

27 NOV 2015



Your ref: DP3733BK

Our ref: 14739/075/CBH/KR/

25<sup>th</sup> November 2015

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

Peter Brett Associates LLP  
Caversham Bridge House  
Waterman Place, Reading  
Berkshire RG1 8DN  
T: +44 (0)118 950 0761  
F: +44 (0)118 959 7498  
E: reading@peterbrett.com

Attn: Mr David Willey

Dear David

**RE: DP3733BK - Docksway Disposal Site. Latest Area 2 Groundwater Quality Monitoring Report, Round 139, September 2015, including Annual Screen.**

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 during September 2015, and the results of the annual screen which was also carried out during this round.

We enclose with this letter report, Figure A, a plan showing the locations of the available groundwater monitoring points. We also enclose the laboratory analytical certificates.

### Field Observations

Details of the field testing of the Area 2 groundwater samples during Round 139 are presented in Table 1.

Table 1 – Field Testing Results and Observations

Monitoring Point	Date Monitored	Depth to Groundwater (mbgl)	pH	Electrical Conductivity (µS/cm)	Temperature (°C)	Dissolved Oxygen (%)
GW09_31	25/09/2015	4.50	7.92	2157	11.81	5.20
GW03_09	25/09/2015	5.05	7.06	3428	12.22	5.10
GW12_33	25/09/2015	5.47	8.07	6505	11.89	4.10
GW06_34	25/09/2015	8.00	7.80	8320	11.87	0.00
GW12_30	25/09/2015	8.00	7.52	5097	12.64	4.00
GW09_32	25/09/2015	8.44	7.37	4492	12.99	1.40
GW07_40	25/09/2015	8.30	7.49	1683	13.36	0.20
GW06_13	25/09/2015	7.20	7.58	13300	13.11	3.60
GW06_14a	25/09/2015	6.90	7.76	11520	13.98	1.20
GW09_35	25/09/2015	6.80	7.72	13470	12.47	0.00
GW09_36	25/09/2015	6.70	7.81	7908	11.98	3.60
GW06_37	25/09/2015	7.10	7.29	4702	12.31	3.90
GW12_38	25/09/2015	7.60	7.44	9163	13.19	2.10
GW06_39	25/09/2015	n/a	n/a	n/a	n/a	n/a
LF08_07*	25/09/2015	11.31	7.11	4137	23.60	70.20

\* measured from top of monitoring stack

J:\14739\075 - Interim Reporting\075\ 2015 - 2016\Reports Area 2\R139 - Sept 2015\DP3733BK Area 2 Groundwater Report.docx

Registered Office: Caversham Bridge House, Waterman Place, Reading, Berkshire, RG1 8DN UK. T: +44 (0)118 950 0761 F: +44 (0)118 959 7498  
Peter Brett Associates LLP is a limited liability partnership and is registered in England and Wales with registered number OC334398  
A list of members' names is open to inspection at our registered office. Brett Consulting Limited is wholly owned by Peter Brett Associates LLP.  
Registered number: 07765026

Roger Tym & Partners is part of Peter Brett Associates LLP.

[www.peterbrett.com](http://www.peterbrett.com)



## Laboratory Testing Results

### Compliance Levels

The Control and Compliance limits proposed in the Hydrogeological Risk Assessment for Area 2 produced in March 2012, were accepted by NRW on the 5<sup>th</sup> August 2013. The agreed Control levels and Compliance limits are reproduced in Tables 2 and 3.

Table 2 –PPC Permit Compliance Levels for Emissions to Groundwater

Monitoring Well	Benzene	Naphthalene	Xylene	Arsenic
	Compliance Limit ug/l	Compliance Limit ug/l	Compliance Limit ug/l	Compliance Limit ug/l
GW03_09	2	5	3	35
GW06_13	2	5	3	50
GW06_14a	2	5	3	25
GW06_34	2	5	3	65
GW06_36	2	5	3	30
GW06_37	2	5	3	60
GW06_39	2	5	3	50
GW07_40	2	5	3	35
GW09_31	13	5	3	80
GW09_32	3	5	3	30
GW09_35	2	5	3	50

Table 3 –PPC Permit Compliance Levels for Emissions to Groundwater

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 a number of replacement monitoring wells due to insufficient baseline data (GW12\_30, GW12\_33 and GW12\_38). Once sufficient baseline data has been collected for the remaining wells Compliance Limits will be proposed.

