



QDS Remediation

Midland Road
Masbrough
Rotherham
S61 1TE

Document Ref: Q-05483/RT/01

Philip Robinson
CALDIC (UK) Ltd
Stainsby Close
Holmewood Industrial Estate
Chesterfield
Derbyshire
S42 5UG

Dear Philip,

Re: Peterborough Road, Crowland – July 2017 Site Investigation

1. Introduction

QDS Remediation (QDS) was instructed by Caldic to undertake investigations at the Former Chemical Storage Facility, Peterborough Road, Crowland (the Site). The principal objective of the investigation was to assess and identify current ground conditions and delineate contaminant hotspots. This information would then be used to develop a Remediation Strategy to enable the site to be redeveloped for residential end use.

The works we undertaken week commencing 17th July 2017. They involved the excavation of 11 trial pits and sampling of seven boreholes. Soil and groundwater samples were submitted to an independent laboratory for analysis. The information presented in the letter summaries the works undertaken and results obtained.

2. Determination of Site Investigation Areas

The site has previously been subjected to a remediation programme. However, following these works additional investigations highlighted elevated contaminants within the underlying soils and groundwater; centred around 2 source areas. These are identified as follows:

Hotspot A: located towards that western end of the site, centred on BH103. High concentrations of chlorinated VOC's have historically been detected in soils and groundwater.

Hotspot B: located towards the eastern side of the site, centred on BH107. Lower concentrations of chlorinated VOC contaminants have been detected within a smaller source zone.

Assessment of the site contamination levels was determined through groundwater monitoring of boreholes and trial pitting for soil samples. Contamination levels would be assessed for elevated levels of the Contaminants of Concern (CoC's), mainly Tetrachloroethene (PCE), Trichloroethene (TCE) and Trichloroethane (TCA).

Innovation and Leading Edge Solutions

QDS Remediation a division of Hydrock Contracting Ltd

Registration No. 3238802

3. Site Investigation Methodology

Groundwater Monitoring

Groundwater monitoring of seven specified boreholes across the site, and beyond the boundary, were sampled to assess dissolved phase contamination levels. QDS identified the available boreholes both on and off the site, this included; (BH107) 410, 406, 408, 409, BH108, BH201 and BH206. The location of the identified boreholes are shown within Appendix A, drawing Q-05843-02 Trial Pit Location Plan July 2017.

Samples were collected via low flow sampling using a peristaltic pump and analysed at an MCERTS accredited laboratory for TPH level 2 and VOC suite. Further field testing of the wells comprised of DO, EC, pH, Temperature, ReDOX and groundwater level to include any indication of LNAPL or DNAPL.

Trial Pit Investigation

Trial pits were undertaken across the site. These were concentrated around the two hotspots, with additional locations across the wider site also carried out. Trial pits were advanced to a maximum depth of 4m bgl, using a 15t tracked excavator. Samples were collected at 2 or 3 different depths dependant on a visual assessment/ field readings of the soil arising.

Soils were submitted to at a MCERTS accredited laboratory for analysis. Field testing of the soils were conducted comprising headspace readings, visual and olfactory testing. Sample notes and headspace readings were noted within the trial pit logs, Appendix C. Each location was backfilled with the arisings on completion.

4. Site Investigation Findings

Groundwater Findings

Prior to sampling each borehole was monitored to confirmed depth to water (DTW), the depth to base (DTB) and if any Non-Aqueous Phase Liquid (NAPL) was present. A summary of these results is presented in Table 1 below:

Borehole	DTW	DTB	Comments
404	2.64	2.64	Dry
406	0.9	Blocked	Organic odour. Blocked by bailer
BH201	2.6	3.47	Slight sweet odour
BH108	1.65	2.79	
BH206	2.57	3.97	Sulphurous odour
(BH107) 410	2.79	3.87	Sulphurous odour
409	1.46	4.03	
408	1.16	2.37	Organic odour

Table 1: Field monitoring results

On-site field testing through visual and olfactory assessment of the waters identified no free phase product (LNAPL or DNAPL) during sampling. But, it highlighted organic odours in boreholes 408 and 406, sulphurous odours within BH206 and 410 and a sweet odour within borehole BH201.

Water depths identified during sampling works suggested a potential difference in depths across site. Boreholes to the east presenting water at around 2.5m bgl (BH108 being the exception) and boreholes to the west presenting water at around 1.3m bgl average. However, this observation is based on a minimal data especially on the limited boreholes tested to the western side of site.

Groundwater samples were then collected. Table 2 below summarise the main results:

Contaminant	Measured Concentration	(BH107) 410	406	408	409	BH108	BH201	BH206
1,1,1-Trichloroethane	µg/l	8.05	<1	136	3370	<1	<1	<1
1,1,2-Trichloroethane	µg/l	<1	<1	16.5	148	<1	<1	<1
1,2-Dichloroethane	µg/l	1	5.11	3.99	135	1	1	1
Benzene	µg/l	<1	<1	<1	2.8	<1	<1	<1
Dichloromethane	µg/l	3	3	3	2880	3	3	3
Ethylbenzene	µg/l	<1	<1	<1	<1	<1	<1	<1
m,p-Xylene	µg/l	<1	<1	<1	<1	<1	<1	<1
o-Xylene	µg/l	<1	<1	<1	<1	<1	<1	<1
Tetrachloroethene	µg/l	<1	<1	62.7	9010	1.27	10.8	4.5
Toluene	µg/l	<1	<1	<1	2.11	<1	<1	<1
Trichloroethene	µg/l	1.04	1	335	50800	1.58	9.82	5.05
Vinyl chloride	µg/l	3.75	1	245	30.4	1	1	1350

Table 2: Groundwater results summary

Laboratory analysis highlighted elevated concentrations of the CoC's within boreholes 408, 409 and BH206. BH206 is located with Hotspot B within the eastern part of site and showed elevated concentrations of vinyl chloride (VC). Boreholes 408 and 409 are situated to the western extent of site, with 409 being on the western boundary of the expected Hotspot A and recorded the highest concentrations. Borehole 408 is located outside the perimeter of site. Full laboratory results can be found in Appendix B.

Trial Pit Investigation Findings

Tables 3 and 4 below summarise the laboratory results for the soils. These have been split to assess the soils within the first meter of site and then those below 1 metre.

Contaminant	Concentration	LOD	TP1	TP2	TP3	TP6	TP8	TP12
			0.90	1.00	0.70	0.80	0.80	1.00
Vinyl Chloride	µg/kg	<6	<60	<60	<60	<60	<60	<60
Dichloromethane	µg/kg	<10	<100	<100	<100	<100	<100	<100
1,1,1-Trichloroethane	µg/kg	<7	1970	4030	331	<70	<70	<70
1,2-Dichloroethane	µg/kg	<5	<50	<50	<50	<50	<50	<50
Benzene	µg/kg	<9	<90	<90	<90	<90	<90	<90
Trichloroethene	µg/kg	<9	32100	30800	1880	2380	651	168
Toluene	µg/kg	<7	<70	<70	<70	<70	<70	<70
1,1,2-Trichloroethane	µg/kg	<10	<100	<100	<100	<100	<100	<100
Tetrachloroethene	µg/kg	<5	289000	415000	11600	17700	3440	324
Ethylbenzene	µg/kg	<4	<40	<40	<40	<40	<40	<40
p/m-Xylene	µg/kg	<10	<100	<100	<100	<100	<100	<100
o-Xylene	µg/kg	<10	<100	<100	<100	<100	<100	<100
Contaminant	Concentration	LOD	TP13	TP14	TP15	TP17	TP21	
			0.60	1.00	0.80	0.90	0.90	
Vinyl Chloride	µg/kg	<6	<60	<60	<60	<60	<60	
Dichloromethane	µg/kg	<10	<100	<100	<100	<100	<100	
1,1,1-Trichloroethane	µg/kg	<7	<70	<70	<70	1410	<70	
1,2-Dichloroethane	µg/kg	<5	<50	<50	<50	<50	<50	
Benzene	µg/kg	<9	<90	<90	<90	<90	<90	
	µg/kg	<9	<90	122	168	<90	531	
	µg/kg	<7	<70	<70	<70	88.8	<70	
1,1,2-Trichloroethane	µg/kg	<10	<100	<100	<100	<100	<100	
Tetrachloroethene	µg/kg	<5	111	3420	3810	520	3570	
Ethylbenzene	µg/kg	<4	<40	<40	<40	3750	<40	
p/m-Xylene	µg/kg	<10	<100	<100	<100	9260	<100	
o-Xylene	µg/kg	<10	<100	<100	<100	1610	<100	

