time	Drilling	40°00' ^H	55.6 %	34.2 %	m	%	%
	Out Drilling	32°00'	44.4	27.4	m	%	%
	Regain of Accident	-	-	-	Efficiency of Drilling		
	Total	72°00'	100	61.6	51.00 m/Working Period		7.28 m/day
	Construct	15°00'	-	12.8	51.00 m/Working Days		7.28 m/day
	take to pieces	9°00'	-	7.7	51.00 m/Drilling Period		17.00 m/day
	Moving of water	-	-	-	51.00 m/Net Drilling Days		17.00 m/day
	Road - others	21°00'	-	17.9	Total workers/ 51.00 m		3.11 Man/m
	G . Total	117°00'	-	100	Total Drilling Workers/51.00 m		0.62 Man/m
Casing Pipe Inserted	Pipe Size & Meterage	Inserted Length Drilling Length	%	Recovery of Casing Pipe	Drilling of Size		
	BW-CP 2.80 m	5.5 %	100 %	Bit size	BW	56-T	
	m	%	%	Drilling	2.80 m	48.20 m	
	m	%	%	Core Length	0.50	46.60	

Operational Results by Drill Hole

JMS-11

		Period		Number of Days	Actual Working Days	Day Off	Total Number of Workers
Working Period	Preparation	13th Sep. '87~16th Sep. '87		4	4	-	85
	Drilling	17th Sep. '87~19th Sep. '87		3	3	-	73
	Removing	17th Sep. '87~19th Sep. '87 20th Sep. '87~21st Sep. '87		5	5	-	141
	Total	13th Sep. '87~21st Sep. '87		12	12	-	299
Depth of Drilling				Core Recovery for each 100 m section			
Drilling Length	Planned Length	50.00 m	Overburden	m	Depth of Hole	Section	Total
	Increase or Decrease in Length	0.20 m	Core Length	42.40 m	0 ~ 50.20 m	85.7 %	85.7 %
	Length Drilled	50.20 m	Core Recovery	85.7 %	m	%	%
Working Time	Drilling	29°00' ^H	40.3 %	26.8 %	m	%	%
	Out Drilling	43°00'	59.7	39.8	m	%	%
	Regain of Accident	-	-	-	Efficiency of Drilling		
	Total	72°00'	100	66.6	50.20 m/Working Period		4.18 m/day
	Construct	18°00'	-	16.7	50.20 m/Working Days		4.18 m/day
	take to pieces	18°00'	-	16.7	50.20 m/Drilling Period		10.04 m/day
	Moving of water	-	-	-	50.20 m/Net Drilling Days		10.04 m/day
	Road ·· others	-	-	-	Total workers/ 50.20 m		5.95 Man/m
G · Total	108°00'	-	100				
Casing Pipe Inserted	Pipe Size & Meterage	Inserted Length Drilling Length	%	Recovery of Casing Pipe	Total Drilling Workers/ 50.20 m		1.45 Man/m
	BW-CP 5.30 m	10.6 %	100 %	Drilling of Size			
	m	%	%	Bit size	BW	56-T	
	m	%	%	Drilling	1.80 m	48.40 m	
				Core Length	1.10	41.30	

Appendix 8

List of the used equipments for drilling

List of the Used Equipments for Drilling

Item	Model	Quantity	Capacity, Type, and Specification
Drilling Machine	YBM-05DA	2	Capacity 56mm 55m Inner Diameter of Spindle 42mm
Engine for Drill	DY-41B	2	Diesel Engine 7.5PS/1800rpm
Pump	MG-5A	1	Piston ϕ 68mm Capacity 35 ^v 42 l/min.
Engine for Drill	NFA-70	1	Diesel Engine
Generator	XG 38L	1	3.4KVA, 220V, 50 c/s
Engine for Generator	EY27-2D	1	Gasoline Engine 7.0PS/1800rpm
Pump	TAA600K	2	Capacity 42.8 l/min. Pressure 40 kg/cm ²
Engine for Pump	L60SSNT	2	Diesel Engine 6.0PS/1800rpm
Derrick			
Rod Holder	RH-45	1	Hand Type
Drill Rods	40.5	25	3.00 M/pc
	40.5	25	1.50 M/pc
Casing Pipes	BW	5	1.5 M/pc
	"	5	1.0 M/pc
	"	5	0.5 M/pc
	"	5	0.3 M/pc
Double Core Barrel	56-T	2	3.00 M/pc
	"	3	1.50 M/pc
Inner Tube	56-T	1	3.00 M/pc
	"	1	1.50 M/pc

