

Golder Associates (UK) Limited

Attenborough House
Browns Lane Business Park
Stanton on the Wolds
Nottinghamshire NG12 5BL
England

Tel: [44] (0)115 9371111
Fax: [44] (0)115 9371100
E-mail: nottingham@golder.com
<http://www.golder.com>



Mr Paul Gibson
Strategic Permitting Officer
The Environment Agency
c/o Motion Media Technology Centre
Aust
Bristol
BS35 4BL

14 February 2006
04529421.250

Dear Paul

WITHYHEDGE LANDFILL PHASE 2, APPLICATION NO. BP3131SG

Thank you for your e-mail dated 6 February 2006 regarding the above. Please find attached a copy of Drawing MON1 showing the location of the monitoring locations for groundwater quality. In response to your query regarding background groundwater quality and control and trigger levels, a detailed discussion is presented below.

BASELINE CONDITIONS

The Environment Agency¹ (2003a) provides the following guidance for initial characterisation monitoring of groundwater:

- *"For most landfills, initial characterisation monitoring should be undertaken for at least 1 year prior to landfill development, and wherever possible, for a longer period."*
- *"The monitoring frequency used during the initial characterisation monitoring period should be sufficient to characterise seasonal variation. Normally quarterly or more frequent (e.g. monthly) sampling will be required."*
- *"In the absence of information to support alternative strategies, at least 16 sets of data should be obtained per uniform water body."*
- *"Where water characteristics are uniform in a water body, samples could reasonably be obtained from a combination of several monitoring points. For example:*
 - *4 monitoring points could be monitored quarterly to obtain 16 samples within a 1 year period;*
 - *3 monitoring points could be monitored every 2 months to obtain 18 samples within a 1 year period."*

Attached are the results of analysis of water samples taken from four boreholes located within the installation boundary. The boreholes (BH101, BH102, BH103 and BH105) have been sampled monthly since May 2005 and will continue to be sampled monthly until at least April 2006. In addition, attached are the results from monitoring borehole BH104 over the same time period and the results of a single round of monitoring from Boreholes GA1 and GA2, located adjacent to the

¹ Environment Agency (2003) Guidance on monitoring of landfill leachate, groundwater and surface water. LFTGN02.

eastern boundary of the Installation. The results of monitoring are considered to be adequate for the purposes of initial characterisation of groundwater as defined by LFTGN02.

DEVELOPMENT OF CONTROL AND TRIGGER LEVELS

Control and Trigger Levels

The Landfill Regulations (2002) require that groundwater control and trigger levels be set for potentially polluting substances. Control levels are defined² as “*specific assessment criteria, as defined by the Environment Agency relating to groundwater or other relevant parameters, which are used to determine whether a landfill is performing as designed.*”

Trigger levels for potentially polluting substances “*are to be set at the point where pollution can be said to have occurred and can be detected by monitoring.*” And that “*Trigger levels should be used to determine that the landfill site will not cause pollution. This means that a change in water quality to a concentration below the trigger levels would be acceptable, but one at or above the trigger level would not be acceptable.*”

Approach

As described in our response to Question 12 of the Schedule 4 Notice dated 20 December 2005, monitoring boreholes BH1, BH2, BH3, BH20, BH21, BH22 and BH23 will be installed within six months of permit issue. Boreholes GA1 and GA2 have been installed and will become borehole BH22 and BH23, respectively. Depending on its precise location, Borehole AIGBH102 may become borehole BH3.

The groundwater quality close to Phase 1 of Withyhedgelandfill can be expected to be spatially variable as a result of historical leakage from the landfill. We are therefore reluctant to define trigger and control levels for boreholes that have yet to be installed and monitored throughout a seasonal cycle around Area A (BH1, BH2, BH3, BH20, BH21, BH22 and BH23). Instead, we request that interim trigger and control levels and an associated response plan are defined by the Permit and an Improvement Condition included that requires borehole specific trigger and control levels to be developed for Boreholes BH1, BH2, BH3, BH20, BH21, BH22 and BH23 once one year of monitoring data has been collected.

Interim Trigger and Control Levels

The attached data have been analysed and the following interim trigger and control levels are proposed for the priority contaminants considered in the Hydrogeological Risk Assessment.

Table 1: Interim Trigger and Control Levels

Determinand	Trigger Level	Control Level
Ammoniacal nitrogen	3 mg/l ³	0.39 mg/l ²
Chloride	250 mg/l ²	125 mg/l ⁴
Cadmium	0.4 µg/l ¹	-
Mecoprop	0.01 µg/l ¹	-
Naphthalene	1 µg/l ¹	-
Nickel	20 µg/l ²	10 µg/l ⁴
Phenol	1 µg/l ¹	-

² Environment Agency, 2003b. Hydrogeological Risk Assessments for Landfills and the Derivation of Groundwater Control and Trigger Levels. LFTGN01.

Notes:

1. Laboratory detection limit.
2. Maximum admissible concentration in drinking water (SI2000/3184)
3. Sporadically high concentrations are observed (e.g. August 2005) and are probably associated with grazing cattle.
4. Set at half the trigger level.

Interim Response Plan

The following interim response is proposed in the event that a trigger or control value is exceeded.

