



Your Ref: EAWML30058

Our Ref: 332510236/49428/3515/CBH/VKR/MR/ AREA 1 GW & LEACHATE/R247

6th December 2024

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

Attn: Luke Burton

Dear Luke,

Re: EAWML30058 - DOCKSWAY DISPOSAL SITE. AREA 1 GROUNDWATER & LEACHATE MONITORING REPORT, ANNUAL SCREEN – SEPTEMBER 2024

Please find enclosed a summary of the results for the groundwater and leachate quality annual screen 2024, carried out at Area 1 of Docksway Disposal Site, in accordance with the aftercare plan, following definitive closure of Area 1 in October 2014. The monitoring was undertaken during September 2024.

We enclose with this letter report, a plan showing the locations of the primary groundwater monitoring points, (Figure A) and the results of the laboratory testing carried out on the three groundwater compliance wells (GW03_05, GW07_07 and GW03_02), and four leachate sampling locations.

Field Observations

Details of the field testing results obtained during the 2024 annual screen are presented in Table 1.

Table 1 Field Testing Observations

Monitoring Point	Groundwater/Leachate Level Dip (m)	pH	Electrical Conductivity ($\mu\text{S}/\text{cm}$)	Temperature ($^{\circ}\text{C}$)	Dissolved Oxygen (%)
GW07_07	5.41	7.5	2506	13.6	6.1
GW03_02	9.98	7.3	2219	13.5	12.7
GW03_05	6.70	6.9	1473	12.7	13.6
LF03_01	Unable to locate				
LF11_01	Unable to locate				
LF11_02	12.74	7.2	5546	14.1	5.8
LF11_03	8.86	Dip only			
LF11_04	12.41	7.7	9873	18.4	3.4
LF11_05	19.98	8	18960	32.1	4.3
LF11_06	8.52	Dip only.			
LF11_07	26.98	7.6	13890	26.2	3.8

Caversham Bridge House
Waterman Place
Reading
Berkshire RG1 8DN
Telephone: +44 (0)118 950 0761
email: PBA.Reading@stantec.com

Registered Office:
Stantec UK Ltd
Buckingham Court
Kingsmead Business Park
Frederick Place, London Road
High Wycombe HP11 1JU
Registered in England No. 1188070

The monitoring undertaken was an annual screen which comprises the following determinands (* denotes groundwater only):

Table 2 Testing Determinands

Total Alkalinity*	Chromium*	Total Oxidised Nitrogen*	Total Organic Carbon*
Ammoniacal Nitrogen	Copper*	Calcium*	VOCs
COD*	Lead*	Magnesium*	SVOCs
Conductivity*	Manganese*	Potassium	Organochlorine and Organophosphorous Pesticides
EPH	Nickel	Sodium*	
Mercury	Zinc*	pH*	Cyanide Total
Arsenic	Chloride*	Organotins*	Cyanide Free
Cadmium*	Sulphate*	Phenols	

Groundwater

Control Levels and Compliance Limits

The Hydrogeological Risk Assessment (HRA) for Area 1 was revised and issued in October 2011 and contains the Control Levels and Compliance Limits that were set and used to assess the groundwater quality across the Area 1 site, prior to formal closure. The annual screen results for the Area 1 groundwater have been assessed against the well specific Compliance Limits contained in the HRA.

The current laboratory limit of detection (LDL) has been used as the Control level and Compliance limit for Benzene, Naphthalene, Xylene, Phenols and Mercury (and in some cases this is different from the Compliance Limits in the HRA). This may however be subject to change as the laboratory limit of detection changes.

Hazardous Substances (formerly List I substances)

All the priority contaminants specified as 'hazardous substances' in the Area 1 Hydrogeological Risk Assessment (EPH, Arsenic, Benzene, Naphthalene, Xylene and Mercury) were monitored at the compliance wells in September 2024 and the majority were recorded below the well specific Compliance Limits.

The exception to this is for EPH at GW03_02, with a recorded concentration of 272 µg/l which exceeds the Compliance Limit of 142.5µg/l. The concentration recorded at this monitoring location continues a reducing trend from previous rounds in September 2022 and September 2023 when concentrations of 8740 µg/l and 582 µg/l were recorded respectively.

In addition, for GW03_05 the recorded concentration of 197µg/l exceeds the Compliance Limit for this location of 161.3µg/l. This remains consistent with the results present in the overall dataset.

Other Hazardous Substances

The results of the testing for hazardous substances other than the priority contaminants undertaken during September 2024 are presented in the enclosed analytical certificates and are summarised below.

In general, volatile organic compounds (VOCs), semi volatile organic compounds (SVOCs), pesticides and organotins were not detected above the LDL in the majority of the Area 1 groundwater samples tested with the exception of the following.

Table 3 Additional Exceedances of the LDL

Monitoring Point	Contaminant	Lab Detection Limit (µg /l)	Recorded Value (µg /l)
GW03_02	Dichlobenil (pesticide/herbicide)	0.01	0.758
GW03_05	Dichlobenil (pesticide/herbicide)	0.01	0.241
GW07_07	Dichlobenil (pesticide/herbicide)	0.01	0.0356

Dichlobenil was also recorded marginally above the LDL at GW03_02 during the previous nine annual monitoring rounds. Given the general groundwater flow direction at the site (towards the south / southeast), it is considered that the presence in GW03_02 (up hydraulic gradient of the landfills) indicates that the source of the detected contaminant is off site.

