

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	6	
	10" L= 6.70m	10	
	8" L= 2.00m	25	
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	4	
	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	30	
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	4	
	φ 89mm L= 3.00m	4	
Implements		1	

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

Appendix 3-2 Miscellaneous Results of Individual Drillhole (MJBK-38)

	Survey period		Breakdown of period		Total workers	
	Period	Total days	Working days	No working days	Engineers	Workers
Preparation	7 Aug., '02 ~ 7Aug., '02	1.00	1.00	—	4	10
Drilling	10 Aug., '02 ~ 12 Aug., '02	4.75	Drilling : 4.75	—	19	47.5
			Accident: 0.00	—	—	—
Dismount	12 Aug., '02 ~ 12 Aug., '02	0.25	0.25	—	1	2.5
Total	7 Aug., '02 ~ 12 Aug., '02	6.00	6.00	—	24	60
Drilling Length						
Programmed length	50.00 m	Overburden, sand & gravel, Quarternary			8.50 m	
Prolongation	14.00 m	Core length			55.50 m	
Effective length	64.00 m	Core recovery			100.0 %	
Working hours				Core recovery by each 10 meters		
Drilling	70.0 hrs	74.5%	53.0%	Length (m)	Each (%)	Cumula. (%)
Supplemental drilling work	24.0 hrs	25.5%	18.2%	0 - 8.50	None core	None core
Recovery from accident	—	—	—	8.5 - 10.0	100.0	100.0
Subtotal	94.0 hrs	100%	71.0%	10.0 - 20.0	100.0	100.0
Preparation/setting up	16.0 hrs	—	12.1%	20.0 - 30.0	100.0	100.0
Dismount/mobilization	4.0 hrs	—	3.0%	30.0 - 40.0	100.0	100.0
Transportation of water	18.0 hrs	—	13.6%	Efficiency		
Others				Effective length / Working drilling days		
				= 64.00m/4.75 days = 12.63 m/d		
				Effective length / Total drilling shifts =		
Total	132.0 hrs	—	100%	= 64.00m/9.5 shifts = 6.74 m/shift		
Drilling length by diameter						
Bit diameter	190mm ϕ					Total
Drilling length	64.00 m					64.00 m
Core length	42.50 m					42.50 m
Inserted casing pipes						
Inserted length by diameter		Inserted length / Drilling length		Casing recovery		
250mm ϕ	5.60 m	8.75%		100%		
200mm ϕ	10.00 m	15.63%		100%		

Appendix 3-2 Miscellaneous Results of Individual Drillhole (MJBK-39)

	Survey period		Breakdown of period		Total workers	
	Period	Total days	Working days	No working days	Engineers	Workers
Preparation	1 Aug., '02 ~ 1 Aug., '02	0.50	0.50	—	2	5
Drilling	2 Aug., '02 ~ 6 Aug., '02	4.75	Drilling : 4.75	—	17	47.5
			Accident: 0.00	—	—	—
Dismount	6 Aug., '02 ~ 6 Aug., '02	0.25	0.25	—	1	2.5
Total	1 Aug., '02 ~ 6 Aug., '02	5.50	5.50	—	20	55
Drilling Length						
Programmed length	50.00 m	Overburden, sand & gravel, Quarternary			7.00 m	
Prolongation	-14.00 m	Core length			29.00 m	
Effective length	36.00 m	Core recovery			100.0 %	
Working hours				Core recovery by each 10 meters		
Drilling	36.0 hrs	54.5%	35.6%	Length (m)	Each (%)	Cumula. (%)
Supplemental drilling work	30.0 hrs	45.5%	29.7%	0 - 7.0	None core	None core
Recovery from accident	—	—	—	7.0 - 10.0	100.0	100.0
Subtotal	66.0 hrs	100%	65.3%	10.0 - 20.0	100.0	100.0
Preparation/setting up	16.0 hrs	—	15.8%	20.0 - 30.0	100.0	100.0
Dismount/mobilization	6.0 hrs	—	5.9%	30.0 - 36.0	100.0	100.0
Transportation of water	13.0 hrs	—	12.9%	Efficiency		
Others				Effective length / Working drilling days		
				= 36.00m/4.75 days = 7.58 m/d		
				Effective length / Total drilling shifts =		
Total	101.0 hrs	—	100%	= 36.00m/ 9.5shifts = 3.79 m/shift		
Drilling length by diameter						
Bit diameter	190mm ϕ					Total
Drilling length	36.00 m					36.00 m
Core length	29.00 m					29.00 m
Inserted casing pipes						
Inserted length by diameter		Inserted length / Drilling length		Casing recovery		
250mm ϕ	7.00 m	19.44%		100%		
200mm ϕ	9.00 m	25.00%		100%		

Appendix 3-2 Miscellaneous Results of Individual Drillhole (MJBK-40)