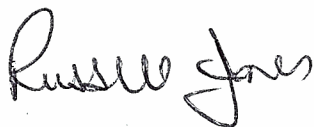
Table 2: Proposed Interim Response Plan in the Event of a Breached Trigger Level or Control Level

Contingency action	Following a breach of a	
	Control level	Trigger level
Advise site management.	✓	✓
Advise environmental manager of landfill operating company.	✓	✓
Advise Environment Agency.		✓
Review existing monitoring information, site management and operations to ascertain if the Installation is responsible for the exceedance.	✓	✓
If necessary, implement actions to prevent future failure of trigger level.	✓	
Set in place procedures for implementing corrective measures in consultation with the Agency, which may include development of interim borehole specific trigger and control levels.		✓

CLOSURE

We trust that the above fully answers your queries, however should you have any further queries, please contact the undersigned.

Yours sincerely
GOLDER ASSOCIATES (UK) LIMITED

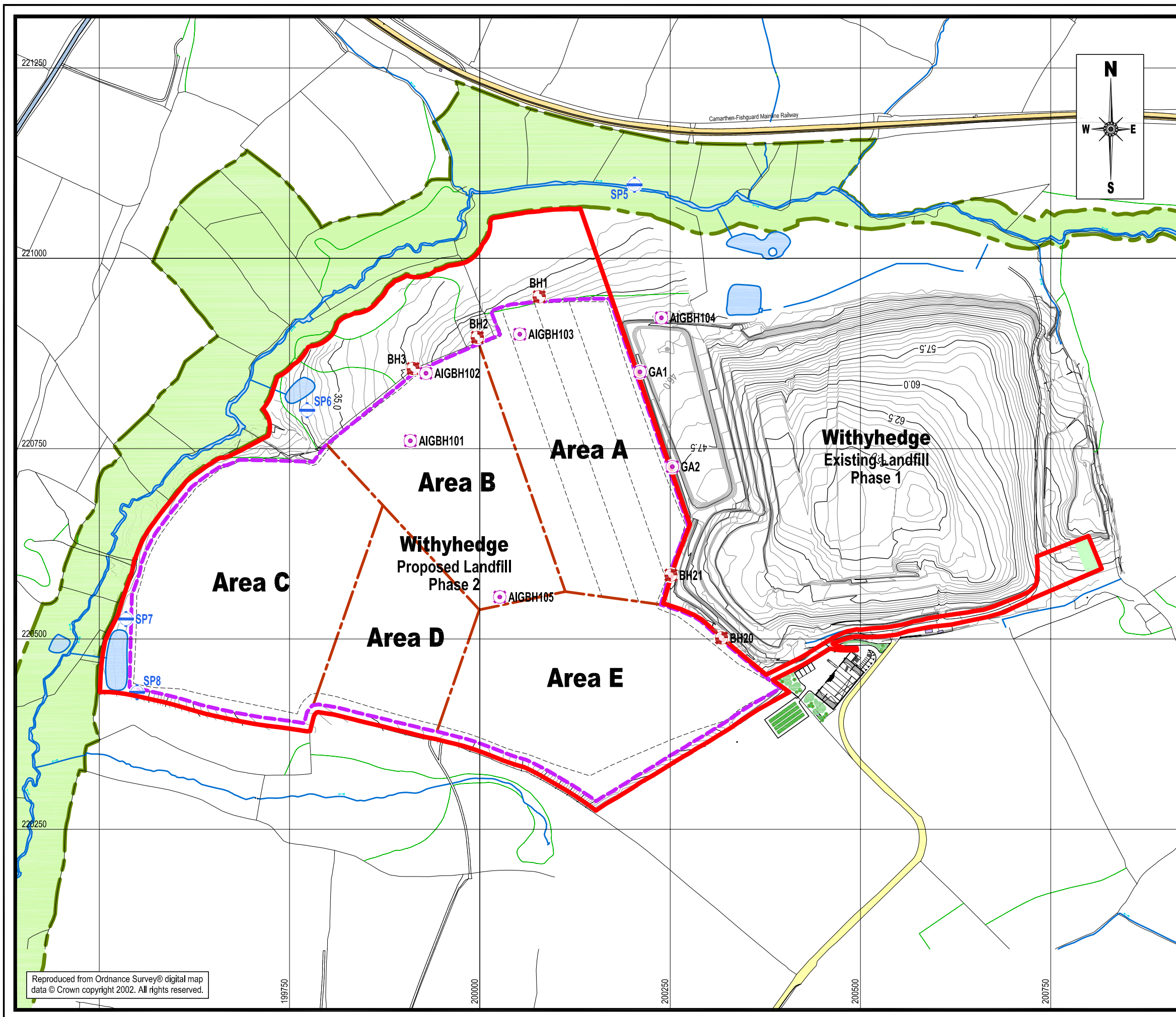


Dr DRV Jones
Principal

Attachments: Drawing MON1
Summary of groundwater quality monitoring results

cc: Mr John Starmer, RML

DRVJ/jpw



LEGEND

- Installation boundary
- Limit of waste disposal
- Afonydd Cleddau SAC boundary
- Ground contour (mAOD)
- Break of slope
- Existing combined landfill gas and groundwater monitoring well
- Proposed combined landfill gas and groundwater monitoring well
- Surface water monitoring point



Resources Management UK Limited
Withyhedge Landfill, Bowling Farm
Rudbaxton, Haverfordwest SA62 4DB

Project

PPC Permit Application

Location

Withyhedge Landfill Phase 2

Title

Monitoring Locations

Project No. 04529421

Engineer

W.L.

