

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

Decus Research Limited
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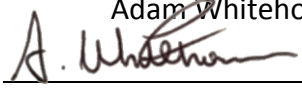
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Certificate of Analysis Number: 3172

Project/Site name:	Lamby Way	Samples Taken:	27-06-2019
Job Number:	-	Samples Received:	01-07-2019
Order Number:	-	Date Instructed:	01-07-2019
Quotation Number:	DS 170612	Analysis Complete:	10-07-2019
Sample Matrix:	Groundwater, Surface Water, Leachate Water	Report Issued:	12-07-2019
		Sampled By:	Client

Amendment Records:

None

Approved by: Adam Whitehouse
Signature: 
Title: Laboratory Manager



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FAO: Pat Mcgrath

CERTIFICATE OF ANALYSIS 3172
Results of analysis of 27 samples received
on the 01/07/19

Report Date
12th July 2019

Code	Determinand	Units	*	Sample Identification			
Laboratory Sample Number:				010719004	010719005	010719006	010719007
Client Sample Reference:				C1	C2	C3	C5
Sample Date:				27/06/19	27/06/19	27/06/19	27/06/19
Sample Matrix:				Groundwater	Groundwater	Groundwater	Groundwater
INORG-L12	Ammonia	mg.l ⁻¹ as NH ₄	A	0.88	0.70	3.0	7.5
INORG-L13	Chloride	mg.l ⁻¹	A	410	37.3	1,230	2,040
INORG-L01	pH	pH units	A	7.2	7.5	7.7	7.3

Code	Determinand	Units	*	Sample Identification			
Laboratory Sample Number:				010719008	010719009	010719010	010719011
Client Sample Reference:				C6	C8	C12	C13
Sample Date:				27/06/19	27/06/19	27/06/19	27/06/19
Sample Matrix:				Groundwater	Groundwater	Groundwater	Groundwater
INORG-L12	Ammonia	mg.l ⁻¹ as NH ₄	A	1.2	2.4	24.3	8.5
INORG-L13	Chloride	mg.l ⁻¹	A	2,720	2,950	3,030	2,448
INORG-L01	pH	pH units	A	7.5	7.4	7.4	7.5

Code	Determinand	Units	*	Sample Identification			
Laboratory Sample Number:				010719012	010719013	010719014	010719015
Client Sample Reference:				C16	C18	C19	C20
Sample Date:				27/06/19	27/06/19	27/06/19	27/06/19
Sample Matrix:				Groundwater	Groundwater	Groundwater	Groundwater
INORG-L12	Ammonia	mg.l ⁻¹ as NH ₄	A	1.6	0.03	0.04	2.6
INORG-L13	Chloride	mg.l ⁻¹	A	3,170	1,130	904	3,210
INORG-L01	pH	pH units	A	7.0	7.7	7.6	7.0

* Accreditation Status

Tests marked 'A' hold UKAS accreditation

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Code	Determinand	Units	*	Sample Identification			
Laboratory Sample Number:				010719016	010719017	010719018	010719019
Client Sample Reference:				C21	C22	SW2	SW3
Sample Date:				27/06/19	27/06/19	27/06/19	27/06/19
Sample Matrix:				Groundwater	Groundwater	Surface Water	Surface Water
INORG-L12	Ammonia	mg.l ⁻¹ as NH ₄	A	0.31	4.5	0.08	0.43
INORG-L12	Ammonia as N	mg.l ⁻¹ as N	A	0.24	3.4	0.06	0.33
INORG-L13	Chloride	mg.l ⁻¹	A	2,670	3,100	24.1	19.4
INORG-L01	pH	pH units	A	7.2	7.0	7.5	7.6
INORG-L06.1	BOD	mg.l ⁻¹ as O ₂	A	-	-	1.4	2.3

Code	Determinand	Units	*	Sample Identification			
Laboratory Sample Number:				010719020	010719021	010719022	-
Client Sample Reference:				SW4	SW5	SW6	-
Sample Date:				27/06/19	27/06/19	27/06/19	-
Sample Matrix:				Surface Water	Surface Water	Surface Water	-
INORG-L12	Ammonia	mg.l ⁻¹ as NH ₄	A	5.4	1.9	0.11	-
INORG-L12	Ammonia as N	mg.l ⁻¹ as N	A	4.2	1.5	0.09	-
INORG-L13	Chloride	mg.l ⁻¹	A	113	120	23.4	-
INORG-L01	pH	pH units	A	7.4	7.4	7.9	-
INORG-L06.1	BOD	mg.l ⁻¹ as O ₂	A	3.4	6.2	2.0	-