### Hazardous Substances (formally List I substances)

All the hazardous substances, specified as “priority contaminants” in the Area 2 Hydrogeological Risk Assessment were monitored at the compliance wells in September 2015 and with two exceptions were recorded below the well specific Compliance limits. The two exceptions are as follows;

Table 4 – Hazardous Substances Priority Contaminant Exceedances – R139

Monitoring Well	Arsenic (ug/l)	
	Measured Value	Compliance Limit
GW09/32	31.2	30
GW06/37	176	60

### Other Hazardous Substances (Annual Screen)

A full hazardous substance screen was carried out during September 2015 in accordance with Condition 2.10.17 of the PPC Permit. The majority of the hazardous substances tested for during this annual round at Area 2 are not designated Priority Contaminants for Docksway Disposal Site and therefore compliance limits are not required to be set. The results of the additional testing undertaken during September 2015 are presented in the enclosed analytical certificates, and summarised below.

The results indicate that with five exceptions, volatile organic compounds (VOCs), semi volatile organic compounds (SVOCs), mercury, phenols, pesticides and organotins were not detected in the Area 2 groundwater samples during Round 139. The five exceptions are as follows;

Table 5 – Annual Screen Recorded Concentrations – September 2015

Component	GW09/32	GW12/33	GW06/37	GW06/14A
	Measured values (ug/l)			
4-Nitrophenol	2.72	-	-	-
n-Dibutylphthalate	-	1.19	-	-
4-Methylphenol	-	-	12.2	-
Phenol	-	-	3.64	-
Bis(2-Ethylhexyl) phthalate	-	-	-	2.19



### Non-hazardous Substances

Neither of the non-hazardous substances (Ammoniacal Nitrogen, Nickel) agreed as "priority contaminants" were recorded above the well specific Compliance Limits during this round, with two exceptions, as follows.

Table 6 – Non-hazardous priority contaminant exceedances – R139

Monitoring Well	Nickel (ug/l)		Ammoniacal Nitrogen (mg/l)	
	Measured Value	Compliance Limit	Measured Value	Compliance Limit
GW06/37	-	-	35.5	35
GW09/35	18.2	10	-	-

### Potassium

No exceedances of the Control and Compliance levels for Potassium were identified in any of the Area 2 wells during Round 139.

### **Leachate Measurements and Laboratory Test Results**

Leachate levels were monitored in LF08\_07, C1A, C1B, C1D and C1E (Cell 1) during Rounds 137 and 138, and all except C1B during Round 139. The leachate levels are presented in Table 7 and the volumes of leachate removed from Area 2 during July, August and September are presented in Table 8. The leachate was sampled at LF08\_07 and the laboratory analytical certificates are attached to this letter report.

Table 7 – Quarterly Leachate Data from Cell 1 and Cell 2

Monitoring Well	Monitoring Round	Leachate Head Level (m)
Cell 1		
LF08_07	Round 137	3.11
	Round 138	3.13
	Round 139	3.27
C1A (Well 1)	Round 137	4.30
	Round 138	4.25
	Round 139	4.30
C1B (Well 2)	Round 137	2.31
	Round 138	2.31
	Round 139	n/a
C1D (Well 6)	Round 137	2.42
	Round 138	2.47
	Round 139	2.25
C1E (Well 7)	Round 137	2.46
	Round 138	2.56
	Round 139	2.54

### Leachate Removed

The volume of leachate removed from Area 2 (both Cell 1 and Cell 2 combined) is summarised in Table 8 below:



Table 8 – Quarterly Leachate Data from Area 2

Monitoring Round	Leachate Removed (kg)
Round 137 July 2015	619180
Round 138 August 2015	835940
Round 139 September 2015	814140

An annual hazardous substance screen of the Area 2 leachate was carried out during September 2015 in accordance with Condition 2.10.17 of the PPC Permit. The results of the quarterly and additional testing undertaken during September 2015 are presented in the enclosed analytical certificates and are summarised below.

The results of the additional testing for the annual screen indicate that whilst Mercury was not detected above Method Detection Limit (MDL), total Phenols were recorded at a concentration of 0.03 mg/l.

The majority of the remaining annual screen results were below the detection limits with the following exceptions;

Table 9 – Area 2 Annual Screen Leachate Data from LF08/07

Component	Measured Value
Dibutyl tin	20.1 ng/l
Bis(2-Ethylhexyl) phthalate	31.8 ug/l
Naphthalene	2.72 ug/l
Isophorone	1.05 ug/l
Methyl tertiary butyl ether	3.98 ug/l

#### Concluding Remarks

The majority of 'priority contaminants' were recorded at concentrations in the groundwater below the well specific Compliance Limits in Area 2 during September 2015. There were exceedances of the well specific Compliance Limits for three components at three monitoring locations as described above. These are not considered to be representative of a significant risk to groundwater at this time and it is recommended that this is reviewed following the next round of sampling to determine if there are any trends developing.

The majority of annual screen results were recorded at concentrations in the groundwater below the MDL, however some components were detected at relatively low levels as described above.

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.