Drawing No.

File No. 5225354

Reviewed by

A.B.

MON 1

Scale 1:5,000

Date 14th February 2006



		BH101	BH102	BH103	BH104	BH105
Determinant						
MBGL		1.61	0.93	3.11	1.69	0.51
Temp	C	13.9	14.3	14.7	14.4	14.6
pH		5.85	5.63	6.55	6.97	6.91
Conductivity	uS/cm	88	137	305	328	347
Ammoniacal N	mg/l	<0.5	<0.5	<0.5	<0.5	<0.5
BOD	mg/l	4.5	1.9	2.3	4.8	4.9
COD	mg/l	<10	<10	<10	<10	<10
Chloride	g/l	<0.01	<0.01	<0.01	<0.01	<0.01
Cyanide	µg/l					
Calcium	mg/l					
Magnesium	mg/l					
Sodium	mg/l					
Potassium	mg/l					
Nickel	µg/l					
Chromium	µg/l					
Cadmium	µg/l					
Copper	µg/l					
Lead	µg/l					
Zinc	µg/l					
Manganese	mg/l					
Iron	mg/l					
Arsenic	µg/l					
Mercury	µg/l					
Nitrate	mg/l					
Nitrite	mg/l					
Sulphate as SO4	mg/l					
Sulphide	µg/l					
Susp. Solids	mg/l					
Dissolved O2	mg/l	9.3	9.7	9.4	7.7	5.9

		BH101	BH102	BH103	BH104	BH105
Determinant						
MBGL		1.46	1.22	3.65	2.1	1.05
Temp	C	20.3	21.4	21.5	21.9	22.5
pH		5.39	5.42	6.59	6.99	6.72
Conductivity	uS/cm	93	139	301	388	396
Ammoniacal N	mg/l	0.1	0.2	0.1	0.1	0.1
BOD	mg/l	<1	<1	<1	<1	<1
COD	mg/l	<10	<10	<10	<10	<10
Chloride	g/l	33	12	10	12	12
Cyanide	µg/l					
Calcium	mg/l					
Magnesium	mg/l					
Sodium	mg/l					
Potassium	mg/l					
Nickel	µg/l					
Chromium	µg/l					
Cadmium	µg/l					
Copper	µg/l					
Lead	µg/l					
Zinc	µg/l					
Manganese	mg/l					
Iron	mg/l					
Arsenic	µg/l					
Mercury	µg/l					
Nitrate	mg/l					
Nitrite	mg/l					
Sulphate as SO4	mg/l					
Sulphide	µg/l					
Susp. Solids	mg/l					
Dissolved O2	mg/l	5.6	7	7.4	4.9	3.3

		BH101	BH102	BH103	BH104	BH105
Determinant						
MBGL		1.65	1.62	3.98	2.52	1.33
Temp	C	17.4	17.7	16.8	17.9	18.4
pH		5.76	5.58	6.29	6.84	6.96
Conductivity	uS/cm	88	124	192	405	346
Ammoniacal N	mg/l	<0.02	<0.02	<0.02	<0.02	<0.02
BOD	mg/l	27	42	30	28	34
COD	mg/l	<10	<10	<10	<10	<10
Chloride	g/l	0.05	0.01	0.01	0.01	0.01
Cyanide	µg/l	<40	<40	<40	<40	<40
Calcium	mg/l	7	15	27	70	53
Magnesium	mg/l	3	2	5	4	7
Sodium	mg/l	11	9	14	16	17
Potassium	mg/l	1	0	1	1	1
Nickel	µg/l	20	<10	<10	<10	<10
Chromium	µg/l	<10	<10	<10	<10	100
Cadmium	µg/l	<2	<2	<2	<2	<2
Copper	µg/l	4	2	<2	3	8
Lead	µg/l	<10	<10	<10	<10	40
Zinc	µg/l	210	130	150	77	170
Manganese	mg/l	0	<1	<1	<1	0
Iron	mg/l	290	<100	130	300	<100
Arsenic	µg/l	<1	<1	<1	<1	1
Mercury	µg/l	<0.2	<0.2	<0.2	<0.2	<0.2
Nitrate	mg/l	2.5	11	5.2	<1	1.7
Nitrite	mg/l	<1	2.4	2.5	2.8	1.8
Sulphate as SO4	mg/l					
Sulphide	µg/l	<500	<500	<500	<500	<500
Susp. Solids	mg/l					
Dissolved O2	mg/l	6.4	7.7	9.6	1.1	8.2