Table 3: <1m Soil Samples Summary

The trial pit data shows that the concentrations of CoC's within the top one metre are most prevalent within TP1 and TP2 with the highest concentrations being PCE and TCE. The laboratory data shows that concentrations above the limits of detection are present in all samples, with the highest values seen within the western area of the site. Soil samples in TP6 also identify elevated concentrations of the CoC's within the imported backfill placed during previous remediation works.

Contaminant	Concentration	LOD	TP1	TP1	TP2	TP2	TP2	TP3	TP3
			2	3	1	2.4	4	1.6	2.4
Vinyl Chloride	µg/kg	<6	7660	<6	<60	<60	<6	<60	<60
Dichloromethane	µg/kg	<10	<100	<10	<100	223	257	<100	<100
1,1,1-Trichloroethane	µg/kg	<7	<70	9.44	4030	231000	227	161000	50800
1,2-Dichloroethane	µg/kg	<5	<50	<5	<50	838	83.6	<50	<50
Benzene	µg/kg	<9	<90	<9	<90	<90	<9	<90	<90
Trichloroethene	µg/kg	<9	2540	1640	30800	394000	1870	212000	251000
Toluene	µg/kg	<7	128	<7	<70	<70	<7	<70	<70
1,1,2-Trichloroethane	µg/kg	<10	<100	<10	<100	2690	93	<100	<100
Tetrachloroethene	µg/kg	<5	1600	3150	415000	2250000	54000	1220000	3320000
Ethylbenzene	µg/kg	<4	2690	<4	<40	<40	<4	<40	<40
p/m-Xylene	µg/kg	<10	7540	<10	<100	<100	<10	<100	<100
o-Xylene	µg/kg	<10	3810	<10	<100	<100	<10	<100	<100
Contaminant	Concentration	LOD	TP4	TP4	TP6	TP8	TP12	TP12	TP13
			1.2	2	2.5	1.9	1	3	3
Vinyl Chloride	µg/kg	<6	737	515	<60	<6	<60	<60	<6
Dichloromethane	µg/kg	<10	<100	<100	165	<10	<100	<100	<10
1,1,1-Trichloroethane	µg/kg	<7	<70	<70	2920	2190	<70	<70	<7
1,2-Dichloroethane	µg/kg	<5	<50	<50	<50	<5	<50	<50	<5
Benzene	µg/kg	<9	<90	<90	<90	<9	<90	<90	<9
Trichloroethene	µg/kg	<9	<90	<90	17100	3420	168	<90	34.6
Toluene	µg/kg	<7	<70	<70	<70	<7	<70	<70	<7
1,1,2-Trichloroethane	µg/kg	<10	<100	<100	<100	167	<100	<100	<10
Tetrachloroethene	µg/kg	<5	<50	<50	21300	859	324	382	120
Ethylbenzene	µg/kg	<4	<40	<40	<40	<4	<40	<40	<4
p/m-Xylene	µg/kg	<10	<100	<100	<100	<10	<100	<100	<10
o-Xylene	µg/kg	<10	<100	<100	<100	<10	<100	<100	<10
Contaminant	Concentration	LOD	TP14	TP14	TP15	TP17	TP17	TP21	TP21
			1	3	3.6	1.8	3.5	2.5	4
Vinyl Chloride	µg/kg	<6	<60	<60	<60	<60	<60	<60	<60
Dichloromethane	µg/kg	<10	<100	<100	<100	<100	<100	<100	<100
1,1,1-Trichloroethane	µg/kg	<7	<70	<70	<70	<70	<70	<70	<70
1,2-Dichloroethane	µg/kg	<5	<50	<50	<50	<50	<50	<50	<50
Benzene	µg/kg	<9	<90	<90	<90	<90	<90	<90	<90
Trichloroethene	µg/kg	<9	122	792	48300	<90	<90	<90	<90
Toluene	µg/kg	<7	<70	<70	<70	<70	<70	<70	<70
1,1,2-Trichloroethane	µg/kg	<10	<100	<100	<100	<100	<100	<100	<100
Tetrachloroethene	µg/kg	<5	3420	214	39400	1180	<50	<50	<50
Ethylbenzene	µg/kg	<4	<40	<40	<40	<40	<40	<40	<40
p/m-Xylene	µg/kg	<10	<100	<100	<100	<100	<100	<100	<100
o-Xylene	µg/kg	<10	<100	<100	<100	<100	<100	<100	<100

Table 4: >1m Soil samples summary

The trial pit data from deeper samples continues to provide evidence of elevated concentrations with a major plume situated on the western area of site around Hotspot A. The highest concentrations were found with TP2 and TP3 both with significant concentrations of PCE and TCE. No free phase product was identified within trial pits but the concentrations could suggest some may be present.

Visual and olfactory assessments of the soils were conducted during the trial pitting investigations. The contamination was identified as strong chlorinated odours within the clay loam present between one and two metres below ground level. Soils within this banding recorded total VOC levels of 5637 to >15,000ppm on the Photo Ionisation Detector (PID).

QDS Drawing Q-05843-02 in Annex A indicates the localities of the trial pits and the monitored boreholes. Full soil sample data can be found in Appendix B. Photographs of the trial pits are presented within Annex C.

5. Conclusions

Soil and water samples highlight elevated concentrations of contamination across site. All trial pits around Hotspot A show elevated concentrations of CoC's from shallow to full depth, there is also evidence that the previously imported material has been cross contaminated and requires further assessment and possible removal/ treatment. No visual free phase product has been identified however, concentrations of PCE (max 3.3g/kg in TP3) suggest free phase may be present.

A further two locations near Hotspot B have been identified as areas of contamination at depth with the shallower soils having reduced concentrations.

Groundwater samples suggest a source remaining on site and that it is potentially migrating off-site. However, when comparing ground water depths within the boreholes and during trial pit excavations, the water present at depth is more than likely perched residing within only small pockets due to the cohesive properties of the soils. There is also good evidence that natural attenuation of chlorinated contaminants is occurring.

