

Your ref: DP3733BK

Our ref: 14739/075/CBH/VKR

11<sup>th</sup> April 2019

PPC Team  
Natural Resources Wales  
Rivers House  
Fortran Road  
St. Mellons Business Park  
Cardiff  
CF3 0EY

**Attn: Mr David Willey**

Dear David,

**RE: DP3733BK - Docksway Disposal Site. Latest Area 2 Groundwater and Leachate Quality Monitoring Report, Round 178, December 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 14<sup>th</sup> & 17<sup>th</sup> December 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 and leachate samples during Round 178 are presented in Table 1.

Table 1 – Field Testing Results and Observations

Monitoring Point	Date Monitored	Depth to Groundwater/Leachate (mbgl)	pH	Electrical Conductivity (µS/cm)	Temperature (°C)	Dissolved Oxygen (%)
GW06_39	14/12/2018	3.85	7.99	6251	10.83	5.1
GW07_40	14/12/2018	4.90	8.46	2036	10.33	1.9
GW12_30	14/12/2018	4.40	7.54	2758	10.68	5.5
GW09_31	14/12/2018	5.50	7.79	1981	10.80	0.9
GW03_09	14/12/2018	8.10	7.63	4836	10.84	55.5
GW09_32	14/12/2018	9.40	7.38	2092	11.56	8.0
GW12_33	14/12/2018	8.1	7.30	1999	11.25	1.6
GW06_34	14/12/2018	8.50	7.73	1350	9.28	2.3
GW09_35	14/12/2018	7.40	7.85	13880	11.71	0.9
GW09_36	14/12/2018	8.80	7.94	10270	11.36	5.1
GW06_37	14/12/2018	6.70	7.98	15130	10.73	1.1
GW06_13	14/12/2018	6.00	8.15	10530	10.84	4.9
GW12_38	14/12/2018	6.50	7.75	2941	10.14	61.1
GW06_14a	14/12/2018	Not Sampled (unable to pump)				
LF08_07	14/12/2018	13.9	No Access to retrieve sample			
C1A	14/12/2018	No Access to dip				
C1B	14/12/2018	21.57	Not tested			
C1E	14/12/2018	22.75	Not tested			
C1D	14/12/2018	10.4	Not tested			
C2A	14/12/2018	14.0	Not tested			
C2B	14/12/2018	23.2	No Access to retrieve sample			
C2C	14/12/2018	17.47	Not tested			
C3B	14/12/2018	No Access				

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There were no leachate samples obtained and tested during Round 178.

## Laboratory Testing Results

### Compliance Levels

The agreed Control levels and Compliance limits for Area 2 'priority contaminants' are reproduced in Tables 2 and 3.

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

Monitoring Well	Benzene	Napthalene	Xylene	EPH	Arsenic
	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
GW12_30	1	1	1	Not Required	160
GW12_33	1	1	1	Not Required	560
GW12_38	1	1	1	Not Required	26

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
GW12_30	25	30	35	40	10	12
GW12_33	5	6	50	55	15	18
GW12_38	25	30	65	70	10	12

### Hazardous Substances (formally List I substances)

The hazardous substances specified as “priority contaminants” in the Area 2 Hydrogeological Risk Assessment were monitored at the compliance wells in December 2018 and were recorded below the well specific Compliance Limits during Round 178.

### Non-hazardous Substances

None of the non-hazardous substances agreed as “priority contaminants” (Table 3) exceeded the well specific Compliance Limits at the wells sampled during Round 178 with the exception of elevated concentrations of ammoniacal nitrogen in GW06\_37 at 39.7mg/l relative to the Compliance Limit of 35mg/l and GW06\_39 where the recorded concentration (20.5mg/l) was marginally above the Control Level (20.0mg/l) but below the Compliance Limit (23.0mg/l).

The elevated concentrations recorded in GW06\_37 and GW06\_39 during Round 178 are not considered to represent a significant deterioration in water quality and no mitigation measures are proposed at the current time. The concentrations of ammoniacal nitrogen in GW06\_37 will be further reviewed and assessed during subsequent monitoring rounds. Monitoring well GW06\_39 has subsequently been destroyed and will not therefore be monitored in subsequent rounds.

### **Leachate Measurements**

Leachate levels were recorded at LF08\_07, C1B, C1D, C1E, C2A, C2B and C2C in December 2018 and the leachate head levels are indicated to be as follows;

Table 4 – Leachate Head

<b>Monitoring Location</b>	<b>Leachate Head (m) in March 2017</b>
LF08_07	2.59
C1A	No access to dip
C1B	1.35
C1E	1.91
C1D	1.51
C2A	1.38
C2B	2.54
C2C	2.71
C3B	No access

The leachate head levels recorded indicate slight exceedances of the permitted level (2m) at LF08\_07, C2B and C2C.

### Leachate Removed

During December 2018 a total of 768.82 tonnes of leachate was removed from Area 2 (Cells 1 to 3 combined).

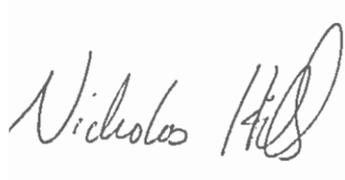
### Concluding Remarks

None of the hazardous or non-hazardous substances agreed as “priority contaminants” exceeded the well specific Compliance Limits at the wells sampled during Round 178 with the exception of ammoniacal nitrogen at GW06\_37 and GW06\_39. It is proposed to review subsequent monitoring data for GW06\_37 to determine if further investigation or mitigation is required. GW06\_39 has subsequently been destroyed and can no longer be monitored.

The leachate heads recorded at LF08\_07, C2B and C2C are marginally above the permitted level of 2m, at 2.59m, 2.54m and 2.71m.

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

A handwritten signature in black ink that reads "Nicholas Hills". The signature is written in a cursive style with a large, stylized "H" and "S".

**Nicholas Hills**  
For and on behalf of  
**PETER BRETT ASSOCIATES LLP**

Cc. Jonathan Davey – NCC (Docksway Disposal Site)