		BH101	BH102	BH103	BH104	BH105
Determinant						
MBGL		1.58	1.63	3.92	2.33	0.97
Temp	C	17.7	17.6	17.5	18.2	17.5
pH		5.12	5.4	6.49	6.83	6.91
Conductivity	uS/cm	102	128	227	425	347
Ammoniacal N	mg/l	0.11	2.7	0.48	0.28	0.05
BOD	mg/l	<2	<2	<2	2.2	<2
COD	mg/l	54	34	<10	160	<10
Chloride	g/l	<0.01	<0.01	<0.01	<0.01	<0.01
Cyanide	µg/l					
Calcium	mg/l					
Magnesium	mg/l					
Sodium	mg/l					
Potassium	mg/l					
Nickel	µg/l					
Chromium	µg/l					
Cadmium	µg/l					
Copper	µg/l					
Lead	µg/l					
Zinc	µg/l					
Manganese	mg/l					
Iron	mg/l					
Arsenic	µg/l					
Mercury	µg/l					
Nitrate	mg/l					
Nitrite	mg/l					
Sulphate as SO4	mg/l					
Sulphide	µg/l					
Susp. Solids	mg/l					
Dissolved O2	mg/l	10	10	9.8	9.8	10

		BH101	BH102	BH103	BH104	BH105	GA1	GA2
Determinant								
MBGL		1.68	1.55	3.86	2.4	0.85	3.36	3.5
Temp	C	14.3	14	13	14.2	15.1	14.3	13.3
pH		6.23	5.78	6.22	6.47	6.69	6.64	6.58
Conductivity	uS/cm	79	163	223	417	360	123	249
Ammoniacal N	mg/l	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	0.03
BOD	mg/l	<3	<3	4	<3	<3	<3	<3
COD	mg/l	11	<10	<10	<10	<10	<10	<10
Chloride	g/l	0.04	0.02	0.02	0.02	0.02	0.02	0.02
Cyanide	µg/l							
Calcium	mg/l							
Magnesium	mg/l							
Sodium	mg/l							
Potassium	mg/l							
Nickel	µg/l							
Chromium	µg/l							
Cadmium	µg/l							
Copper	µg/l							
Lead	µg/l							
Zinc	µg/l							
Manganese	mg/l							
Iron	mg/l							
Arsenic	µg/l							
Mercury	µg/l							
Nitrate	mg/l							
Nitrite	mg/l							
Sulphate as SO4	mg/l							
Sulphide	µg/l							
Susp. Solids	mg/l							
Dissolved O2	mg/l	6	7.1	5.7	5.8	3.6	4.9	5.5

		BH101	BH102	BH103	BH104	BH105	GA1	GA2
Determinant								
MBGL		0.75	0.56	1.55	1.85	0.4	3.05	3.32
Temp	C	17	17.1	16.5	15.8	15.7	14.5	14.1
pH		7.54	6.93	6.94	6.63	6.9	6.71	6.57
Conductivity	uS/cm	155	105	331	370	330	131	295
Ammoniacal N	mg/l	0.05	<0.02	<0.02	0.02	0.04	<0.02	<0.02
BOD	mg/l	<3	3.3	<3	<3	<3	<3	<3
COD	mg/l	<10	<10	<10	<10	<10	<10	<10
Chloride	g/l	0.04	0.02	15	16	17	17	20
Cyanide	µg/l	<40	<40	<40	<40	<40	<40	<40
Calcium	mg/l	19	2.7	81	91	63	4.2	39
Magnesium	mg/l	2.1	3.3	1.6	2.3	6.9	1.6	5.4
Sodium	mg/l	13	11	11	11	16	15	34
Potassium	mg/l	3	0.8	0.7	3.4	0.9	0.5	1.4
Nickel	µg/l	<10	<10	<10	<10	<10	<10	<10
Chromium	µg/l	28	26	30	35	25	25	26
Cadmium	µg/l	<2	<2	<2	<2	<2	<2	<2
Copper	µg/l	5	3	3	6	2	<2	3
Lead	µg/l	18	16	19	19	17	16	16
Zinc	µg/l	84	10	<1	<1	<1	8	7
Manganese	mg/l	0.17	<0.01	<0.01	<0.01	0.21	0.12	0.25
Iron	mg/l	<100	<100	140	1100	110	310	<100
Arsenic	µg/l	<1	<1	<1	<1	<1	<1	<1
Mercury	µg/l	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Nitrate	mg/l	16	6.8	14	5.3	2	1	1.9
Nitrite	mg/l	<1	<1	<1	<1	<1	<1	<1
Sulphate as SO4	mg/l	18	14	11	15	12	<10	32
Sulphide	µg/l	<500	<500	<500	1600	<500	<500	<500
Susp. Solids	mg/l							
Dissolved O2	mg/l	6.9	4	7.7	4.5	4	4.6	5.7

		BH101	BH102	BH103	BH104	BH105	GA1	GA2
Determinant		NS	NS			NS		
MBGL				1.58	0.7		1.12	1.41
Temp	C			12.1	11.4		11.7	11.8
pH				6.75	6.49		6.61	5.84
Conductivity	uS/cm			280	357		103	158
Ammoniacal N	mg/l			<0.02	<0.02		<0.02	0.05
BOD	mg/l			1.4	<1		<1	4.1
COD	mg/l			80	13		<10	<10
Chloride	g/l			0.06	0.02		0.02	0.02
Cyanide	µg/l							
Calcium	mg/l							
Magnesium	mg/l							
Sodium	mg/l							
Potassium	mg/l							
Nickel	µg/l							
Chromium	µg/l							
Cadmium	µg/l							
Copper	µg/l							
Lead	µg/l							
Zinc	µg/l							
Manganese	mg/l							
Iron	mg/l							
Arsenic	µg/l							
Mercury	µg/l							
Nitrate	mg/l							
Nitrite	mg/l							
Sulphate as SO4	mg/l							
Sulphide	µg/l							
Susp. Solids	mg/l							
Dissolved O2	mg/l			9.3	8.2		7.9	9.8