Code	Determinand	Units	*	Sample Identification			
Laboratory Sample Number:				010719023	010719024	010719025	010719026
Client Sample Reference:				L2	L4	SL4	SL5
Sample Date:				27/06/19	27/06/19	27/06/19	27/06/19
Sample Matrix:				Leachate	Leachate	Leachate	Leachate
INORG-L12	Ammonia	mg.l ⁻¹ as NH ₄	A	1,310	1,440	267	128
INORG-L13	Chloride	mg.l ⁻¹	A	1,640	1,570	469	430
METALS-L	Nickel	μg.l ⁻¹	A	132	150	5.0	4.8
1450	Cadmium	μg.l ⁻¹	S-N	<0.080	0.090	<0.080	<0.080
ORG017	Mecoprop	μg.l ⁻¹	A	8.7	18.1	29.4	5.6
ORG-L05	m&p-Xylene	μg.l ⁻¹	N	131	77.9	<1.0	<1.0

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Code	Determinand	Units	*	Sample Identification			
Laboratory Sample Number:				010719027	010719028	010719029	-
Client Sample Reference:				SL6	SL7	SL8	-
Sample Date:				27/06/19	27/06/19	27/06/19	-
Sample Matrix:				Leachate	Leachate	Leachate	-
INORG-L12	Ammonia	mg.l ⁻¹ as NH ₄	A	269	1,210	1,150	-
INORG-L13	Chloride	mg.l ⁻¹	A	289	3,200	1,140	-
METALS-L	Nickel	µg.l ⁻¹	A	10.2	14.5	65.9	-
1450	Cadmium	µg.l ⁻¹	S-N	<0.080	<0.080	0.080	-
ORG0L17	Mecoprop	µg.l ⁻¹	A	13.9	16.0	22.3	-
ORG-L05	m&p-Xylene	µg.l ⁻¹	N	1.2	80.1	30.3	-

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Code	Determinand	Units	*	Sample Identification			
Laboratory Sample Number:				010719030	-	-	-
Client Sample Reference:				L7	-	-	-
Sample Date:				27/06/19	-	-	-
Sample Matrix:				Leachate	-	-	-
INORG-L12	Ammonia	mg.l ⁻¹ as NH ₄	A	321	-	-	-
INORG-L13	Chloride	mg.l ⁻¹	A	729	-	-	-
INORG-L31	Cyanide	mg.l ⁻¹	N	0.11	-	-	-
INORG-L20	Mono Phenols	mg.l ⁻¹	A	1.50	-	-	-
INORG-L21	Ortho-Phosphate	mg.l ⁻¹ P	A	3.5	-	-	-
METALS-L	Sulphate	mg.l ⁻¹	A	103	-	-	-
INORG-L10	Suspended Solids	mg.l ⁻¹	A	16.0	-	-	-
INORG-L05	COD	mg.l ⁻¹ O ₂	A	460	-	-	-
1450	Arsenic	μg.l ⁻¹	S-N	23	-	-	-
METALS-L	Chromium	μg.l ⁻¹	A	36.0	-	-	-
METALS-L	Copper	μg.l ⁻¹	A	7.4	-	-	-
METALS-L	Nickel	μg.l ⁻¹	A	47.9	-	-	-
METALS-L	Zinc	μg.l ⁻¹	A	1.2	-	-	-
METALS-L	Lead	μg.l ⁻¹	A	<4.1	-	-	-
METALS-L	Sulphur	mg.l ⁻¹	A	34.5	-	-	-
1630	Dissolved Methane	mg.l ⁻¹	S-N	0.080	-	-	-
INORG-L01	pH	pH units	A	7.5	-	-	-
INORG-L06.1	BOD	mg.l ⁻¹ as O ₂	A	24.7	-	-	-

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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
Determination of mecoprop in waters by GC-MS (In-house method)	ORG-L17	ISO 17025
Determination of xylene in waters by GC-MS (In-house method)	ORG-L05	None

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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.

All results only relate to the samples as received.

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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