



Your ref: DP3733BK

Our ref: 14739/3505/CBH/KR

24<sup>th</sup> April 2015

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**Attn: Mr David Willey**

Dear David

**RE: DP3733BK - Docksway Disposal Site. Latest Area 2 Groundwater Quality Monitoring Report, Round 133.**

Please find enclosed the results of the groundwater quality monitoring undertaken at Area 2 of Docksway Disposal Site. Groundwater monitoring 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 in March 2015. 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 133 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 (%)
GW09_31	27/03/2015	5.42	7.80	6552	109	49.2
GW03_09	27/03/2015	8.10	7.68	10000	11.6	38.5
GW12_33	27/03/2015	8.65	N/A			
GW06_34	27/03/2015	8.15	N/A			
GW12_30	27/03/2015	4.84	7.09	2710	10.6	0.00
GW09_32	27/03/2015	8.00	7.75	5799	12.3	24.1
GW07_40	27/03/2015	4.57	7.86	2389	11.2	7.5
GW06_13	27/03/2015	5.60	N/A			
GW06_14a	27/03/2015	6.86	N/A			
GW09_35	27/03/2015	6.78	N/A			
GW06_36	27/03/2015	6.45	N/A			
GW06_37	27/03/2015	6.10	N/A			
GW12_38	27/03/2015	5.52	N/A			
GW06_39	27/03/2015	2.60	7.72	2770	11.6	62.9
LF08_07**			N/A			
C2B**			N/A			

\*\* measured from top of monitoring stack

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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 due to insufficient baseline data (GW12\_30, GW12\_33 and GW12\_38). Once sufficient baseline data has been collected, new Compliance Limits for these wells will be proposed.

**Hazardous Substances (formally List I substances)**

The concentrations of Arsenic recorded during Round 133 exceeded the Compliance Limits in both GW06\_37 and GW09\_32. The measured concentration in GW06\_37 was 135ug/l compared to the Compliance Limit of 60ug/l, and the measured concentration in GW09\_32 was 34.3ug/l, compared to the Compliance Limit of 30ug/l.

None of the other hazardous substances agreed as “priority contaminants” exceeded the well specific Compliance Limits at the wells sampled during Round 133.

**Non-hazardous Substances**

There were no exceedances of the well specific Compliance Limits for Nickel (priority contaminant) in any of the Area 2 monitoring wells sampled during Round 133.

The concentration of Ammoniacal Nitrogen (37.1mg/l) recorded in GW06\_37 marginally exceeded the Compliance Limit of 35mg/l.

No exceedances of the proposed Control and Compliance levels for Potassium were identified in any of the Area 2 wells during Round 133.

**Leachate Measurements**

Leachate levels were monitored (where possible) in LF08\_07, C1A, C1B, C1D and C1E (Cell 1) and C2A, C2B and C2C (Cell 2) during Rounds 131 to 133. The leachate levels are presented in Table 5 and the volumes of leachate removed from Area 2 during January, February and March are presented in Table 6. The leachate was sampled at LF08\_07 in accordance with the PPC Permit and the laboratory analytical certificates are attached to this letter report.

Table 5 – Quarterly Leachate Data from Cell 1 and Cell 2

Monitoring Well	Monitoring Round	Leachate Head Level (m)
Cell 1		
LF08_07	Round 131	3.27
	Round 132	3.38
	Round 133	3.25
C1A (Well 1)	Round 131	4.80
	Round 132	4.85
	Round 133	4.88
C1B (Well 2)	Round 131	4.11
	Round 132	4.08
	Round 133	3.55
C1D (Well 6)	Round 131	2.17
	Round 132	2.47
	Round 133	2.32
C1E (Well 7)	Round 131	2.66
	Round 132	2.76
	Round 133	2.61
Cell 2		
C2A	Round 131	N/A
	Round 132	N/A
	Round 133	N/A
C2B	Round 131	N/A
	Round 132	N/A
	Round 133	N/A
C2C	Round 131	N/A
	Round 132	N/A
	Round 133	N/A



## Leachate Removed

The volume of leachate removed from Area 2 (both Cell 1 and Cell 2 combined) is summarised in Table 6 below:

Table 6 – Quarterly Leachate Data from Area 2

<b>Monitoring Round</b>	<b>Leachate Removed (tonnes)</b>
Round 131 January 2015	1052
Round 132 February 2015	714
Round 133 March 2015	1054

## Concluding Remarks

There were two exceedances of the Compliance Limits for Arsenic in GW06\_37 and GW09\_32, and one exceedance of the Compliance Limit for Ammoniacal Nitrogen in GW06\_37 during Round 133.

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