		BH101	BH102	BH103	BH104	BH105	GA1	GA2
Determinant								
MBGL		0.6	0.83	2.58	1.03	0.61	1.63	1.71
Temp	C	9	9.1	9.1	8.6	8.8	9.2	10.3
pH		5.98	5.31	6.89	6.19	6.74	6.24	5.7
Conductivity	uS/cm	98	117	291	358	302	100	164
Ammoniacal N	mg/l	<0.02	<0.02	0.1	<0.02	<0.02	<0.02	<0.02
BOD	mg/l	<1	2.1	2.5	<1	2.1	<1	<1
COD	mg/l	30	48	30	28	26	30	27
Chloride	g/l	0.04	0.02	0.01	0.02	0.02	0.02	0.02
Cyanide	µg/l							
Calcium	mg/l							
Magnesium	mg/l							
Sodium	mg/l							
Potassium	mg/l							
Nickel	µg/l							
Chromium	µg/l							
Cadmium	µg/l							
Copper	µg/l							
Lead	µg/l							
Zinc	µg/l							
Manganese	mg/l							
Iron	mg/l							
Arsenic	µg/l							
Mercury	µg/l							
Nitrate	mg/l							
Nitrite	mg/l							
Sulphate as SO4	mg/l							
Sulphide	µg/l							
Susp. Solids	mg/l							
Dissolved O2	mg/l	8.8	9.5	9.7	8.4	6.8	7.4	6.6

ALcontrol Geochem Analytical Services

Table Of Results - Appendix

Job Number: 05/12028/02/01
Client: Golder Associates (UK) Limited
Client Ref. No.:

Report Key :

NDP No Determination Possible * Subcontracted test
 NFD No Fibres Detected » Result previously reported (Incremental reports only)
 # ISO 17025 accredited M MCERTS Accredited
 PFD Possible Fibres Detected EC Equivalent Carbon (Aromatics C8-C35)

Note: Method detection limits are not always achievable due to various circumstances beyond our control.

Summary of Method Codes contained within report :

Method No.	Reference	Description	Accredited ISO 17025	Accredited MCERTS	Wet/Dry Sample ¹	Surrogate Corrected
PENDING		method details are pending			NA	
TM019	Modified: US EPA Method 9056	Determination of anions using ion chromatography			NA	
TM045	MEWAM BOD5 2nd Ed.HMSO 1988 / Method 5210B, AWWA/APHA, 20th Ed., 1999	Determination of BOD5 (ATU) by Oxygen Meter	✓		NA	
TM061	Method for the Determination of EPH,Massachusetts Dept.of EP, 1998	Determination of Extractable Petroleum Hydrocarbons by GC-FID (C10-C40)	✓		NA	
TM090	Method 5310, AWWA/APHA, 20th Ed., 1999 / Modified: US EPA Method 415.1 & 9060	Determination of Total Organic Carbon/Total Inorganic Carbon in Water and Waste Water	✓		NA	
TM097	Modified: US EPA Method 325.1 & 325.2	Determination of Chloride using the Kone Analyser	✓		NA	
TM099	BS 2690: Part 7:1968 / BS 6068: Part2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser	✓		NA	
TM100	BS 2690: Part 105:1983	Determination of Phosphate using the Kone Analyser	✓		NA	
TM103	Method 4500H, AWWA/APHA, 20th Ed., 1999	Determination of Nitrite using the Kone Analyser	✓		NA	
TM104	Method 4500F, AWWA/APHA, 20th Ed., 1999	Determination of Fluoride using the Kone Analyser	✓		NA	
TM107	ISO 6060-1989	Determination of Chemical Oxygen Demand using COD Dr Lange Kit	✓		NA	
TM116	Modified: US EPA Method 8260, 8120, 8020, 624, 610 & 602	Determination of Volatile Organic Compounds by Headspace / GC-MS			NA	
TM116	Modified: US EPA Method 8260, 8120, 8020, 624, 610 & 602	Determination of Volatile Organic Compounds by Headspace / GC-MS	✓		NA	
TM127	Method 3112B, AWWA/APHA, 20th Ed., 1999	The Determination of Trace Level Mercury in Aqueous Media and Soil Extracts by Atomic Absorption Spectroscopy	✓		NA	

¹ Applies to Solid samples only. **DRY** indicates samples have been dried at 35°C. **NA** = not applicable.

ALcontrol Geochem Analytical Services

Table Of Results - Appendix

Job Number: 05/12028/02/01
Client: Golder Associates (UK) Limited
Client Ref. No.:

Report Key :

Results expressed as (e.g.) 1.03E-07 is equivalent to 1.03x10⁻⁷

NDP No Determination Possible * Subcontracted test
NFD No Fibres Detected » Result previously reported (Incremental reports only)
ISO 17025 accredited M MCERTS Accredited
PFD Possible Fibres Detected EC Equivalent Carbon (Aromatics C8-C35)

Note: Method detection limits are not always achievable due to various circumstances beyond our control.

