

Gareth Ffoulkes
Cardiff City Council
Waste Management
Lamby Way
Rumney
Cardiff
CF3 2HP

Decus Research Limited
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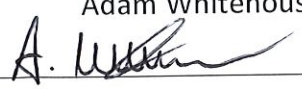
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Certificate of Analysis Number: 2273

Project/Site name:	Lamby Way	Samples Taken:	27-02-2018
Job Number:	-	Samples Received:	28-02-2018
Order Number:	-	Date Instructed:	28-02-2018
Quotation Number:	DS 170612	Analysis Complete:	13-02-2018
Sample Matrix:	Groundwater, Surface Water, Leachate Water	Report Issued:	14-02-2017
		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



4303

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FAO: Gareth Ffoulkes

CERTIFICATE OF ANALYSIS 2273
Results of analysis of 30 samples received
on the 28/02/18

Report Date
14th March 2018

Code	Determinand	Units	*	Sample Identification			
Laboratory Sample Number:				010318005	010318006	010318007	010318008
Client Sample Reference:				L2	L4	SL4	SL5
Sample Date:				27/02/18	27/02/18	27/02/18	27/02/18
Sample Matrix:				Leachate	Leachate	Leachate	Leachate
INORG-L12	Ammonia	mg.l ⁻¹ as NH ₄	A	1690	1404	208	26
INORG-L13	Chloride	mg.l ⁻¹	A	22.9	19.6	17.3	20.6
ORL-L17	Mecoprop	µg.l ⁻¹	A	<0.1	275	<0.1	<0.1
ORG-L05	Xylene	µg.l ⁻¹	N	4.4	3.0	1.3	1.3
METALS-L	Nickel	µg.l ⁻¹	A	114	4.2	<1.5	<1.5
1450	Cadmium	µg.l ⁻¹	S-N	<0.080	0.41	0.20	0.26

Code	Determinand	Units	*	Sample Identification			
Laboratory Sample Number:				010318009	010318010	010318011	-
Client Sample Reference:				SL6	SL7	SL8	-
Sample Date:				27/02/18	27/02/18	27/02/18	-
Sample Matrix:				Leachate	Leachate	Leachate	-
INORG-L12	Ammonia	mg.l ⁻¹ as NH ₄	A	52	1131	1274	-
INORG-L13	Chloride	mg.l ⁻¹	A	21.6	9.8	21.2	-
ORL-L17	Mecoprop	µg.l ⁻¹	A	<0.1	<0.1	<0.1	-
ORG-L05	Xylene	µg.l ⁻¹	N	<1.0	<1.0	<1.0	-
METALS-L	Nickel	µg.l ⁻¹	A	<1.5	8.3	6.2	-
1450	Cadmium	µg.l ⁻¹	S-N	<0.080	0.097	0.60	-

* Accreditation Status

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Code	Determinand	Units	*	Sample Identification			
Laboratory Sample Number:				010318012	010318013	010318014	010318015
Client Sample Reference:				SW2	SW3	SW4	SW5
Sample Date:				27/02/18	27/02/18	27/02/18	27/02/18
Sample Matrix:				Surface Water	Surface Water	Surface Water	Surface Water
INORG-L12	Ammonia	mg.l ⁻¹ as NH ₄	A	<0.01	0.10	1.2	19.5
INORG-L13	Chloride	mg.l ⁻¹	A	29.5	21.4	32.1	28.6
INORG-L06.1	BOD	mg.l ⁻¹ as O ₂	A	1.4	0.5	1.2	3.5
INORG-L06.1	BOD ATU	mg.l ⁻¹ as O ₂	A	1.3	<0.4	<0.4	<0.4
INORG-L01	pH	pH units	A	7.0	7.1	7.2	7.2
INORG-L02	Conductivity	µS.cm ⁻¹	A	669	618	1202	1322
INORG-L10	Suspended Solids	mg.l ⁻¹	A	<1.5	6.4	11.6	18.0
INORG-L25	TON	mg.l ⁻¹	N	0.6	0.7	0.2	21.0
INORG-L05	COD	mg.l ⁻¹ O ₂	A	17	17	17	14

Code	Determinand	Units	*	Sample Identification			
Laboratory Sample Number:				010318016	-	-	-
Client Sample Reference:				SW6	-	-	-
Sample Date:				27/02/18	-	-	-
Sample Matrix:				Surface Water	-	-	-
INORG-L12	Ammonia	mg.l ⁻¹ as NH ₄	A	0.05	-	-	-
INORG-L13	Chloride	mg.l ⁻¹	A	20.4	-	-	-
INORG-L06.1	BOD	mg.l ⁻¹ as O ₂	A	1.5	-	-	-
INORG-L06.1	BOD ATU	mg.l ⁻¹ as O ₂	A	<0.4	-	-	-
INORG-L01	pH	pH units	A	8.1	-	-	-
INORG-L02	Conductivity	µS.cm ⁻¹	A	703	-	-	-
INORG-L10	Suspended Solids	mg.l ⁻¹	A	10.8	-	-	-
INORG-L25	TON	mg.l ⁻¹	N	0.6	-	-	-
INORG-L05	COD	mg.l ⁻¹ O ₂	A	22	-	-	-