Appendix 9

Articles of consumption and drilling parts

Articles of Consumption and Drilling Parts

Description	Specification	Unit	Quantity			
			JMS Songue	JMT Thundulu	JMT Natach	Total
Light Oil	40#	ℓ	54	35	22	111
Mobil Oil	30#	ℓ	58	28	38	124
Hydraulic Oil	90#	ℓ	65	30	60	155
Solblu	EM	ℓ	160	73	372	461
TK-60		kg	77.6	26.5	36.7	140.8
Cement		kg	200	-	280	480
Casing Metal Shoe		pc	6	1	2	9
Double Core Barrel Assy	56mmx3.00m	set	1	1		2
Double Core Barrel Assy	56mmx1.50m	set	1	1	1	3
Inner Tube	56mmx3.00m	set			1	1
Inner Tube	56mmx1.50m	set			1	1
Extension Tube		pc	4	5	5	14
Core Lifter		pc	5	5	6	16
Core Lifter Case		pc	3	4	6	13
Drill Rod	40.5mmx3.00m	pc	4	6	6	16
Drill Rod	40.5mmx1.50m	pc	3	7	8	18
Drill Rod Coupling	40.5mm	pc		3	5	8
Casing Pipe	BWx1.50m	pc	1	1	1	3
Casing Pipe	BWx1.00m	pc	1	1	1	3
Casing Pipe	BWx0.50m	pc	1	1	1	3
Casing Pipe	BWx0.30m	pc	1	1	2	4
Core Box		pc	107	110	126	343
Wire	9mmx	kg	1			1
Wire Rope	9mmx100m	roll		1	1	2
Manila Rope	12mmx100m	"	1		1	2
Vinyl Rope	10mmx200m	pc	1		1	2
Piston Rod	MG-5A	pc		1		1
Piston Rubber	68mmφ	pc			2	2
V-Packing	MG-5A	pc		8	8	16
Steel ball	MG-5A 1-1/2	pc			4	4

Description	Specification	Unit	Quantity			Total
			JMS Songue	JMT Thundulu	JMT Natach	
Spark Plug		pc	3	3	4	10
Air Element		pc			1	1
Brush		pc		3	3	6
Steel Ball		pc			4	4
V-Packing	DY-41B	pc		7	7	14
Water Swivel Packing	40.5mm	pc		2	2	4
Water Swivel Oil Seal	40.5mm	pc		1	1	2
Water Swivel Felt Ring		pc		1	1	2
V-Belt	TA-600K				1	

Appendix 10

Drilling meterage of diamond bits

Drilling Meterage of Diamond Bits

JMT Tundulu (Tundulu)

Item	Type	Bit No.	Drilling Meterage by Drill Hole, Unit Meter											Total	
			JMT 1	JMT 2	JMT 3	JMT 4	JMT 5	JMT 6	JMT 9	JMT 10	JMT 11	JMT 12	JMT 13		
Bit	56T	E-177356	22.60						11.10						33.70
		E-177357	23.80											7.35	31.15
		E-177358		24.05											24.05
		C-177359		24.45											24.45
		C-177360			23.80										23.80
		C-177361			24.70										24.70
		C-177362				22.60			13.20						35.80
		C-177363				25.90									25.90
		C-177364					23.80					14.10			37.90
		C-177365					24.70		11.35						36.05
		C-177366						24.30				9.10			33.40
		C-177367							24.15	5.20					29.35
		S530							12.80	21.00					33.80
		S531								22.10				5.50	27.60
		S532										23.80		6.00	29.80
		S533										24.60		5.30	29.90
		S534											23.20		23.20
		S535												24.35	24.35
			Total	46.40	48.50	48.50	48.50	48.50	48.60	48.30	48.30	48.40	46.40	48.50	528.90