Summary of Method Codes contained within report :

Method No.	Reference	Description	ISO 17025 Accredited	MCERTS Accredited	Wet/Dry Sample ¹	Surrogate Corrected
TM129	Method 3120B, AWWA/APHA, 20th Ed., 1999 / Modified: US EPA Method 3050B	Determination of Metal Cations by IRIS Emission Spectrometer	✓		NA	
TM143	Modified: US EPA Method 8270C	Determination of Semivolatile Organic Compounds by GC-MS			NA	
TM143	Modified: US EPA Method 8270C	Determination of Semivolatile Organic Compounds by GC-MS			NA	
TM144	Modified: US EPA Method 8081A	Organochlorine pesticides by GC-MS			NA	
TM145	MEWAM BOOK 60 1980,95 1985, HMSO / Modified: US EPA Method 8141A	Organophosphorus pesticides by GC-MS			NA	
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS			NA	
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS	✓		NA	
TM153	Method 4500A,B,C, I, M AWWA/APHA, 20th Ed., 1999	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate using the "Skalar SANS+ System" Segmented Flow Analyser	✓		NA	

¹ Applies to Solid samples only. **DRY** indicates samples have been dried at 35°C. **NA** = not applicable.

ALcontrol Geochem Analytical Services Table Of Results - Appendix

Job Number: 05/12028/02/01
Client: Golder Associates (UK) Limited
Client Ref. No.:

Summary of Coolbox temperatures

[illegible]

ALcontrol Geochem

Extractable Petroleum Hydrocarbons (EPH) By GC-FID

Mineral Oil - Carbon Range C10-C40

Job Number : 05/12028/02/01

Client : Golder Associates (UK) Limited

Client Ref :

Matrix [Units] : LIQUID [ug/l]

[illegible]

Mineral Oil :- Aliphatic compounds in the range C10-C40 which are not retained on Silica.

11

Table Of Results

ISO 17025 accredited

^M MCERTS accredited

* Subcontracted test

» Shown on prev. report

Job Number: 05/12028/02/01

Matrix: LIQUID

Client: Golder Associates (UK) Limited **Location:** Withyhedge Landfill

Client Ref. No.: **Client Contact:** Richard Lansley

Sample Identity	GA1	GA2	GAL 1							Method Code	LoD/Units
Depth (m)											
Sample Type	WATER	WATER	WATER								
Sampled Date											
Sample Received Date	13.08.05	13.08.05	13.08.05								
Batch	1	1	1								
Sample Number(s)	1-8	9-14,23-24	15-22								
Antimony Dissolved (ICP-MS)	<5	<5	8							TM152 [#]	<5 ug/l
Arsenic Dissolved (ICP-MS)	1	3	42							TM152 [#]	<1 ug/l
Barium Dissolved (ICP-MS)	42	44	166							TM152 [#]	<1 ug/l
Beryllium Dissolved (ICP-MS)	<1	<1	<1							TM152 [#]	<1 ug/l
Boron Dissolved (ICP-MS)	<10	35	3083							TM152 [#]	<10 ug/l
Cadmium Dissolved (ICP-MS)	<0.4	<0.4	<0.4							TM152 [#]	<0.4 ug/l
Chromium Dissolved (ICP-MS)	<1	4	258							TM152 [#]	<1 ug/l
Cobalt Dissolved (ICP-MS)	2	1	42							TM152 [#]	<1 ug/l
Copper Dissolved (ICP-MS)	<1	1	1							TM152 [#]	<1 ug/l
Lead Dissolved (ICP-MS)	<1	<1	<1							TM152 [#]	<1 ug/l
Molybdenum Dissolved (ICP-MS)	<1	7	6							TM152 [#]	<1 ug/l
Nickel Dissolved (ICP-MS)	11	3	164							TM152 [#]	<1 ug/l
Phosphorus Dissolved (ICP-MS)	<10	92	7741							TM152 [#]	<10 ug/l
Selenium Dissolved (ICP-MS)	2	2	22							TM152 [#]	<1 ug/l
Silver Dissolved (ICP-MS)	<1	<1	<1							TM152 [#]	<1 ug/l
Tellurium Dissolved (ICP-MS)	<1	<1	1							TM152 [#]	<1 ug/l
Thallium Dissolved (ICP-MS)	<1	<1	<1							TM152 [#]	<1 ug/l
Tin Dissolved (ICP-MS)	3	3	31							TM152 [#]	<1 ug/l
Titanium Dissolved (ICP-MS)	<1	<1	157							TM152 [#]	<1 ug/l
Uranium Dissolved (ICP-MS)	<1	3	<1							TM152	<1 ug/l
Vanadium Dissolved (ICP-MS)	<1	2	45							TM152 [#]	<1 ug/l
Zinc Dissolved (ICP-MS)	24	23	22							TM152 [#]	<3 ug/l
Mercury Dissolved (CVAA)	<0.05	<0.05	<0.05							TM127 [#]	<0.05 ug/l
Silicon Dissolved	5.42	3.95	13.44							TM129 [#]	<0.05 mg/l
BOD	<1	61	>161							TM045 [#]	<1 mg/l
COD	2210	1470	241							TM107 [#]	<10 mg/l
Nitrite as NO2	<0.05	0.08	-							TM103 [#]	<0.05 mg/l
Chloride	19	30	1077							TM097 [#]	<1 mg/l
Fluoride	<0.5	<0.5	-							TM104 [#]	<0.5 mg/l
Phosphate (Ortho as PO4)	<0.08	<0.08	18.43							TM100 [#]	<0.08 mg/l
Ammoniacal Nitrogen as N	0.6	0.7	1175.9							TM099 [#]	<0.2 mg/l

