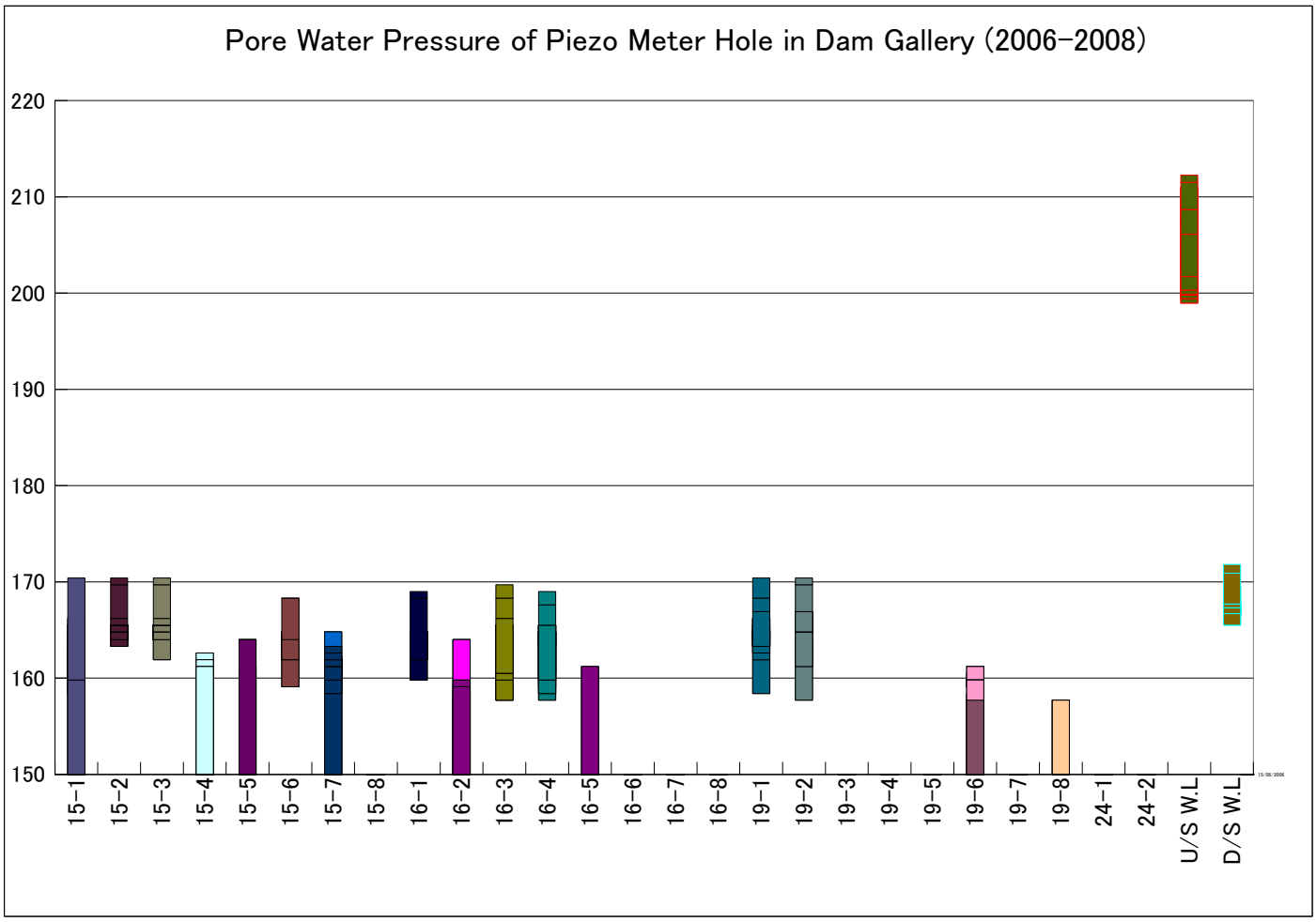
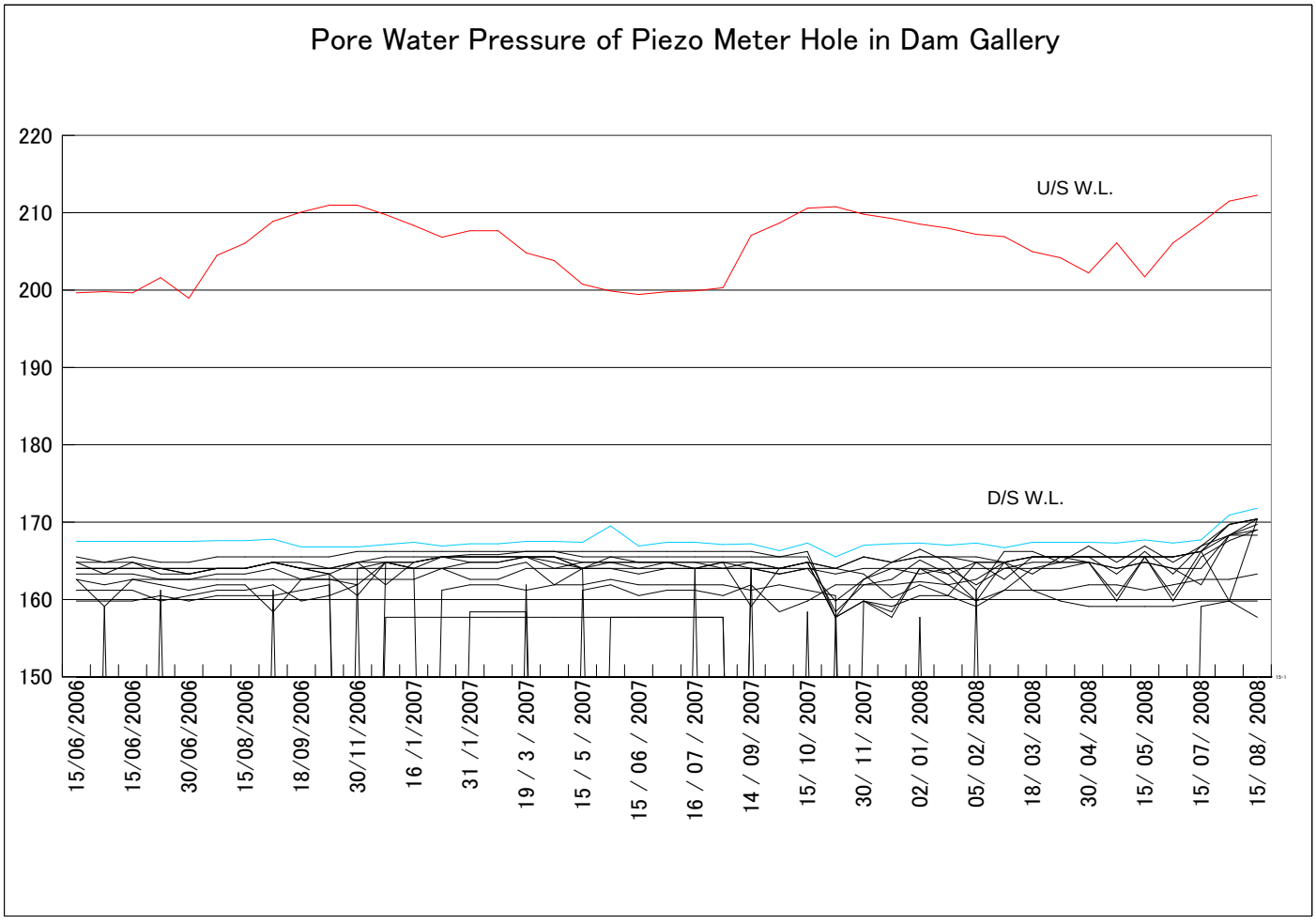
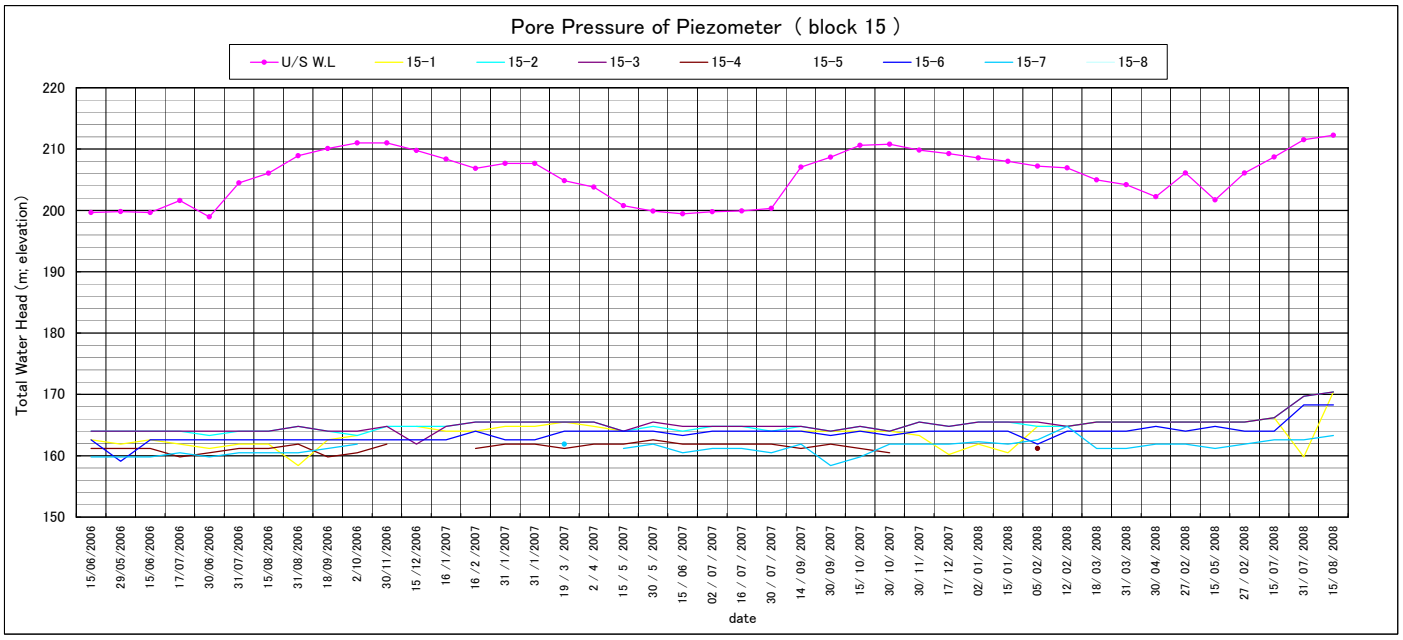
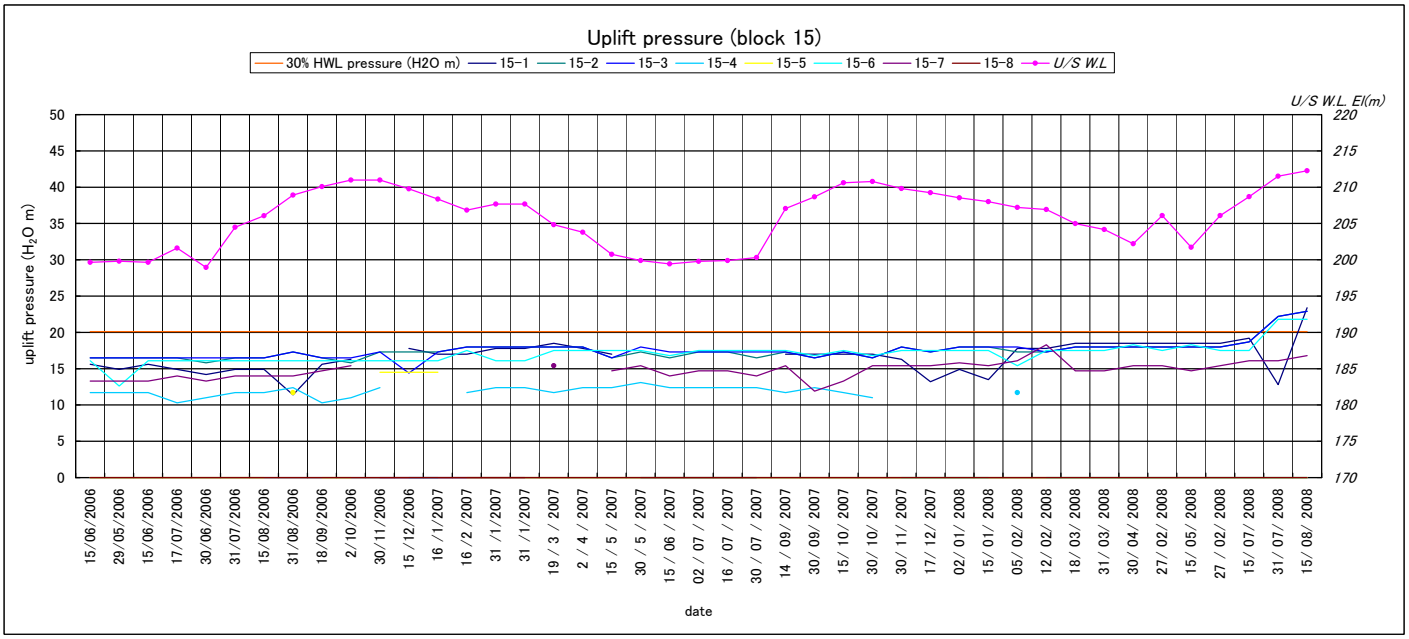
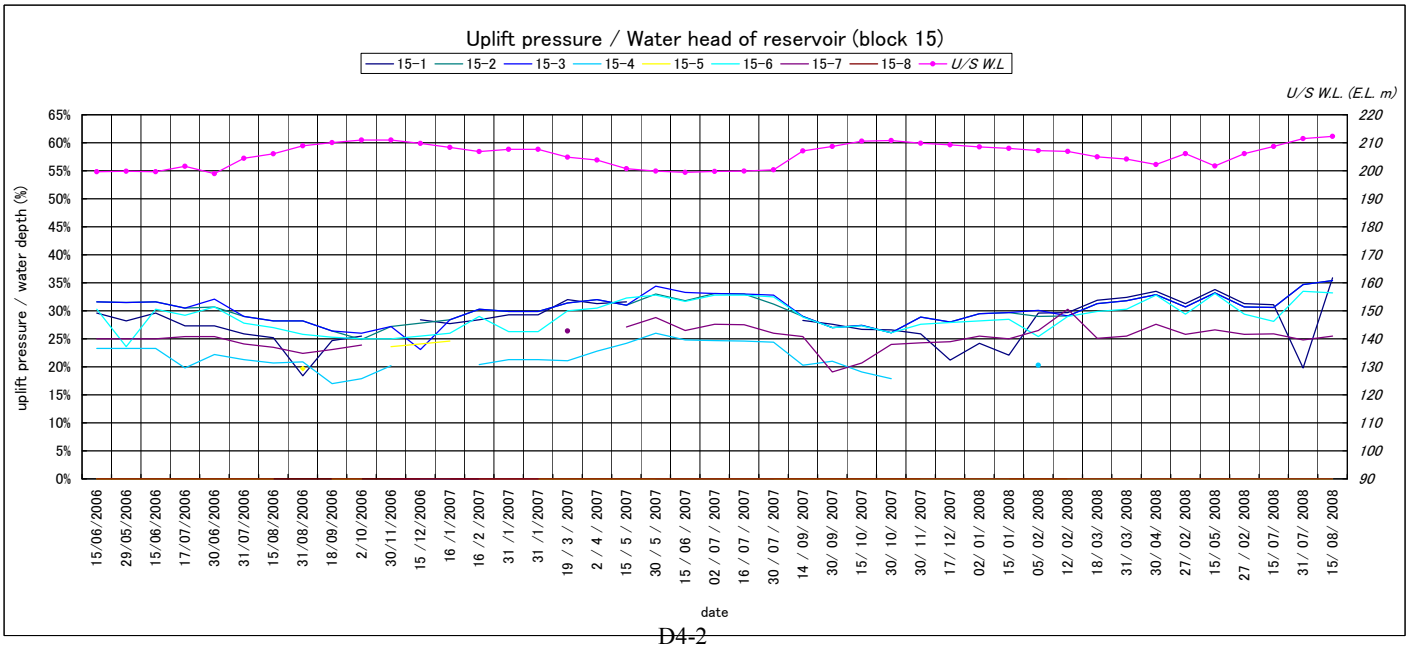
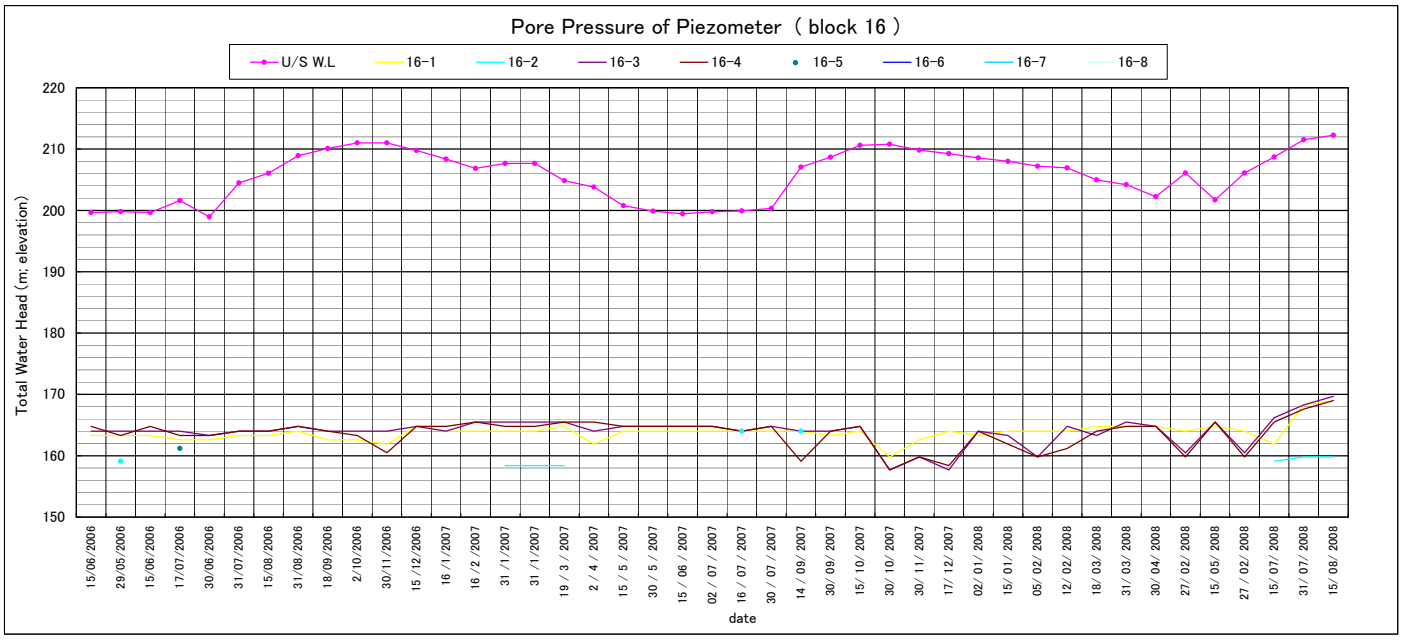