Drilling Meterage of Diamond Bits

JMS Songwe

Item	Type	Bit No.	Drilling Meterage by Drill Hole, Unit Meter											Total		
			JMS 1	JMS 2	JMS 3	JMS 4	JMS 5	JMS 6	JMS 7	JMS 8	JMS 9	JMS 10	JMS 11			
Bit	56T	E-177336	23.50													23.50
		E-177337	25.15													25.15
		E-177338		17.10												17.10
		E-177339		15.80												15.80
		E-177340		15.30												15.30
		E-177341				17.20										17.20
		E-177342				18.70										18.70
		E-177343				19.20										19.20
		E-177344					26.30									26.30
		E-177345					25.20									25.20
		E-177346						25.90								25.90
		E-177347						25.40								25.40
		E-177348							23.50							23.50
		E-177349							21.00							21.00
		E-177350								24.10						24.10
		E-177351								24.00						24.00
		E-177352									19.70					19.70
		E-177353									20.50					20.50
		E-177354										23.90				23.90
		E-177355										24.50				24.50
		C-177372											24.00			24.00
		C-177373											24.20			24.20
		C-177374												22.40		22.40
		C-177375												26.00		26.00
			Total	48.65	48.20	55.10	51.50	51.30	44.50	48.10	40.20	48.40	48.20	48.40		532.55

Drilling Meterage of Diamond Bits

JMT Tundulu(Nathace)

Item	Type	Bit No.	Drilling Meterage by Drill Hole, Unit Meter													Total	
			JMT 7	JMT 8	JMT 14	JMT 15	JMT 16	JMT 17	JMT 18	JMT 19	JMT 20	JMT 21	JMT 22	JMT 23	JMT 24		
Bit	56T	S536	23.70			9.30											33.00
		S537		24.30		9.70											34.00
		S538		23.80				7.20									31.00
		S539			25.10			10.00									35.10
		S540				29.30			12.40								41.70
		S541					26.10		7.60								33.70
		S542						31.10		9.60							40.70
		S543							28.20		6.40						34.60
		S544										7.10		10.40	11.50		29.00
		S545								19.40		7.60					27.00
		C-177368									32.30		10.50				42.80
		C-177369									27.40		4.10				31.50
		C-177370											29.70		10.70		40.40
		C-277730											29.30		16.10	26.10	71.50
		E-177358		8.30													8.30
		C-177359		6.10													6.10
		C-177360		9.30													9.30
		C-177361				12.10											12.10
		C-177363				11.40											11.40
		S-534						12.20									12.20
		S-535						10.00									10.00
		E-177342													21.40		21.40
		E-177340												8.00			8.00
		Total	47.40	48.10	48.60	48.30	48.30	48.30	48.20	46.80	48.30	48.10	48.20	47.90	48.30	624.80	