Yours sincerely



Rob Timson
Project Manager

QDS Remediation

Enc:

Annex A – Drawings
Annex B – Trial Pit Logs
Annex C – Laboratory Results
Annex D – Photographic Log



JULY 2017
SITE INVESTIGATION

DRAWN	WM
CHECKED	RT
DATE	19/09/17
SCALE	NTS
DWG.No	Q-05843-02
FIG	
REV	

DRAWINGS
RELATED

NOTES

Legend

-





Method: Trial Pit	Date(s): 19/07/2017	Logged By: TE	Checked By: WM
Client:		Stability: Stable	Dimensions: 1.00m 3.00m
Hydrock Project No: Q-05843-E	Ground Level: 0.00m OD	Plant: 21t 360°	Scale: 1:25

Samples / Tests			Water-Strikes	Stratum Description	Depth mbgl	Thickness (m)	Level m OD	Legend
Depth (m)	Type	Results						
0.90 0.90	ES PID	5637.0ppm		CONCRETE (MADE GROUND)	0.15	(0.15)	-0.15	
				MADE GROUND (Brown gravelly slightly clayey SAND. Gravel is of fine to medium, angular to subrounded flint and fine to coarse concrete and brick). (MADE GROUND)		(0.75)		
	2.00	ES			Grey brown SANDY CLAY. Strong solvent odour.	0.90		-0.90
3.00 3.00	ES PID	130.0ppm		Green brown SANDY CLAY.	1.80		-1.80	
				Base of Excavation at 3.00m				3.00
					4			
					5			

General Remarks:
Sides remained vertical throughout

Groundwater: None encountered

Logged in general accordance with BS5930:2015



Method: Trial Pit	Date(s): 19/07/2017	Logged By: TE	Checked By: WM
Client:		Stability: Stable	Dimensions: 3.00m
Hydrock Project No: Q-05843-E	Ground Level: 0.00m OD	Plant: 21t 360°	1:25

Samples / Tests			Water-Strikes	Stratum Description	Depth mbgl	Thickness (m)	Level m OD	Legend
Depth (m)	Type	Results						
1.00 1.00	ES PID	991.0ppm		CONCRETE (MADE GROUND)	0.15	(0.15)	-0.15	
				MADE GROUND (Brown sandy gravelly CLAY. Gravel is of fine to medium brick). (MADE GROUND)		(0.85)		
2.40 2.40	ES PID	15000.0ppm		Grey SILTY CLAY. Strong solvent odour.	1.00	-1.00		
4.00 4.00	ES PID	195.0ppm		Soft grey CLAY. Strong solvent odour reducing with depth.	1.90	-1.90		
					2	(2.10)		
				Base of Excavation at 4.00m	4.00	-4.00		



Method: Trial Pit	Date(s): 19/07/2017	Logged By: TE	Checked By: WM
Client:		Stability: Stable	Dimensions: 1.00m 3.00m
Hydrock Project No: Q-05843-E	Ground Level: 0.00m OD	Plant: 21t 360°	Scale: 1:25

Samples / Tests			Water-Strikes	Stratum Description	Depth mbgl	Thickness (m)	Level m OD	Legend
Depth (m)	Type	Results						
0.70 0.70	ES PID	167.0ppm		CONCRETE (MADE GROUND)	0.10	(0.10)	-0.10	
				MADE GROUND (Brown sandy gravelly CLAY. Gravel is of fine to medium brick). (MADE GROUND)		(0.30)	-0.40	
1.60 1.60	ES PID	15000.0ppm		MADE GROUND (Black fine to medium ash fill) (MADE GROUND)	0.40		-0.40	
						(0.70)		
1.60 1.60	ES PID	15000.0ppm		Soft green with black staining CLAY. Solvent odour.	1.10		-1.10	
						(0.70)		
2.40 2.40	ES PID	13894.0ppm		Soft grey CLAY. Solvent odour.	1.80		-1.80	
						(0.60)		
2.40 2.40	ES PID	13894.0ppm		Base of Excavation at 2.40m	2.40		-2.40	
					3			
					4			
					5			

General Remarks:
Sides remained vertical throughout. PID upper Limit of Detection is 15,000 ppm.

Groundwater: None encountered

Checked By: WM

Scale:

1:25

[illegible]



Method: Trial Pit	Date(s): 20/07/2017	Logged By: TE	Checked By: WM
Client:		Stability: Stable	Dimensions: 1.00m 3.00m
Hydrock Project No: Q-05843-E	Ground Level: 0.00m OD	Plant: 21t 360°	Scale: 1:25

Samples / Tests			Water-Strikes	Stratum Description	Depth m bgl	Thickness (m)	Level m OD	Legend
Depth (m)	Type	Results						
0.15 - 1.30	ASB			CONCRETE (MADE GROUND)	0.15	(0.15)	-0.15	
0.80 0.80	ES PID	388.0ppm		MADE GROUND (Light brown sandy fine to coarse, subangular GRAVEL - 6F2 and FINES). Asbestos cement sheeting fragments encountered. (MADE GROUND)		(1.15)		
				Soft grey with black staining CLAY. Black staining in occasional lenses.	1.30		-1.30	
2.50	ES			Base of Excavation at 2.50m	2.50		-2.50	
					3			
					4			
					5			

General Remarks:
Sides remained vertical throughout

Groundwater: None encountered

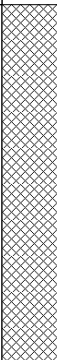
Logged in general accordance with BS5930:2015

Checked By: WM

Scale:

1:25

General Remarks: Sides remained vertical throughout									
Groundwater: None encountered									
Logged in general accordance with BS5930:2015									

			Project: Crowland, Peterborough Road			Trialpit No TP12 Page No. 1 of 1		
Method: Trial Pit			Date(s): 20/07/2017		Logged By: TE		Checked By: WM	
Client:					Stability: Stable		Dimensions:	
Hydrock Project No: Q-05843-E			Ground Level: 0.00m OD		Plant: 21t 360°		Scale: 1:25 1.00m 	
Samples / Tests			Water-Strikes	Stratum Description	Depth mbgl	Thickness (m)	Level m OD	Legend
Depth (m)	Type	Results						
1.00 1.00	ES PID	230.0ppm		MADE GROUND (Black sandy gravelly CLAY. Gravel is of fine to medium brick and occasional ash). (MADE GROUND)	1.20	(1.20)	-1.20	
3.00 3.00	ES PID	75.0ppm		Soft dark grey CLAY. Slight solvent odour.	3.00	(1.80)	-3.00	
				Base of Excavation at 3.00m				
5								

General Remarks:
Sides remained vertical throughout

Groundwater: None encountered

			Project: Crowland, Peterborough Road		Trialpit No TP13 Page No. 1 of 1		
Method: Trial Pit			Date(s): 20/07/2017		Logged By: TE		
Client:					Stability: Stable		
Hydrock Project No: Q-05843-E			Ground Level: 0.00m OD		Plant: 21t 360°		
Dimensions: 3.00m 1.00m 					Scale: 1:25		
Samples / Tests			Water-Strikes	Stratum Description	Depth mbgl	Thickness (m)	
Depth (m)	Type	Results					Level m OD
0.00 - 0.30	ASB			MADE GROUND (Light brown sandy fine to coarse, subangular GRAVEL - 6F2 and FINES). Asbestos cement sheeting fragments encountered.	0.30	(0.30)	
0.60	ES			MADE GROUND (Brown sandy gravelly CLAY. Gravel is of fine to medium brick). (MADE GROUND)	0.60	(0.30)	
				Grey SANDY CLAY.			
3.00	ES				1		
3.00	PID	21.0ppm			2		
						(2.40)	
					3.00		
				Base of Excavation at 3.00m			
					4		
					5		

General Remarks:
 Sides remained vertical throughout

Groundwater: None encountered



Method: Trial Pit	Date(s): 20/07/2017	Logged By: TE	Checked By: WM
Client:		Stability: Stable	Dimensions: 3.00m
Hydrock Project No: Q-05843-E	Ground Level: 0.00m OD	Plant: 21t 360°	Scale: 1:25

Samples / Tests			Water-Strikes	Stratum Description	Depth mbgl	Thickness (m)	Level m OD	Legend
Depth (m)	Type	Results						
1.00 1.00	ES PID	26.0ppm		MADE GROUND (Brown sandy gravelly CLAY. Gravel is of fine to medium brick). (MADE GROUND)		(1.00)		
				Soft dark grey CLAY.	1.00		-1.00	
3.00 3.00	ES PID	21.0ppm			2	(2.00)		
					3		-3.00	
				Base of Excavation at 3.00m	3.00			
					4			
					5			

General Remarks:
Sides remained vertical throughout

Groundwater: None encountered



Method: Trial Pit	Date(s): 20/07/2017	Logged By: TE	Checked By: WM
Client:		Stability: Stable	Dimensions: 3.00m
Hydrock Project No: Q-05843-E	Ground Level: 0.00m OD	Plant: 21t 360°	1.00m 1:25