Pore Water Pressure of Piezo Meter Hole in Dam Gallery (2006-2008)
220
210
200
190
180
170
160
150
15-1
15-2
15-3
15-4
15-5
15-6
15-7
15-8
16-1
16-2
16-3
16-4
16-5
16-6
16-7
16-8
19-1
19-2
19-3
19-4
19-5
19-6
19-7
19-8
24-1
24-2
U/S W.L
D/S W.L

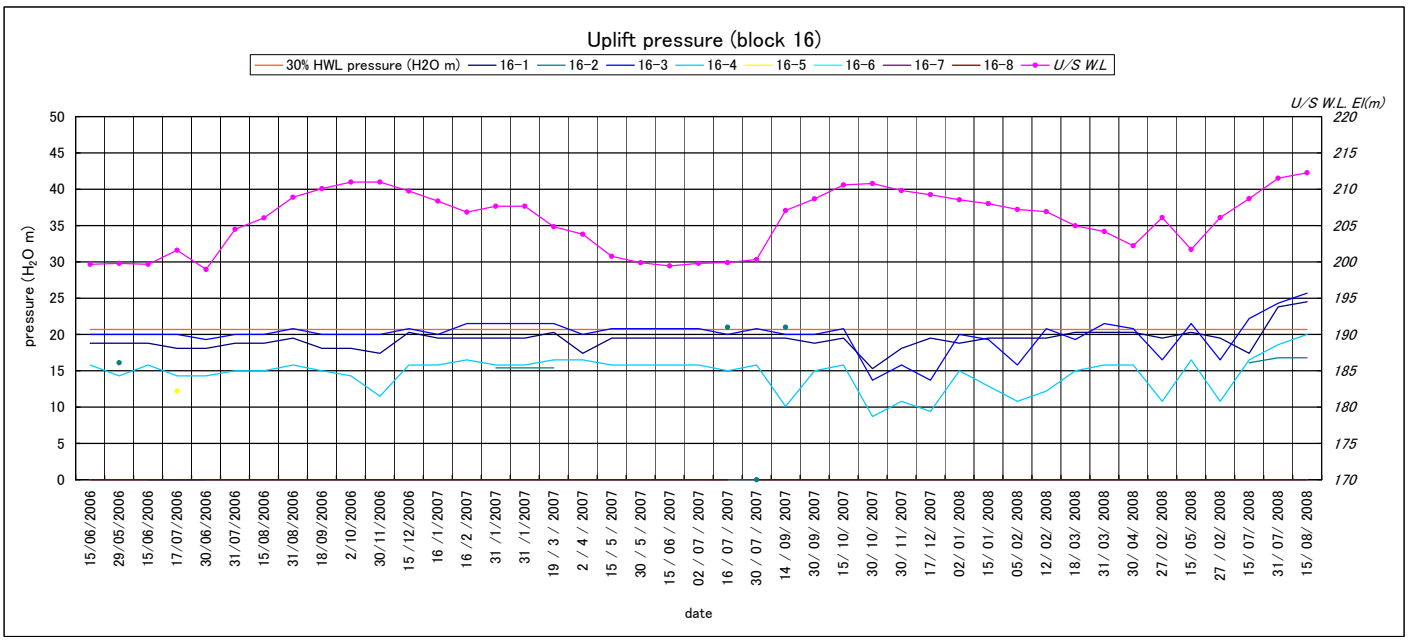

Pore Water Pressure of Piezo Meter Hole in Dam Gallery
220
210
200
190
180
170
160
150
U/S W.L.
D/S W.L.
15/06/2006
15/06/2006
30/06/2006
15/08/2006
18/09/2006
30/11/2006
16 /1/2007
31 /1/2007
19 / 3 / 2007
15 / 5 / 2007
15 / 06 / 2007
16 / 07 / 2007
14 / 09/ 2007
15/ 10/ 2007
30/ 11/ 2007
02/ 01/ 2008
05/ 02/ 2008
18/ 03/ 2008
30/ 04/ 2008
15/ 05/ 2008
15/ 07/ 2008
15/ 08/ 2008

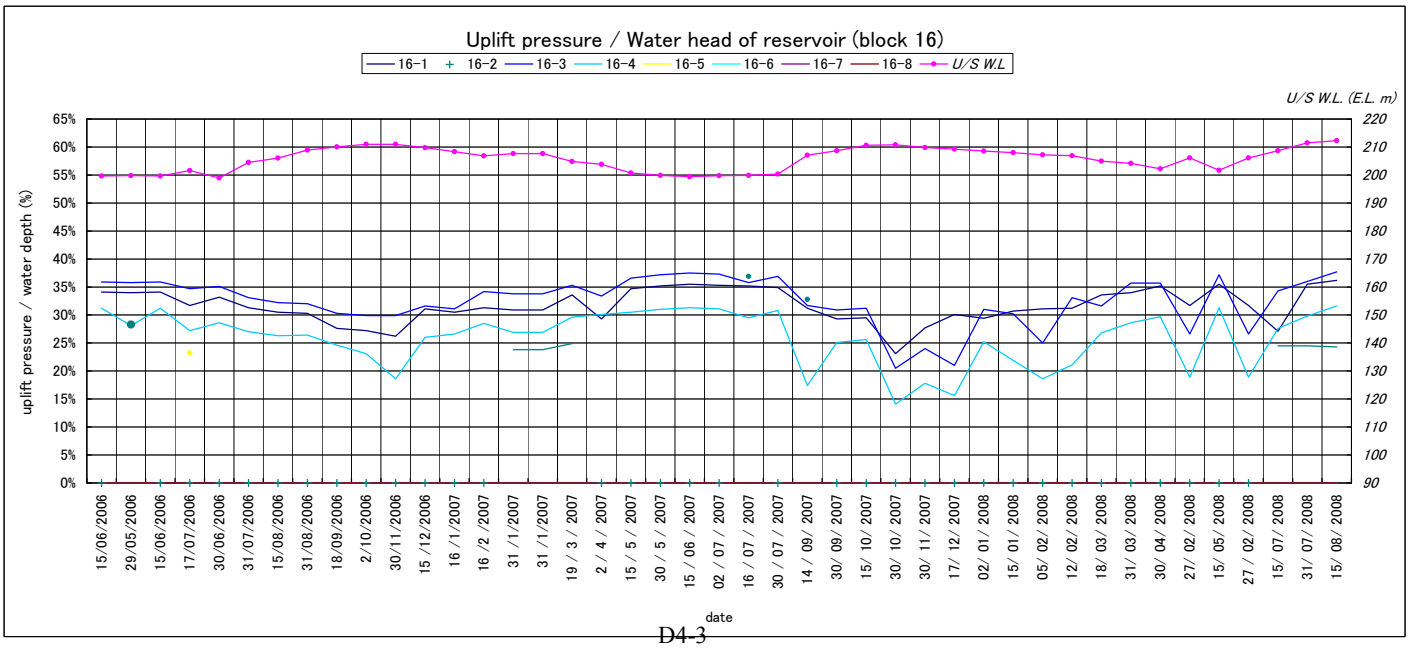

Pore Pressure of Piezometer （ block 15 ）
U/S W.L
15-1
15-2
15-3
15-4
15-5
15-6
15-7
15-8
Total Water Head (m; elevation)
220
210
200
190
180
170
160
150
15/06/2006
29/05/2006
15/06/2006
17/07/2006
30/06/2006
31/07/2006
15/08/2006
31/08/2006
18/09/2006
2/10/2006
30/11/2006
15/12/2006
16/1/2007
16/2/2007
31/1/2007
31/1/2007
19/3/2007
2/4/2007
15/5/2007
30/5/2007
15/06/2007
02/07/2007
16/07/2007
30/07/2007
14/09/2007
30/09/2007
15/10/2007
30/10/2007
30/11/2007
17/12/2007
02/01/2008
15/01/2008
05/02/2008
12/02/2008
18/03/2008
31/03/2008
30/04/2008
27/02/2008
15/05/2008
27/02/2008
15/07/2008
31/07/2008
15/08/2008
date

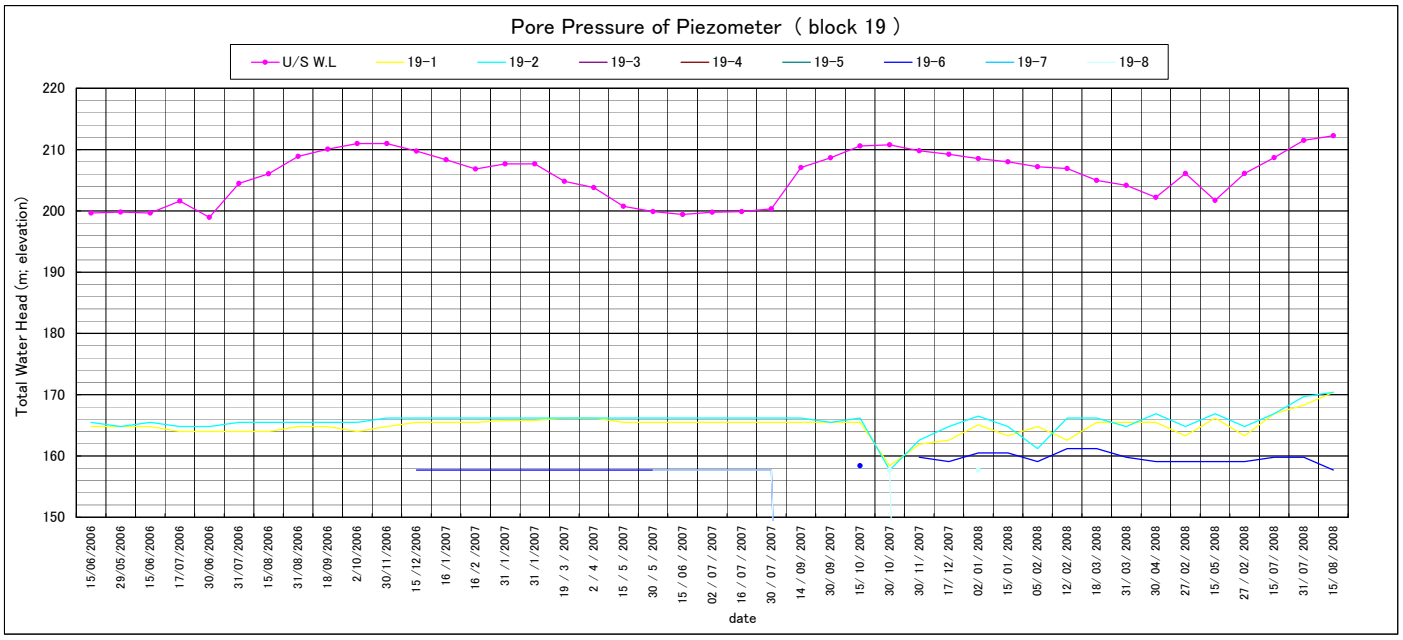

Uplift pressure (block 15)
30% HWL pressure (H2O m)
15-1
15-2
15-3
15-4
15-5
15-6
15-7
15-8
U/S W.L
U/S W.L. El(m)
uplift pressure (H2O m)
50
45
40
35
30
25
20
15
10
5
0
220
215
210
205
200
195
190
185
180
175
170
15/06/2006
29/05/2006
15/06/2006
17/07/2006
30/06/2006
31/07/2006
15/08/2006
31/08/2006
18/09/2006
2/10/2006
30/11/2006
15/12/2006
16/1/2007
16/2/2007
31/1/2007
31/1/2007
19/3/2007
2/4/2007
15/5/2007
30/5/2007
15/06/2007
02/07/2007
16/07/2007
30/07/2007
14/09/2007
30/09/2007
15/10/2007
30/10/2007
30/11/2007
17/12/2007
02/01/2008
15/01/2008
05/02/2008
12/02/2008
18/03/2008
31/03/2008
30/04/2008
27/02/2008
15/05/2008
27/02/2008
15/07/2008
31/07/2008
15/08/2008
date