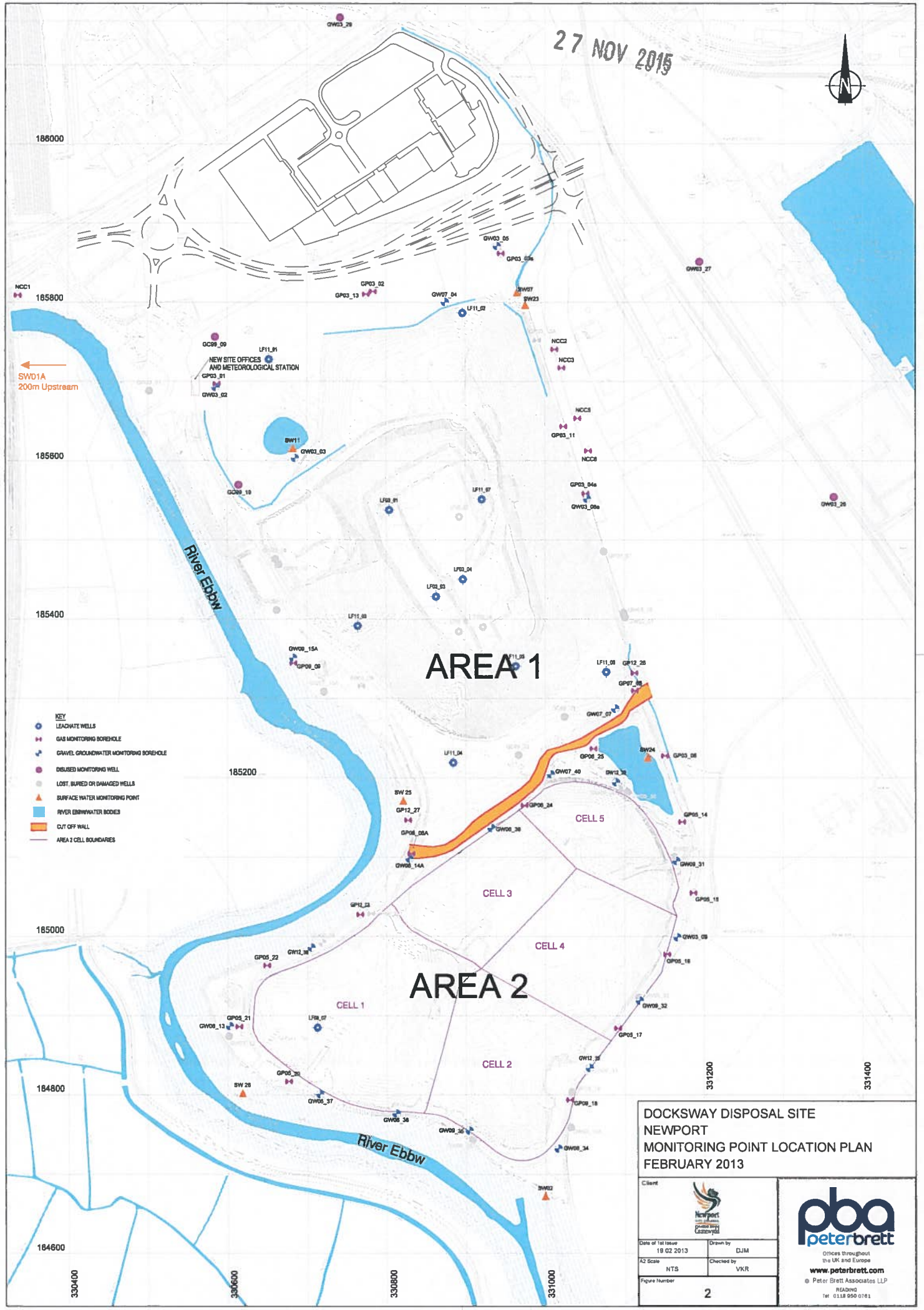
Yours sincerely

**Kate Riley**  
For and on behalf of  
**PETER BRETT ASSOCIATES LLP**

Cc. Gwyn Jones – NCC (Docksway Disposal Site)  
Enc. Laboratory Analytical Testing Results



27 NOV 2015



- KEY**
- LEACHATE WELLS
  - ⊕ GAS MONITORING BOREHOLE
  - ⊕ GRAVEL GROUNDWATER MONITORING BOREHOLE
  - DISUSED MONITORING WELL
  - LOST, BURIED OR DAMAGED WELLS
  - ▲ SURFACE WATER MONITORING POINT
  - RIVER EBBWATER BODIES
  - CUT OFF WALL
  - AREA 2 CELL BOUNDARIES

**DOCKSWAY DISPOSAL SITE  
NEWPORT  
MONITORING POINT LOCATION PLAN  
FEBRUARY 2013**

Client			
Date of 1st Issue	19 02 2013	Drawn by	DJM
A2 Scale	NTS	Checked by	VKR
Figure Number	2		

**pba**  
peterbrett

Offices throughout the UK and Europe  
www.peterbrett.com  
© Peter Brett Associates LLP  
REGDING  
Tel: 0118 950 0761