Samples / Tests			Water-Strikes	Stratum Description	Depth m bgl	Thickness (m)	Level m OD	Legend
Depth (m)	Type	Results						
0.80	ES	57.0ppm		MADE GROUND (Brown sandy gravelly CLAY. Gravel is of fine to medium brick). (MADE GROUND)		(0.80)		
0.80	PID			Soft grey brown CLAY.	0.80		-0.80	
					1	(0.80)		
					1.60		-1.60	
				Soft to firm dark grey CLAY.		(2.00)		
					2			
					3			
					3.60		-3.60	
3.60	ES	60.0ppm		Base of Excavation at 3.60m				
3.60	PID				4			
					5			

General Remarks:
Sides remained vertical throughout

Groundwater: None encountered



Method: Trial Pit	Date(s): 20/07/2017	Logged By: TE	Checked By: WM
Client:		Stability: Stable	Dimensions: 3.00m
Hydrock Project No: Q-05843-E	Ground Level: 0.00m OD	Plant: 21t 360°	Scale: 1:25

Samples / Tests			Water-Strikes	Stratum Description	Depth m bgl	Thickness (m)	Level m OD	Legend
Depth (m)	Type	Results						
0.90 0.90	ES PID	349.0ppm		MADE GROUND (Brown sandy gravelly CLAY. Gravel is of fine to medium brick). (MADE GROUND)	0.90	(0.90)	-0.90	
				Soft sark grey SANDY CLAY.	1	(0.60)		
1.80 1.80	ES PID	6412.0ppm		Soft dark grey with some black staining CLAY. Strong solvent odour.	1.50		-1.50	
					2			
						(2.00)		
					3			
3.50 3.50	ES PID	3906.0ppm		Base of Excavation at 3.50m	3.50		-3.50	
					4			
					5			

General Remarks:
Sides remained vertical throughout

Groundwater: None encountered

Checked By: WM

Scale:

1:25

General Remarks: Sides remained vertical throughout									
Groundwater: None encountered									
Logged in general accordance with BS5930:2015									



Unit 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US

Tel: (01244) 528700

Fax: (01244) 528701

email: hawardencustomerservices@alsglobal.com

Website: www.alsenvironmental.co.uk

QDS Remediation
Midland Road
Masbrough
Rotherham
South Yorkshire
S63 5DB

Attention: Rob Timson

CERTIFICATE OF ANALYSIS

Date: 01 August 2017
Customer: H_QDS_ROT
Sample Delivery Group (SDG): 170722-52
Your Reference: Q-05843
Location: Crowland
Report No: 418441

We received 32 samples on Saturday July 22, 2017 and 32 of these samples were scheduled for analysis which was completed on Tuesday August 01, 2017. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).

Approved By:

Sonia McWhan

Operations Manager





CERTIFICATE OF ANALYSIS

Validated

SDG: 170722-52
Location: Crowland

Client Reference: Q-05843
Order Number: POP010762

Report Number: 418441
Superseded Report:

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
15885236	ASB-1		0.00 - 0.00	20/07/2017
15885308	ASB-2		0.00 - 0.00	20/07/2017
15885310	ASB-3		0.00 - 0.00	20/07/2017
15885192	TP1		0.00 - 0.90	19/07/2017
15885202	TP1		0.00 - 2.00	19/07/2017
15885211	TP1		0.00 - 3.00	19/07/2017
15885388	TP2		0.00 - 1.00	19/07/2017
15885394	TP2		0.00 - 2.40	19/07/2017
15885186	TP2		0.00 - 4.00	19/07/2017
15885340	TP3		0.00 - 0.70	19/07/2017
15885365	TP3		0.00 - 1.60	19/07/2017
15885371	TP3		0.00 - 2.40	19/07/2017
15885174	TP4		0.00 - 1.20	19/07/2017
15885262	TP4		0.00 - 2.00	19/07/2017
15885220	TP6		0.00 - 0.80	20/07/2017
15885229	TP6		0.00 - 2.50	20/07/2017
15885378	TP8		0.00 - 0.80	19/07/2017
15885383	TP8		0.00 - 1.90	19/07/2017
15885270	TP12		0.00 - 1.00	20/07/2017
15885279	TP12		0.00 - 3.00	20/07/2017
15885313	TP13		0.00 - 0.60	20/07/2017
15885321	TP13		0.00 - 3.00	20/07/2017
15885292	TP14		0.00 - 1.00	20/07/2017
15885302	TP14		0.00 - 3.00	20/07/2017
15885352	TP15		0.00 - 0.80	20/07/2017
15885359	TP15		0.00 - 3.60	20/07/2017
15885327	TP17		0.00 - 0.90	20/07/2017
15885333	TP17		0.00 - 1.80	20/07/2017
15885346	TP17		0.00 - 3.50	20/07/2017
15885241	TP21		0.00 - 0.90	20/07/2017
15885250	TP21		0.00 - 2.50	20/07/2017
15885257	TP21		0.00 - 4.00	20/07/2017

Maximum Sample/Coolbox Temperature (°C) :

ISO5667-3 Water quality - Sampling - Part3 -

During Transportation samples shall be stored in a cooling device capable of maintaining a temperature of (5±3)°C.

14.4

ALS have data which show that a cool box with 4 frozen icepacks is capable of maintaining pre-chilled samples at a temperature of (5±3)°C for a period of up to 24hrs.

Only received samples which have had analysis scheduled will be shown on the following pages.



CERTIFICATE OF ANALYSIS

Validated

SDG: 170722-52
Location: Crowland

Client Reference: Q-05843
Order Number: POP010762

Report Number: 418441
Superseded Report:

Results Legend



Test



No Determination Possible

Sample Types -

S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)	Customer Sample Reference	AGS Reference	Depth (m)	Container	Sample Type
15885340	TP3		0.00 - 0.70	60g VOC (ALE215)	S
15885186	TP2		0.00 - 4.00	400g Tub (ALE214)	S
15885394	TP2		0.00 - 2.40	250g Amber Jar (ALE210)	S
15885388	TP2		0.00 - 1.00	60g VOC (ALE215)	S
15885211	TP1		0.00 - 3.00	250g Amber Jar (ALE210)	S
15885202	TP1		0.00 - 2.00	60g VOC (ALE215)	S
15885192	TP1		0.00 - 0.90	250g Amber Jar (ALE210)	S
15885310	ASB-3		0.00 - 0.00	400g Tub (ALE214)	S
15885308	ASB-2		0.00 - 0.00	400g Tub (ALE214)	S
15885236	ASB-1		0.00 - 0.00	400g Tub (ALE214)	S
Asbestos ID in Solid Samples	All	NDPs: 0 Tests: 5			
Asbestos Identification	All	NDPs: 0 Tests: 3			
Boron Water Soluble	All	NDPs: 0 Tests: 5			
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 5			
Easily Liberated Sulphide	All	NDPs: 0 Tests: 5			
Elemental Sulphur	All	NDPs: 0 Tests: 5			
EPH CWG (Aliphatic) GC (S)	All	NDPs: 0 Tests: 5			
EPH CWG (Aromatic) GC (S)	All	NDPs: 0 Tests: 5			
GRO by GC-FID (S)	All	NDPs: 0 Tests: 5			
Hexavalent Chromium (s)	All	NDPs: 0 Tests: 5			
Metals in solid samples by OES	All	NDPs: 0 Tests: 5			
PAH by GCMS	All	NDPs: 0 Tests: 5			
pH	All	NDPs: 0 Tests: 5			
Phenols by HPLC (S)	All	NDPs: 0 Tests: 5			
Sample description	All	NDPs: 0 Tests: 28			



CERTIFICATE OF ANALYSIS

Validated

SDG: 170722-52
Location: Crowland

Client Reference: Q-05843
Order Number: POP010762

Report Number: 418441
Superseded Report:

Results Legend



Test



No Determination
Possible

Sample Types -

S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)

Customer
Sample Reference

AGS Reference

Depth (m)

Container

Sample Type

Total Organic Carbon

All

NDPs: 0
Tests: 5

TPH CWG GC (S)

All

NDPs: 0
Tests: 5

VOC MS (S)

All

NDPs: 0
Tests: 29

15885340

TP3

0.00 - 0.70

60g VOC (ALE215)

S

15885186

TP2

0.00 - 4.00

60g VOC (ALE215)

S

15885394

TP2

0.00 - 2.40

60g VOC (ALE215)

S

15885388

TP2

0.00 - 1.00

60g VOC (ALE215)

S

15885211

TP1

0.00 - 3.00

60g VOC (ALE215)

S

15885202

TP1

0.00 - 2.00

60g VOC (ALE215)

S

15885192

TP1

0.00 - 0.90

60g VOC (ALE215)

S

15885310

ASB-3

0.00 - 0.00

400g Tub (ALE214)

S

15885308

ASB-2

0.00 - 0.00

400g Tub (ALE214)

S

15885236

ASB-1

0.00 - 0.00

400g Tub (ALE214)

S

X

X

X

X

X

X

X

X

X

X

X

X

X

X

X

X

X

X

X

X

X

X

15885257	TP21		0.00 - 4.00	60g VOC (ALE215)	S				X
				250g Amber Jar (ALE210)	S				
15885250	TP21		0.00 - 2.50	60g VOC (ALE215)	S				X
				250g Amber Jar (ALE210)	S				
15885241	TP21		0.00 - 0.90	60g VOC (ALE215)	S				X
				250g Amber Jar (ALE210)	S				



CERTIFICATE OF ANALYSIS

Validated

SDG: 170722-52
Location: Crowland

Client Reference: Q-05843
Order Number: POP010762

Report Number: 418441
Superseded Report:

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm
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Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
15885192	TP1	0.00 - 0.90	Dark Brown	Loamy Sand	Concrete/Aggregate	Stones
15885202	TP1	0.00 - 2.00	Black	Silty Clay Loam	Vegetation	Stones
15885211	TP1	0.00 - 3.00	Green	Sandy Clay	Stones	None
15885186	TP2	0.00 - 4.00	Grey	Clay Loam	None	None
15885388	TP2	0.00 - 1.00	Dark Brown	Sandy Loam	Crushed Brick	Stones
15885394	TP2	0.00 - 2.40	Grey	Silt Loam	None	None
15885340	TP3	0.00 - 0.70	Dark Brown	Sandy Loam	Concrete/Aggregate	Plastic
15885365	TP3	0.00 - 1.60	Grey	Sandy Silt Loam	Vegetation	None
15885371	TP3	0.00 - 2.40	Dark Brown	Silt Loam	None	None
15885174	TP4	0.00 - 1.20	Black	Sandy Silt Loam	Crushed Brick	None
15885262	TP4	0.00 - 2.00	Grey	Silt Loam	None	None
15885220	TP6	0.00 - 0.80	Dark Brown	Loamy Sand	Glass & Stones	Crushed Brick
15885229	TP6	0.00 - 2.50	Green	Silty Clay	None	Stones
15885378	TP8	0.00 - 0.80	Dark Brown	Loamy Sand	Stones	Crushed Brick
15885383	TP8	0.00 - 1.90	Grey	Clay Loam	None	None
15885270	TP12	0.00 - 1.00	Dark Brown	Sandy Loam	Vegetation	Crushed Brick
15885279	TP12	0.00 - 3.00	Grey	Sandy Clay Loam	None	None
15885313	TP13	0.00 - 0.60	Orange	Loamy Sand	Crushed Brick	Vegetation
15885321	TP13	0.00 - 3.00	Light Brown	Sandy Silt Loam	Vegetation	None
15885292	TP14	0.00 - 1.00	Black	Silty Clay	None	None
15885302	TP14	0.00 - 3.00	Grey	Clay Loam	Stones	None
15885352	TP15	0.00 - 0.80	Dark Brown	Sandy Loam	Vegetation	Crushed Brick
15885359	TP15	0.00 - 3.60	Black	Silt Loam	Stones	Vegetation
15885327	TP17	0.00 - 0.90	Dark Brown	Loamy Sand	None	None
15885333	TP17	0.00 - 1.80	Dark Brown	Sandy Clay Loam	Vegetation	Crushed Brick
15885346	TP17	0.00 - 3.50	Dark Brown	Sand	N/A	None
15885241	TP21	0.00 - 0.90	Dark Brown	Loamy Sand	Crushed Brick	Vegetation
15885250	TP21	0.00 - 2.50	Black	Silt Loam	None	None
15885257	TP21	0.00 - 4.00	Green	Sandy Loam	None	None

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

SDG:	170722-52
Location:	Crowland

Client Reference:	Q-05843
Order Number:	POP010762

Report Number: 418441
Superseded Report:

PAH by GCMS

[illegible]



CERTIFICATE OF ANALYSIS

Validated

SDG: 170722-52
Location: Crowland

Client Reference: Q-05843
Order Number: POP010762

Report Number: 418441
Superseded Report:

TPH CWG (S)

Results Legend		Customer Sample Ref.	TP2	TP3	TP6	TP14	TP17	
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference						
M	mCERTS accredited.							
aq	Aqueous / settled sample.							
diss.filt	Dissolved / filtered sample.							
tot.unfilt	Total / unfiltered sample.							
*	Subcontracted test.							
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery							
(F)	Trigger breach confirmed							
1-5&+5@	Sample deviation (see appendix)							
Component	LOD/Units	Method						
GRO Surrogate % recovery**	%	TM089	101	43	66	64	48	
GRO TOT (Moisture Corrected)	<44 µg/kg	TM089	544000 M	3320 M	1740 M	404 M	569 M	
Methyl tertiary butyl ether (MTBE)	<5 µg/kg	TM089	14600 #	<5 #	<5 #	<5 #	<5 #	
Benzene	<10 µg/kg	TM089	<200 M	<10 M	<10 M	<10 M	<10 M	
Toluene	<2 µg/kg	TM089	<40 M	2.4 M	<2 M	<2 M	2.34 M	
Ethylbenzene	<3 µg/kg	TM089	<60 M	<3 M	<3 M	<3 M	<3 M	
m,p-Xylene	<6 µg/kg	TM089	<120 M	<6 M	<6 M	<6 M	<6 M	
o-Xylene	<3 µg/kg	TM089	<60 M	<3 M	<3 M	<3 M	<3 M	
sum of detected mpo xylene by GC	<9 µg/kg	TM089	<9	<9	<9	<9	<9	
sum of detected BTEX by GC	<24 µg/kg	TM089	<24	<24	<24	<24	<24	
Aliphatics >C5-C6	<10 µg/kg	TM089	1700	106	50.4	14.5	23.4	
Aliphatics >C6-C8	<10 µg/kg	TM089	91100	654	1320	38.3	278	
Aliphatics >C8-C10	<10 µg/kg	TM089	257000	1510	214	164	129	
Aliphatics >C10-C12	<10 µg/kg	TM089	4330	20.4	<10	46.2	26.9	
Aliphatics >C12-C16	<100 µg/kg	TM173	1910	1430	8060	<100	476	
Aliphatics >C16-C21	<100 µg/kg	TM173	10600	4330	35000	<100	3320	
Aliphatics >C21-C35	<100 µg/kg	TM173	33000	34200	43200	8430	26200	
Aliphatics >C35-C44	<100 µg/kg	TM173	2290	7030	9440	<100	3270	
Total Aliphatics >C12-C44	<100 µg/kg	TM173	47800	46900	95700	8430	33200	
Aromatics >EC5-EC7	<10 µg/kg	TM089	<200	<10	<10	<10	<10	
Aromatics >EC7-EC8	<10 µg/kg	TM089	<200	<10	<10	<10	<10	
Aromatics >EC8-EC10	<10 µg/kg	TM089	172000	1010	146	110	91.3	
Aromatics >EC10-EC12	<10 µg/kg	TM089	2890	13.2	<10	31.7	17.6	
Aromatics >EC12-EC16	<100 µg/kg	TM173	<100	210	980	<100	1640	
Aromatics >EC16-EC21	<100 µg/kg	TM173	4020	2940	11100	<100	10500	
Aromatics >EC21-EC35	<100 µg/kg	TM173	28500	42000	42400	12400	68000	
Aromatics >EC35-EC44	<100 µg/kg	TM173	7770	16000	25000	1860	19500	
Aromatics >EC40-EC44	<100 µg/kg	TM173	2060	5500	11000	<100	5960	
Total Aromatics >EC12-EC44	<100 µg/kg	TM173	40300	61200	79500	14200	99700	
Total Aliphatics & Aromatics >C5-C44	<100 µg/kg	TM173	617000	111000	177000	23100	133000	