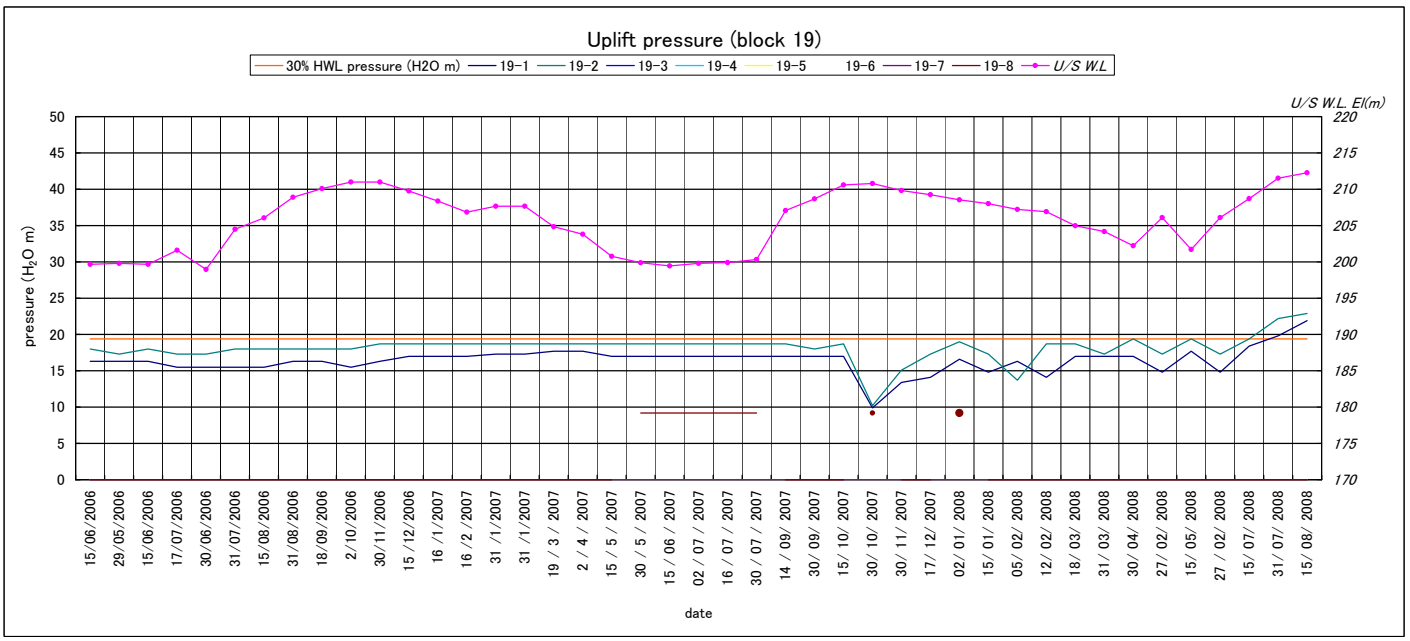

Uplift pressure / Water head of reservoir (block 15)
15-1
15-2
15-3
15-4
15-5
15-6
15-7
15-8
U/S W.L
U/S W.L. (E.L. m)
uplift pressure / water depth (%)
65%
60%
55%
50%
45%
40%
35%
30%
25%
20%
15%
10%
5%
0%
220
210
200
190
180
170
160
150
140
130
120
110
100
90
15/06/2006
29/05/2006
15/06/2006
17/07/2006
30/06/2006
31/07/2006
15/08/2006
31/08/2006
18/09/2006
2/10/2006
30/11/2006
15/12/2006
16/1/2007
16/2/2007
31/1/2007
31/1/2007
19/3/2007
2/4/2007
15/5/2007
30/5/2007
15/06/2007
02/07/2007
16/07/2007
30/07/2007
14/09/2007
30/09/2007
15/10/2007
30/10/2007
30/11/2007
17/12/2007
02/01/2008
15/01/2008
05/02/2008
12/02/2008
18/03/2008
31/03/2008
30/04/2008
27/02/2008
15/05/2008
27/02/2008
15/07/2008
31/07/2008
15/08/2008
date

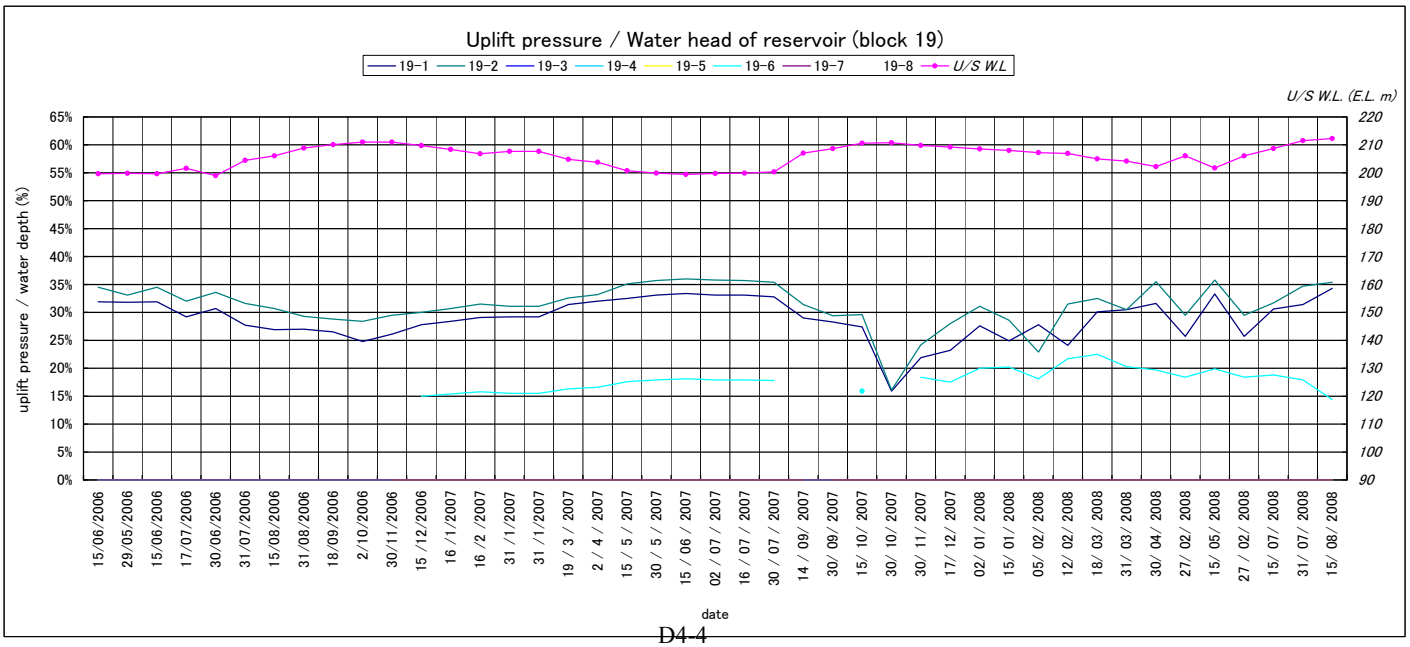

Pore Pressure of Piezometer （ block 16 ）
U/S W.L
16-1
16-2
16-3
16-4
16-5
16-6
16-7
16-8
Total Water Head (m; elevation)
220
210
200
190
180
170
160
150
15/06/2006
29/05/2006
15/06/2006
17/07/2006
30/06/2006
31/07/2006
15/08/2006
31/08/2006
18/09/2006
2/10/2006
30/11/2006
15/12/2006
16/1/2007
16/2/2007
31/1/2007
31/1/2007
19/3/2007
2/4/2007
15/5/2007
30/5/2007
15/06/2007
02/07/2007
16/07/2007
30/07/2007
14/09/2007
30/09/2007
15/10/2007
30/10/2007
30/11/2007
17/12/2007
02/01/2008
15/01/2008
05/02/2008
12/02/2008
18/03/2008
31/03/2008
30/04/2008
27/02/2008
15/05/2008
27/02/2008
15/07/2008
31/07/2008
15/08/2008
date

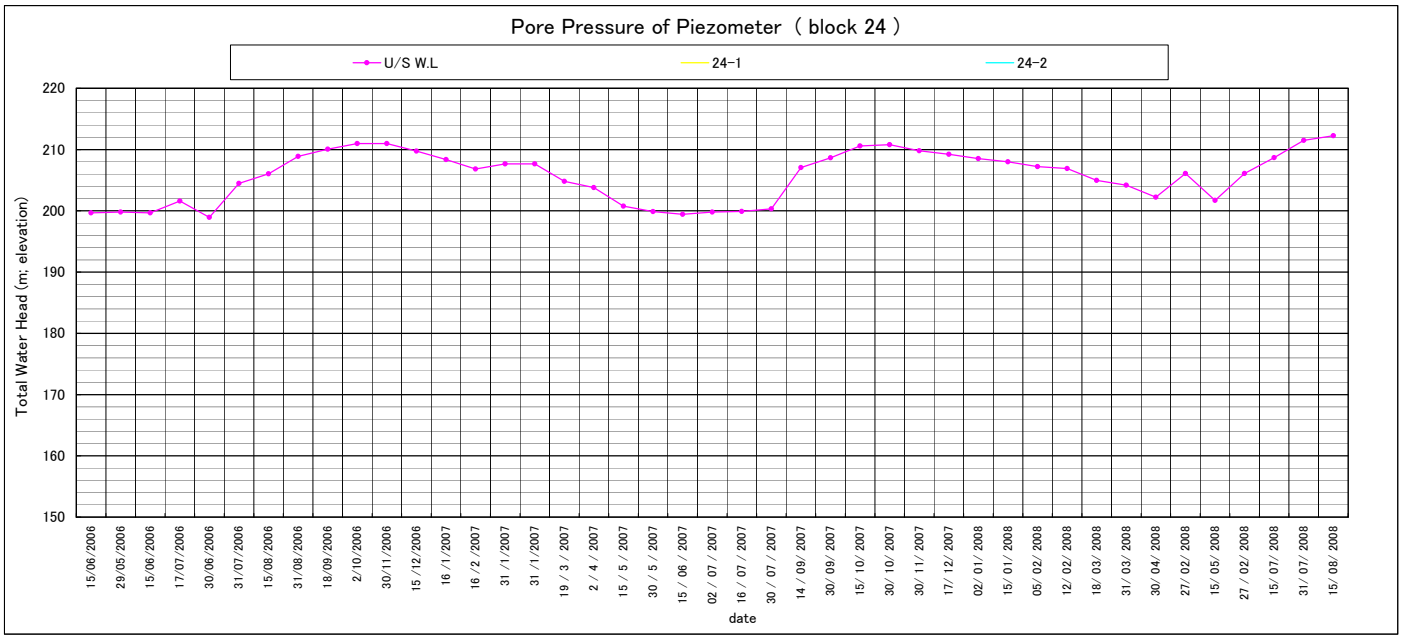

Uplift pressure (block 16)
30% HWL pressure (H2O m)
16-1
16-2
16-3
16-4
16-5
16-6
16-7
16-8
U/S W.L
U/S W.L. El(m)
pressure (H2O m)
50
45
40
35
30
25
20
15
10
5
0
220
215
210
205
200
195
190
185
180
175
170
15/06/2006
29/05/2006
15/06/2006
17/07/2006
30/06/2006
31/07/2006
15/08/2006
31/08/2006
18/09/2006
2/10/2006
30/11/2006
15/12/2006
16/1/2007
16/2/2007
31/1/2007
31/1/2007
19/3/2007
2/4/2007
15/5/2007
30/5/2007
15/06/2007
02/07/2007
16/07/2007
30/07/2007
14/09/2007
30/09/2007
15/10/2007
30/10/2007
30/11/2007
17/12/2007
02/01/2008
15/01/2008
05/02/2008
12/02/2008
18/03/2008
31/03/2008
30/04/2008
27/02/2008
15/05/2008
27/02/2008
15/07/2008
31/07/2008
15/08/2008
date

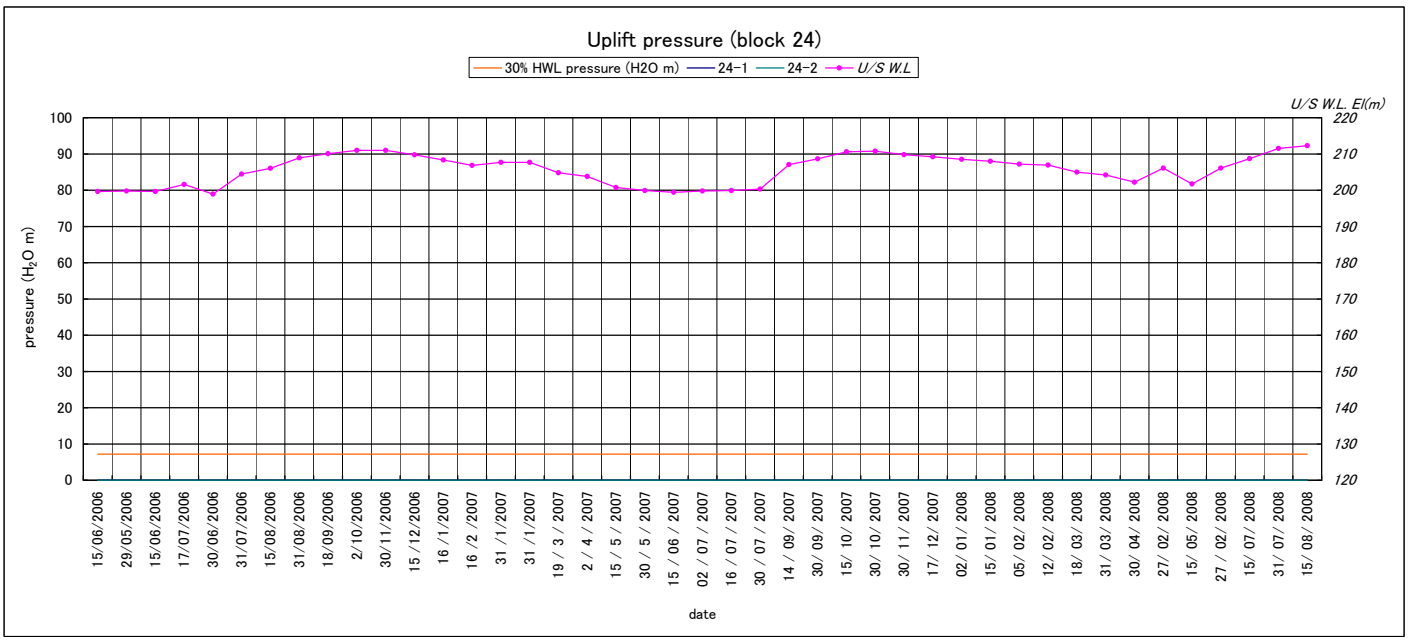

Uplift pressure / Water head of reservoir (block 16)
16-1
16-2
16-3
16-4
16-5
16-6
16-7
16-8
U/S W.L
U/S W.L. (E.L. m)
uplift pressure / water depth (%)
65%
60%
55%
50%
45%
40%
35%
30%
25%
20%
15%
10%
5%
0%
220
210
200
190
180
170
160
150
140
130
120
110
100
90
15/06/2006
29/05/2006
15/06/2006
17/07/2006
30/06/2006
31/07/2006
15/08/2006
31/08/2006
18/09/2006
2/10/2006
30/11/2006
15/12/2006
16/1/2007
16/2/2007
31/1/2007
31/1/2007
19/3/2007
2/4/2007
15/5/2007
30/5/2007
15/06/2007
02/07/2007
16/07/2007
30/07/2007
14/09/2007
30/09/2007
15/10/2007
30/10/2007
30/11/2007
17/12/2007
02/01/2008
15/01/2008
05/02/2008
12/02/2008
18/03/2008
31/03/2008
30/04/2008
27/02/2008
15/05/2008
27/02/2008
15/07/2008
31/07/2008
15/08/2008
date