Date 31.08.2005

Validated

Preliminary



ALcontrol Geochem Analytical Services

^{##} ISO 17025 accredited

^M MCERTS accredited

* Subcontracted test

» Shown on prev. report

Job Number:

05/12028/02/01

Matrix:

LIQUID

Client:

Golder Associates (UK) Limited

Location:

Withyhedge Landfill

Client Ref. No.:

Client Contact:

Richard Lansley

[illegible]

Date _____

31.08.2005

Validated

Preliminary



ALcontrol Geochem Analytical Services

[#] ISO 17025 accredited

^M MCERTS accredited

* Subcontracted test

» Shown on prev. report

Job Number: 05/12028/02/01

Matrix: LIQUID

Client: Golder Associates (UK) Limited **Location:** Withyhedge Landfill

Client Ref. No.: **Client Contact:** Richard Lansley

[illegible]

Date 31.08.2005

Validated

ALcontrol Geochem Analytical Services

^M MCERTS accredited

* Subcontracted test

» Shown on prev. report

Job Number: 05/12028/02/01

Matrix: LIQUID

Client: Golder Associates (UK) Limited **Location:** Withyhedge Landfill

Client Ref. No.: **Client Contact:** Richard Lansley

[illegible]

Date 31.08.2005

Validated

ALcontrol Geochem Analytical Services

ISO 17025 accredited

^M MCERTS accredited

* Subcontracted test

» Shown on prev. report

Job Number: 05/12028/02/01

Matrix: LIQUID

Client: Golder Associates (UK) Limited **Location:** Withyhedge Landfill

Client Ref. No.: **Client Contact:** Richard Lansley

[illegible]

Date 31.08.2005

Validated	☒
Preliminary	☐

ALcontrol Geochem Analytical Services

Table Of Results

ISO 17025 accredited
M MCERTS accredited
* Subcontracted test
» Shown on prev. report

Job Number: 05/12028/02/01

Matrix: LIQUID

Client: Golder Associates (UK) Limited

Location: Withyhedge Landfill

Client Ref. No.:

Client Contact: Richard Lansley

[illegible]

Date 31.08.2005

Validated

ALcontrol Geochem Analytical Services

[#] ISO 17025 accredited

^M MCERTS accredited

* Subcontracted test

» Shown on prev. report

Job Number:

05/12028/02/01

Matrix:

LIQUID

Client:

Golder Associates (UK) Limited

Location:

Withyhedge Landfill

Client Ref. No.:

Client Contact:

Richard Lansley

[illegible]

Date _____

31.08.2005

Validated	☒
Preliminary	☐

ALcontrol Geochem Analytical Services

Table Of Results

[#] ISO 17025 accredited

^M MCERTS accredited

* Subcontracted test

» Shown on prev. report

Job Number: 05/12028/02/01

Matrix: LIQUID

Client: Golder Associates (UK) Limited **Location:** Withyhedge Landfill

Client Ref. No.: **Client Contact:** Richard Lansley

[illegible]

Date 31.08.2005

Validated

Preliminary

ALcontrol Geochem Analytical Services

ISO 17025 accredited

^M MCERTS accredited

* Subcontracted test

» Shown on prev. report

Job Number: 05/12028/02/01

Matrix: LIQUID

Client: Golder Associates (UK) Limited **Location:** Withyhedge Landfill

Client Ref. No.: **Client Contact:** Richard Lansley

Sample Identity	GA1	GA2	GAL 1							Method Code	LoD/Units
Depth (m)											
Sample Type	WATER	WATER	WATER								
Sampled Date											
Sample Received Date	13.08.05	13.08.05	13.08.05								
Batch	1	1	1								
Sample Number(s)	1-8	9-14,23-24	15-22								
Volatile Organic Compounds											
Dichlorodifluoromethane	<1	<1	<1							TM116 [#]	<1 ug/l
Chloromethane	<1	<1	<1							TM116 [#]	<1 ug/l
Vinyl Chloride	<1	<1	<1							TM116 [#]	<1 ug/l
Bromomethane	<1	<1	<1							TM116 [#]	<1 ug/l
Chloroethane	<1	<1	<1							TM116 [#]	<1 ug/l
Trichlorofluoromethane	<1	<1	<1							TM116 [#]	<1 ug/l
trans-1-2-Dichloroethene	<1	<1	<1							TM116 [#]	<1 ug/l
Dichloromethane	<1	<1	<1							TM116 [#]	<1 ug/l
Carbon Disulphide	<1	<1	<1							TM116 [#]	<1 ug/l
1,1-Dichloroethene	<1	<1	<1							TM116 [#]	<1 ug/l
1,1-Dichloroethane	<1	<1	<1							TM116 [#]	<1 ug/l
Methyl Tertiary Butyl Ether	<1	<1	<1							TM116 [#]	<1 ug/l
cis-1-2-Dichloroethene	<1	<1	<1							TM116 [#]	<1 ug/l
Bromochloromethane	<1	<1	<1							TM116 [#]	<1 ug/l
Chloroform	<1	<1	<1							TM116 [#]	<1 ug/l
2,2-Dichloropropane	<1	<1	<1							TM116 [#]	<1 ug/l
1,2-Dichloroethane	<1	<1	<1							TM116 [#]	<1 ug/l
1,1,1-Trichloroethane	<1	<1	<1							TM116 [#]	<1 ug/l
1,1-Dichloropropene	<1	<1	<1							TM116 [#]	<1 ug/l
Benzene	<1	<1	<1							TM116 [#]	<1 ug/l
Carbontetrachloride	<1	<1	<1							TM116 [#]	<1 ug/l
Dibromomethane	<1	<1	<1							TM116 [#]	<1 ug/l
1,2-Dichloropropane	<1	<1	<1							TM116 [#]	<1 ug/l
Bromodichloromethane	<1	<1	<1							TM116 [#]	<1 ug/l
Trichloroethene	<1	<1	<1							TM116 [#]	<1 ug/l
cis-1-3-Dichloropropene	<1	<1	<1							TM116 [#]	<1 ug/l
trans-1-3-Dichloropropene	<1	<1	<1							TM116 [#]	<1 ug/l
1,1,2-Trichloroethane	<1	<1	<1							TM116 [#]	<1 ug/l
Toluene	<1	<1	12							TM116 [#]	<1 ug/l
1,3-Dichloropropane	<1	<1	<1							TM116 [#]	<1 ug/l