PL. 7

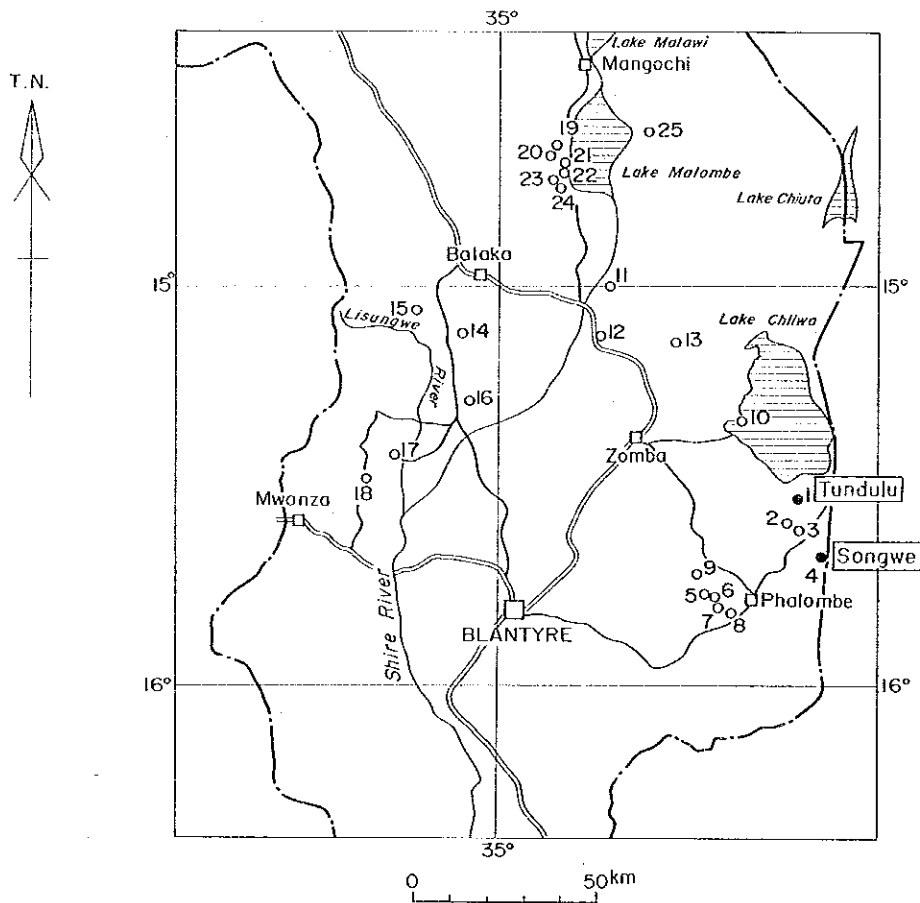
COOPERATIVE MINERAL EXPLORATION
IN
THE CHILWA ALKALINE AREA,
REPUBLIC OF MALAWI
(PHASE I)

国際協力事業団

17686

図書資料室蔵書

GEOLOGICAL DRILL LOG
(1 / 200)



JAPAN INTERNATIONAL COOPERATION AGENCY
METAL MINING AGENCY OF JAPAN
FEBRUARY 1988

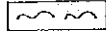


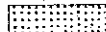
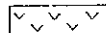
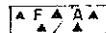
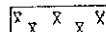
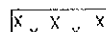
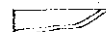
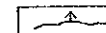





THE COOPERATIVE MINERAL EXPLORATION
IN
THE CHILWA ALKALINE AREA
REPUBLIC OF MALAWI
(PHASE II)

GEOLOGIC DRILL LOG
DDH JMS-2

Elevation 823.9^m
Total Depth 50.1^m
Inclination -90°

1:200

LEGEND

-  Drift
-  Sideritic carbonatite
-  Ankeritic sövite
-  Sövite
-  Carbonate-silicate rock
-  F:Feldspathic breccia, A:Agglomerate
-  Syenite
-  Nepheline syenite
-  Dykes
-  Joint, Fissure
-  60 % of carbonatite content
-  Mn Manganese oxide
-  HM Hematite
-  cal Calcite
-  Ap Apatite
- T - Trachyte
- P - Phonolite
- S - Sölvbergite
- D - Dolerite
- A - Aplite

Depth (m)	Geology	Linedation	Description	Assay (ppm)													
				Sample No	Depth (m)	Thick-ness (m)	La	Ce	Nd	Sm	Eu	Tb	Nb	Sr	Y	P	
1.40			Brown agglomerate (nepheline syenite feldspathic rock)														
3.70			Weathered crushed aggl. with Mn oxide.														
5.30			Aggl. (nepheline syenite, feldspathic rock with Mn oxide) partly core crushed														
7.10			black Mn mineral.														
7.30																	
8.40			Limonitic feldspathic dyke, very weathered														
9.80			Mn rich feldspathic breccia with cal veinlet (color pinkish grey-buff)														
17.00			Mn rich feld. br. (Mn patch)														
17.80			Mn ore (black) 10cm	SO 201	1700	2.90	2694	5061	1655	278.2	70.7	23.7	401	3707	318	6473	
18.70																	
19.90																	
20.40			Black Mn ore (massive)	SO 202	1990	2.40	3783	7716	2664	353.1	73.3	14.3	290	2293	270	2086	
20.70																	
22.30				SO 203	2230	2.10	3093	6016	2315	451.6	123.8	40.1	2033	3288	536	5475	
24.40			Ankeritic cb 10% bearing feld. br.														
25.00			10% ankeritic cb.	SO 204	2440	1.70	3666	6560	2265	4694	141.9	31.0	1750	3515	659	5905	
25.50																	
26.10																	
26.50			Brown, pink aggl.	SO 205	2610	2.90	2310	4322	1520	288.4	82.2	24.5	1219	2902	528	10070	
29.00																	
33.20			Cal v. 3cm														
33.50			Pink altered phonolitic dyke feldspar phenocryst 0.3-0.5cm														
33.70			Grey fng cb breccia														
36.40			Mn bearing aggl.														
36.60																	
37.60			Grey fng cb breccia														
37.60			Mn bearing aggl.														
43.90			Feld. br. bearing black Mn ore	SO 206	37.60	3.00	5042	9243	3159	514.0	130.0	63.3	863	3847	556	11545	
44.00																	
44.40																	
49.40			10cm cal v.														
49.40			Small amount of Mn bearing pinkish brown feldspathic breccia (44.40 ^m -45.90 ^m CR 80%)														
49.40																	
50.10			Mn rich feldspathic breccia	SO 208	49.40	0.70	1056	1846	541	93.4	22.2	15.5	478	2294	134	5357	