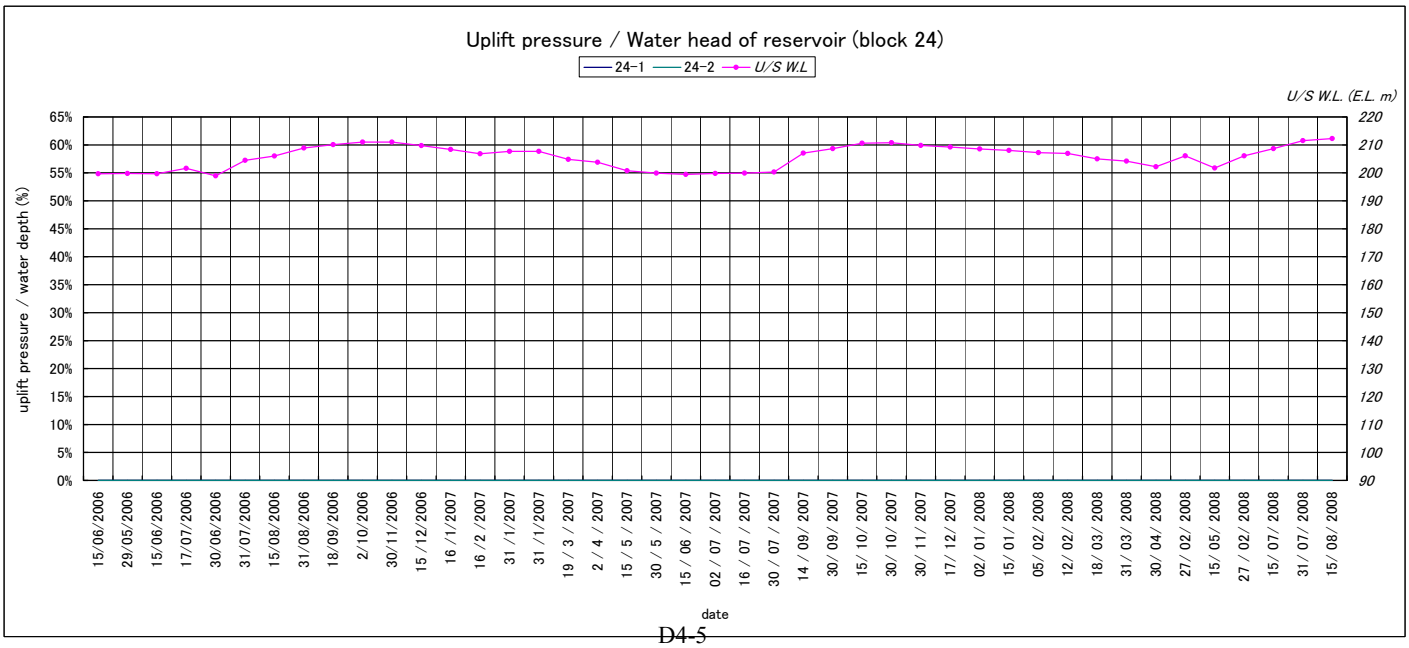

Pore Pressure of Piezometer （ block 19 ）
U/S W.L
19-1
19-2
19-3
19-4
19-5
19-6
19-7
19-8
Total Water Head (m; elevation)
220
210
200
190
180
170
160
150
15/06/2006
29/05/2006
15/06/2006
17/07/2006
30/06/2006
31/07/2006
15/08/2006
31/08/2006
18/09/2006
2/10/2006
30/11/2006
15/12/2006
16/1/2007
16/2/2007
31/1/2007
31/1/2007
19/3/2007
2/4/2007
15/5/2007
30/5/2007
15/06/2007
02/07/2007
16/07/2007
30/07/2007
14/09/2007
30/09/2007
15/10/2007
30/10/2007
30/11/2007
17/12/2007
02/01/2008
15/01/2008
05/02/2008
12/02/2008
18/03/2008
31/03/2008
30/04/2008
27/02/2008
15/05/2008
27/02/2008
15/07/2008
31/07/2008
15/08/2008
date

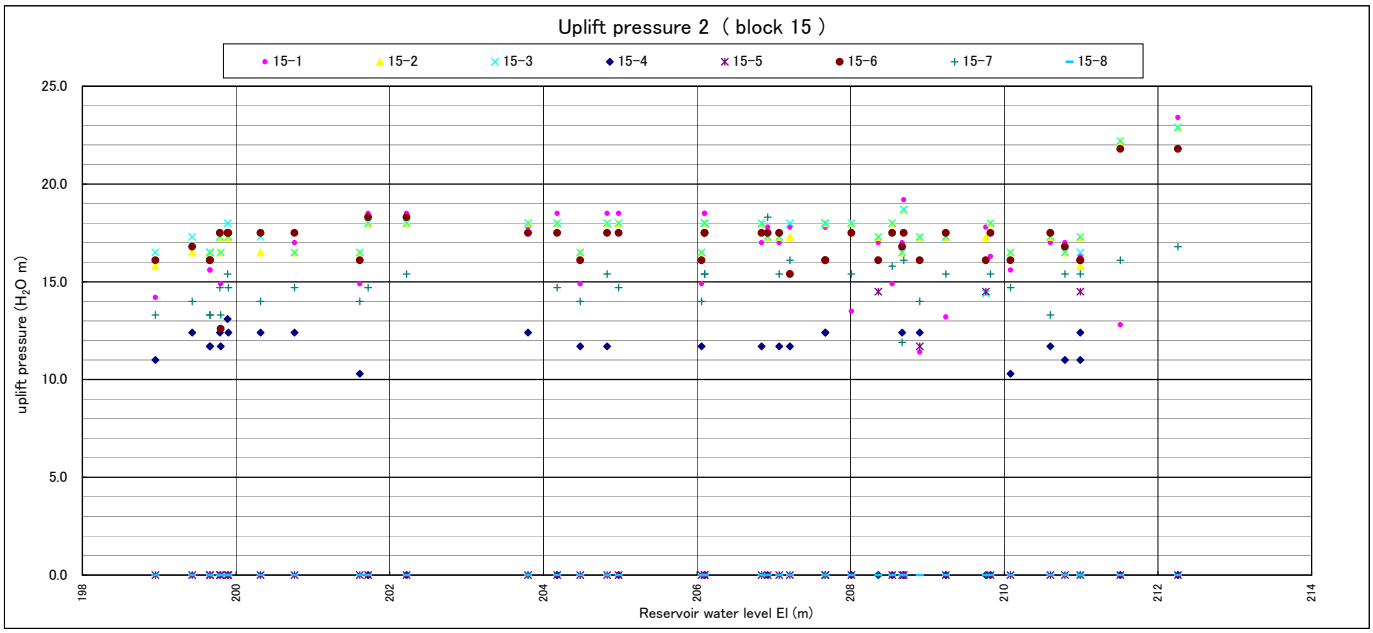

Uplift pressure (block 19)
30% HWL pressure (H2O m)
19-1
19-2
19-3
19-4
19-5
19-6
19-7
19-8
U/S W.L
U/S W.L. El(m)
pressure (H2O m)
50
45
40
35
30
25
20
15
10
5
0
220
215
210
205
200
195
190
185
180
175
170
15/06/2006
29/05/2006
15/06/2006
17/07/2006
30/06/2006
31/07/2006
15/08/2006
31/08/2006
18/09/2006
2/10/2006
30/11/2006
15/12/2006
16/1/2007
16/2/2007
31/1/2007
31/1/2007
19/3/2007
2/4/2007
15/5/2007
30/5/2007
15/06/2007
02/07/2007
16/07/2007
30/07/2007
14/09/2007
30/09/2007
15/10/2007
30/10/2007
30/11/2007
17/12/2007
02/01/2008
15/01/2008
05/02/2008
12/02/2008
18/03/2008
31/03/2008
30/04/2008
27/02/2008
15/05/2008
27/02/2008
15/07/2008
31/07/2008
15/08/2008
date

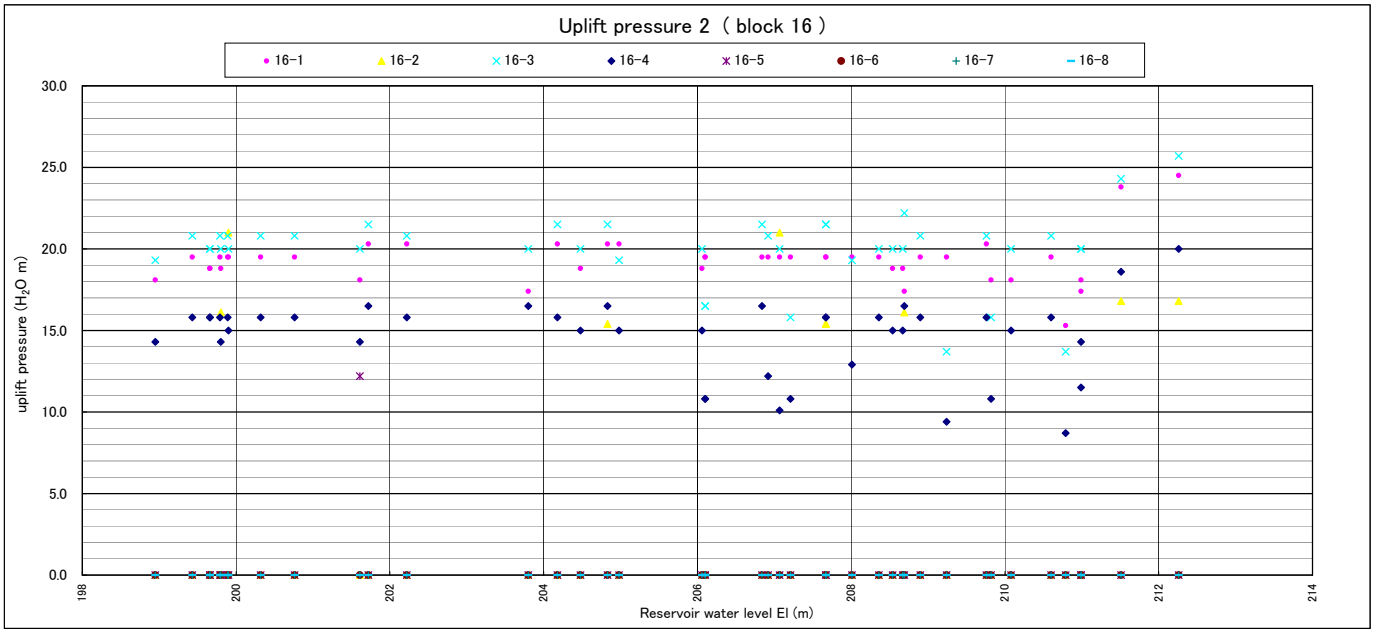

Uplift pressure / Water head of reservoir (block 19)
19-1
19-2
19-3
19-4
19-5
19-6
19-7
19-8
U/S W.L
U/S W.L. (E.L. m)
uplift pressure / water depth (%)
65%
60%
55%
50%
45%
40%
35%
30%
25%
20%
15%
10%
5%
0%
220
210
200
190
180
170
160
150
140
130
120
110
100
90
15/06/2006
29/05/2006
15/06/2006
17/07/2006
30/06/2006
31/07/2006
15/08/2006
31/08/2006
18/09/2006
2/10/2006
30/11/2006
15/12/2006
16/1/2007
16/2/2007
31/1/2007
31/1/2007
19/3/2007
2/4/2007
15/5/2007
30/5/2007
15/06/2007
02/07/2007
16/07/2007
30/07/2007
14/09/2007
30/09/2007
15/10/2007
30/10/2007
30/11/2007
17/12/2007
02/01/2008
15/01/2008
05/02/2008
12/02/2008
18/03/2008
31/03/2008
30/04/2008
27/02/2008
15/05/2008
27/02/2008
15/07/2008
31/07/2008
15/08/2008
date

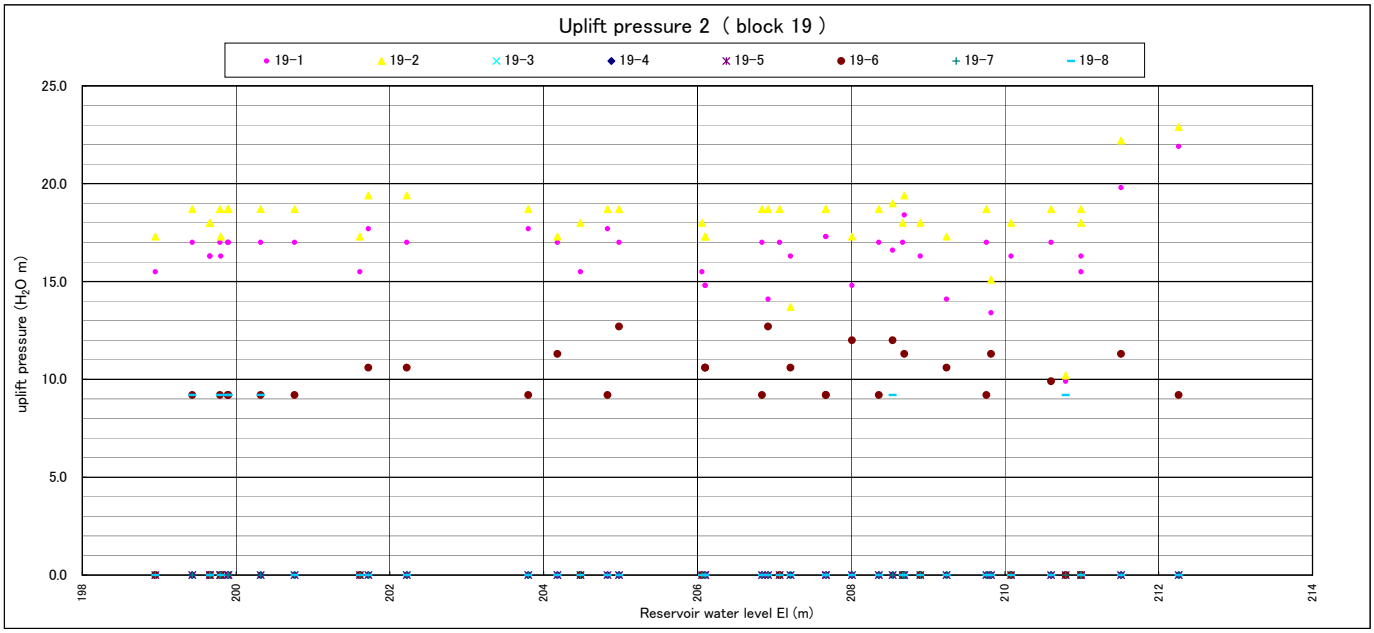

Pore Pressure of Piezometer （ block 24 ）
U/S W.L
24-1
24-2
Total Water Head (m; elevation)
220
210
200
190
180
170
160
150
15/06/2006
29/05/2006
15/06/2006
17/07/2006
30/06/2006
31/07/2006
15/08/2006
31/08/2006
18/09/2006
2/10/2006
30/11/2006
15/12/2006
16/1/2007
16/2/2007
31/1/2007
31/1/2007
19/3/2007
2/4/2007
15/5/2007
30/5/2007
15/06/2007
02/07/2007
16/07/2007
30/07/2007
14/09/2007
30/09/2007
15/10/2007
30/10/2007
30/11/2007
17/12/2007
02/01/2008
15/01/2008
05/02/2008
12/02/2008
18/03/2008
31/03/2008
30/04/2008
27/02/2008
15/05/2008
27/02/2008
15/07/2008
31/07/2008
15/08/2008
date

