

Pat Mcgrath
Cardiff City Council
Waste Management
Lamby Way
Rumney
Cardiff
CF3 2HP

Decus Research Limited
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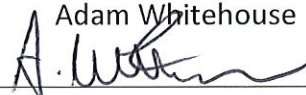
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Certificate of Analysis Number: 2291

Project/Site name:	Lamby Way	Samples Taken:	13-03-2018
Job Number:	-	Samples Received:	13-03-2018
Order Number:	-	Date Instructed:	15-03-2018
Quotation Number:	DS 170612	Analysis Complete:	27-03-2018
Sample Matrix:	Groundwater, Surface Water, Leachate Water	Report Issued:	28-03-2018
		Sampled By:	Client

Disposal Times:

All water samples will be retained for a period of two weeks and all soil samples retained for a period of one month following the date of the issued certificate.

Approved by: Adam Whitehouse
Signature: 
Title: Quality Manager



Client: Cardiff City Council
FAO: Pat Mcgrath

CERTIFICATE OF ANALYSIS 2291
Results of analysis of 30 samples received
on the 13/03/18

Report Date
28th March 2018

Code	Determinand	Units	*	Sample Identification			
Laboratory Sample Number:				150318001	150318002	150318003	150318004
Client Sample Reference:				C1	C2	C3	C5
Sample Date:				13/03/18	13/03/18	13/03/18	13/03/18
Sample Matrix:				Groundwater	Groundwater	Groundwater	Groundwater
INORG-L01	pH	pH units	A	6.8	7.0	7.0	7.1
INORG-L12	Ammonia	mg.l ⁻¹ as NH ₄	A	0.4	0.07	8.8	1.2
INORG-L13	Chloride	mg.l ⁻¹	A	29.5	27.6	20.9	9.5
1630	Dissolved Methane	mg.l ⁻¹	S-N	-	<0.050	<0.050	-

Code	Determinand	Units	*	Sample Identification			
Laboratory Sample Number:				150318005	150318006	150318007	150318008
Client Sample Reference:				C6	C8	C12	C13
Sample Date:				13/03/18	13/03/18	13/03/18	13/03/18
Sample Matrix:				Groundwater	Groundwater	Groundwater	Groundwater
INORG-L01	pH	pH units	A	7.4	7.2	7.1	7.4
INORG-L12	Ammonia	mg.l ⁻¹ as NH ₄	A	1.2	0.7	8.7	10.1
INORG-L13	Chloride	mg.l ⁻¹	A	4.3	5.2	3.5	6.4

Code	Determinand	Units	*	Sample Identification			
Laboratory Sample Number:				150318009	150318010	150318011	150318012
Client Sample Reference:				C14	C16	C18	C19
Sample Date:				13/03/18	13/03/18	13/03/18	13/03/18
Sample Matrix:				Groundwater	Groundwater	Groundwater	Groundwater
INORG-L12	Ammonia	mg.l ⁻¹ as NH ₄	A	8.5	16.9	0.16	0.08
INORG-L13	Chloride	mg.l ⁻¹	A	2.6	2.8	19.4	15.8
INORG-L01	pH	pH units	A	7.2	7.1	7.7	7.6

* Accreditation Status

Tests marked 'A' hold UKAS accreditation

Tests marked 'N' do not hold UKAS accreditation

Tests marked 'S - A' were sub-contracted to an approved laboratory with accreditation on the specific method

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Code	Determinand	Units	*	Sample Identification			
Laboratory Sample Number:				150318013	150318014	150318015	150318016
Client Sample Reference:				C20	C21	C22	SW1
Sample Date:				13/03/18	13/03/18	13/03/18	13/03/18
Sample Matrix:				Groundwater	Groundwater	Groundwater	Surface Water
INORG-L12	Ammonia	mg.l ⁻¹ as NH ₄	A	0.57	0.26	6.0	0.10
INORG-L13	Chloride	mg.l ⁻¹	A	5.0	14.4	4.0	21.4
INORG-L06.1	BOD	mg.l ⁻¹ as O ₂	A	-	-	-	3.2
INORG-L01	pH	pH units	A	7.3	7.4	7.0	7.7

Code	Determinand	Units	*	Sample Identification			
Laboratory Sample Number:				150318017	150318018	150318019	150318020
Client Sample Reference:				SW2	SW3	SW4	SW5
Sample Date:				13/03/18	13/03/18	13/03/18	13/03/18
Sample Matrix:				Surface Water	Surface Water	Surface Water	Surface Water
INORG-L12	Ammonia	mg.l ⁻¹ as NH ₄	A	0.01	0.01	1.1	9.4
INORG-L13	Chloride	mg.l ⁻¹	A	15.8	12.5	31.6	30.4
INORG-L06.1	BOD	mg.l ⁻¹ as O ₂	A	2.9	1.1	3.4	5.1
INORG-L01	pH	pH units	A	7.6	7.7	7.4	7.8

Code	Determinand	Units	*	Sample Identification			
Laboratory Sample Number:				150318021	-	-	-
Client Sample Reference:				SW6	-	-	-
Sample Date:				13/03/18	-	-	-
Sample Matrix:				Surface Water	-	-	-
INORG-L12	Ammonia	mg.l ⁻¹ as NH ₄	A	0.01	-	-	-
INORG-L13	Chloride	mg.l ⁻¹	A	9.2	-	-	-
INORG-L06.1	BOD	mg.l ⁻¹ as O ₂	A	3.0	-	-	-
INORG-L01	pH	pH units	A	8.2	-	-	-