	Survey period		Breakdown of period		Total workers	
	Period	Total days	Working days	No working days	Engineers	Workers
Preparation	28 Jul., '02 ~ 28 Jul., '02	0.50	0.50	—	2	5
Drilling	29 Jul., '02 ~ 1 Aug., '02	3.25	Drilling : 3.25	—	13	32.5
			Accident: 0.00	—	—	—
Dismount	1 Aug., '02 ~ 1 Aug., '02	0.25	0.25	—	1	2.5
Total	28 Jul., '02 ~ 1 Aug., '02	4.00	4.00	—	16	40
Drilling Length						
Programmed length	50.00 m	Overburden, sand & gravel, Quarternary			7.00 m	
Prolongation	14.50 m	Core length			57.50 m	
Effective length	64.50 m	Core recovery			100.0 %	
Working hours				Core recovery by each 10 meters		
Drilling	31.0 hrs	59.6%	43.1%	Length (m)	Each (%)	Cumula. (%)
Supplemental drilling work	21.0 hrs	40.4%	29.2%	0 - 7.0	None core	None core
Recovery from accident	-	-	-	7.0 - 10.0	100.0	100.0
Subtotal	52.0 hrs	100%	72.2%	10.0 - 20.0	100.0	100.0
Preparation/setting up	8.0 hrs	-	11.1%	20.0 - 30.0	100.0	100.0
Dismount/mobilization	4.0 hrs	-	5.6%	30.0 - 50.0	100.0	100.0
Transportation of water	8.0 hrs	-	11.1%	Efficiency		
Others				Effective length / Working drilling days		
				= 64.50m/3.25 days = 19.84 m/d		
				Effective length / Total drilling shifts =		
Total	72.0 hrs	-	100%	= 64.50m/6.5shifts = 9.92 m/shift		
Drilling length by diameter						
Bit diameter	190mm ϕ					Total
Drilling length	50.00 m					50.00 m
Core length	43.00 m					43.00 m
Inserted casing pipes						
Inserted length by diameter		Inserted length / Drilling length		Casing recovery		
250mm ϕ	6.00 m	9.30%		100%		
200mm ϕ	7.00 m	10.85%		100%		

Appendix 3-2 Miscellaneous Results of Individual Drillhole (MJBK-41)

	Survey period		Breakdown of period		Total workers	
	Period	Total days	Working days	No working days	Engineers	Workers
Preparation	19 Aug., '02 ~ 19 Aug., '02	1.00	1.00	—	4	10
Drilling	20 Aug., '02 ~ 23 Aug., '02	3.75	Drilling : 3.75	—	17	37.5
			Accident:	—	—	—
Dismount	23 Aug., '02 ~ 23 Aug., '02	0.25	0.25	—	1	2.5
Total	19 Aug., '02 ~ 23 Aug., '02	5.00	5.00	—	20	50
Drilling Length						
Programmed length	50.00 m	Overburden, sand & gravel, Quarternary			10.00 m	
Prolongation	-10.00 m	Core length			30.00 m	
Effective length	40.00 m	Core recovery			100.0 %	
Working hours				Core recovery by each 10 meters		
Drilling	32.0 hrs	53.3%	34.0%	Length (m)	Each (%)	Cumula. (%)
Supplemental drilling work	28.0 hrs	46.7%	29.8%	0 - 11.0	None core	None core
Recovery from accident	0.0 hrs	—	—	11.0 - 20.0	100.0	100.0
Subtotal	60.0 hrs	100%	63.8%	20.0 - 30.0	100.0	100.0
Preparation/setting up	16.0 hrs	—	17.0%	30.0 - 40.0	100.0	100.0
Dismount/mobilization	4.0 hrs	—	4.3%			
Transportation of water	14.0 hrs	—	14.9%	Efficiency		
Others				Effective length / Working drilling days		
				= 40.00m/3.75 days = 10.67 m/d		
				Effective length / Total drilling shifts =		
Total	94.0 hrs	—	100%	= 40.00m/7.5 shifts = 5.33 m/shift		
Drilling length by diameter						
Bit diameter	190mm ϕ					Total
Drilling length	40.00 m					40.00 m
Core length	30.00 m					30.00 m
Inserted casing pipes						
Inserted length by diameter		Inserted length / Drilling length		Casing recovery		
250mm ϕ	7.00 m	17.50%		100%		
200mm ϕ	10.00 m	25.00%		100%		

Appendix 3-2 Miscellaneous Results of Individual Drillhole (MJBK-42)

	Survey period		Breakdown of period		Total workers	
	Period	Total days	Working days	No working days	Engineers	Workers
Preparation	1 Aug., '02 ~ 1 Aug., '02	0.50	0.50	—	2	5
Drilling	1 Aug., '02 ~ 6 Aug., '02	5.25	Drilling : 5.25	—	21	52.5
			Accident: 0.00	—	—	—
Dismount	6 Aug., '02 ~ 6 Aug., '02	0.25	0.25	—	1	2.5
Total	1 Aug., '02 ~ 6 Aug., '02	6.00	6.00	—	24	60
Drilling Length						
Programmed length	50.00 m	Overburden, sand & gravel, Quarternary			10.00 m	
Prolongation	-6.00 m	Core length			34.00 m	
Effective length	44.00 m	Core recovery			100.0 %	
Working hours				Core recovery by each 10 meters		
Drilling	57.0 hrs	67.9%	52.8%	Length (m)	Each (%)	Cumula. (%)
Supplemental drilling work	27.0 hrs	32.1%	25.0%	0 - 9.0	None core	None core
Recovery from accident	0.0 hrs	—	—	9.0 - 10.0	100.0	100.0
Subtotal	84.0 hrs	100%	77.8%	10.0 - 20.0	100.0	100.0
Preparation/setting up	8.0 hrs	—	7.4%	20.0 - 30.0	100.0	100.0
Dismount/mobilization	4.0 hrs	—	3.7%	30.0 - 44.0	100.0	100.0
Transportation of water	12.0 hrs	—	11.1%	Efficiency		
Others				Effective length / Working drilling days = 44.00m/5.25 days = 8.38 m/d		
Total	108.0 hrs	—	100%	Effective length / Total drilling shifts = = 44.00m/10.5 shifts = 4.19 m/shift		
Drilling length by diameter						
Bit diameter	190mm ϕ					Total
Drilling length	44.00 m					44.00 m
Core length	34.00 m					34.00 m
Inserted casing pipes						
Inserted length by diameter		Inserted length / Drilling length		Casing recovery		
250mm ϕ	7.00 m	15.91%		100%		
200mm ϕ	10.00 m	22.73%		100%		