Non-Hazardous Substances

All of the “priority contaminants” specified as non-hazardous substances in the Area 1 Hydrogeological Risk Assessment (Ammoniacal Nitrogen, Nickel, Potassium and Phenols) were monitored at the compliance wells as part of the annual screen and were recorded below the well specific Compliance limits.

Chloride and Chemical Oxygen Demand (COD)

Chloride concentrations at GW03_02, GW03_05 and GW07_07 were recorded at 117mg/l, 96mg/l and 366mg/l respectively during this round.

COD concentrations of 61.4mg/l, 164mg/l and 158mg/l were recorded at GW03_02, GW03_05 and GW07_07 respectively during this round.

Leachate Dip Measurements and Laboratory Test Results

The level of leachate across Area 1 was monitored in LF11_02 to LF11_07 in September 2024 and was recorded at levels of between about 6.8m AOD and 17.7m AOD.

An annual hazardous substance screen was carried out during September 2024 in accordance with the aftercare plan (EAWML 30058). Samples of leachate were obtained and submitted for laboratory testing, from LF11_02, LF_04, LF11_05 and LF11_07. There are no Compliance Limits for the leachate at Area 1, and the results of the testing undertaken during September 2024 are presented in the enclosed analytical certificates and are summarised below.

Free Cyanide was not detected at concentrations above the LDL in the leachate wells sampled during this round. However Total Cyanide above the LDL was detected in LF11_05 with a concentration of 0.14mg/l (September 2023 recorded 0.36mg/l).

Phenols (total monohydric) were detected above the LDL in all samples, with a maximum concentration detected at LF11_05 of 0.09 mg/l.

Cresols were also identified at concentrations above the LDL within two samples (LF11_04 and LF11_07), with a maximum concentration of 0.02mg/l in LF11_05.

Xylenols were detected above the LDL in all samples, with a maximum concentration detected at LF11_05 of 0.07 mg/l.

Pesticides were not detected above the laboratory method detection limit (MDL) in the Area 1 leachate samples tested.

A number of results were recorded above the lab limit of detection for volatile organic compounds (VOCs) and semi volatile organic compounds (SVOCs) at each of the monitoring locations, as shown in the table below.

Table 4 Summary of Parameters Recorded above the MDL in Leachate Samples

Parameter (MDL <1 µg /l)	Concentrations (µg /l)			
	LF11_02	LF11_04	LF11_05	LF11_07
Carbon disulphide (VOC)			1.38	
Methyl tertiary butyl ether (MTBE) (VOC)		1.48		3.65
cis-1,2-Dichloroethene (VOC)				2.68
Benzene (VOC)	4.89	5.64	7.18	4.68
Toluene (VOC)		1.64	5.84	1.85
Ethylbenzene (VOC)		6.63	7.2	
m,p-Xylene (VOC)	3.38	11.3	10.9	10.4
o-Xylene (VOC)		8.95	8.68	14.4
Isopropylbenzene (VOC)	1.75			
Propylbenzene (VOC)	1.3			
1,3,5-Trimethylbenzene (VOC)		2.17	1.95	3.24
1,2,4-Trimethylbenzene (VOC)	1.31	5.91	4.81	12.1
4-iso-Propyltoluene (VOC)			3.06	
1,4-Dichlorobenzene (VOC)		2.04		
Naphthalene (SVOC)		2.98		13.4

A number of tentatively identified compounds were also detected within a number of the samples, as shown in the table below.

Table 5 Summary of Tentatively Identified Compounds Detected within Leachate Samples

Parameter (MDL <1 µg /l)	Concentrations (µg /l)			
	LF11_02	LF11_04	LF11_05	LF11_07
Total SVOC TIC (SVOC)	<500	1210	28100	2200
Dodecane			1350	
Hexadecane		576	1050	607
Isomer of Bismethylethylidene Phenol			21600	
Isomer of Trimethylhexanoic acid			4060	912
Octadecane		630		684

In previous reports (Sept 2015 to 2020), fluctuating trends of significant EPH concentrations were reported in LF11_05. The table below shows the concentrations of EPH within LF11_05 during the last ten years, which indicates an increase in the concentration over the past 12 months, but still significantly below the peak concentration recorded in 2017.

Table 6 Summary of EPH Concentrations in LF11_05

Monitoring Date	EPH Concentration ug/l
Sept 2015	460,000
Sept 2016	45,700,000
Sept 2017	1,160,000,000
Sept 2018	3,700,000
Sept 2019	137,000
Sept 2020	1,420,000
Sept 2021	Not sampled
Sept 2022	123,000
Sept 2023	8,150
Sept 2024	99,000

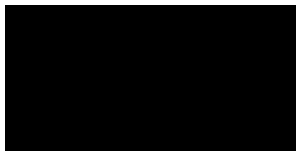
During the field monitoring this location has also been noted to have an oily sheen on the water and being black in colour.

Concluding Remarks

NCC will continue to monitor the Area 1 groundwater quality in accordance with the aftercare plan and Stantec will comment on the general water quality within subsequent reports.

If you have any questions regarding the data, then please do not hesitate to contact us.

Yours sincerely



Technical Director – Geoenvironmental Services
on behalf of Stantec UK Ltd

CC: [Redacted] – NCC (Docksway Disposal Site)
[Redacted] - NCC