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Code	Determinand	Units	*	Sample Identification			
Laboratory Sample Number:				010318017	010318018	010318019	010318020
Client Sample Reference:				C1	C2	C3	C5
Sample Date:				27/02/18	27/02/18	27/02/18	27/02/18
Sample Matrix:				Groundwater	Groundwater	Groundwater	Groundwater
INORG-L12	Ammonia	mg.l ⁻¹ as NH ₄	A	0.57	0.03	5.7	5.9
INORG-L13	Chloride	mg.l ⁻¹	A	32.1	28.5	20.9	6.7
INORG-L01	pH	pH units	A	7.2	7.3	7.2	7.3
ORL-L17	Mecoprop	µg.l ⁻¹	A	<0.1	<0.1	<0.1	<0.1
ORG-L05	Xylene	µg.l ⁻¹	N	<1.0	<1.0	<1.0	<1.0
METALS-L	Nickel	µg.l ⁻¹	A	<1.5	1.5	2.4	<1.5
1450	Cadmium	µg.l ⁻¹	S-N	0.12	0.40	0.15	<0.080

Code	Determinand	Units	*	Sample Identification			
Laboratory Sample Number:				010318021	010318022	010318023	010318024
Client Sample Reference:				C6	C8	C12	C13
Sample Date:				27/02/18	27/02/18	27/02/18	27/02/18
Sample Matrix:				Groundwater	Groundwater	Groundwater	Groundwater
INORG-L12	Ammonia	mg.l ⁻¹ as NH ₄	A	1.2	3.0	7.7	8.2
INORG-L13	Chloride	mg.l ⁻¹	A	4.8	4.4	3.8	7.5
INORG-L01	pH	pH units	A	7.5	7.3	7.4	7.2
ORL-L17	Mecoprop	µg.l ⁻¹	A	<0.1	<0.1	<0.1	<0.1
ORG-L05	Xylene	µg.l ⁻¹	N	<1.0	<1.0	<1.0	<1.0
METALS-L	Nickel	µg.l ⁻¹	A	<1.5	<1.5	<1.5	<1.5
1450	Cadmium	µg.l ⁻¹	S-N	0.18	<0.080	0.12	<0.080

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Code	Determinand	Units	*	Sample Identification			
Laboratory Sample Number:				010318025	010318026	010318027	010318028
Client Sample Reference:				C14	C16	C18	C19
Sample Date:				27/02/18	27/02/18	27/02/18	27/02/18
Sample Matrix:				Groundwater	Groundwater	Groundwater	Groundwater
INORG-L12	Ammonia	mg.l ⁻¹ as NH ₄	A	7.0	11.3	0.05	0.05
INORG-L13	Chloride	mg.l ⁻¹	A	5.0	5.9	20.4	22.0
INORG-L01	pH	pH units	A	7.2	7.7	7.6	7.2
ORL-L17	Mecoprop	µg.l ⁻¹	A	<0.1	<0.1	<0.1	<0.1
ORG-L05	Xylene	µg.l ⁻¹	N	<1.0	<1.0	<1.0	<1.0
METALS-L	Nickel	µg.l ⁻¹	A	<1.5	3.0	<1.5	<1.5
1450	Cadmium	µg.l ⁻¹	S-N	<0.080	<0.080	<0.080	<0.080

Code	Determinand	Units	*	Sample Identification			
Laboratory Sample Number:				010318029	010318030	010318031	-
Client Sample Reference:				C20	C21	C22	-
Sample Date:				27/02/18	27/02/18	27/02/18	-
Sample Matrix:				Groundwater	Groundwater	Groundwater	-
INORG-L12	Ammonia	mg.l ⁻¹ as NH ₄	A	1.1	0.21	5.5	-
INORG-L13	Chloride	mg.l ⁻¹	A	3.7	19.0	4.1	-
INORG-L01	pH	pH units	A	7.2	7.5	7.1	-
ORL-L17	Mecoprop	µg.l ⁻¹	A	<0.1	<0.1	<0.1	-
ORG-L05	Xylene	µg.l ⁻¹	N	<1.0	<1.0	<1.0	-
METALS-L	Nickel	µg.l ⁻¹	A	2.8	<1.5	<1.5	-
1450	Cadmium	µg.l ⁻¹	S-N	0.22	0.12	<0.080	-

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Code	Determinand	Units	*	Sample Identification			
Laboratory Sample Number:				010318032	010318033	010318034	-
Client Sample Reference:				C25	LTP	L7	-
Sample Date:				27/02/18	27/02/18	27/02/18	-
Sample Matrix:				Leachate	Leachate	Leachate	-
INORG-L12	Ammonia	mg.l ⁻¹ as NH ₄	A	6.5	1378	312	-
INORG-L13	Chloride	mg.l ⁻¹	A	21.8	29.5	14.9	-
INORG-L31	Cyanide	mg.l ⁻¹	N	<0.1	<0.1	<0.1	-
INORG-L20	Mono Phenols	mg.l ⁻¹	A	0.02	2.5	0.25	-
INORG-L21	Ortho-Phosphate	mg.l ⁻¹ P	A	0.19	8.0	1.2	-
METALS-L	Sulphate	mg.l ⁻¹	A	201	710	171	-
INORG-L10	Suspended Solids	mg.l ⁻¹	A	141	22.0	9.2	-
INORG-L05	COD	mg.l ⁻¹ O ₂	A	30	1725	297	-
1450	Arsenic	µg.l ⁻¹	S-N	1.4	38	26	-
METALS-L	Chromium	µg.l ⁻¹	A	4.2	116	26.4	-
METALS-L	Copper	µg.l ⁻¹	A	12.5	114	5.1	-
METALS-L	Nickel	µg.l ⁻¹	A	1.8	174	30.7	-
METALS-L	Zinc	µg.l ⁻¹	A	<1.1	77.1	8.4	-
METALS-L	Sulphur	mg.l ⁻¹	A	201	71.0	171	-
1630	Dissolved Methane	mg.l ⁻¹	S-N	<0.050	0.43	<0.050	-

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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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