Appendix 3-2 Miscellaneous Results of Individual Drillhole (MJBK-43)

	Survey period		Breakdown of period		Total workers	
	Period	Total days	Working days	No working days	Engineers	Workers
Preparation	28 Jul., '02 ~ 28 Jul., '02	0.50	0.50	—	2	5
Drilling	29 Jul., '02 ~ 31 Jul., '02	3.38	Drilling : 3.38	—	13.5	33.75
			Accident: 0.00	—	—	—
Dismount	31 Jul., '02 ~ 31 Jul., '02	0.13	0.13	—	0.5	1.25
Total	28 Jul., '02 ~ 31 Jul., '02	4.00	4.00	—	12	40
Drilling Length						
Programmed length	50.00 m	Overburden, sand & gravel, Quarternary			10.50 m	
Prolongation	0.00 m	Core length			39.50 m	
Effective length	50.00 m	Core recovery			100.0 %	
Working hours				Core recovery by each 10 meters		
Drilling	32.0 hrs	59.3%	44.4%	Length (m)	Each (%)	Cumula. (%)
Supplemental drilling work	22.0 hrs	40.7%	30.6%	0 - 10.0	None core	None core
Recovery from accident	0.0 hrs	—	—	10.0 - 20.0	100.0	100.0
Subtotal	54.0 hrs	100%	75.0%	20.0 - 30.0	100.0	100.0
Preparation/setting up	8.0 hrs	—	11.1%	30.0 - 40.0	100.0	100.0
Dismount/mobilization	2.0 hrs	—	2.8%	40.0 - 50.0	100.0	100.0
Transportation of water	8.0 hrs	—	11.1%	Efficiency		
Others				Effective length / Working drilling days		
				= 50.00m/3.375 days = 14.81 m/d		
				Effective length / Total drilling shifts =		
Total	72.0 hrs	—	100%	= 50.00m/6.75 shifts = 7.41 m/shift		
Drilling length by diameter						
Bit diameter	190mm φ					Total
Drilling length	50.00 m					50.00 m
Core length	10.50 m					10.50 m
Inserted casing pipes						
Inserted length by diameter		Inserted length / Drilling length		Casing recovery		
250mm φ	8.00 m	16.00%		100%		
200mm φ	11.60 m	23.20%		100%		

Appendix 3-2 Miscellaneous Results of Individual Drillhole (MJBK-44)

	Survey period		Breakdown of period		Total workers	
	Period	Total days	Working days	No working days	Engineers	Workers
Preparation	23 Jul., '02 ~ 23 Jul., '02	0.50	0.50	—	2	5
Drilling	24 Jul., '02 ~ 27 Jul., '02	4.00	Drilling : 4.00	—	16	40
			Accident: 0.00	—	—	—
Dismount	28 Jul., '02 ~ 28 Jul., '02	0.50	0.50	—	2	5
Total	23 Jul., '02 ~ 28 Jul., '02	5.00	5.00	—	18	50
Drilling Length						
Programmed length	50.00 m	Overburden, sand & gravel, Quarternary			7.00 m	
Prolongation	10.00 m	Core length			53.00 m	
Effective length	60.00 m	Core recovery			100.0 %	
Working hours				Core recovery by each 10 meters		
Drilling	35.0 hrs	54.7%	36.5%	Length (m)	Each (%)	Cumula. (%)
Supplemental drilling work	29.0 hrs	45.3%	30.2%	0 - 7.0	None core	None core
Recovery from accident	0.0 hrs	—	—	7.0 - 10.0	100.0	100.0
Subtotal	64.0 hrs	100%	66.7%	10.0 - 20.0	100.0	100.0
Preparation/setting up	8.0 hrs	—	8.3%	20.0 - 30.0	100.0	100.0
				30.0 - 40.0	100.0	100.0
Dismount/mobilization	8.0 hrs	—	8.3%	40.0 - 50.0	100.0	100.0
				50.0 - 60.0	100.0	100.0
Transportation of water	16.0 hrs	—	16.7%	Efficiency		
Others				Effective length / Working drilling days		
				= 60.00m/4.00 days = 15.00 m/d		
				Effective length / Total drilling shifts =		
Total	96.0 hrs	—	100%	= 60.00m/8.0 shifts = 7.50 m/shift		
Drilling length by diameter						
Bit diameter	190mm ϕ					Total
Drilling length	60.00 m					60.00 m
Core length	53.00 m					53.00 m
Inserted casing pipes						
Inserted length by diameter		Inserted length / Drilling length		Casing recovery		
250mm ϕ	8.00 m	13.33%		100%		
200mm ϕ	10.00 m	16.67%		100%		

Appendix 3-2 Miscellaneous Results of Individual Drillhole (MJBK-45)