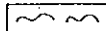



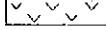

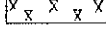
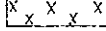
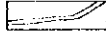
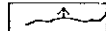

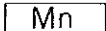

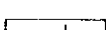
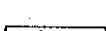
THE COOPERATIVE MINERAL EXPLORATION
IN
THE CHILWA ALKALINE AREA
REPUBLIC OF MALAWI
(PHASE II)

GEOLOGIC DRILL LOG
DDH JMS-3 (I)

Elevation 810.5m
Total Depth 58.0m
Inclination -90°

1:200

LEGEND

-  Drift
 -  Sideritic carbonatite
 -  Ankeritic Sövite
 -  Sövite
 -  Carbonate-Silicate rock
 -  F:Feldspathic breccia, A:Agglomerate
 -  Syenite
 -  Nepheline syenite
 -  Dykes
 -  Joint, Fissure
 -  % of carbonatite content
 -  Manganese oxide
 -  Hematite
 -  Calcite
 -  Apatite
- T - Trachyte
P - Phonolite
S - Sölvbergite
D - Dolerite
A - Aplite

Depth (m)	Geology	Lination	Description	Assay (ppm)													
				Sample No.	Depth (m)	Thick-ness (m)	La	Ce	Nd	Sm	Eu	Tb	Nb	Sr	Y	P	
1.90	x x		Weathered altered micro syenite														
3.10	x x		Micro nepheline syenite														
3.30	Mn		Black Mn oxide (20cm)	S 0301	3.10	0.60	2298	4366	1602	395.6	110.1	36.9	1406	1337	298	6702	
3.50	Mn		Black Mn oxide (20cm)		3.70												
3.70	x x		Light pinkish brown nep syenite														
5.40	Mn	30°	Black Mn oxide	S 0302	5.40	0.50	6300	10302	3425	4693	101.8	32.8	138	9376	203	1504	
5.90	x x		Light pinkish brown altered micro nep. syenite		5.90												
	x	45°	fissure														
10	x																
13.50	x																
14.00	Mn	45°	Nepheline syenite breccia bearing Mn oxide	S 0303	13.50	0.50	3822	6420	1894	264.9	61.1	22.8	2823	4835	348	8554	
14.90	x x		Mn bearing nep syenite		14.00												
15.00	x x		Carbonatized Mn bearing nep. syenite	S 0304		2.40	3509	5838	1734	233.7	65.1	21.4	1307	11312	367	12018	
16.40	x		Reddish brown carbonatized Mn bearing nep. syenite														
16.00	(60)		Grey carbonatite	S 0305	16.40	0.20	1980	3724	1150	1846	53.7	36.0	703	7814	567	51670	
	(20)		Carbonatized Mn oxide bearing feld. br.		16.60												
	F			S 0306		4.20	9108	13307	3289	501.3	113.7	25.7	1667	20889	405	12466	
20	F																
20.80	(20)	45°	Clay bearing fissure		20.80												
	(20)	45°	Weathered carbonatized Mn bearing feld. br. (crushed)														
23.1	(20)	45°	(crushed)														
23.3	(20)	45°															
25.0	(20)		Weathered carbonatized Mn bearing nep. syenite														
	x																
	x		Mn bearing fissure 2cm														
29.00	x x	50°			29.00												
	x x	45°	Weathered cb - Mn bearing nep. syenite	S 0307		2.40	1315	2620	867	165.0	39.2	7.1	824	991	96	2003	
31.40	x x		Yellowish brown feldspathic breccia		31.40												
	F	70°															
	F																
36.90	x x		Altered nep. syenite														
37.70	x x		Mn oxide with quartz druse														
37.90	Mn		Altered nep. syenite														
39.00	x x		Carbonatized nep-syenite, cb patch	S 0308	39.00	1.50	1997	3502	996	170.9	44.6	10.6	726	2162	247	4408	
40	x x	60°	Micro nep. syenite		40.50												
	x x		carbonatized nep. syenite														
41.70	x																
43.20	x x		Micro nepheline syenite														
43.80	x x		carbonatized nep. syenite														
44.60	x x		Fluorite bearing carbonatized nep. syenite														
	x x		grey														
	x x		Pyrite bearing														
49.10	x x		Carbonatite breccia (Ø 5cm) bearing carbonatized nepheline syenite	S 0309	49.10	2.10	1375	2694	920	157.4	48.4	14.0	537	7332	377	8990	
50	x x																

