



1 Introduction

Baseline monitoring at M3 and C3 was undertaken from 24 January 2007 to 30 January 2007 in accordance with the Groundwater Monitoring Working Plan endorsed by EPD on 31 October 2006 and the Updated Groundwater Monitoring Working Plan submitted to EPD on 31 January 2007.

The results from the baseline monitoring at M3 and C3 are supplementary data to the Groundwater Monitoring Working Plan.

2 Baseline Monitoring Methodology

2.1 Location of Sampling Works

Table 2-1 shows the respective recharge areas, monitoring wells and control wells for the recharge operation for different excavation zones.

Zone	Dewatering Period	Recharge Area/Well	Monitoring Well	Control Well
Zone A	Nov 06 to Mar 07	R2	M2a	C1/C3
Zone B+C	April 07 to Aug 07	R2	M3	C3
Zone D+E	Mar 07 to Aug 07	R1	M1/AGM5a (M4)	C3
Zone F	May 07 to Oct 07	R1	M1/AGM5a (M4)	C3
Zone G	Jun 07 to Nov 07	R1	M1/AGM5a (M4)	C3

Table 2-1 Recharge Areas and Monitoring Locations

2.1.1 Sampling Frequency

Groundwater samples from the wells M3 and C3 were collected daily for 7 consecutive days in accordance with the KSL EM&A manual.

2.1.2 Testing Parameters

Groundwater samples were tested for the parameters as listed in Table 5-3 of the Updated Groundwater Monitoring Working Plan.

3 Baseline Monitoring Results

3.1 Monitoring Results

Table 3-1 summarises average values of the baseline monitoring results at M3 and C3 throughout the sampling period. Detailed baseline monitoring results from M3 and C3 are shown in Table 3-2 and Table 3-3.

Parameters		Discharge Limit	C3	M3
Temperature	Average	< 40°C	20.3	20.31
	Range		19.7-22.2	19.8-21.8
pH	Average	6-9	7.6	7.61
	Range		7.6-7.6	7.6-7.7
Groundwater Level	Average	-	-0.46	1.71
Mercury	Average	1	0.51	N/A
	Range		0.5-0.6	N/A
Cadmium	Average	1	0.41	0.20
	Range		0.2-1.0	0.20-0.20
Copper	Average	100	11.14	N/A
	Range		6.0-26.0	N/A
Lead	Average	100	125.43	N/A
	Range		64-258	N/A
Zinc	Average	100	50.0	N/A
	Range		20-130	N/A
Total Toxic Metals	Average	200	187.49	N/A
	Range		90.7-415.6	N/A
TPH C6 – C9	Average	-	20.0	20.0
	Range		20.0-20.0	20.0-20.0
TPH C10–C14	Average	-	62.29	69.71
	Range		49.0-71.0	60.0-81.0
TPH C15 – C28	Average	-	360.43	346.57
	Range		255.0-414.0	312.0-394.0
TPH C29 – C36	Average	-	58.71	45.0
	Range		38.0-87.0	36.0-52.0
TPH (Total)	Average	-	501.43	481.29
	Range		362.0-570.0	432.0-541.0

Notes:

1. All units are in µg/L except for groundwater level. Groundwater level is in mPD.
2. No groundwater level limit is stipulated in TM.
3. TPH is prohibited substance according to TM.
4. N/A – Testing of the parameters was not carried out. Referring to Section 5.1, the parameters are not of concern at the relevant locations.

Table 3-1 Summary of Baseline Groundwater Monitoring Results



Parameter	Unit	R.L	24-Jan-07	25-Jan-07	26-Jan-07	27-Jan-07	28-Jan-07	29-Jan-07	30-Jan-07	Average
Temperature	degree C	0.1	22.2	20.1	20.1	20.1	20.1	19.7	19.8	20.30
pH	pH	0.1	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.60
Gronwater Level	mPD	0.1	-0.6	-0.6	0.4	-0.6	-0.6	-0.6	-0.6	-0.46
Mercury (Dissolved)	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.50
Mercury (Total)	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	0.6	<0.5	<0.5	0.51
Cadmiun (Dissolved)	µg/L	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.20
Cadmium (Total)	µg/L	0.2	1	0.4	0.3	0.2	0.3	0.3	0.4	0.41
Copper (Dissolved)	µg/L	1	<1	<1	<1	<1	<1	<1	<1	1.00
Copper (Total)	µg/L	1	26	13	9	6	7	6	11	11.14
Lead (Dissolved)	µg/L	1	11	7	13	6	6	8	14	9.29
Lead (Total)	µg/L	1	258	143	89	64	89	84	151	125.43
Zinc (Dissolved)	µg/L	10	<10	<10	<10	<10	<10	<10	10	10.00
Zinc (Total)	µg/L	10	130	60	30	20	30	30	50	50.00
C6-C9 Fraction	µg/L	20	<20	<20	<20	<20	<20	<20	<20	20.00
C10-C14 Fraction	µg/L	25	49	60	66	49	70	71	71	62.29
C15-C28 Fraction	µg/L	25	414	371	410	255	336	364	373	360.43
C29-C36 Fraction	µg/L	25	87	63	59	38	43	54	67	58.71
TPH (Total)	µg/L	95	570	514	555	362	469	509	531	501.43

Table 3-2 Baseline Groundwater Monitoring Results at C3

Parameter	Unit	R.L	24-Jan-07	25-Jan-07	26-Jan-07	27-Jan-07	28-Jan-07	29-Jan-07	30-Jan-07	Average
Temperature	degree C	0.1	21.8	20.4	20.3	19.8	19.8	20	20.1	20.31
pH	pH	0.1	7.7	7.6	7.6	7.6	7.6	7.6	7.6	7.61
Gronwater Level	mPD	0.1	2	2	1	2	2	1	2	1.71
Cadmiun (Dissolved)	µg/L	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.20
Cadmium (Total)	µg/L	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.20
C6-C9 Fraction	µg/L	20	<20	<20	<20	<20	<20	<20	<20	20.00
C10-C14 Fraction	µg/L	25	62	73	67	60	81	81	64	69.71
C15-C28 Fraction	µg/L	25	336	362	352	312	394	351	319	346.57
C29-C36 Fraction	µg/L	25	52	51	46	40	46	44	36	45.00
TPH (Total)	µg/L	95	470	506	485	432	541	496	439	481.29

Table 3-3 Baseline Groundwater Monitoring Results at M3