	Survey period		Breakdown of period		Total workers	
	Period	Total days	Working days	No working days	Engineers	Workers
Preparation	7 Aug., '02 ~ 7 Aug., '02	1.00	1.00	—	4	10
Drilling	8 Aug., '02 ~ 12 Aug., '02	4.25	Drilling : 4.25	—	17	42.5
			Accident: 0.00	—	—	—
Dismount	12 Aug., '02 ~ 12 Aug., '02	0.25	0.25	—	1	2.5
Total	7 Aug., '02 ~ 12 Aug., '02	5.50	5.50	—	14	55
Drilling Length						
Programmed length	50.00 m	Overburden, sand & gravel, Quarternary				9.00 m
Prolongation	11.00 m	Core length				52.00 m
Effective length	61.00 m	Core recovery				100.0 %
Working hours				Core recovery by each 10 meters		
Drilling	50.0 hrs	73.5%	50.0%	Length (m)	Each (%)	Cumula. (%)
Supplemental drilling work	18.0 hrs	26.5%	18.0%	0 - 9.0	None core	None core
Recovery from accident	—	—	—	9.0 - 20.0	100.0	100.0
Subtotal	68.0 hrs	100%	71.0%	20.0 - 30.0	100.0	100.0
Preparation/setting up	16.0 hrs	—	16.0%	30.0 - 40.0	100.0	100.0
Dismount/mobilization	4.0 hrs	—	4.0%	40.0 - 50.0	100.0	100.0
Transportation of water	12.0 hrs	—	12.0%	Efficiency		
Others				Effective length / Working drilling days		
				= 43.00m/3.25 days = 13.23 m/d		
				Effective length / Total drilling shifts =		
Total	100.0 hrs	—	100%	= 43.00m/6.5 shifts = 6.62 m/shift		
Drilling length by diameter						
Bit diameter	190mm ϕ					Total
Drilling length	61.00 m					61.00 m
Core length	52.00 m					52.00 m
Inserted casing pipes						
Inserted length by diameter		Inserted length / Drilling length		Casing recovery		
270mm ϕ	5.60 m	9.18%		100%		
200mm ϕ	10.00 m	16.39%		100%		

Appendix 3-2 Miscellaneous Results of Individual Drillhole (MJBK-46)

	Survey period		Breakdown of period		Total workers	
	Period	Total days	Working days	No working days	Engineers	Workers
Preparation	23 Jul., '02 ~ 23 Jul., '02	0.50	0.50	—	2	5
Drilling	24 Jul., '02 ~ 27 Jul., '02	3.75	Drilling : 3.75	—	12	37.5
			Accident: 0.00	—	—	—
Dismount	27 Jul., '02 ~ 27 Jul., '02	0.25	0.25	—	1	2.5
Total	23 Jul., '02 ~ 27 Jul., '02	4.50	4.50	—	15	45
Drilling Length						
Programmed length	50.00 m	Overburden, sand & gravel, Quarternary			8.00 m	
Prolongation	-22.00 m	Core length			20.00 m	
Effective length	28.00 m	Core recovery			100.0 %	
Working hours				Core recovery by each 10 meters		
Drilling	26.0 hrs	43.3%	32.5%	Length (m)	Each (%)	Cumula. (%)
Supplemental drilling work	34.0 hrs	56.7%	42.5%	0 - 9.0	None core	None core
Recovery from accident	—	—	—	9.0 - 10.0	100.0	100.0
Subtotal	60.0 hrs	100%	69.7%	10.0 - 20.0	100.0	100.0
Preparation/setting up	4.0 hrs	—	5.0%	20.0 - 30.0	100.0	100.0
Dismount/mobilization	8.0 hrs	—	10.0%	30.0 - 40.0	100.0	100.0
				40.0 - 50.0	100.0	100.0
Transportation of water	8.0 hrs	—	10.0%	Efficiency		
Others				Effective length / Working drilling days		
				= 28.00m/3.75 days = 7.47 m/d		
				Effective length / Total drilling shifts =		
Total	80.0 hrs	—	100%	= 28.00m/7.5 shifts = 3.73 m/shift		
Drilling length by diameter						
Bit diameter	190mm ϕ					Total
Drilling length	28.00 m					28.00 m
Core length	20.00 m					20.00 m
Inserted casing pipes						
Inserted length by diameter		Inserted length / Drilling length		Casing recovery		
250mm ϕ	8.00 m	28.57%		100%		
200mm ϕ	10.00 m	35.71%		100%		

Appendix 3-2 Miscellaneous Results of Individual Drillhole (MJBK-47)

	Survey period		Breakdown of period		Total workers	
	Period	Total days	Working days	No working days	Engineers	Workers
Preparation	16 Jul., '02 ~ 16 Jul., '02	0.50	0.50	—	2	5
Drilling	17 Jul., '02 ~ 23 Jul., '02	6.25	Drilling : 4.25	—	16.5	42.5
			Accident: 2.00	—	5	20
Dismount	23 Jul., '02 ~ 23 Jul., '02	0.25	0.25	—	1	2.5
Total	16 Jul., '02 ~ 23 Jul., '02	7.00	7.00	—	24.5	70
Drilling Length						
Programmed length	50.00 m	Overburden, sand & gravel, Quarternary			8.00 m	
Prolongation	-14.00 m	Core length			28.00 m	
Effective length	36.00 m	Core recovery			100.0 %	
Working hours				Core recovery by each 10 meters		
Drilling	20.0 hrs	20.0%	16.4%	Length (m)	Each (%)	Cumula. (%)
Supplemental drilling work	48.0 hrs	34.3%	39.3%	0 - 9.0	None core	None core
Recovery from accident	32.0 hrs	32.0%	26.2%	9.0 - 10.0	100.0	100.0
Subtotal	100.0 hrs	100%	82.0%	10.0 - 20.0	100.0	100.0
Preparation/setting up	4.0 hrs	—	3.3%	20.0 - 30.0	100.0	100.0
Dismount/mobilization	8.0 hrs	—	6.6%	30.0 - 36.0	100.0	100.0
Transportation of water	10.0 hrs	—	8.2%	Efficiency		
Others				Effective length / Working drilling days		
				= 36.00m/4.25 days = 8.47 m/d		
				Effective length / Total drilling shifts =		
Total	122.0 hrs	—	100%	= 36.00m/8.5 shifts = 4.24 m/shift		
Drilling length by diameter						
Bit diameter	190mm ϕ					Total
Drilling length	36.00 m					36.00 m
Core length	28.00 m					28.00 m
Inserted casing pipes						
Inserted length by diameter		Inserted length / Drilling length		Casing recovery		
250mm ϕ	5.00 m	13.89%		100%		
200mm ϕ	10.00 m	27.78%		100%		