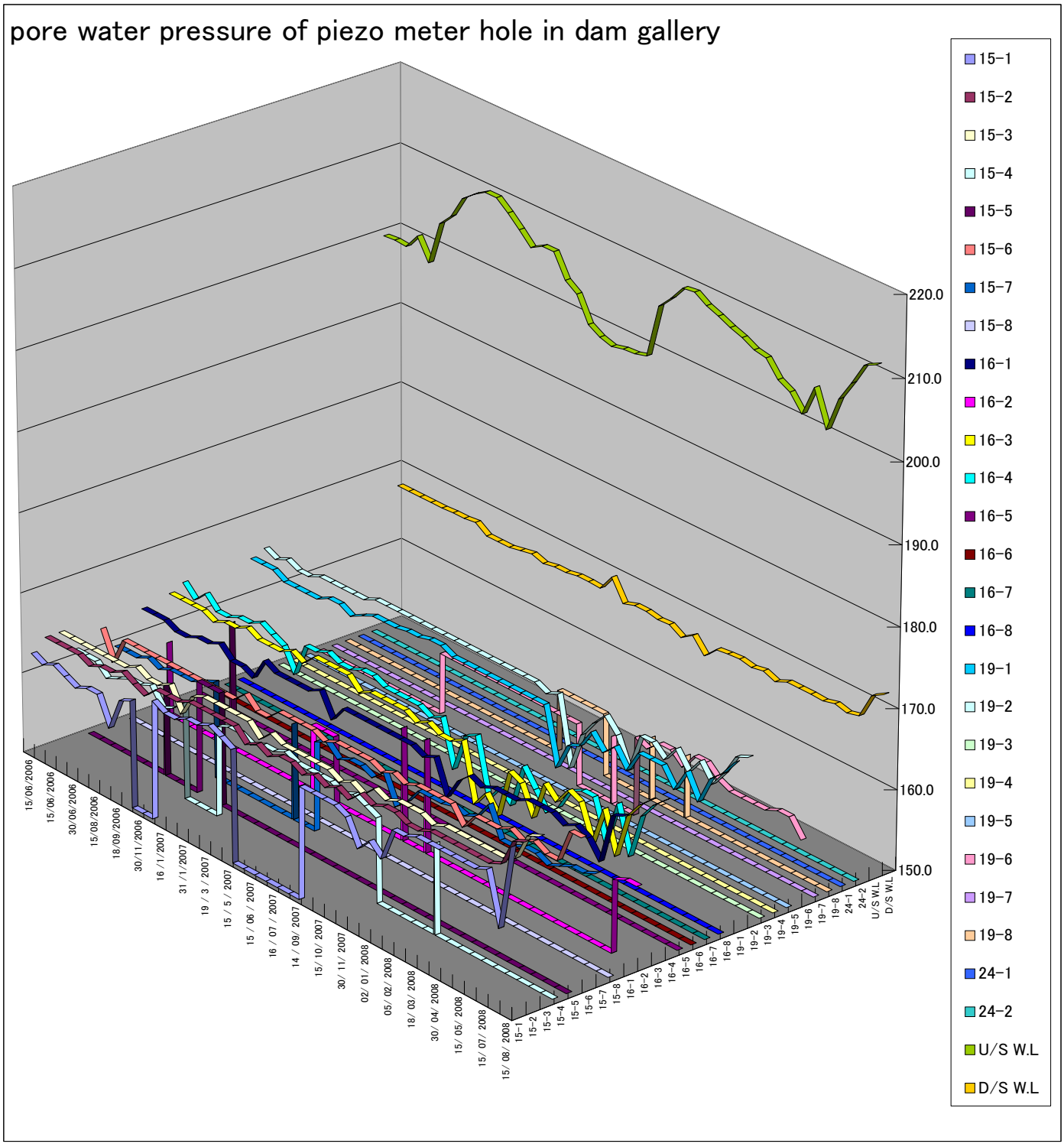

Uplift pressure (block 24)
30% HWL pressure (H2O m)
24-1
24-2
U/S W.L
U/S W.L. El(m)
pressure (H2O m)
100
90
80
70
60
50
40
30
20
10
0
220
210
200
190
180
170
160
150
140
130
120
15/06/2006
29/05/2006
15/06/2006
17/07/2006
30/06/2006
31/07/2006
15/08/2006
31/08/2006
18/09/2006
2/10/2006
30/11/2006
15/12/2006
16/1/2007
16/2/2007
31/1/2007
31/1/2007
19/3/2007
2/4/2007
15/5/2007
30/5/2007
15/06/2007
02/07/2007
16/07/2007
30/07/2007
14/09/2007
30/09/2007
15/10/2007
30/10/2007
30/11/2007
17/12/2007
02/01/2008
15/01/2008
05/02/2008
12/02/2008
18/03/2008
31/03/2008
30/04/2008
27/02/2008
15/05/2008
27/02/2008
15/07/2008
31/07/2008
15/08/2008
date


Uplift pressure / Water head of reservoir (block 24)
24-1
24-2
U/S W.L
U/S W.L. (E.L. m)
uplift pressure / water depth (%)
65%
60%
55%
50%
45%
40%
35%
30%
25%
20%
15%
10%
5%
0%
220
210
200
190
180
170
160
150
140
130
120
110
100
90
15/06/2006
29/05/2006
15/06/2006
17/07/2006
30/06/2006
31/07/2006
15/08/2006
31/08/2006
18/09/2006
2/10/2006
30/11/2006
15/12/2006
16/1/2007
16/2/2007
31/1/2007
31/1/2007
19/3/2007
2/4/2007
15/5/2007
30/5/2007
15/06/2007
02/07/2007
16/07/2007
30/07/2007
14/09/2007
30/09/2007
15/10/2007
30/10/2007
30/11/2007
17/12/2007
02/01/2008
15/01/2008
05/02/2008
12/02/2008
18/03/2008
31/03/2008
30/04/2008
27/02/2008
15/05/2008
27/02/2008
15/07/2008
31/07/2008
15/08/2008
date


Uplift pressure 2 （ block 15 ）
15-1
15-2
15-3
15-4
15-5
15-6
15-7
15-8
uplift pressure (H_2O m)
25.0
20.0
15.0
10.0
5.0
0.0
198
200
202
204
206
208
210
212
214
Reservoir water level El (m)


Uplift pressure 2 （ block 16 ）
16-1
16-2
16-3
16-4
16-5
16-6
16-7
16-8
uplift pressure (H_2O m)
30.0
25.0
20.0
15.0
10.0
5.0
0.0
198
200
202
204
206
208
210
212
214
Reservoir water level El (m)


Uplift pressure 2 （ block 19 ）
19-1
19-2
19-3
19-4
19-5
19-6
19-7
19-8
uplift pressure (H_2O m)
25.0
20.0
15.0
10.0
5.0
0.0
198
200
202
204
206
208
210
212
214
Reservoir water level El (m)


pore water pressure of piezo meter hole in dam gallery
220.0
210.0
200.0
190.0
180.0
170.0
160.0
150.0
15/06/2006
15/06/2006
30/06/2006
15/08/2006
18/09/2006
30/11/2006
16/1/2007
31/1/2007
19/3/2007
15/5/2007
15/06/2007
16/07/2007
14/09/2007
15/10/2007
30/11/2007
02/01/2008
05/02/2008
18/03/2008
30/04/2008
15/05/2008
15/07/2008
15/08/2008
15-1
15-2
15-3
15-4
15-5
15-6
15-7
15-8
16-1
16-2
16-3
16-4
16-5
16-6
16-7
16-8
19-1
19-2
19-3
19-4
19-5
19-6
19-7
19-8
24-1
24-2
U/S W.L
D/S W.L
15-1
15-2
15-3
15-4
15-5
15-6
15-7
15-8
16-1
16-2
16-3
16-4
16-5
16-6
16-7
16-8
19-1
19-2
19-3
19-4
19-5
19-6
19-7
19-8
24-1
24-2
U/S W.L
D/S W.L

original data table

Pore Water Pressure Nam Ngum Foundation Gallery (value of gauge (psi))

Block	Piezometer No	Embedded El El (m)	Gauge level El El (m)	value (psi gauge) 15/06/2006	29/05/2006	15/06/2006	17/07/2006	30/06/2006	31/07/2006	15/08/2006	31/08/2006	18/09/2006	2/10/2006	30/11/2006	15 /12/2006	16 /1/2007	16 /2 /2007	31 /1/2007
15	1	147	157	8	7	8	7	6	7	7	2	8	9	0	11	10	10	11
	2	147.5	157	10	10	10	10	9	10	10	11	10	9	11	11	11	12	12
	3	147.5	157	10	10	10	10	10	10	10	11	10	10	11	7	11	12	12
	4	149.5	157	6	6	6	4	5	6	6	7	4	5	7			6	7
	5	149.5	157								6	0	0	10	10	10	0	0
	6	146.5	157	8	3	8	8	8	8	8	8	8	8	8	8	8	10	8
	7	146.5	157	4	4	4	5	4	5	5	5	6	7	0				
	8	145	157															
16	1	144.5	157	9	9	9	8	8	9	9	10	8	8	7	11	10	10	10
	2	143	157	0	3	0											0	2
	3	144	157	10	10	10	10	9	10	10	11	10	10	10	11	10	12	12
	4	149	157	11	9	11	9	9	10	10	11	10	9	5	11	11	12	11
	5	149	157				6											
	6	143.5	157															
	7	143.5	157															
	8	143.5	157															
19	1	148.5	157	11	11	11	10	10	10	10	11	11	10	11	12	12	12	12.5
	2	147.5	157	12	11	12	11	11	12	12	12	12	12	13	13	13	13	13
	3	149.5	157															
	4	152.5	157															
	5	152.5	157															
	6	148.5	157												1	1	1	1
	7	149.5	157															
	8	148.5	157															
24	1	188	194.5															
	2	188.5	194.5															
U/S W.L				199.66	199.8	199.66	201.61	198.95	204.48	206.06	208.9	210.08	210.99	210.99	209.76	208.36	206.84	207.67
D/S W.L				167.5	167.5	167.5	167.5	167.5	167.6	167.6	167.8	166.8	166.8	166.8	167.1	167.4	166.9	167.2

Pore Water Pressure Nam Ngum Foundation Gallery (value of waterhead (m))

formula ; wh(m); 25C = 0.7046 x psi

Block	Piezometer No	Embedded El El (m)	Gauge level El El (m)	water head (m) 15/06/2006	29/05/2006	15/06/2006	17/07/2006	30/06/2006	31/07/2006	15/08/2006	31/08/2006	18/09/2006	2/10/2006	30/11/2006	15 /12/2006	16 /1/2007	16 /2 /2007	31 /1/2007
15	15-1	147	157	5.6	4.9	5.6	4.9	4.2	4.9	4.9	1.4	5.6	6.3		7.8	7.0	7.0	7.8
	15-2	147.5	157	7.0	7.0	7.0	7.0	6.3	7.0	7.0	7.8	7.0	6.3	7.8	7.8	7.8	8.5	8.5
	15-3	147.5	157	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.8	7.0	7.0	7.8	4.9	7.8	8.5	8.5
	15-4	149.5	157	4.2	4.2	4.2	2.8	3.5	4.2	4.2	4.9	2.8	3.5	4.9			4.2	4.9
	15-5	149.5	157								4.2			7.0	7.0	7.0		
	15-6	146.5	157	5.6	2.1	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	7.0	5.6
	15-7	146.5	157	2.8	2.8	2.8	3.5	2.8	3.5	3.5	3.5	4.2	4.9					
	15-8	145	157															
16	16-1	144.5	157	6.3	6.3	6.3	5.6	5.6	6.3	6.3	7.0	5.6	5.6	4.9	7.8	7.0	7.0	7.0
	16-2	143	157		2.1													1.4
	16-3	144	157	7.0	7.0	7.0	7.0	6.3	7.0	7.0	7.8	7.0	7.0	7.0	7.8	7.0	8.5	8.5
	16-4	149	157	7.8	6.3	7.8	6.3	6.3	7.0	7.0	7.8	7.0	6.3	3.5	7.8	7.8	8.5	7.8
	16-5	149	157				4.2											
	16-6	143.5	157															
	16-7	143.5	157															
	16-8	143.5	157															
19	19-1	148.5	157	7.8	7.8	7.8	7.0	7.0	7.0	7.0	7.8	7.8	7.0	7.8	8.5	8.5	8.5	8.8
	19-2	147.5	157	8.5	7.8	8.5	7.8	7.8	8.5	8.5	8.5	8.5	8.5	9.2	9.2	9.2	9.2	9.2
	19-3	149.5	157															
	19-4	152.5	157															
	19-5	152.5	157															
	19-6	148.5	157												0.7	0.7	0.7	0.7
	19-7	149.5	157															
	19-8	148.5	157															
24	24-1	188	194.5															
	24-2	188.5	194.5															
U/S W.L				199.66	199.8	199.66	201.61	198.95	204.48	206.06	208.9	210.08	210.99	210.99	209.76	208.36	206.84	207.67
D/S W.L				167.5	167.5	167.5	167.5	167.5	167.6	167.6	167.8	166.8	166.8	166.8	167.1	167.4	166.9	167.2

original data table

Block	Piezometer No	Embedded El El (m)	Gauge level El El (m)	31 /1/2007	19 / 3 / 2007	2 / 4 / 2007	15 / 5 / 2007	30 / 5 / 2007	15 / 06 / 2007	02 / 07 / 2007	16 / 07 / 2007	30 / 07 / 2007	14 / 09/ 2007	30/ 09/ 2007	15/ 10/ 2007	30/ 10/ 2007	30/ 11/ 2007	17/ 12/ 2007
15	1	147	157	11	12	11	10	0	0	0	0	0	10	10	10	10	9	4.5
	2	147.5	157	12	12	12	10	11	10	11	11	10	11	10	11	10	12	11
	3	147.5	157	12	12	12	10	12	11	11	11	11	11	10	11	10	12	11
	4	149.5	157	7	6	7	7	8	7	7	7	7	6	7	6	5	0	0
	5	149.5	157	0	0	0	0	0	0	0	0	0					0	0
	6	146.5	157	8	10	10	10	10	9	10	10	10	10	9	10	9	10	10
	7	146.5	157		7	0	6	7	5	6	6	5	7	2	4	7	7	7
	8	145	157			0	0	0	0	0	0	0						0
16	1	144.5	157	10	11	7	10	10	10	10	10	10	10	9	10	4	8	10
	2	143	157	2	2	0	0	0	0	0	10	0	10	0	0	0	0	0
	3	144	157	12	12	10	11	11	11	11	10	11	10	10	11	1	4	1
	4	149	157	11	12	12	11	11	11	11	10	11	3	10	11	1	4	2
	5	149	157			0	0	0	0	0	0	0						0
	6	143.5	157			0	0	0	0	0	0	0						0
	7	143.5	157															0
	8	143.5	157															0
19	1	148.5	157	12.5	13	13	12	12	12	12	12	12	12	12	12	2	7	8
	2	147.5	157	13	13	13	13	13	13	13	13	13	13	12	13	1	8	11
	3	149.5	157															0
	4	152.5	157															0
	5	152.5	157															0
	6	148.5	157	1	1	1	1	1	1	1	1	1			2		4	3
	7	149.5	157															0
	8	148.5	157					1	1	1	1	1				1	0	0
24	1	188	194.5															
	2	188.5	194.5															
U/S W.L				207.67	204.83	203.8	200.76	199.89	199.43	199.79	199.9	200.32	207.07	208.67	210.6	210.79	209.82	209.24
D/S W.L				167.2	167.5	167.5	167.4	169.5	166.9	167.4	167.4	167.1	167.2	166.3	167.3	165.5	167	167.2

