

Your ref: DP3733BK

Our ref: 14739/075/CBH/VKR



11 August 2017

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Attn: Mr David Willey

Dear David

RE: DP3733BK - Docksway Disposal Site. Latest Area 2 Groundwater and Leachate Quality Monitoring Report, Round 160, June 2017.

Please find enclosed the results of the groundwater and leachate quality monitoring undertaken at Area 2 of Docksway Disposal Site. Groundwater and leachate sampling is required quarterly at the site in order to comply with Conditions 3.6.1 and 3.6.2 of the site PPC Permit. This report includes discussion on results obtained from monitoring undertaken on 27th June 2017. We enclose with this letter report the laboratory analytical certificates for the testing undertaken.

Field Observations

Details of the field testing of the Area 2 groundwater samples during Round 160 are presented in Table 1.

Table 1 – Field Testing Results and Observations

Monitoring Point	Date Monitored	Depth to Groundwater/Leachate (m) in Apr/May/June	pH	Electrical Conductivity (µS/cm)	Temperature (°C)	Dissolved Oxygen (%)
GW06_39	27/06/2017	NM/4.00/3.70	7.43	6767.00	13.29	10.00
GW07_40	27/06/2017	NM/4.50/4.30	7.95	2032.00	12.77	3.80
GW12_30	27/06/2017	NM/4.54/4.90	7.70	1720.00	12.87	2.50
GW09_31	27/06/2017	NM/5.45/5.30	7.31	1420.00	12.65	39.30
GW03_09	27/06/2017	NM/8.23/8.60	6.89	2684.00	13.47	54.10
GW09_32	27/06/2017	NM/7.90/7.30	7.11	2026.00	13.68	7.90
GW12_33	27/06/2017	NM/8.49/8.37	7.28	4014.00	13.67	15.30
GW06_34	27/06/2017	NM/8.16/7.70	7.52	1814.00	12.92	14.00
GW09_35	27/06/2017	NM/8.60/6.90	7.64	12950.00	13.77	1.80
GW06_36	27/06/2017	NM/7.56/6.00	7.58	11160.00	14.25	15.30
GW06_37	27/06/2017	NM/6.70/5.20	7.64	12010.00	13.90	10.10
GW06_13	27/06/2017	NM/7.35/5.50	7.71	8703.00	12.99	13.90
GW12_38	27/06/2017	NM/7.00/5.10	7.46	12340.00	12.48	16.80
GW06_14a	27/06/2017	NM/6.85/5.60	7.30	9454.00	13.81	7.20
LF08_07**	27/06/2017	16.15/16.16/16.10			Not Sampled	
C2A**	27/06/2017	14.62/14.82/14.78			Not Sampled	
C2B**	27/06/2017	18.60/18.55/18.55	7.84	19250.00	21.28	50.00

** sampled from side risers closest to these leachate wells – due to access issues at the leachate wells

NM = Not Measured

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Laboratory Testing Results

Compliance Levels

The Control and Compliance limits for Area 2 are reproduced in Tables 2 and 3.

Table 2 –PPC Permit Compliance Levels for Emissions to Groundwater (Hazardous Substances)

Monitoring Well	Benzene	Naphthalene	Xylene	EPH	Arsenic
	Compliance Limit	Compliance Limit	Compliance Limit	Compliance Limit	Compliance Limit
	ug/l	ug/l	ug/l	ug/l	ug/l
GW03_09	2	5	3	Not Required	35
GW06_13	2	5	3	Not Required	50
GW06_14a	2	5	3	Not Required	25
GW06_34	2	5	3	Not Required	65
GW06_36	2	5	3	Not Required	30
GW06_37	2	5	3	Not Required	60
GW06_39	2	5	3	Not Required	50
GW07_40	2	5	3	Not Required	35
GW09_31	13	5	3	Not Required	80
GW09_32	3	5	3	Not Required	30
GW09_35	2	5	3	Not Required	50

Table 3 –PPC Permit Compliance Levels for Emissions to Groundwater (Non-Hazardous Substances)

Monitoring Well	Nickel		Potassium		Ammoniacal Nitrogen	
	Control Level	Compliance Limit	Control Level	Compliance Limit	Control Level	Compliance Limit
	ug/l	ug/l	mg/l	mg/l	mg/l	mg/l
GW03_09	8	10	160	180	30	35
GW06_13	12	14	100	110	30	35
GW06_14a	12	14	160	180	53	60
GW06_34	12	14	310	350	30	35
GW06_36	8	10	100	110	20	23
GW06_37	8	10	100	110	30	35
GW06_39	26.4	30	100	110	20	23
GW07_40	8	10	39.6	45	20	23
GW09_31	8	10	100	110	50	50
GW09_32	8	10	160	180	50	50
GW09_35	8	10	100	110	30	35

Compliance Limits have not yet been set for three replacement monitoring wells (GW12_30, GW12_33 and GW12_38).



Hazardous Substances (formally List I substances)

None of the hazardous substances agreed as “priority contaminants” exceeded the well specific Compliance Limits at the wells sampled during Round 160.

Non-hazardous Substances

None of the non-hazardous substances agreed as “priority contaminants” exceeded the well specific Compliance Limits at the wells sampled during Round 160 with the exception of Potassium at GW07_40. The control and compliance limits for Potassium at GW07_40 are 39.6mg/l and 45mg/l respectively, and the recorded concentration in June 2017 was 54.1mg/l. There have been two previous exceedances of the control limits for Potassium at this monitoring location, in December 2015 and April 2016 – however the results have been below the control limits since that time. Given that the control limits of the other groundwater monitoring locations at Area 2 are all at least 100mg/l, this exceedance is not considered to be a significant environmental risk and no mitigation measures are currently proposed. The concentrations of Potassium at GW07_40 will be further reviewed and assessed in subsequent monitoring rounds, to determine whether this exceedance is representative of an adverse trend developing.

Leachate Measurements

Leachate levels were recorded at C1A, C1B, C1D, C2A, C2B and LF08_07 in June 2017 and the leachate head levels are indicated to be as follows;

Table 4 – Leachate Head

Monitoring Location	Leachate Head (m) in April/May/June
C1A	1.30/1.35/1.20
C1B	1.47/1.52/1.47
C1D	0.60/0.50/0.60
C2A	0.80/0.60/0.64
C2B	3.06/3.11/3.11
LF08_07	0.64/0.63/0.69

The volumes of leachate removed from Area 2 during April, May and June 2017 are presented in Table 5. The leachate was sampled during R160 from side risers closest to the monitoring location at C2B, and the laboratory analytical certificates are attached to this letter report.

Leachate Removed

The volume of leachate removed from Area 2 (both Cell 1 and Cell 2 combined) is summarised in Table 5 below:

Table 5 – Quarterly Leachate Data from Area 2

Monitoring Round	Leachate Removed (tonnes)
Round 158 April 2017	694.56
Round 159 May 2017	855.98
Round 160 June 2017	913.44

Concluding Remarks

None of the hazardous or non-hazardous substances agreed as “priority contaminants” exceeded the well specific Compliance Limits at the wells sampled during Round 160, with the exception of Potassium at GW07_40 – however no mitigation measures are proposed at this time.

The leachate head recorded at C2B is above the permitted level of 2m, at 3.11m.



PBA will continue to monitor and comment on the groundwater quality within subsequent reports. If you have any questions regarding the data, then please do not hesitate to contact us.

Yours sincerely

Kate Riley

For and on behalf of

PETER BRETT ASSOCIATES LLP

Cc. Gwyn Jones – NCC (Docksway Disposal Site)

Enc. Laboratory Analytical Testing Result