CERTIFICATE OF ANALYSIS

Validated

SDG: 170722-52
Location: Crowland

Client Reference: Q-05843
Order Number: POP010762

Report Number: 418441
Superseded Report:

VOC MS (S)

Results Legend		Customer Sample Ref.		TP1	TP1	TP1	TP2	TP2	TP2
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	TM116	0.00 - 0.90	0.00 - 2.00	0.00 - 3.00	0.00 - 1.00	0.00 - 2.40	0.00 - 4.00
M	mCERTS accredited.			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
aq	Aqueous / settled sample.			19/07/2017	19/07/2017	19/07/2017	19/07/2017	19/07/2017	19/07/2017
diss.filt	Dissolved / filtered sample.								
tot.unfilt	Total / unfiltered sample.								
*	Subcontracted test.								
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery			22/07/2017	22/07/2017	22/07/2017	22/07/2017	22/07/2017	22/07/2017
(F)	Trigger breach confirmed			170722-52	170722-52	170722-52	170722-52	170722-52	170722-52
1-5&*\$@	Sample deviation (see appendix)			15885192	15885202	15885211	15885388	15885394	15885186
Component	LOD/Units			Method					
Dibromofluoromethane**	%				109	117	101	113	111
Toluene-d8**	%				101	94.1	98.7	101	100
4-Bromofluorobenzene**	%				87.3	83.6	95.1	87.8	91.7
Dichlorodifluoromethane	<6 µg/kg				<60	<60	<6	<60	<60
Chloromethane	<7 µg/kg				<70	<70	<7	<70	<70
Vinyl Chloride	<6 µg/kg				<60	7660	<6	<60	<60
Bromomethane	<10 µg/kg				<100	<100	<10	<100	<100
Chloroethane	<10 µg/kg				<100	<100	<10	<100	<100
Trichlorofluoromethane	<6 µg/kg				<60	<60	<6	<60	<60
1,1-Dichloroethene	<10 µg/kg				<100	241	<10	<100	6080
Carbon Disulphide	<7 µg/kg				<70	<70	10.9	<70	<70
Dichloromethane	<10 µg/kg				<100	<100	<10	<100	223
Methyl Tertiary Butyl Ether	<10 µg/kg				<100	<100	<10	<100	<100
trans-1,2-Dichloroethene	<10 µg/kg				562	1840	14.3	<100	1040
1,1-Dichloroethane	<8 µg/kg				545	18600	572	344	129000
cis-1,2-Dichloroethene	<6 µg/kg				86900	285000	2400	3170	37800
2,2-Dichloropropane	<10 µg/kg				<100	<100	<10	<100	<100
Bromochloromethane	<10 µg/kg				<100	<100	<10	<100	<100
Chloroform	<8 µg/kg				<80	<80	<8	<80	163
1,1,1-Trichloroethane	<7 µg/kg				1970	<70	9.44	4030	231000
1,1-Dichloropropene	<10 µg/kg				<100	<100	<10	<100	<100
Carbontetrachloride	<10 µg/kg				<100	<100	<10	<100	<100
1,2-Dichloroethane	<5 µg/kg				<50	<50	<5	<50	838
Benzene	<9 µg/kg				<90	<90	<9	<90	<90
Trichloroethene	<9 µg/kg				32100	2540	1640	30800	394000
1,2-Dichloropropane	<10 µg/kg				<100	<100	<10	<100	<100
Dibromomethane	<9 µg/kg				<90	<90	<9	<90	<90
Bromodichloromethane	<7 µg/kg				<70	<70	<7	<70	<70
cis-1,3-Dichloropropene	<10 µg/kg				<100	<100	<10	<100	<100
Toluene	<7 µg/kg				<70	128	<7	<70	<70
trans-1,3-Dichloropropene	<10 µg/kg				<100	<100	<10	<100	<100
1,1,2-Trichloroethane	<10 µg/kg				<100	<100	<10	<100	2690
1,3-Dichloropropane	<7 µg/kg				<70	<70	<7	<70	<70



CERTIFICATE OF ANALYSIS

Validated

SDG: 170722-52
Location: Crowland

Client Reference: Q-05843
Order Number: POP010762

Report Number: 418441
Superseded Report:

VOC MS (S)