Block	Piezometer No	Embedded El El (m)	Gauge level El El (m)	31 /1/2007	19 / 3 / 2007	2 / 4 / 2007	15 / 5 / 2007	30 / 5 / 2007	15 / 06 / 2007	02 / 07 / 2007	16 / 07 / 2007	30 / 07 / 2007	14 / 09/ 2007	30/ 09/ 2007	15/ 10/ 2007	30/ 10/ 2007	30/ 11/ 2007	17/ 12/ 2007
15	15-1	147	157	7.8	8.5	7.8	7.0						7.0	7.0	7.0	7.0	6.3	3.2
	15-2	147.5	157	8.5	8.5	8.5	7.0	7.8	7.0	7.8	7.8	7.0	7.8	7.0	7.8	7.0	8.5	7.8
	15-3	147.5	157	8.5	8.5	8.5	7.0	8.5	7.8	7.8	7.8	7.8	7.8	7.0	7.8	7.0	8.5	7.8
	15-4	149.5	157	4.9	4.2	4.9	4.9	5.6	4.9	4.9	4.9	4.9	4.2	4.9	4.2	3.5		
	15-5	149.5	157															
	15-6	146.5	157	5.6	7.0	7.0	7.0	7.0	6.3	7.0	7.0	7.0	7.0	6.3	7.0	6.3	7.0	7.0
	15-7	146.5	157		4.9		4.2	4.9	3.5	4.2	4.2	3.5	4.9	1.4	2.8	4.9	4.9	4.9
	15-8	145	157															
16	16-1	144.5	157	7.0	7.8	4.9	7.0	7.0	7.0	7.0	7.0	7.0	7.0	6.3	7.0	2.8	5.6	7.0
	16-2	143	157	1.4	1.4						7.0		7.0					
	16-3	144	157	8.5	8.5	7.0	7.8	7.8	7.8	7.8	7.0	7.8	7.0	7.0	7.8	0.7	2.8	0.7
	16-4	149	157	7.8	8.5	8.5	7.8	7.8	7.8	7.8	7.0	7.8	2.1	7.0	7.8	0.7	2.8	1.4
	16-5	149	157															
	16-6	143.5	157															
	16-7	143.5	157															
	16-8	143.5	157															
19	19-1	148.5	157	8.8	9.2	9.2	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	1.4	4.9	5.6
	19-2	147.5	157	9.2	9.2	9.2	9.2	9.2	9.2	9.2	9.2	9.2	9.2	8.5	9.2	0.7	5.6	7.8
	19-3	149.5	157															
	19-4	152.5	157															
	19-5	152.5	157															
	19-6	148.5	157	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7			1.4		2.8	2.1
	19-7	149.5	157															
	19-8	148.5	157					0.7	0.7	0.7	0.7	0.7				0.7		
24	24-1	188	194.5															
	24-2	188.5	194.5															
U/S W.L				207.67	204.83	203.8	200.76	199.89	199.43	199.79	199.9	200.32	207.07	208.67	210.6	210.79	209.82	209.24
D/S W.L				167.2	167.5	167.5	167.4	169.5	166.9	167.4	167.4	167.1	167.2	166.3	167.3	165.5	167	167.2

original data table

Block	Piezometer No	Embedded El El (m)	Gauge level El El (m)	02/ 01/ 2008	15/ 01/ 2008	05/ 02/ 2008	12/ 02/ 2008	18/ 03/ 2008	31/ 03/ 2008	30/ 04/ 2008	27/ 02/ 2008	15/ 05/ 2008	27 / 02/ 2008	15/ 07/ 2008	31/ 07/ 2008	15/ 08/ 2008
15	1	147	157	7	5	11	11	12	12	12	12	12	12	13	4	19
	2	147.5	157	12	12	11	11	12	12	12	12	12	12	13	18	19
	3	147.5	157	12	12	12	11	12	12	12	12	12	12	13	18	19
	4	149.5	157	0	0	6	0	0	0	0	0	0	0	0	0	0
	5	149.5	157	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	146.5	157	10	10	7	10	10	10	11	10	11	10	10	16	16
	7	146.5	157	7.5	7	8	11	6	6	7	7	6	7	8	8	9
	8	145	157	0	0	0	0	0	0	0	0	0	0	0	0	0
16	1	144.5	157	9	10	10	10	11	11	11	10	11	10	7	16	17
	2	143	157	0	0	0	0	0	0	0	0	0	0	3	4	4
	3	144	157	10	9	4	11	9	12	11	5	12	5	13	16	18
	4	149	157	10	7	4	6	10	11	11	4	12	4	12	15	17
	5	149	157	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	143.5	157	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	143.5	157	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	143.5	157	0	0	0	0	0	0	0	0	0	0	0	0	0
19	1	148.5	157	11.5	9	11	8	12	12	12	9	13	9	14	16	19
	2	147.5	157	13.5	11	6	13	13	11	14	11	14	11	14	18	19
	3	149.5	157	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	152.5	157	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	152.5	157	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	148.5	157	5	5	3	6	6	4	3	3	3	3	4	4	1
	7	149.5	157	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	148.5	157	1	0	0	0	0	0	0	0	0	0	0	0	0
24	1	188	194.5													
	2	188.5	194.5													
U/S W.L				208.54	208.01	207.21	206.92	204.98	204.18	202.22	206.1	201.72	206.1	208.69	211.51	212.26
D/S W.L				167.3	167	167.3	166.7	167.4	167.4	167.4	167.3	167.7	167.3	167.7	170.9	171.8

Block	Piezometer No	Embedded El El (m)	Gauge level El El (m)	02/ 01/ 2008	15/ 01/ 2008	05/ 02/ 2008	12/ 02/ 2008	18/ 03/ 2008	31/ 03/ 2008	30/ 04/ 2008	27/ 02/ 2008	15/ 05/ 2008	27 / 02/ 2008	15/ 07/ 2008	31/ 07/ 2008	15/ 08/ 2008
15	15-1	147	157	4.9	3.5	7.8	7.8	8.5	8.5	8.5	8.5	8.5	8.5	9.2	2.8	13.4
	15-2	147.5	157	8.5	8.5	7.8	7.8	8.5	8.5	8.5	8.5	8.5	8.5	9.2	12.7	13.4
	15-3	147.5	157	8.5	8.5	8.5	7.8	8.5	8.5	8.5	8.5	8.5	8.5	9.2	12.7	13.4
	15-4	149.5	157			4.2										
	15-5	149.5	157													
	15-6	146.5	157	7.0	7.0	4.9	7.0	7.0	7.0	7.8	7.0	7.8	7.0	7.0	11.3	11.3
	15-7	146.5	157	5.3	4.9	5.6	7.8	4.2	4.2	4.9	4.9	4.2	4.9	5.6	5.6	6.3
	15-8	145	157													
16	16-1	144.5	157	6.3	7.0	7.0	7.0	7.8	7.8	7.8	7.0	7.8	7.0	4.9	11.3	12.0
	16-2	143	157											2.1	2.8	2.8
	16-3	144	157	7.0	6.3	2.8	7.8	6.3	8.5	7.8	3.5	8.5	3.5	9.2	11.3	12.7
	16-4	149	157	7.0	4.9	2.8	4.2	7.0	7.8	7.8	2.8	8.5	2.8	8.5	10.6	12.0
	16-5	149	157													
	16-6	143.5	157													
	16-7	143.5	157													
	16-8	143.5	157													
19	19-1	148.5	157	8.1	6.3	7.8	5.6	8.5	8.5	8.5	6.3	9.2	6.3	9.9	11.3	13.4
	19-2	147.5	157	9.5	7.8	4.2	9.2	9.2	7.8	9.9	7.8	9.9	7.8	9.9	12.7	13.4
	19-3	149.5	157													
	19-4	152.5	157													
	19-5	152.5	157													
	19-6	148.5	157	3.5	3.5	2.1	4.2	4.2	2.8	2.1	2.1	2.1	2.1	2.8	2.8	0.7
	19-7	149.5	157													
	19-8	148.5	157	0.7												
24	24-1	188	194.5													
	24-2	188.5	194.5													
U/S W.L				208.54	208.01	207.21	206.92	204.98	204.18	202.22	206.1	201.72	206.1	208.69	211.51	212.26
D/S W.L				167.3	167	167.3	166.7	167.4	167.4	167.4	167.3	167.7	167.3	167.7	170.9	171.8

Pore Water Pressure Nam Ngum Foundation Gallery (value of water level (E.L. m))
formula ; water level El (m) = Gauge level El (m) + wh (m)

Block	Piezometer No	Embedded El (m)	Gauge level El (m)	water level E.L. (m) 15/06/2006	29/05/2006	15/06/2006	17/07/2006	30/06/2006	31/07/2006	15/08/2006	31/08/2006	18/09/2006	2/10/2006	30/11/2006	15 /12/2006	16 /1/2007	16 /2 /2007	31 /1/2007
15	15-1	147	157	162.6	161.9	162.6	161.9	161.2	161.9	161.9	158.4	162.6	163.3		164.8	164.0	164.0	164.8
	15-2	147.5	157	164.0	164.0	164.0	164.0	163.3	164.0	164.0	164.8	164.0	163.3	164.8	164.8	164.8	165.5	165.5
	15-3	147.5	157	164.0	164.0	164.0	164.0	164.0	164.0	164.0	164.8	164.0	164.0	164.8	161.9	164.8	165.5	165.5
	15-4	149.5	157	161.2	161.2	161.2	159.8	160.5	161.2	161.2	161.9	159.8	160.5	161.9			161.2	161.9
	15-5	149.5	157								161.2			164.0	164.0	164.0		
	15-6	146.5	157	162.6	159.1	162.6	162.6	162.6	162.6	162.6	162.6	162.6	162.6	162.6	162.6	162.6	164.0	162.6
	15-7	146.5	157	159.8	159.8	159.8	160.5	159.8	160.5	160.5	160.5	161.2	161.9					
	15-8	145	157															
16	16-1	144.5	157	163.3	163.3	163.3	162.6	162.6	163.3	163.3	164.0	162.6	162.6	161.9	164.8	164.0	164.0	164.0
	16-2	143	157		159.1													158.4
	16-3	144	157	164.0	164.0	164.0	164.0	163.3	164.0	164.0	164.8	164.0	164.0	164.0	164.8	164.0	165.5	165.5
	16-4	149	157	164.8	163.3	164.8	163.3	163.3	164.0	164.0	164.8	164.0	163.3	160.5	164.8	164.8	165.5	164.8
	16-5	149	157				161.2											
	16-6	143.5	157															
	16-7	143.5	157															
	16-8	143.5	157															
19	19-1	148.5	157	164.8	164.8	164.8	164.0	164.0	164.0	164.0	164.8	164.8	164.0	164.8	165.5	165.5	165.5	165.8
	19-2	147.5	157	165.5	164.8	165.5	164.8	164.8	165.5	165.5	165.5	165.5	165.5	166.2	166.2	166.2	166.2	166.2
	19-3	149.5	157															
	19-4	152.5	157															
	19-5	152.5	157															
	19-6	148.5	157												157.7	157.7	157.7	157.7
	19-7	149.5	157															
	19-8	148.5	157															
24	24-1	188	194.5															
	24-2	188.5	194.5															
U/S W.L				199.66	199.8	199.66	201.61	198.95	204.48	206.06	208.9	210.08	210.99	210.99	209.76	208.36	206.84	207.67
D/S W.L				167.5	167.5	167.5	167.5	167.5	167.6	167.6	167.8	166.8	166.8	166.8	167.1	167.4	166.9	167.2

Pore Water Pressure Nam Ngum Foundation Gallery (Up Lift Pressure (H_2O m))
formula ; Uplift pressure(H_2O m) = water level El (m) - Embeded El(m) 30% HWL pressure (m) = (212 (m) - Embeded El(m)) x 0.3

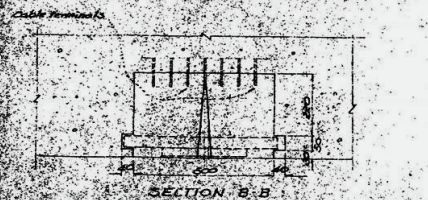
Block	Piezometer No	Embedded El (m)	Gauge level El (m)	Uplift pressure(H2O m) 15/06/2006	29/05/2006	15/06/2006	17/07/2006	30/06/2006	31/07/2006	15/08/2006	31/08/2006	18/09/2006	2/10/2006	30/11/2006	15 /12/2006	16 /1/2007	16 /2 /2007	31 /1/2007
15	15-1	147	157	15.6	14.9	15.6	14.9	14.2	14.9	14.9	11.4	15.6	16.3		17.8	17.0	17.0	17.8
	15-2	147.5	157	16.5	16.5	16.5	16.5	15.8	16.5	16.5	17.3	16.5	15.8	17.3	17.3	17.3	18.0	18.0
	15-3	147.5	157	16.5	16.5	16.5	16.5	16.5	16.5	16.5	17.3	16.5	16.5	17.3	14.4	17.3	18.0	18.0
	15-4	149.5	157	11.7	11.7	11.7	10.3	11.0	11.7	11.7	12.4	10.3	11.0	12.4			11.7	12.4
	15-5	149.5	157								11.7			14.5	14.5	14.5		
	15-6	146.5	157	16.1	12.6	16.1	16.1	16.1	16.1	16.1	16.1	16.1	16.1	16.1	16.1	16.1	17.5	16.1
	15-7	146.5	157	13.3	13.3	13.3	14.0	13.3	14.0	14.0	14.0	14.7	15.4					
	15-8	145	157															
16	16-1	144.5	157	18.8	18.8	18.8	18.1	18.1	18.8	18.8	19.5	18.1	18.1	17.4	20.3	19.5	19.5	19.5
	16-2	143	157		16.1													15.4
	16-3	144	157	20.0	20.0	20.0	20.0	19.3	20.0	20.0	20.8	20.0	20.0	20.0	20.8	20.0	21.5	21.5
	16-4	149	157	15.8	14.3	15.8	14.3	14.3	15.0	15.0	15.8	15.0	14.3	11.5	15.8	15.8	16.5	15.8
	16-5	149	157				12.2											
	16-6	143.5	157															
	16-7	143.5	157															
	16-8	143.5	157															
19	19-1	148.5	157	16.3	16.3	16.3	15.5	15.5	15.5	15.5	16.3	16.3	15.5	16.3	17.0	17.0	17.0	17.3
	19-2	147.5	157	18.0	17.3	18.0	17.3	17.3	18.0	18.0	18.0	18.0	18.0	18.7	18.7	18.7	18.7	18.7
	19-3	149.5	157															
	19-4	152.5	157															
	19-5	152.5	157															
	19-6	148.5	157												9.2	9.2	9.2	9.2
	19-7	149.5	157															
	19-8	148.5	157															
24	24-1	188	194.5															
	24-2	188.5	194.5															
30% HWL pressure (H_2O m)				7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
U/S W.L (m)				199.66	199.8	199.66	201.61	198.95	204.48	206.06	208.9	210.08	210.99	210.99	209.76	208.36	206.84	207.67
D/S W.L (m)				167.5	167.5	167.5	167.5	167.5	167.6	167.6	167.8	166.8	166.8	166.8	167.1	167.4	166.9	167.2