to be continued









THE COOPERATIVE MINERAL EXPLORATION
IN
THE CHILWA ALKALINE AREA
REPUBLIC OF MALAWI
(PHASE II)

GEOLOGIC DRILL LOG
DDH JMT-1

Elevation 690.0^m
Total Depth 50.3^m
Inclination -90°


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LEGEND





-  Drift
-  Sideritic carbonatite
-  Ankeritic sövite
-  Sövite
-  Carbonate-silicate rock
-  F: Feldspathic breccia, A: Agglomerate
-  Syenite
-  Nepheline syenite

-  Dykes

T - Trachyte
P - Phonolite
S - Sölvbergite
D - Dolerite
A - Aplite

-  Joint, Fissure

 % of carbonatite content

-  Manganese oxide
-  Hematite
-  Calcite
-  Apatite

Depth (m)	Geology	Lineation	Description	Assay (ppm)													
				Sample No.	Depth (m)	Thick-ness (m)	La	Ce	Nd	Sm	Eu	Tb	Nb	Sr	Y	P	
			Sludge														
3.90			Pink feldspathic breccia (ø 2-4cm), biotite pyroxene and magnetite bearing sövite	T0101	3.90	3.00	427	770	202	32.5	5.0	<0.1	353	12229	55	5779	
6.90			Feld.br., biotite bearing sövite	T0102	6.90	3.00	519	1043	336	12.7	9.2	12.2	1037	13717	70	7295	
8.00 8.70 9.00			Feld. breccia biotite pyroxene (cementing material carbonatite)	T0103	9.90	3.00	472	873	254	32.1	6.6	17.1	342	7351	53	4656	
10.00 11.00 11.60			10cm manganese cb	T0104	12.90	5.00	408	736	188	29.7	6.1	6.6	449	2968	55	5233	
17.90			Magnetite, pyrite bearing feld. br. matrix carbonatite	T0105	17.90	3.20	470	877	252	36.9	6.9	8.7	762	9966	61	6224	
20.00 21.10			Pink feld. breccia (ø 2-5cm) biotite, pyroxene, magnetite bearing sövite	T0106	21.10	1.50	577	1137	335	45.3	10.4	<0.1	304	10907	71	7383	
22.60 23.60 24.30			White to grey biotite, magnetite carbonate silicate rock with feldspar Patch	T0107	22.60	3.00	547	1012	290	39.2	7.8	1.4	250	7810	60	8332	
27.80 28.40			Altered syenite, biotite, pyroxene, magnetite bearing white sövite syenite breccia (ø 10cm)	T0108	25.60	3.00	465	880	238	34.1	7.4	4.1	240	6550	52	5370	
29.50 29.90			Sövite Limonitized feld. br.	T0109	28.60	3.00	1305	2450	756	104.1	22.8	<0.1	166	4342	77	2514	
31.60			Pink feld br, pyroxene, biotite and pyrite bearing white sövite	T0110	31.60	3.00	477	860	221	35.1	6.6	<0.1	186	7348	57	6090	
34.60 35.20			Feldspathic breccia (ø 2-5cm), pyrite, pyroxene, magnetite, chlorite, hematite bearing sövite	T0111	34.60	3.00	594	1134	311	40.4	8.4	<0.1	208	6839	62	7423	
37.60				T0112	37.60	3.00	444	868	264	36.2	7.3	<0.1	176	11961	63	5651	
40.00 40.60				T0113	40.60	3.70	547	986	304	35.1	8.4	33.1	101	12382	67	7683	
44.30				T0114	44.30	4.30	478	859	228	34.7	7.1	25.9	304	9913	55	4926	
48.60 50.30				T0115	48.60 50.30	1.70	425	795	240	33.4	7.5	28.0	414	11315	59	5748	