Results Legend		Customer Sample Ref.	TP1	TP1	TP1	TP2	TP2	TP2
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	0.00 - 0.90	0.00 - 2.00	0.00 - 3.00	0.00 - 1.00	0.00 - 2.40	0.00 - 4.00
M	mCERTS accredited.		Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
aq	Aqueous / settled sample.		19/07/2017	19/07/2017	19/07/2017	19/07/2017	19/07/2017	19/07/2017
diss.filt	Dissolved / filtered sample.		.	.	.	.	.	.
tot.unfilt	Total / unfiltered sample.		22/07/2017	22/07/2017	22/07/2017	22/07/2017	22/07/2017	22/07/2017
*	Subcontracted test.		170722-52	170722-52	170722-52	170722-52	170722-52	170722-52
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery		15885192	15885202	15885211	15885388	15885394	15885186
(F)	Trigger breach confirmed							
1-5&5@	Sample deviation (see appendix)							
Component	LOD/Units	Method						
Tetrachloroethene	<5 µg/kg	TM116	289000	1600	3150	415000	2250000	54000
			M	M	M	M	3 M	M
Dibromochloromethane	<10 µg/kg	TM116	<100	<100	<10	<100	<100	<10
			M	M	M	M	M	M
1,2-Dibromoethane	<10 µg/kg	TM116	<100	<100	<10	<100	<100	<10
			M	M	M	M	M	M
Chlorobenzene	<5 µg/kg	TM116	<50	616	<5	<50	<50	<5
			M	M	M	M	M	M
1,1,1,2-Tetrachloroethane	<10 µg/kg	TM116	<100	<100	<10	<100	<100	<10
			M	M	M	M	M	M
Ethylbenzene	<4 µg/kg	TM116	<40	2690	<4	<40	<40	<4
			M	M	M	M	M	M
p/m-Xylene	<10 µg/kg	TM116	<100	7540	<10	<100	<100	<10
			#	#	#	#	#	#
o-Xylene	<10 µg/kg	TM116	<100	3810	<10	<100	<100	<10
			M	M	M	M	M	M
Styrene	<10 µg/kg	TM116	<100	<100	<10	<100	<100	<10
			#	#	#	#	#	#
Bromoform	<10 µg/kg	TM116	<100	<100	<10	<100	<100	<10
			M	M	M	M	M	M
Isopropylbenzene	<5 µg/kg	TM116	<50	3750	<5	<50	<50	<5
			#	#	#	#	#	#
1,1,2,2-Tetrachloroethane	<10 µg/kg	TM116	<100	<100	<10	<100	<100	<10
			M	M	M	M	M	M
1,2,3-Trichloropropane	<16 µg/kg	TM116	<160	<160	<16	<160	<160	<16
			M	M	M	M	M	M
Bromobenzene	<10 µg/kg	TM116	<100	<100	<10	<100	<100	<10
			M	M	M	M	M	M
Propylbenzene	<10 µg/kg	TM116	<100	7650	<10	<100	<100	<10
			M	M	M	M	M	M
2-Chlorotoluene	<9 µg/kg	TM116	<90	<90	<9	<90	<90	<9
			M	M	M	M	M	M
1,3,5-Trimethylbenzene	<8 µg/kg	TM116	<80	22900	<8	<80	<80	<8
			M	M	M	M	M	M
4-Chlorotoluene	<10 µg/kg	TM116	<100	<100	<10	<100	<100	<10
			M	M	M	M	M	M
tert-Butylbenzene	<14 µg/kg	TM116	<140	<140	<14	<140	<140	<14
			M	M	M	M	M	M
1,2,4-Trimethylbenzene	<9 µg/kg	TM116	242	83000	<9	<90	<90	<9
			#	#	#	#	#	#
sec-Butylbenzene	<10 µg/kg	TM116	<100	8330	<10	<100	<100	<10
4-Isopropyltoluene	<10 µg/kg	TM116	<100	<100	<10	<100	<100	<10
			M	M	M	M	M	M
1,3-Dichlorobenzene	<8 µg/kg	TM116	<80	<80	<8	<80	<80	<8
			M	M	M	M	M	M
1,4-Dichlorobenzene	<5 µg/kg	TM116	<50	<50	<5	<50	<50	<5
			M	M	M	M	M	M
n-Butylbenzene	<11 µg/kg	TM116	<110	11500	<11	<110	<110	<11
1,2-Dichlorobenzene	<10 µg/kg	TM116	<100	<100	<10	<100	<100	<10
			M	M	M	M	M	M
1,2-Dibromo-3-chloropropane	<14 µg/kg	TM116	<140	<140	<14	<140	<140	<14
			M	M	M	M	M	M
Tert-amyl methyl ether	<10 µg/kg	TM116	<100	<100	<10	<100	<100	<10
			#	#	#	#	#	#
1,2,4-Trichlorobenzene	<20 µg/kg	TM116	<200	<200	<20	<200	<200	<20
Hexachlorobutadiene	<20 µg/kg	TM116	<200	<200	<20	<200	<200	<20
Naphthalene	<13 µg/kg	TM116	<130	7540	<13	<130	<130	<13
			M	M	M	M	M	M
1,2,3-Trichlorobenzene	<20 µg/kg	TM116	<200	<200	<20	<200	<200	<20
			#	#	#	#	#	#



CERTIFICATE OF ANALYSIS

Validated

SDG: 170722-52
Location: Crowland

Client Reference: Q-05843
Order Number: POP010762

Report Number: 418441
Superseded Report:

VOC MS (S)

Results Legend		Customer Sample Ref.	TP3	TP3	TP3	TP4	TP4	TP6
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	0.00 - 0.70	0.00 - 1.60	0.00 - 2.40	0.00 - 1.20	0.00 - 2.00	0.00 - 0.80
M	mCERTS accredited.		Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
aq	Aqueous / settled sample.		19/07/2017	19/07/2017	19/07/2017	19/07/2017	19/07/2017	20/07/2017
diss.filt	Dissolved / filtered sample.		22/07/2017	22/07/2017	22/07/2017	22/07/2017	22/07/2017	22/07/2017
tot.unfilt	Total / unfiltered sample.		170722-52	170722-52	170722-52	170722-52	170722-52	170722-52
*	Subcontracted test.		15885340	15885365	15885371	15885174	15885262	15885220
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery							
(F)	Trigger breach confirmed							
1-5&*\$@	Sample deviation (see appendix)							
Component	LOD/Units	Method						
Dibromofluoromethane**	%	TM116	113	117	109	114	109	106
Toluene-d8**	%	TM116	102	100	103	97.6	104	97.5
4-Bromofluorobenzene**	%	TM116	91.8	95.1	94.2	87.9	94.6	89.9
Dichlorodifluoromethane	<6 µg/kg	TM116	<60	<60	<60	<60	<60	<60
Chloromethane	<7 µg/kg	TM116	<70	<70	<70	<70	<70	<70
Vinyl Chloride	<6 µg/kg	TM116	<60	<60	<60	737	515	<60
Bromomethane	<10 µg/kg	TM116	<100	<100	<100	<100	<100	<100
Chloroethane	<10 µg/kg	TM116	<100	<100	<100	<100	<100	<100
Trichlorofluoromethane	<6 µg/kg	TM116	<60	<60	<60	<60	<60	<60
1,1-Dichloroethene	<10 µg/kg	TM116	<100	251	613	<100	<100	<100
Carbon Disulphide	<7 µg/kg	TM116	<70	103	245	<70	<70	<70
Dichloromethane	<10 µg/kg	TM116	<100	<100	<100	<100	<100	<100
Methyl Tertiary Butyl Ether	<10 µg/kg	TM116	<100	<100	<100	<100	<100	<100
trans-1,2-Dichloroethene	<10 µg/kg	TM116	<100	<100	1380	<100	2260	<100
1,1-Dichloroethane	<8 µg/kg	TM116	126	5100	48800	375	567	<80
cis-1,2-Dichloroethene	<6 µg/kg	TM116	325	2830	25300	2840	17800	<60
2,2-Dichloropropane	<10 µg/kg	TM116	<100	<100	<100	<100	<100	<100
Bromochloromethane	<10 µg/kg	TM116	<100	<100	<100	<100	<100	<100
Chloroform	<8 µg/kg	TM116	<80	<80	<80	<80	<80	<80
1,1,1-Trichloroethane	<7 µg/kg	TM116	331	161000	50800	<70	<70	<70
1,1-Dichloropropene	<10 µg/kg	TM116	<100	<100	<100	<100	<100	<100
Carbontetrachloride	<10 µg/kg	TM116	<100	<100	<100	<100	<100	<100
1,2-Dichloroethane	<5 µg/kg	TM116	<50	<50	<50	<50	<50	<50
Benzene	<9 µg/kg	TM116	<90	<90	<90	<90	<90	<90
Trichloroethene	<9 µg/kg	TM116	1880	212000	251000	<90	<90	2380
1,2-Dichloropropane	<10 µg/kg	TM116	<100	<100	<100	<100	<100	<100
Dibromomethane	<9 µg/kg	TM116	<90	<90	<90	<90	<90	<90
Bromodichloromethane	<7 µg/kg	TM116	<70	<70	<70	<70	<70	<70
cis-1,3-Dichloropropene	<10 µg/kg	TM116	<100	<100	<100	<100	<100	<100
Toluene	<7 µg/kg	TM116	<70	<70	<70	<70	<70	<70
trans-1,3-Dichloropropene	<10 µg/kg	TM116	<100	<100	<100	<100	<100	<100
1,1,2-Trichloroethane	<10 µg/kg	TM116	<100	<100	<100	<100	<100	<100
1,3-Dichloropropane	<7 µg/kg	TM116	<70	<70	<70	<70	<70	<70



CERTIFICATE OF ANALYSIS

Validated

SDG: 170722-52
Location: Crowland

Client Reference: Q-05843
Order Number: POP010762

Report Number: 418441
Superseded Report:

VOC MS (S)