Appendix 3-2 Miscellaneous Results of Individual Drillhole (MJBK-48)

	Survey period		Breakdown of period		Total workers	
	Period	Total days	Working days	No working days	Engineers	Workers
Preparation	12 Jul., '02 ~ 12 Jul., '02	0.50	0.50	—	2	5
Drilling	13 Jul., '02 ~ 16 Jul., '02	3.25	Drilling : 3.25	—	12	32.5
			Accident: 0.00	—	0	0
Dismount	16 Jul., '02 ~ 16 Jul., '02	0.25	0.25	—	1	2.5
Total	12 Jul., '02 ~ 16 Jul., '02	4.00	4.00	—	15	40
Drilling Length						
Programmed length	50.00 m	Overburden, sand & gravel, Quarternary			8.00 m	
Prolongation	1.00 m	Core length			43.00 m	
Effective length	51.00 m	Core recovery			100.0 %	
Working hours				Core recovery by each 10 meters		
Drilling	33.0 hrs	62.3%	43.4%	Length (m)	Each (%)	Cumula. (%)
Supplemental drilling work	20.0 hrs	37.7%	26.3%	0 - 8.0	None core	None core
Recovery from accident	0.0 hrs	—	—	8.0 - 10.0	100.0	100.0
Subtotal	53.0 hrs	100%	69.7%	10.0 - 20.0	100.0	100.0
Preparation/setting up	4.0 hrs	—	5.3%	20.0 - 30.0	100.0	100.0
				30.0 - 40.0	100.0	100.0
Dismount/mobilization	7.0 hrs	—	9.2%	40.0 - 50.0	100.0	100.0
				50.0 - 54.0	100.0	100.0
Transportation of water	12.0 hrs	—	15.8%	Efficiency		
Others				Effective length / Working drilling days		
				= 51.00m/3.25 days = 15.69 m/d		
				Effective length / Total drilling shifts =		
Total	76.0 hrs	—	100%	= 51.00m/6.5shifts = 7.85 m/shift		
Drilling length by diameter						
Bit diameter	190mm ϕ					Total
Drilling length	51.00 m					51.00 m
Core length	43.00 m					43.00 m
Inserted casing pipes						
Inserted length by diameter		Inserted length / Drilling length		Casing recovery		
250mm ϕ	6.00 m	11.76%		100%		
200mm ϕ	10.00 m	19.61%		100%		

Appendix 3-2 Miscellaneous Results of Individual Drillhole (MJBK-49)

	Survey period		Breakdown of period		Total workers	
	Period	Total days	Working days	No working days	Engineers	Workers
Preparation	4 Jul., '02 ~ 5 Jul., '02	2.00	2.00	—	6	20
Drilling	6 Jul., '02 ~ 12 Jul., '02	6.25	Drilling : 6.25	—	23.5	62.5
			Accident: 0.00	—	—	—
Dismount	12 Jul., '02 ~ 12 Jul., '02	0.25	0.25	—	1	2.5
Total	4 Jul., '02 ~ 12 Jul., '02	8.50	8.50	—	30.5	85
Drilling Length						
Programmed length	50.00 m	Overburden, sand & gravel, Quarternary				8.00 m
Prolongation	4.00 m	Core length				44.10 m
Effective length	54.00 m	Core recovery				100.0 %
Working hours				Core recovery by each 10 meters		
Drilling	32.0 hrs	51.6%	36.4%	Length (m)	Each (%)	Cumula. (%)
Supplemental drilling work	19.0 hrs	30.7%	21.6%	0 - 7.5	None core	None core
Recovery from accident	11.0 hrs	17.7%	12.5%	7.5 - 10.0	100.0	100.0
Subtotal	62.0 hrs	100%	70.5%	10.0 - 20.0	99.5	99.5
Preparation/setting up	4.0 hrs	—	4.5%	20.0 - 30.0	98.3	98.3
				30.0 - 40.0	100.0	100.0
Dismount/mobilization	6.0 hrs	—	6.8%	40.0 - 50.0	100.0	100.0
				50.0 - 54.0	99.8	99.8
Transportation of water	16.0 hrs	—	18.2%	Efficiency		
Others				Effective length / Working drilling days		
				= 54.00m/6.25 days = 8.64 m/d		
				Effective length / Total drilling shifts =		
Total	88.0 hrs	—	100%	= 54.00m/12.50 shifts = 4.2 m/shift		
Drilling length by diameter						
Bit diameter	190mm ϕ					Total
Drilling length	54.00 m					54.00 m
Core length	44.10 m					44.10 m
Inserted casing pipes						
Inserted length by diameter		Inserted length / Drilling length		Casing recovery		
250mm ϕ	7.00 m	12.96%		100%		
200mm ϕ	10.00 m	18.52%		100%		