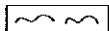

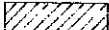

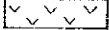

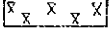
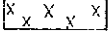
THE COOPERATIVE MINERAL EXPLORATION
IN
THE CHILWA ALKALINE AREA
REPUBLIC OF MALAWI
(PHASE II)

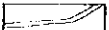
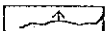

GEOLOGIC DRILL LOG
DDH JMT-13





Elevation 725.9^m
Total Depth 50.3^m
Inclination -90°

1:200

LEGEND

-  Drift
-  Sideritic carbonatite
-  Ankeritic Sövite
-  Sövite
-  Carbonate-Silicate rock
-  F:Feldspathic breccia, A:Agglomerate
-  Syenite
-  Nepheline syenite

-  Dykes
-  Joint, Fissure
-  60 % of carbonatite content

-  Mn Manganese oxide
-  HM Hematite
-  cal Calcite
-  Ap Apatite

Depth (m)	Geology	Lineation	Description	Assay (ppm)													
				Sample No.	Depth (m)	Thick-ness (m)	La	Ce	Nd	Sm	Eu	Tb	Nb	Sr	Y	P	
1.30			Grey sövite		1.30												
1.60			Agglomerate bearing	T 1301		2.90	318	550	169	31.2	5.8	10.9	961	1791	40	10331	
2.50																	
3.10																	
4.20			Weathered altered (soft) limonitized (xenolith~phonolite, feld, rock, cb)	T 1302		3.00	271	475	115	20.0	3.7	76	541	2258	35	3469	
8.40																	
8.80																	
10.00			Feld. br. bearing cb	T 1303		2.80	275	483	127	20.6	3.3	99	498	1519	29	2793	
12.10																	
14.40			Dark grey carbonatized phonolite														
14.40			Agglomerate bearing white sövite	T 1304		2.10	274	516	137	17.3	3.9	5.0	656	4117	38	4006	
17.20																	
17.20			Cb, pyrite bearing phonolite Marginal facies														
19.20																	
20.20		50°	Dark greyish green fng phonolite Phenocryst pyroxene biotite with cal veinlet limonitized	T 1305		1.00	399	580	121	33.1	4.6	27.7	148	8649	41	7410	
25.40			Melanocratic biotite, carbonate silicate rock														
29.50																	
30.60		50°	Phonolite bearing cb pyrite and magnetite	T 1306		3.50	211	382	109	16.3	2.9	8.1	274	11894	35	2846	
33.00			Magnetite and sövite bearing														
36.00			Biotite, pyrite, carbonate silicate rock	T 1307		3.00	233	434	125	22.6	0.7	3.9	337	8508	32	4910	
41.00			Fng melanocratic biotite carbonate silicate rock														
44.30			White														
44.60			Fng to mdg melanocratic carbonate silicate rock with pyrite														
47.30				T 1308		3.00	176	290	59	15.2	0.1	20.6	240	7019	21	2882	
50.30				T 1309		3.00	176	290	59	15.2	0.1	20.6	240	7019	21	2882	