

- Borehole 1 (B1)**
- Borehole 2 (B2)**
- Borehole 3 (B3)**
- Surface Water (SW) ***
- Existing Well 1 (W1)**
- Existing Well 2 (W2)**
- Existing Well 3 (W3)**
- Existing Well 4 (W4)**

* Surface water from the canal is not in the map

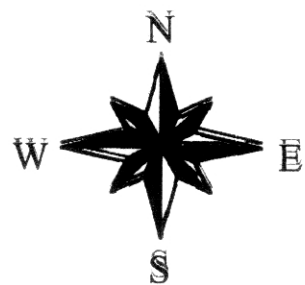


Figure 14-37: Water Sampling Points in Cimsa

Both samples from the existing well E1 were free of FC. This shows that it is not contaminated; however E2 and E3 on 23 April 1999 and E3 on 14 May 1999 were contaminated. BOD and COD values were not high in all existing wells, except E3 which is indicative of considerable pollution and/or organic contamination in the aquifer.

Lead and Arsenic are the only heavy metals which exist in high levels. This may be due to leaching of ions from the soil around the vicinity.

Table 14-25: Surface Water Quality Analysis in Cimsa

Unit: mg/l except pH

23.04.1999	
Parameters	Surface Water
pH	7.72
TDS*	0.977
DO	7.72
COD	72
BOD	16
Total N	11.7
Total P	0.04
NH ₄ ⁺	9
Na ⁺	79.48
Cl ⁻	27.34
SO ₄ ⁻²	247
Cr ⁺⁶	0.29
Hg ⁺²	0.06
Cd	<0.035
Pb	0.72
As	2.52
Total Coliform	4,000 cob/mL
E. coli (FC)	- cob/mL

Table 14-26: Water Quality Analysis of Existing Well in Cimsa

Unit: mg/l except pH

Parameters	E1		E2		E3		E4
	23 Apr.	14 May	23 Apr.	14 May	23 Apr.	14 May	26 June
PH	7.39	7.4	7.56	7.55	7.79	7.8	6.73
TDS*	0.8	0.8	0.4	0.4	0.6	0.6	0.5
DO	7.39	7.4	7.56	7.55	7.79	7.8	7.6
COD	52	50	<50	<50	1,000	1,000	-
BOD	8	10	4	5	80	80	-
Total N	11.80	11.5	4.86	4.81	5.00	5.01	5.11
Total P	<0.03	<0.03	<0.03	<0.03	0.03	0.03	0.05
NH ₄ ⁺	<0.2	<0.2	3.86	3.55	<0.2	<0.2	<0.3
Na ⁺	51.60	50.5	33.76	32.55	62.10	60.25	24.80
Cl ⁻	39.05	38.1	19.53	19.35	29.29	28.19	19.20
SO ₄ ⁻²	8.35	8.4	43.60	42.98	17.00	18	20.58
Cr ⁺⁶	0.18	0.18	0.24	0.24	0.34	0.34	-
Hg ⁺²	0.12	0.12	0.08	0.08	0.05	0.05	-
Cd	<0.035	<0.035	<0.035	<0.035	<0.035	<0.055	-
Pb	1.07	1.1	0.43	0.44	0.91	0.94	-
As	1.74	1.71	2.34	2.31	2.65	2.64	-
Total Coliform	50 cob/mL	cob/mL	30,800 cob/mL	cob/mL	1,150 cob/mL	19,00 cob/mL	-
E. coli (FC)	- cob/mL	-	3,000 cob/mL	-	1,500 cob/mL	75 cob/mL	-

Table 14-27: Water Quality Analysis of Borehole in Cimsa

Unit: mg/ l except pH

Parameters	B1		B2		B3	
	21 May	28 May	21 May	28 May	21 May	28 May
PH	7.16	7.15	6.91	6.9	7.43	7.4
COD	172	175	181	185	235	240
BOD	120	120	120	120	160	160
TDS*	0.8	0.8	0.5	0.5	0.6	0.6
DO	-	-	-	-	-	-
Total N	7.15	7.2	6.11	6.21	6.47	6.51
Total P	1.55	1.65	1.11	1.15	0.37	0.4
NH ₄ ⁺	0.52	0.51	0.52	0.51	0.37	0.4
Na ⁺	20.35	21.15	21.40	21.45	19.85	19.9
Cl ⁻	39.25	-	40.30	-	38.55	-
SO ₄ ⁻²	19.50	-	20.40	-	18.75	-
Pb	-	-	-	-	-	-
Cr ⁺⁶	-	-	-	-	-	-
Hg ⁺²	-	-	-	-	-	-
Cd	-	-	-	-	-	-
As	-	-	-	-	-	-
Total Coliform	145,00 cob/m 0 L	145,00 cob/m 0 L	-	-	-	-
E. coli (FC)	-	-	-	-	-	-

Table 14-28: Water Quality(Leachate) Analysis in Cimsa

11.05.1999	
Parameters	Measurement results
Flow rate	1.8 L/sec
PH	7.66
TDS*	6.2 mg/l
DO	-
COD	>35,000 mg/l
BOD	9,875 mg/l
Total N	348.76 mg/l
Total P	22.15 mg/l
NH ₄ ⁺	340.25 mg/l
Na ⁺	66.48 mg/l
Cl ⁻	685.23 mg/l
SO ₄ ⁼	120.40 mg/l
Cr ⁺⁶	-
Hg ⁺²	1.48 mg/l
Cd ⁺²	<0.04 mg/l
Pb	-
As	-
Total Coliform	7,150 cob/mL
E. coli (FC)	450 cob/mL

Table 14-29: Surface Water Quality Analysis (Canal) in Cimsa

Unit: mg/l except pH

26.06.1999	
Parameters	Surface Water
PH	7.80
TDS*	0.85
DO	7.10
COD	100
BOD	45
Total N	12.50
Total P	0.05
NH ₄ ⁺	10
Na ⁺	80.25
Cl ⁻	30.21
SO ₄ ⁻²	253
Cr ⁺⁶	0.30
Hg ⁺²	<0.05
Cd	<0.035
Pb	0.75
As	1.51
Total Coliform	5,000 cob/mL
E. coli (FC)	500 cob/mL

c. Soil Contamination

The proposed site in Mersin is located within a quarry and there is the possibility of the soil contamination due to oil spilt from heavy machines. However, the impact by the soil contamination to the surrounding environment is negligible because the volume of soil polluted with oil is very small.

d. Noise and Vibration

The noise and vibration produced by the heavy machines have a little impact to the environment because the base of the site is at least 10m below the natural ground surface and the noise is interrupted by the surrounding rock wall and the vibration is reduced by the earth. The impact by noise and vibration due to the vehicles transporting the material for cement production is neither great since the traffic volume of trucks is small (between 20 and 46 units per hour).

e. Offensive Odour

There is no material to occur an offensive odour within the proposed site because it is a quarry. Recently the illegal dumping of waste has been seen within the same site. It will be necessary to monitor to prevent the waste from being dumped illegally at the site.