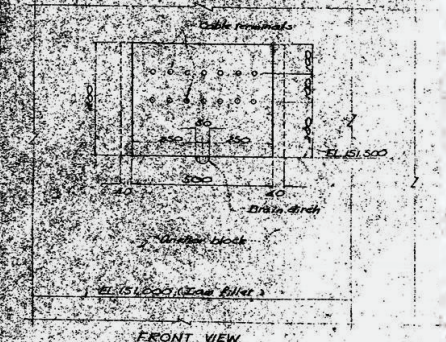
Block	Piezometer No	Embedded El (m)	Gauge level El (m)	31 /1/2007	19 / 3 / 2007	2 / 4 / 2007	15 / 5 / 2007	30 / 5 / 2007	15 / 06 / 2007	02 / 07 / 2007	16 / 07 / 2007	30 / 07 / 2007	14 / 09/ 2007	30/ 09/ 2007	15/ 10/ 2007	30/ 10/ 2007	30/ 11/ 2007	17/ 12/ 2007
15	15-1	147	157	164.8	165.5	164.8	164.0						164.0	164.0	164.0	164.0	163.3	160.2
	15-2	147.5	157	165.5	165.5	165.5	164.0	164.8	164.0	164.8	164.8	164.0	164.8	164.0	164.8	164.0	165.5	164.8
	15-3	147.5	157	165.5	165.5	165.5	164.0	165.5	164.8	164.8	164.8	164.8	164.8	164.0	164.8	164.0	165.5	164.8
	15-4	149.5	157	161.9	161.2	161.9	161.9	162.6	161.9	161.9	161.9	161.9	161.2	161.9	161.2	160.5		
	15-5	149.5	157															
	15-6	146.5	157	162.6	164.0	164.0	164.0	164.0	163.3	164.0	164.0	164.0	164.0	163.3	164.0	163.3	164.0	164.0
	15-7	146.5	157		161.9		161.2	161.9	160.5	161.2	161.2	160.5	161.9	158.4	159.8	161.9	161.9	161.9
	15-8	145	157															
16	16-1	144.5	157	164.0	164.8	161.9	164.0	164.0	164.0	164.0	164.0	164.0	164.0	163.3	164.0	159.8	162.6	164.0
	16-2	143	157	158.4	158.4						164.0		164.0					
	16-3	144	157	165.5	165.5	164.0	164.8	164.8	164.8	164.8	164.0	164.8	164.0	164.0	164.8	157.7	159.8	157.7
	16-4	149	157	164.8	165.5	165.5	164.8	164.8	164.8	164.8	164.0	164.8	159.1	164.0	164.8	157.7	159.8	158.4
	16-5	149	157															
	16-6	143.5	157															
	16-7	143.5	157															
	16-8	143.5	157															
19	19-1	148.5	157	165.8	166.2	166.2	165.5	165.5	165.5	165.5	165.5	165.5	165.5	165.5	165.5	158.4	161.9	162.6
	19-2	147.5	157	166.2	166.2	166.2	166.2	166.2	166.2	166.2	166.2	166.2	166.2	165.5	166.2	157.7	162.6	164.8
	19-3	149.5	157															
	19-4	152.5	157															
	19-5	152.5	157															
	19-6	148.5	157	157.7	157.7	157.7	157.7	157.7	157.7	157.7	157.7	157.7			158.4		159.8	159.1
	19-7	149.5	157															
	19-8	148.5	157					157.7	157.7	157.7	157.7	157.7				157.7		
24	24-1	188	194.5															
	24-2	188.5	194.5															
U/S W.L				207.67	204.83	203.8	200.76	199.89	199.43	199.79	199.9	200.32	207.07	208.67	210.6	210.79	209.82	209.24
D/S W.L				167.2	167.5	167.5	167.4	169.5	166.9	167.4	167.4	167.1	167.2	166.3	167.3	165.5	167	167.2

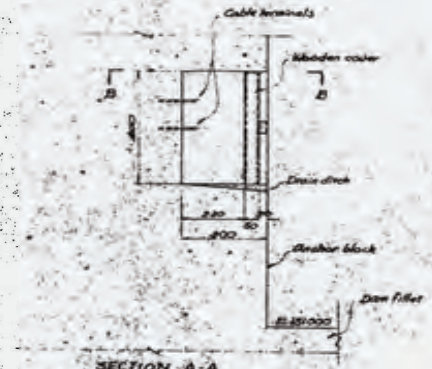
Block	Piezometer No	Embedded El (m)	Gauge level El (m)	31 /1/2007	19 / 3 / 2007	2 / 4 / 2007	15 / 5 / 2007	30 / 5 / 2007	15 / 06 / 2007	02 / 07 / 2007	16 / 07 / 2007	30 / 07 / 2007	14 / 09/ 2007	30/ 09/ 2007	15/ 10/ 2007	30/ 10/ 2007	30/ 11/ 2007	17/ 12/ 2007
15	15-1	147	157	17.8	18.5	17.8	17.0						17.0	17.0	17.0	17.0	16.3	13.2
	15-2	147.5	157	18.0	18.0	18.0	16.5	17.3	16.5	17.3	17.3	16.5	17.3	16.5	17.3	16.5	18.0	17.3
	15-3	147.5	157	18.0	18.0	18.0	16.5	18.0	17.3	17.3	17.3	17.3	17.3	16.5	17.3	16.5	18.0	17.3
	15-4	149.5	157	12.4	11.7	12.4	12.4	13.1	12.4	12.4	12.4	12.4	11.7	12.4	11.7	11.0		
	15-5	149.5	157															
	15-6	146.5	157	16.1	17.5	17.5	17.5	17.5	16.8	17.5	17.5	17.5	17.5	16.8	17.5	16.8	17.5	17.5
	15-7	146.5	157		15.4		14.7	15.4	14.0	14.7	14.7	14.0	15.4	11.9	13.3	15.4	15.4	15.4
	15-8	145	157															
16	16-1	144.5	157	19.5	20.3	17.4	19.5	19.5	19.5	19.5	19.5	19.5	19.5	18.8	19.5	15.3	18.1	19.5
	16-2	143	157	15.4	15.4						21.0		21.0					
	16-3	144	157	21.5	21.5	20.0	20.8	20.8	20.8	20.8	20.0	20.8	20.0	20.0	20.8	13.7	15.8	13.7
	16-4	149	157	15.8	16.5	16.5	15.8	15.8	15.8	15.8	15.0	15.8	10.1	15.0	15.8	8.7	10.8	9.4
	16-5	149	157															
	16-6	143.5	157															
	16-7	143.5	157															
	16-8	143.5	157															
19	19-1	148.5	157	17.3	17.7	17.7	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	9.9	13.4	14.1
	19-2	147.5	157	18.7	18.7	18.7	18.7	18.7	18.7	18.7	18.7	18.7	18.7	18.0	18.7	10.2	15.1	17.3
	19-3	149.5	157															
	19-4	152.5	157															
	19-5	152.5	157															
	19-6	148.5	157	9.2	9.2	9.2	9.2	9.2	9.2	9.2	9.2	9.2			9.9		11.3	10.6
	19-7	149.5	157															
	19-8	148.5	157					9.2	9.2	9.2	9.2	9.2				9.2		
24	24-1	188	194.5															
	24-2	188.5	194.5															
30% HWL pressure (H_2O m)				7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
U/S W.L (m)				207.67	204.83	203.8	200.76	199.89	199.43	199.79	199.9	200.32	207.07	208.67	210.6	210.79	209.82	209.24
D/S W.L (m)				167.2	167.5	167.5	167.4	169.5	166.9	167.4	167.4	167.1	167.2	166.3	167.3	165.5	167	167.2

Block	Piezometer No	Embedded El El (m)	Gauge level El El (m)	02/ 01/ 2008	15/ 01/ 2008	05/ 02/ 2008	12/ 02/ 2008	18/ 03/ 2008	31/ 03/ 2008	30/ 04/ 2008	27/ 02/ 2008	15/ 05/ 2008	27 / 02/ 2008	15/ 07/ 2008	31/ 07/ 2008	15/ 08/ 2008
15	15-1	147	157	161.9	160.5	164.8	164.8	165.5	165.5	165.5	165.5	165.5	165.5	166.2	159.8	170.4
	15-2	147.5	157	165.5	165.5	164.8	164.8	165.5	165.5	165.5	165.5	165.5	165.5	166.2	169.7	170.4
	15-3	147.5	157	165.5	165.5	165.5	164.8	165.5	165.5	165.5	165.5	165.5	165.5	166.2	169.7	170.4
	15-4	149.5	157			161.2										
	15-5	149.5	157													
	15-6	146.5	157	164.0	164.0	161.9	164.0	164.0	164.0	164.8	164.0	164.8	164.0	164.0	168.3	168.3
	15-7	146.5	157	162.3	161.9	162.6	164.8	161.2	161.2	161.9	161.9	161.2	161.9	162.6	162.6	163.3
	15-8	145	157													
16	16-1	144.5	157	163.3	164.0	164.0	164.0	164.8	164.8	164.8	164.0	164.8	164.0	161.9	168.3	169.0
	16-2	143	157											159.1	159.8	159.8
	16-3	144	157	164.0	163.3	159.8	164.8	163.3	165.5	164.8	160.5	165.5	160.5	166.2	168.3	169.7
	16-4	149	157	164.0	161.9	159.8	161.2	164.0	164.8	164.8	159.8	165.5	159.8	165.5	167.6	169.0
	16-5	149	157													
	16-6	143.5	157													
	16-7	143.5	157													
	16-8	143.5	157													
19	19-1	148.5	157	165.1	163.3	164.8	162.6	165.5	165.5	165.5	163.3	166.2	163.3	166.9	168.3	170.4
	19-2	147.5	157	166.5	164.8	161.2	166.2	166.2	164.8	166.9	164.8	166.9	164.8	166.9	169.7	170.4
	19-3	149.5	157													
	19-4	152.5	157													
	19-5	152.5	157													
	19-6	148.5	157	160.5	160.5	159.1	161.2	161.2	159.8	159.1	159.1	159.1	159.1	159.8	159.8	157.7
	19-7	149.5	157													
	19-8	148.5	157	157.7												
24	24-1	188	194.5													
	24-2	188.5	194.5													
U/S W.L				208.54	208.01	207.21	206.92	204.98	204.18	202.22	206.1	201.72	206.1	208.69	211.51	212.26
D/S W.L				167.3	167	167.3	166.7	167.4	167.4	167.4	167.3	167.7	167.3	167.7	170.9	171.8

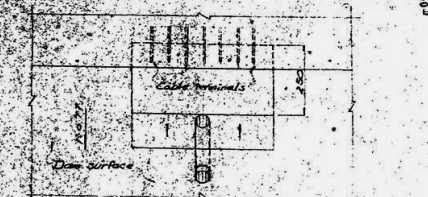
Block	Piezometer No	Embedded El El (m)	Gauge level El El (m)	02/ 01/ 2008	15/ 01/ 2008	05/ 02/ 2008	12/ 02/ 2008	18/ 03/ 2008	31/ 03/ 2008	30/ 04/ 2008	27/ 02/ 2008	15/ 05/ 2008	27 / 02/ 2008	15/ 07/ 2008	31/ 07/ 2008	15/ 08/ 2008
15	15-1	147	157	14.9	13.5	17.8	17.8	18.5	18.5	18.5	18.5	18.5	18.5	19.2	12.8	23.4
	15-2	147.5	157	18.0	18.0	17.3	17.3	18.0	18.0	18.0	18.0	18.0	18.0	18.7	22.2	22.9
	15-3	147.5	157	18.0	18.0	18.0	17.3	18.0	18.0	18.0	18.0	18.0	18.0	18.7	22.2	22.9
	15-4	149.5	157			11.7										
	15-5	149.5	157													
	15-6	146.5	157	17.5	17.5	15.4	17.5	17.5	17.5	18.3	17.5	18.3	17.5	17.5	21.8	21.8
	15-7	146.5	157	15.8	15.4	16.1	18.3	14.7	14.7	15.4	15.4	14.7	15.4	16.1	16.1	16.8
	15-8	145	157													
16	16-1	144.5	157	18.8	19.5	19.5	19.5	20.3	20.3	20.3	19.5	20.3	19.5	17.4	23.8	24.5
	16-2	143	157											16.1	16.8	16.8
	16-3	144	157	20.0	19.3	15.8	20.8	19.3	21.5	20.8	16.5	21.5	16.5	22.2	24.3	25.7
	16-4	149	157	15.0	12.9	10.8	12.2	15.0	15.8	15.8	10.8	16.5	10.8	16.5	18.6	20.0
	16-5	149	157													
	16-6	143.5	157													
	16-7	143.5	157													
	16-8	143.5	157													
19	19-1	148.5	157	16.6	14.8	16.3	14.1	17.0	17.0	17.0	14.8	17.7	14.8	18.4	19.8	21.9
	19-2	147.5	157	19.0	17.3	13.7	18.7	18.7	17.3	19.4	17.3	19.4	17.3	19.4	22.2	22.9
	19-3	149.5	157													
	19-4	152.5	157													
	19-5	152.5	157													
	19-6	148.5	157	12.0	12.0	10.6	12.7	12.7	11.3	10.6	10.6	10.6	10.6	11.3	11.3	9.2
	19-7	149.5	157													
	19-8	148.5	157	9.2												
24	24-1	188	194.5													
	24-2	188.5	194.5													
30% HWL pressure (H_2O m)				7	7	7	7	7	7	7	7	7	7	7	7	7
U/S W.L (m)				208.54	208.01	207.21	206.92	204.98	204.18	202.22	206.1	201.72	206.1	208.69	211.51	212.26
D/S W.L (m)				167.3	167	167.3	166.7	167.4	167.4	167.4	167.3	167.7	167.3	167.7	170.9	171.8