Appendix 3-2 Miscellaneous Results of Individual Drillhole (MJBK-50)

	Survey period		Breakdown of period		Total workers	
	Period	Total days	Working days	No working days	Engineers	Workers
Preparation	4 Jul., '02 ~ 5 Jul., '02	2.00	2.00	—	3.5	20
Drilling	6 Jul., '02 ~ 14 Jul., '02	8.25	Drilling : 5.00	—	20	50
			Accident: 3.25	—	13	32.5
Dismount	14 Jul., '02 ~ 14 Jul., '02	0.25	0.25	—	1	2.5
Total	4 Jul., '02 ~ 14 Jul., '02	10.50	10.50	—	37.5	105
Drilling Length						
Programmed length	50.00 m	Overburden, sand & gravel, Quarternary			7.00 m	
Prolongation	9.00 m	Core length			46.60 m	
Effective length	59.00 m	Core recovery			100.0 %	
Working hours				Core recovery by each 10 meters		
Drilling	25.0 hrs	18.8%	13.0%	Length (m)	Each (%)	Cumula. (%)
Supplemental drilling work	56.0 hrs	42.1%	29.2%	0 - 7.0	None core	None core
Recovery from accident	52.0 hrs	39.1%	27.1%	7.0 - 10.0	100.0	100.0
Subtotal	133.0 hrs	100%	69.3%	20.0 - 30.0	100.0	100.0
Preparation/setting up	32.0 hrs	—	16.7%	30.0 - 40.0	100.0	100.0
Dismount/mobilization	3.0 hrs	—	1.6%	40.0 - 50.0	100.0	100.0
				50.0 - 60.0	100.0	100.0
Transportation of water	24.0 hrs	—	12.5%	Efficiency		
Others				Effective length / Working drilling days		
				= 59.00m/5.00 days = 11.80 m/d		
				Effective length / Total drilling shifts =		
Total	192.0 hrs	—	100%	= 59.00m/10.0 shifts = 5.90 m/shift		
Drilling length by diameter						
Bit diameter	190mm ϕ					Total
Drilling length	59.00 m					59.00 m
Core length	46.60 m					46.60 m
Inserted casing pipes						
Inserted length by diameter		Inserted length / Drilling length		Casing recovery		
250mm ϕ	7.00 m	11.86%		100%		
200mm ϕ	10.00 m	16.95%		100%		

Appendix 3-2 Miscellaneous Results of Individual Drillhole (MJBK-51)

	Survey period		Breakdown of period		Total workers	
	Period	Total days	Working days	No working days	Engineers	Workers
Preparation	14 Jul., '02 ~ 14 Jul., '02	0.50	0.50	—	2	5
Drilling	15 Jul., '02 ~ 18 Jul., '02	3.75	Drilling : 2.75	—	8	27.5
			Accident: 1.00	—	4	10
Dismount	18 Jul., '02 ~ 18 Jul., '02	0.25	0.25	—	1	2.5
Total	14 Jul., '02 ~ 18 Jul., '02	4.50	4.50	—	15	45
Drilling Length						
Programmed length	50.00 m	Overburden, sand & gravel, Quarternary			7.00 m	
Prolongation	5.00 m	Core length			48.00 m	
Effective length	55.00 m	Core recovery			100.0 %	
Working hours				Core recovery by each 10 meters		
Drilling	22.0 hrs	36.7%	26.2%	Length (m)	Each (%)	Cumula. (%)
Supplemental drilling work	22.0 hrs	36.7%	26.2%	0 - 7.0	None core	None core
Recovery from accident	16.0 hrs	26.7%	19.0%	7.0 - 20.0	100.0	100.0
Subtotal	60.0 hrs	100%	71.4%	20.0 - 30.0	100.0	100.0
Preparation/setting up	8.0 hrs	—	9.5%	30.0 - 40.0	100.0	100.0
Dismount/mobilization	4.0 hrs	—	4.8%	40.0 - 50.0	100.0	100.0
				50.0 - 55.0	100.0	100.0
Transportation of water	12.0 hrs	—	14.3%	Efficiency		
Others				Effective length / Working drilling days		
				= 55.00m/2.75 days = 20 m/d		
				Effective length / Total drilling shifts =		
Total	84.0 hrs	—	100%	= 55.00m/5.5 shifts = 10 m/shift		
Drilling length by diameter						
Bit diameter	190mm ϕ					Total
Drilling length	55.00 m					55.00 m
Core length	48.00 m					48.00 m
Inserted casing pipes						
Inserted length by diameter		Inserted length / Drilling length		Casing recovery		
250mm ϕ	5.00 m	9.09%		100%		
200mm ϕ	8.00 m	14.55%		100%		

Appendix 3-2 Miscellaneous Results of Individual Drillhole (MJBK-52)

