

Your ref: DP3733BK

Our ref: 14739/075/CBH/VKR



29th June 2018

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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 169, March 2018.

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 19th March 2018. 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 169 are presented in Table 1.

Table 1 – Field Testing Results and Observations

Monitoring Point	Date Monitored	Depth to Groundwater/Leachate (m)	pH	Electrical Conductivity (µS/cm)	Temperature (°c)	Dissolved Oxygen (%)
GW06_39	19/03/2018	3.40	7.66	7019	8.98	17.40
GW07_40	19/03/2018	5.00	8.12	1438	8.82	5.80
GW12_30	19/03/2018	4.50	7.29	1899	9.37	17.00
GW09_31	19/03/2018	5.00	7.52	1424	8.60	13.80
GW03_09	-	Not Sampled (well damaged)				
GW09_32	19/03/2018	8.80	7.07	2022	10.90	6.50
GW12_33	19/03/2018	8.10	7.43	3045	8.38	6.60
GW06_34	19/03/2018	6.21	7.79	1276	7.82	5.6
GW09_35	19/03/2018	7.55	7.68	14090	10.99	13.3
GW09_36	19/03/2018	8.00	7.52	4113	11.08	4.4
GW06_37	19/03/2018	7.50	7.77	13510	11.31	14.2
GW06_13	19/03/2018	7.00	8.72	5879	90.9	13.7
GW12_38	19/03/2018	7.65	7.81	2480	9.79	11.0
GW06_14a	-	Not Sampled (unable to pump)				
LF08_07	19/03/2018	14.25	8.10	16150	3.65	65.70
C2A	-	Not Sampled				
C2B	19/03/2018	22.80	8.22	16620	15.16	45.70

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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
GW09_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
GW09_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 (73.6)	20	23
GW09_31	8	10	100	110	50	50
GW09_32	8	10 (22.4)	160	180	50	50
GW09_35	8	10	100	110	30	35

Compliance Limits have been proposed for monitoring wells GW12_30, GW12_33 and GW12_38, and we await acceptance of these by NRW.



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 169.

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 169 with the exception of elevated concentrations of nickel in GW09_32 (22.4µg/l) relative to the Control and Compliance Limits of 8µg/L and 10µg/L respectively, and of potassium in GW07_40 (73.6µg/l) relative to the Control and Compliance Limits of 39.6µg/L and 45.0µg/L respectively.

There has been no exceedance of the Control and Compliance limits for Nickel at GW09_32 in the last five years, during which time the results have been below the limits, consistently around 2µg/l to 3µg/l.

The previous exceedance of the for Potassium at GW07_40 was an exceedance (54.1µg/l) of the Control (39.6µg/l) and Compliance limits (45.0µg/l) in June 2017. In the intervening two quarters the results have been below the limits, recording values of 32.9µg/l and 38.9µg/l.

Given that historically, the exceedances at this location appear to be ephemeral these exceedances are not considered to be a significant environmental risk and no mitigation measures are currently proposed. However, the concentrations of Nickel at GW09_32 and Potassium and GW07_40 will be further reviewed and assessed in subsequent monitoring rounds.

Leachate Measurements

Leachate levels were recorded at C1B, C1D, C1E, C2A, C2B and LF08_07 in March 2018 and the leachate head levels are indicated to be as follows;

Table 4 – Leachate Head

Monitoring Location	Leachate Head (m) in March 2017
C1B	2.42
C1D	1.61
C1E	1.46
C2A	2.03
C2B	2.94
LF08_07	2.24

The volumes of leachate removed from Area 2 during January, February and March 2018 are presented in Table 5. The leachate was sampled during R169 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 167 January 2018	725
Round 168 February 2018	980
Round 169 March 2018	923



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 169 with the exception of Nickel at GW09_32 and Potassium at GW07_40. It is proposed to review subsequent monitoring data for these wells to determine if further investigation or mitigation is required.

The leachate heads recorded at C1B, C2A, C2B and LF08_07 are marginally above the permitted level of 2m, at 2.42m, 2.03m, 2.94m and 2.24m respectively.

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

Nicholas Hills

For and on behalf of

PETER BRETT ASSOCIATES LLP

Cc. Jonathan Davey – NCC (Docksway Disposal Site)