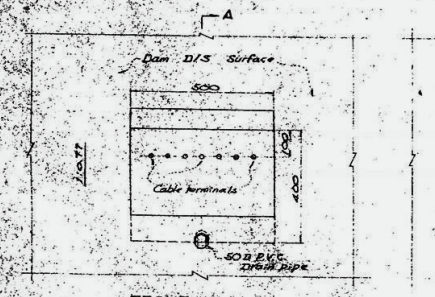


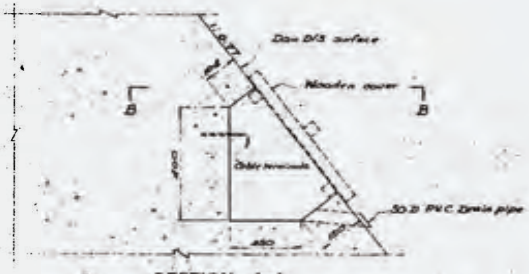




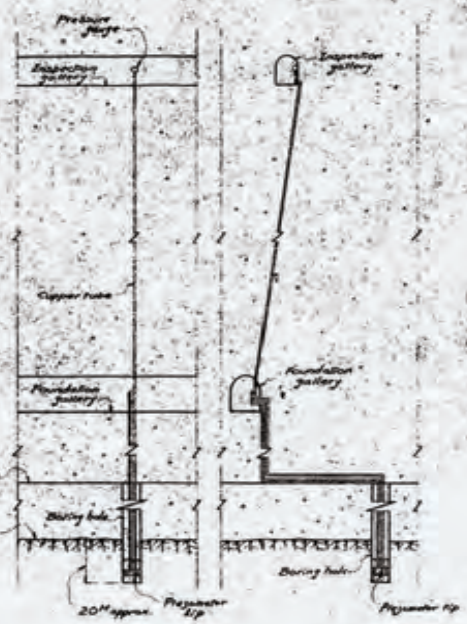
OUTLET BOX FOR THERMO-COUPLES, IN BL. NOS. 16 & 17



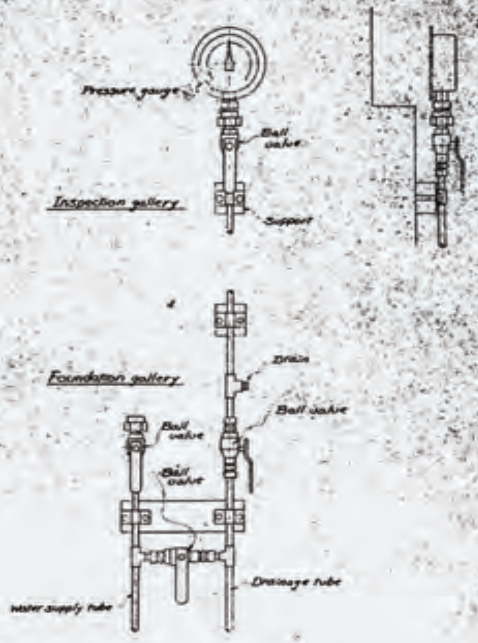




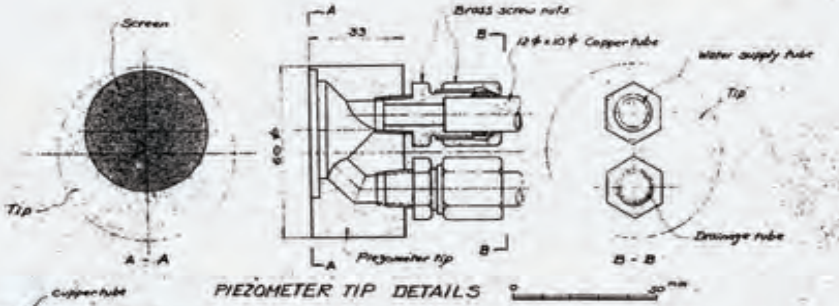
OUTLET BOX FOR THERMO-COUPLES, IN BL No.15



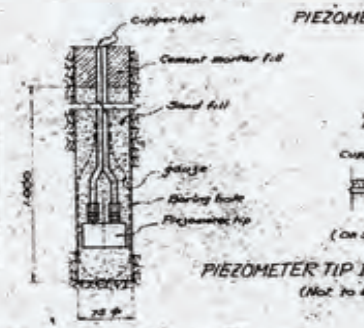
INSTALLATION OF PIEZOMETER TIP & TUBE

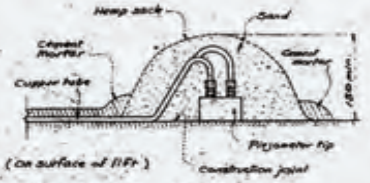


VALVE STATION DETAIL

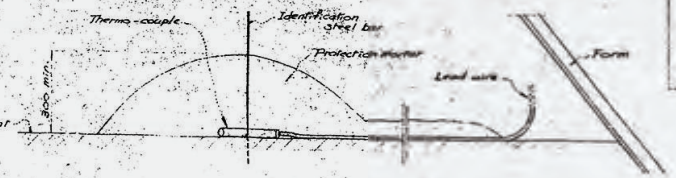


PIEZOMETER TIP DETAILS





PIEZOMETER TIP INSTALLATION DETAILS
(Not to be scaled)



THERMO-COUPLE INSTALLATION DETAIL
(Not to be scaled)

REFERENCE

Location diagram of H. Apparatus DWG No. A-0131

Locations of Value station of Piezometers DWG. Nos. A-0016, 0017, 0018

Locations of outlet box for thermo-couples DWG No. A-0011

APPROVED FOR LAHC DWG
ACRES INTERNATIONAL LTD.

AS BUILT DRAWING

No.	DATE	BY	REVISIONS	APPD.
4			Thickness: (Details marked as changed) As-built	

LAOTIAN NATIONAL MEKONG COMMITTEE
ACRES INTERNATIONAL LIMITED—MANAGING ENGINEERS

NAM NGUM PROJECT

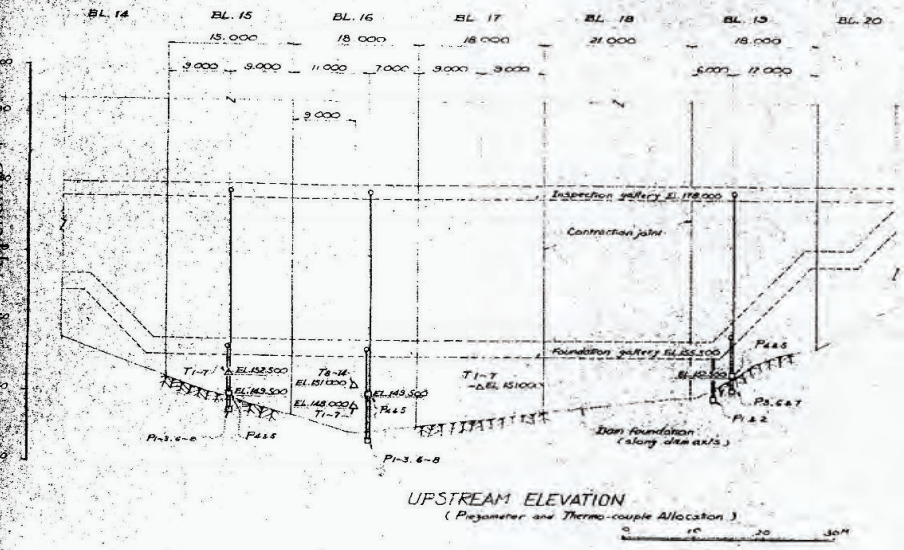
DAM

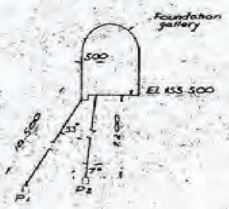
MEASURING APPARATUS DETAILS

PROJECT ENGINEER	DATE	GENERAL CONTRACT
J.H. Anderson	Aug. 26, 1968	

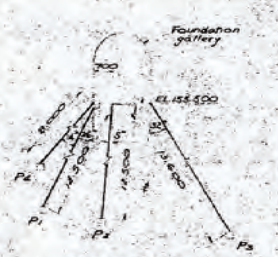
DWG. NO. A-0132-F2 NIPPON KOEI CO. LTD.

D4-14

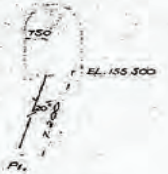




BLOCK No. 15



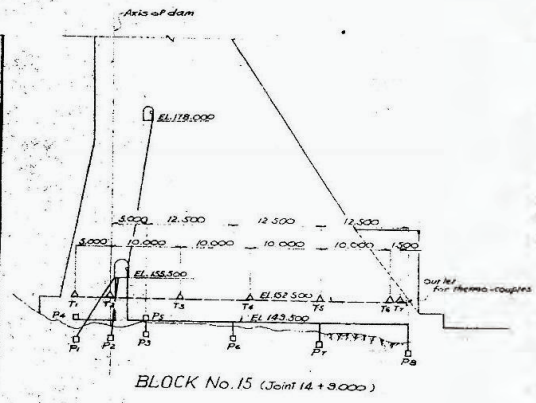
BLOCK No. 16



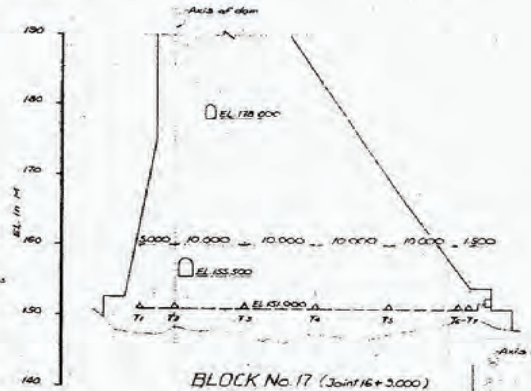
BLOCK No. 19

BLOCK No. 24

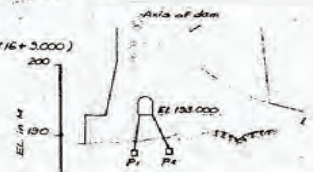
DETAILS FOR INCLINED DRILLING HOLES



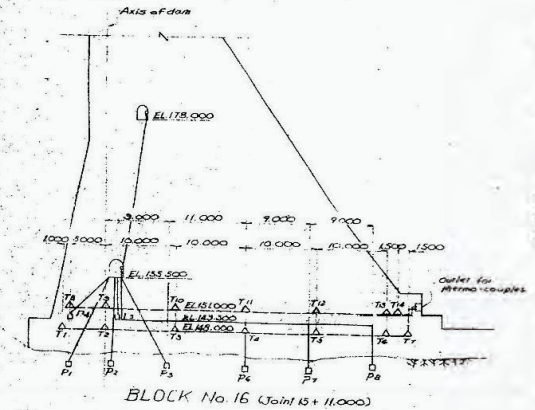
BLOCK No. 15 (Joint 14 + 9.000)



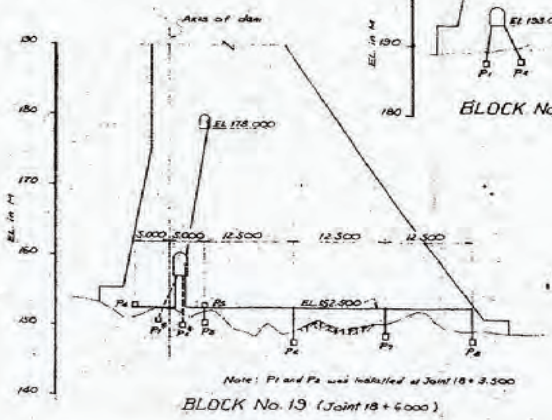
BLOCK No. 17 (Joint 16+3.000)



BLOCK No. 24 (Joint 23+7.500)



BLOCK No. 16 (Joint 15 + 11.000)



Note : P1 and P8 was installed at Joint 18+3.500

BLOCK No. 19 (Joint 18 + 6.000)

CROSS SECTIONAL LOCATION
(Piezometer and Thermo-couple Allocation)

REFERENCE

Installation details of measuring apparatus A-0132

Thermo-couple arrangement for test section A-5001

APPROVED FOR LNMC DATE

ACRES INTERNATIONAL LTD.

AS BUILT DRAWING

2.	Nov.16 '65	REDRAWN (AS-BUILT). Actual locations and quantities shown.	
1.		Measurement outlet boxes for thermo-couple deleted.	
No.	DATE	REVISIONS	APPROV.

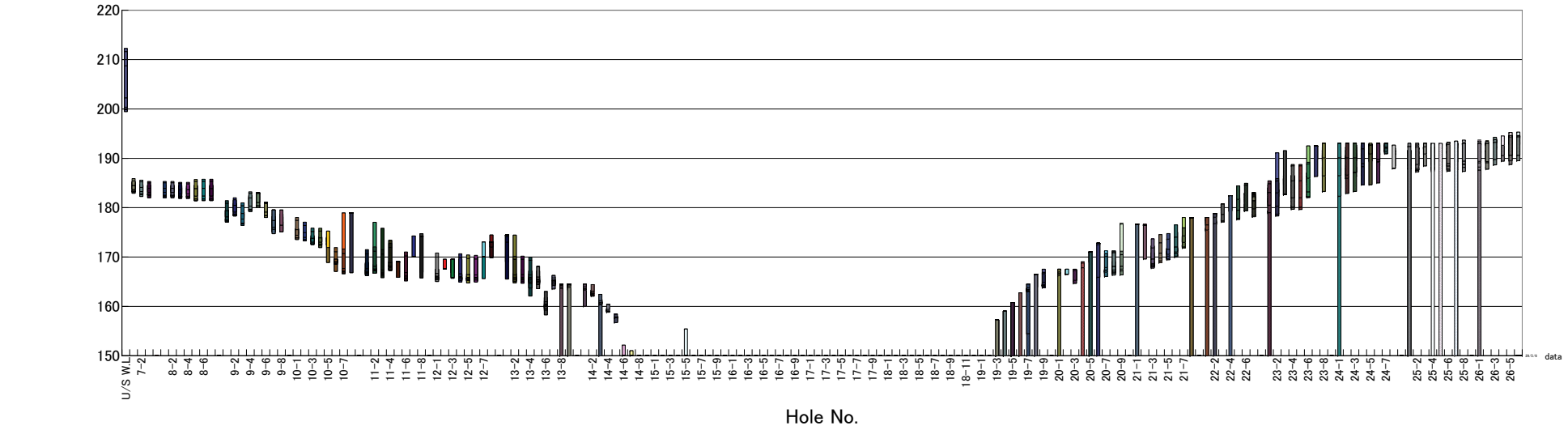
LAOTIAN NATIONAL MEKONG COMMITTEE
ACRES INTERNATIONAL LIMITED MANAGING ENGINEERS
NAM NGUM PROJECT
DAM
MEASURING APPARATUS
(1)

PROJECT ENGINEER	DATE	GENERAL CONTRACT
	Aug. 16 1965	

DWG NO. A-0131-F2 NIPPON KOEI CO. LTD.

D4-15

Water Table Variation of Pressure Relief Hole in Dam Gallery (2006-2008)



Water Table of Pressure Relief Hole in Dam Gallery