	Survey period		Breakdown of period		Total workers	
	Period	Total days	Working days	No working days	Engineers	Workers
Preparation	19 Jul., '02 ~ 19Jul., '02	0.50	0.50	—	2	5
Drilling	19 Jul., '02 ~ 23 Jul., '02	3.75	Drilling : 3.75	—	13.5	37.5
			Accident: 0.00	—	0	0
Dismount	23 Jul., '02 ~ 23 Jul., '02	0.25	0.25	—	1	2.5
Total	19 Jul., '02 ~ 23 Jul., '02	4.50	4.50	—	16.5	45
Drilling Length						
Programmed length	50.00 m	Overburden, sand & gravel, Quarternary			8.00 m	
Prolongation	5.00 m	Core length			47.00 m	
Effective length	55.00 m	Core recovery			100.0 %	
Working hours				Core recovery by each 10 meters		
Drilling	42.0 hrs	67.7%	47.7%	Length (m)	Each (%)	Cumula. (%)
Supplemental drilling work	20.0 hrs	32.3%	22.7%	0 - 8.0	None core	None core
Recovery from accident	0.0 hrs	—	—	8.0 - 10.0	100.0	100.0
Subtotal	62.0 hrs	100%	70.5%	10.0 - 20.0	100.0	100.0
Preparation/setting up	8.0 hrs	—	9.1%	20.0 - 30.0	100.0	100.0
				30.0 - 40.0	100.0	100.0
Dismount/mobilization	2.0 hrs	—	2.3%	40.0 - 50.0	100.0	100.0
				50.0 - 58.0	100.0	100.0
Transportation of water	16.0 hrs	—	18.2%	Efficiency		
Others				Effective length / Working drilling days		
				= 55.00m/3.75 days = 14.67 m/d		
				Effective length / Total drilling shifts =		
Total	88.0 hrs	—	100%	= 55.00m/7.5 shifts = 7.33 m/shift		
Drilling length by diameter						
Bit diameter	190mm ϕ					Total
Drilling length	55.00 m					55.00 m
Core length	47.00 m					47.00 m
Inserted casing pipes						
Inserted length by diameter		Inserted length / Drilling length		Casing recovery		
250mm ϕ	7.00 m	12.73%		100%		
200mm ϕ	9.00 m	16.36%		100%		

Appendix 3-2 Miscellaneous Results of Individual Drillhole (MJBK-53)

	Survey period		Breakdown of period		Total workers	
	Period	Total days	Working days	No working days	Engineers	Workers
Preparation	13 Aug., '02 ~ 13 Aug., '02	1.00	1.00	—	4	10
Drilling	14 Aug., '02 ~ 18 Aug., '02	4.75	Drilling : 4.75	—	19	47.5
			Accident: 0.00	—	0	0
Dismount	18 Aug., '02 ~ 18 Aug., '02	0.25	0.25	—	1	2.5
Total	13 Aug., '02 ~ 18 Aug., '02	6.00	6.00	—	25	60
Drilling Length						
Programmed length	50.00 m	Overburden, sand & gravel, Quarternary			8.50 m	
Prolongation	15.00 m	Core length			56.50 m	
Effective length	65.00 m	Core recovery			100.0 %	
Working hours				Core recovery by each 10 meters		
Drilling	55.0 hrs	72.4%	49.1%	Length (m)	Each (%)	Cumula. (%)
Supplemental drilling work	21.0 hrs	27.6%	18.8%	0 - 8.5	None core	None core
Recovery from accident	—	—	—	8.5 - 10.0	100.0	100.0
Subtotal	76.0 hrs	100%	67.9%	10.0 - 20.0	100.0	100.0
Preparation/setting up	16.0 hrs	—	14.3%	20.0 - 30.0	100.0	100.0
				30.0 - 40.0	100.0	100.0
Dismount/mobilization	4.0 hrs	—	3.6%	40.0 - 50.0	100.0	100.0
				50.0 - 60.0	100.0	100.0
Transportation of water	16.0 hrs	—	14.3%	Efficiency		
Others				Effective length / Working drilling days		
				= 65.00m/4.75 days = 12.63 m/d		
				Effective length / Total drilling shifts =		
Total	112.0 hrs	—	100%	= 65.00m/9.5 shifts = 6.84 m/shift		
Drilling length by diameter						
Bit diameter	190mm ϕ					Total
Drilling length	65.00 m					65.00 m
Core length	56.50 m					56.50 m
Inserted casing pipes						
Inserted length by diameter		Inserted length / Drilling length		Casing recovery		
250mm ϕ	7.00 m	10.77%		100%		
200mm ϕ	10.00 m	15.38%		100%		

Appendix 3-2 Miscellaneous Results of Individual Drillhole (MJBK-54)

	Survey period		Breakdown of period		Total workers	
	Period	Total days	Working days	No working days	Engineers	Workers
Preparation	12 Aug., '02 ~ 13 Aug., '02	1.00	1.00	—	4	10
Drilling	13 Aug., '02 ~ 16 Aug., '02	2.75	Drilling : 2.75	—	11	27.5
			Accident: 0.00	—	0	0
Dismount	16 Aug., '02 ~ 16 Aug., '02	0.25	0.25	—	1	2.5
Total	12 Aug., '02 ~ 16 Aug., '02	4.00	4.00	—	16	40
Drilling Length						
Programmed length	50.00 m	Overburden, sand & gravel, Quarternary			8.00 m	
Prolongation	10.00 m	Core length			52.00 m	
Effective length	60.00 m	Core recovery			100.0 %	
Working hours				Core recovery by each 10 meters		
Drilling	28.0 hrs	73.7%	48.3%	Length (m)	Each (%)	Cumula. (%)
Supplemental drilling work	10.0 hrs	26.3%	17.2%	0 - 6.0	None core	None core
Recovery from accident	0.0 hrs	—	—	6.0 - 10.0	100.0	100.0
Subtotal	38.0 hrs	100%	65.5%	20.0 - 30.0	100.0	100.0
Preparation/setting up	8.0 hrs	—	13.8%	30.0 - 40.0	100.0	100.0
Dismount/mobilization	4.0 hrs	—	6.9%	40.0 - 50.0	100.0	100.0
				50.0 - 60.0	100.0	100.0
Transportation of water	8.0 hrs	—	13.8%	Efficiency		
Others				Effective length / Working drilling days		
				= 61.00m/2.75 days = 22.18 m/d		
				Effective length / Total drilling shifts =		
Total	58.0 hrs	—	100%	= 61.00m/5.5 shifts = 11.09 m/shift		
Drilling length by diameter						
Bit diameter	190mm ϕ					Total
Drilling length	61.00 m					61.00 m
Core length	53.00 m					53.00 m
Inserted casing pipes						
Inserted length by diameter		Inserted length / Drilling length		Casing recovery		
250mm ϕ	6.00 m	10.00%		100%		
200mm ϕ	9.00 m	15.00%		100%		