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Code	Determinand	Units	*	Sample Identification			
Laboratory Sample Number:				150318022	150318023	150318024	150318025
Client Sample Reference:				L2	L4	SL4	SL5
Sample Date:				13/03/18	13/03/18	13/03/18	13/03/18
Sample Matrix:				Leachate Water	Leachate Water	Leachate Water	Leachate Water
INORG-L12	Ammonia	mg.l ⁻¹ as NH ₄	A	1,660	1,640	312	26
INORG-L13	Chloride	mg.l ⁻¹	A	27.4	33.0	18.4	26.9
METALS-L	Nickel	µg.l ⁻¹	A	133	174	11.0	6.4
1450	Cadmium	µg.l ⁻¹	S-N	0.11	<0.080	<0.080	<0.080
ORG-L17	Mecoprop	µg.l ⁻¹	A	<0.5	2.5	3.9	<0.5
ORG-L05	Xylene	µg.l ⁻¹	N	17.1	<5.0	<5.0	<5.0
1630	Dissolved Methane	mg.l ⁻¹	S-N	-	0.65	-	-

Code	Determinand	Units	*	Sample Identification			
Laboratory Sample Number:				150318026	150318027	150318028	-
Client Sample Reference:				SL6	SL7	SL8	-
Sample Date:				13/03/18	13/03/18	13/03/18	-
Sample Matrix:				Leachate Water	Leachate Water	Leachate Water	-
INORG-L12	Ammonia	mg.l ⁻¹ as NH ₄	A	39	1,050	1,270	-
INORG-L13	Chloride	mg.l ⁻¹	A	23.0	8.3	13.5	-
METALS-L	Nickel	µg.l ⁻¹	A	4.4	10.7	37.3	-
1450	Cadmium	µg.l ⁻¹	S-N	<0.080	0.099	<0.080	-
ORG-L17	Mecoprop	µg.l ⁻¹	A	<0.5	3.1	6.3	-
ORG-L05	Xylene	µg.l ⁻¹	N	<5.0	<5.0	<5.0	-

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Code	Determinand	Units	*	Sample Identification			
Laboratory Sample Number:				150318029	150318030	-	-
Client Sample Reference:				C25	L7	-	-
Sample Date:				13/03/18	13/03/18	-	-
Sample Matrix:				Leachate Water	Leachate Water	-	-
INORG-L12	Ammonia	mg.l ⁻¹ as NH ₄	A	1.3	208	-	-
INORG-L01	pH	pH Units	A	7.8	7.5	-	-
INORG-L13	Chloride	mg.l ⁻¹	A	27.7	15.9	-	-
INORG-L31	Cyanide	mg.l ⁻¹	N	<0.10	<0.10	-	-
INORG-L20	Mono Phenols	mg.l ⁻¹	A	0.10	0.98	-	-
INORG-L21	Ortho-Phosphate	mg.l ⁻¹ P	A	0.14	0.86	-	-
METALS-L	Sulphate	mg.l ⁻¹	A	188	174	-	-
INORG-L10	Suspended Solids	mg.l ⁻¹	A	11.2	8.8	-	-
INORG-L05	COD	mg.l ⁻¹ O ₂	A	24	237	-	-
1450	Arsenic	µg.l ⁻¹	S-N	3.1	15	-	-
METALS-L	Chromium	µg.l ⁻¹	A	4.2	23.4	-	-
METALS-L	Copper	µg.l ⁻¹	A	12.7	2.5	-	-
METALS-L	Nickel	µg.l ⁻¹	A	4.5	35.7	-	-
METALS-L	Zinc	µg.l ⁻¹	A	<1.1	<1.1	-	-
METALS-L	Sulphur	mg.l ⁻¹	A	62.7	58.0	-	-
1630	Dissolved Methane	mg.l ⁻¹	S-N	<0.050	<0.050	-	-
INORG-L06.1	BOD	mg.l ⁻¹ as O ₂	A	6.5	-	-	-

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Analytical Method	Method Code	Accreditation Status
Determination of pH in waters by electrode probe meter (In-house method)	INORG-L01	ISO 17025
Determination of ammonia in waters by colorimetric photometer (In-house method)	INORG-L12	ISO 17025
Determination of chloride by colorimetric photometer (In-house method)	INORG-L13	ISO 17025
Determination of BOD in waters by titration (In-house method)	INORG-L06.1	ISO 17025
Determination of metals (Cr, Ni, Cu, Zn, S) in waters by ICP-OES (In-house method)	METALS-L	ISO 17025
Determination of metals (As, Cd) in waters by colorimetric analysis (In-house method)	1450	None
Determination of Cyanide in water by colorimetric analysis (In-house method)	INORG-L31	None
Determination of COD in waters by colorimetric photometer (In-house method)	INORG-L05	ISO 17025
Determination of Ortho-Phosphates in waters by colorimetric photometer (In-house method)	INORG-L21.1	ISO 17025
Determination of suspended solids in waters by gravimetric (In-house method)	INORG-L10	ISO 17025
Determination of Dissolved Methane in waters by GC-MS (Sub-Contracted method)	1630	None

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All results only relate to the items tested.

This report supersedes any previous versions issued by the laboratory.

A full list of determinants relating to abbreviations such as PAHs, VOCs, SVOCs, PCBs etc. is available upon request.

Where results have been labelled as deviating for any reason, the data may not be representative of the sample at the point of sampling:

[I/S]: Insufficient Sample

[U/S]: Unsuitable Sample

[A]: Date of Sampling not supplied

[B]: Sample age exceeds recommended storage time

[C]: Samples not received in appropriate containers

[D]: Broken Container

< "Less Than"

> "Greater Than"

Where any sub-contracted results have been noted as deviating by the laboratory in question, their deviations codes will be applied and detailed.

Accreditation statements are correct at the time of issue.

This report shall not be reproduced in part without the approval of Decus Research Ltd, nor used in any way as to lead to misrepresentation of the results or their implications.

*****END OF REPORT*****

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