Date 31.08.2005

Validated	☒
Preliminary	☐

ALcontrol Geochem Analytical Services Table Of Results

[#] ISO 17025 accredited

^M MCERTS accredited

* Subcontracted test

» Shown on prev. report

Job Number: 05/12028/02/01

Matrix: LIQUID

Client: Golder Associates (UK) Limited **Location:** Withyhedge Landfill

Client Ref. No.: **Client Contact:** Richard Lansley

Sample Identity	GA1	GA2	GAL 1								Method Code	L.O.D/Units
Depth (m)												
Sample Type	WATER	WATER	WATER									
Sampled Date												
Sample Received Date	13.08.05	13.08.05	13.08.05									
Batch	1	1	1									
Sample Number(s)	1-8	9-14,23-24	15-22									
Volatile Organic Compounds (cont)												
Dibromochloromethane	<1	<1	<1								TM116 [#]	<1 ug/l
1,2-Dibromoethane	<1	<1	<1								TM116 [#]	<1 ug/l
Tetrachloroethene	<1	<1	<1								TM116 [#]	<1 ug/l
1,1,1,2-Tetrachloroethane	<1	<1	<1								TM116 [#]	<1 ug/l
Chlorobenzene	<1	<1	13								TM116 [#]	<1 ug/l
Ethylbenzene	<1	<1	38								TM116 [#]	<1 ug/l
p/m-Xylene	<1	<1	59								TM116 [#]	<1 ug/l
Bromoform	<1	<1	<1								TM116 [#]	<1 ug/l
Styrene	<1	<1	<1								TM116 [#]	<1 ug/l
1,1,1,2,2-Tetrachloroethane	<1	<1	<1								TM116 [#]	<1 ug/l
o-Xylene	<1	<1	23								TM116 [#]	<1 ug/l
1,2,3-Trichloropropane	<1	<1	<1								TM116 [#]	<1 ug/l
Isopropylbenzene	<1	<1	9								TM116 [#]	<1 ug/l
Bromobenzene	<1	<1	<1								TM116 [#]	<1 ug/l
2-Chlorotoluene	<1	<1	<1								TM116 [#]	<1 ug/l
Propylbenzene	<1	<1	<1								TM116 [#]	<1 ug/l
4-Chlorotoluene	<1	<1	<1								TM116 [#]	<1 ug/l
1,2,4-Trimethylbenzene	<1	<1	29								TM116 [#]	<1 ug/l
4-Isopropyltoluene	<1	<1	16								TM116 [#]	<1 ug/l
1,3,5-Trimethylbenzene	<1	<1	8								TM116 [#]	<1 ug/l
1,2-Dichlorobenzene	<1	<1	<1								TM116 [#]	<1 ug/l
1,4-Dichlorobenzene	<1	<1	<1								TM116 [#]	<1 ug/l
sec-Butylbenzene	<1	<1	<1								TM116 [#]	<1 ug/l
tert-Butylbenzene	<1	<1	<1								TM116 [#]	<1 ug/l
1,3-Dichlorobenzene	<1	<1	<1								TM116 [#]	<1 ug/l
m-Butylbenzene	<1	<1	<1								TM116 [#]	<1 ug/l
1,2-Dibromo-3-chloropropane	<1	<1	<1								TM116 [#]	<1 ug/l
1,2,4-Trichlorobenzene	<1	<1	<1								TM116 [#]	<1 ug/l
Naphthalene	<1	<1	<1								TM116 [#]	<1 ug/l
1,2,3-Trichlorobenzene	<1	<1	<1								TM116 [#]	<1 ug/l

Date 31.08.2005

☒

- # ISO 17025 accredited
- M MCERTS accredited
- * Subcontracted test
- » Shown on prev. report

Client Contact: Richard Lansley

Date 31.08.2005