Appendix 3-2 Miscellaneous Results of Individual Drillhole (MJBK-55)

	Survey period		Breakdown of period		Total workers	
	Period	Total days	Working days	No working days	Engineers	Workers
Preparation	16 Aug., '02 ~ 16 Aug., '02	0.50	0.50	—	2	5
Drilling	17 Aug., '02 ~ 19 Aug., '02	2.25	Drilling : 2.25	—	9	22.5
			Accident: 0.00	—	0	0
Dismount	19 Aug., '02 ~ 19 Aug., '02	0.25	0.25	—	1	2.5
Total	16 Aug., '02 ~ 19 Aug., '02	3.00	3.00	—	12	30
Drilling Length						
Programmed length	50.00 m	Overburden, sand & gravel, Quarternary			7.00 m	
Prolongation	8.00 m	Core length			51.00 m	
Effective length	58.00 m	Core recovery			100.0 %	
Working hours				Core recovery by each 10 meters		
Drilling	23.0 hrs	63.9%	42.6%	Length (m)	Each (%)	Cumula. (%)
Supplemental drilling work	13.0 hrs	36.1%	24.1%	0 - 7.0	None core	None core
Recovery from accident	—	—	—	8.0 - 10.0	100.0	100.0
Subtotal	36.0 hrs	100%	66.7%	10.0 - 20.0	100.0	100.0
Preparation/setting up	8.0 hrs	—	14.8%	20.0 - 30.0	100.0	100.0
				30.0 - 40.0	100.0	100.0
Dismount/mobilization	4.0 hrs	—	7.4%	40.0 - 50.0	100.0	100.0
				50.0 - 58.0	100.0	100.0
Transportation of water	6.0 hrs	—	11.1%	Efficiency		
Others				Effective length / Working drilling days		
				= 58.00m/2.25 days = 25.78 m/d		
				Effective length / Total drilling shifts =		
Total	54.0 hrs	—	100%	= 58.00m/4.5 shifts = 12.89 m/shift		
Drilling length by diameter						
Bit diameter	190mm ϕ					Total
Drilling length	58.00 m					58.00 m
Core length	51.00 m					51.00 m
Inserted casing pipes						
Inserted length by diameter		Inserted length / Drilling length		Casing recovery		
250mm ϕ	5.00 m	8.62%		100%		
200mm ϕ	7.00 m	12.07%		100%		

Appendix 3-2 Miscellaneous Results of Individual Drillhole (MJBKS-26)

	Survey period		Breakdown of period		Total workers	
	Period	Total days	Working days	No working days	Engineers	Workers
Preparation	20 Jul., '02 ~ 20 Jul., '02	1.000	1.000	—	4	10
Drilling	21 Jul., '02 ~ 21 Jul., '02	0.750	Drilling : 0.750	—	3	7.5
			Accident: 0.000	—	—	—
Dismount	21 Jul., '02 ~ 21 Jul., '02	0.25	0.250	—	1	2.5
Total	20 Jul., '02 ~ 21 Jul., '02	2.000	2.000	—	8	20
Drilling Length						
Programmed length	40.00 m	Overburden, sand & gravel, Quarternary			11.00 m	
Prolongation	-9.00 m	Core length			20.00 m	
Effective length	31.00 m	Core recovery			100.0 %	
Working hours				Core recovery by each 10 meters		
Drilling	8.0 hrs	34.8%	20.0%	Length (m)	Each (%)	Cumula. (%)
Supplemental drilling work	15.0 hrs	65.2%	37.5%	0 - 11.0	None core	None core
Recovery from accident	—	—	—	11.0 - 20.0	100.0	100.0
Subtotal	23.0 hrs	100%	57.5%	20.0 - 30.0	100.0	100.0
Preparation/setting up	5.0 hrs	—	12.5%	30.0 - 31.00	100.0	100.0
Dismount/mobilization	4.0 hrs	—	10.0%			
Transportation of water	8.0 hrs	—	20.0%	Efficiency		
Others				Effective length / Working drilling days		
				= 31.00m/0.750 days = 41.33m/d		
				Effective length / Total drilling shifts =		
Total	40.0 hrs	—	100%	= 31.00m/3.875 shifts = 10.78 m/shift		
Drilling length by diameter						
Bit diameter	4"TB	92mm ϕ				Total
Drilling length	11.00 m	20.00 m				31.00 m
Core length	0.00 m	20.00 m				20.00 m
Inserted casing pipes						
Inserted length by diameter		Inserted length / Drilling length		Casing recovery		
133mm ϕ	11.00 m	35.48%		100%		