

Guild, Alexandra

From: Ife, David <david.ife@aecom.com>
Sent: Thursday, 8 December 2016 3:02 PM
To: jon.bartley@cardno.com.au
Cc: Guild, Alexandra
Subject: Draft Audit Report - Melbourne Regional Landfill (2823757)[NRF-APAC.FID1419022]

Categories: Filed
Database: APAC
Document Number: 37190659
E-mail ID: 60763028
EMS Start Time: 8/12/2016 3:24:00 PM
Matter Number: 2823757

Hi Jon

Good to catch up with you and have the opportunity to discuss the outcomes of the 2016 Audit of the MRL.

I would like you to have a look at some additional work I've done comparing groundwater quality up-gradient and down-gradient from the Stage 2 landfill. I refer to your Table 7-6 for down-gradient bores.

As shown in Table B3 (Appendix B) and summarised in Table 7-6 below, for data collected in the Audit period (2015-2016), there are elevated concentrations of some metals and nitrate in bores located in the south east corner of the site, downgradient of the Stage 2 landfill. The data also shows indications of increasing concentration of manganese and salinity (TDS) at MB12, bicarbonate at MB10 and MB15, and nitrate at MB04.

Table 7-6: Bores Downgradient of Stage 2 Landfill – Key Parameters Range

Bore	Aquifer NVA	n	TDS (mg/L)	Bicarbonate as CaCO ₃	Nitrate as N (mg/L)	Manganese (mg/L)	Nickel (mg/L)
MB04	Upper	8	3000-3500	330-430	3.5-6.2	<0.005	<0.001-0.006
MB05	Upper	6	6600-7400	690-870	1.2-1.8	<0.005	0.003-0.014
MB10	Lower	4	6000-7100	490-780	1.2-1.5	<0.005-0.010	0.004-0.018
MB12	Lower?	6	3000-4100	210-260	<0.02-0.03	0.088-0.160	0.002-0.008
MB14	Upper	10	5400-9900	430-690	0.9-2.4	<0.005-0.029	0.003-0.013
MB15	Upper	10	5100-9900	440-800	0.51-2.8	<0.005-0.030	0.003-0.008

Notes:
 The range of values is for analyses undertaken for GME in 2015 and 2016.
 n is the number of samples in the range

From this analysis you suggested that there may be impacts from the landfill showing up in these leachate indicating parameters.

I had a look at chemistry of some up-gradient (background) bores and came up with the values shown in the table below.

Table produced from 2013-2014 data for the same parameters

Bore	Aquifer NVA	n	TDS (mg/L)	Bicarbonate as CaCO ₃ (mg/L)	Nitrate as N (mg/L)	Manganese (mg/L)	Nickel (mg/L)
MB03	Upper	6	7,900 – 9,600	220 – 250	3.00 – 3.6	0.0 – 0.0	0.001 – 0.003
GW1	Upper	5	13,000 – 15,000	360 – 570	5.8 – 6.9	0.027 – 0.066	0.003 – 0.010
GW4	Upper	3	5,300 – 5,900	300 – 340	1.8 – 2.3	0.007 – 0.110	0.002 – 0.003
GW4D	Lower	3	3,200 – 3,400	130 -210	0.31-0.60	0.007 – 0.180	0.002 – 0.005

Comparing the two sets of data reveals the following:

- The highest salinity level is in background bore GW1.
- The highest bicarbonate level was in downgradient bore MB05, but the range of values in the background bores is very similar to the downgradient range.
- The highest nitrate level was recorded in background bore GW1
- The highest manganese level was recorded in background bore GW4d
- The highest nickel concentration was in downgradient bore MB05.

I suggest that these results are not indicative of landfill leachate impacts but are consistent with variations in chemistry in the Newer Volcanics aquifer.

Can you consider this extra information in your revision of the Draft?

Thanks and regards

David

David Ife

Technical Director - Environment
D +61 3 9653 8254 M +61 418 172 847
david.ife@aecom.com

AECOM

Collins Square, Level 10, Tower Two, 727 Collins Street, Melbourne, VIC 3008
T +61 3 9653 1234 F +61 3 9654 7117
aecom.com

Built to deliver a better world

[LinkedIn](#) [Twitter](#) [Facebook](#) [Instagram](#)

We've moved. Please note our change of address and update your records accordingly.