Results Legend			Customer Sample Ref.		TP3	TP3	TP3	TP4	TP4	TP6
#	ISO17025 accredited.		Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	170722-52 15885340	0.00 - 0.70	0.00 - 1.60	0.00 - 2.40	0.00 - 1.20	0.00 - 2.00	0.00 - 0.80
M	mCERTS accredited.				Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
aq	Aqueous / settled sample.				19/07/2017	19/07/2017	19/07/2017	19/07/2017	19/07/2017	20/07/2017
diss.filt	Dissolved / filtered sample.				.	.	.	.	.	.
tot.unfilt	Total / unfiltered sample.				22/07/2017	22/07/2017	22/07/2017	22/07/2017	22/07/2017	22/07/2017
*	Subcontracted test.				170722-52	170722-52	170722-52	170722-52	170722-52	170722-52
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery				15885340	15885365	15885371	15885174	15885262	15885220
(F)	Trigger breach confirmed									
1-5&5@	Sample deviation (see appendix)									
Component	LOD/Units	Method								
Tetrachloroethene	<5 µg/kg	TM116			11600	1220000	3320000	<50	<50	17700
					M	3 M	3 M	M	M	M
Dibromochloromethane	<10 µg/kg	TM116			<100	<100	<100	<100	<100	<100
					M	M	M	M	M	M
1,2-Dibromoethane	<10 µg/kg	TM116			<100	<100	<100	<100	<100	<100
					M	M	M	M	M	M
Chlorobenzene	<5 µg/kg	TM116			<50	<50	<50	<50	<50	<50
					M	M	M	M	M	M
1,1,1,2-Tetrachloroethane	<10 µg/kg	TM116			<100	<100	<100	<100	<100	<100
					M	M	M	M	M	M
Ethylbenzene	<4 µg/kg	TM116			<40	<40	<40	<40	<40	<40
					M	M	M	M	M	M
p/m-Xylene	<10 µg/kg	TM116			<100	<100	<100	<100	<100	<100
					#	#	#	#	#	#
o-Xylene	<10 µg/kg	TM116			<100	<100	<100	<100	<100	<100
					M	M	M	M	M	M
Styrene	<10 µg/kg	TM116			<100	<100	<100	<100	<100	<100
					#	#	#	#	#	#
Bromoform	<10 µg/kg	TM116			<100	<100	<100	<100	<100	<100
					M	M	M	M	M	M
Isopropylbenzene	<5 µg/kg	TM116			<50	<50	<50	<50	<50	<50
					#	#	#	#	#	#
1,1,2,2-Tetrachloroethane	<10 µg/kg	TM116			<100	<100	<100	<100	<100	<100
					M	M	M	M	M	M
1,2,3-Trichloropropane	<16 µg/kg	TM116			<160	<160	<160	<160	<160	<160
					M	M	M	M	M	M
Bromobenzene	<10 µg/kg	TM116			<100	<100	<100	<100	<100	<100
					M	M	M	M	M	M
Propylbenzene	<10 µg/kg	TM116			<100	<100	<100	<100	<100	<100
					M	M	M	M	M	M
2-Chlorotoluene	<9 µg/kg	TM116			<90	<90	<90	<90	<90	<90
					M	M	M	M	M	M
1,3,5-Trimethylbenzene	<8 µg/kg	TM116			<80	<80	<80	<80	<80	<80
					M	M	M	M	M	M
4-Chlorotoluene	<10 µg/kg	TM116			<100	<100	<100	<100	<100	<100
					M	M	M	M	M	M
tert-Butylbenzene	<14 µg/kg	TM116			<140	<140	<140	<140	<140	<140
					M	M	M	M	M	M
1,2,4-Trimethylbenzene	<9 µg/kg	TM116			<90	<90	<90	<90	<90	<90
					#	#	#	#	#	#
sec-Butylbenzene	<10 µg/kg	TM116			<100	<100	<100	<100	<100	<100
4-Isopropyltoluene	<10 µg/kg	TM116			<100	<100	<100	<100	<100	<100
					M	M	M	M	M	M
1,3-Dichlorobenzene	<8 µg/kg	TM116			<80	<80	<80	<80	<80	<80
					M	M	M	M	M	M
1,4-Dichlorobenzene	<5 µg/kg	TM116			<50	<50	<50	<50	<50	<50
					M	M	M	M	M	M
n-Butylbenzene	<11 µg/kg	TM116			<110	<110	<110	<110	<110	<110
1,2-Dichlorobenzene	<10 µg/kg	TM116			<100	<100	<100	<100	<100	<100
					M	M	M	M	M	M
1,2-Dibromo-3-chloropropane	<14 µg/kg	TM116			<140	<140	<140	<140	<140	<140
					M	M	M	M	M	M
Tert-amyl methyl ether	<10 µg/kg	TM116			<100	<100	<100	<100	<100	<100
					#	#	#	#	#	#
1,2,4-Trichlorobenzene	<20 µg/kg	TM116			<200	<200	<200	<200	<200	<200
Hexachlorobutadiene	<20 µg/kg	TM116			<200	<200	<200	<200	<200	<200
Naphthalene	<13 µg/kg	TM116			<130	<130	<130	<130	<130	<130
					M	M	M	M	M	M
1,2,3-Trichlorobenzene	<20 µg/kg	TM116			<200	<200	<200	<200	<200	<200
					#	#	#	#	#	#



CERTIFICATE OF ANALYSIS

Validated

SDG: 170722-52
Location: Crowland

Client Reference: Q-05843
Order Number: POP010762

Report Number: 418441
Superseded Report:

VOC MS (S)

Results Legend		Customer Sample Ref.	TP6	TP8	TP8	TP12	TP12	TP13
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	0.00 - 2.50	0.00 - 0.80	0.00 - 1.90	0.00 - 1.00	0.00 - 3.00	0.00 - 0.60
M	mCERTS accredited.		Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
aq	Aqueous / settled sample.		20/07/2017	19/07/2017	19/07/2017	20/07/2017	20/07/2017	20/07/2017
diss.filt	Dissolved / filtered sample.		22/07/2017	22/07/2017	22/07/2017	22/07/2017	22/07/2017	22/07/2017
tot.unfilt	Total / unfiltered sample.		170722-52	170722-52	170722-52	170722-52	170722-52	170722-52
*	Subcontracted test.		15885229	15885378	15885383	15885270	15885279	15885313
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery							
(F)	Trigger breach confirmed							
1-5&*\$@	Sample deviation (see appendix)							
Component	LOD/Units	Method						
Dibromofluoromethane**	%	TM116	102	116	107	118	103	114
Toluene-d8**	%	TM116	97.9	104	92.7	93.2	101	103
4-Bromofluorobenzene**	%	TM116	107	94	75.7	83.1	93.6	92.6
Dichlorodifluoromethane	<6 µg/kg	TM116	<60	<60	<6	<60	<60	<60
Chloromethane	<7 µg/kg	TM116	<70	<70	<7	<70	<70	<70
Vinyl Chloride	<6 µg/kg	TM116	<60	<60	<6	<60	<60	<60
Bromomethane	<10 µg/kg	TM116	<100	<100	<10	<100	<100	<100
Chloroethane	<10 µg/kg	TM116	<100	<100	<10	<100	<100	<100
Trichlorofluoromethane	<6 µg/kg	TM116	<60	<60	<6	<60	<60	<60
1,1-Dichloroethene	<10 µg/kg	TM116	<100	<100	309	<100	<100	<100
Carbon Disulphide	<7 µg/kg	TM116	<70	<70	20.9	<70	<70	<70
Dichloromethane	<10 µg/kg	TM116	165	<100	<10	<100	<100	<100
Methyl Tertiary Butyl Ether	<10 µg/kg	TM116	<100	<100	<10	<100	<100	<100
trans-1,2-Dichloroethene	<10 µg/kg	TM116	<100	<100	236	<100	<100	<100
1,1-Dichloroethane	<8 µg/kg	TM116	7210	<80	10900	<80	<80	<80
cis-1,2-Dichloroethene	<6 µg/kg	TM116	4360	253	27700	<60	<60	<60
2,2-Dichloropropane	<10 µg/kg	TM116	<100	<100	<10	<100	<100	<100
Bromochloromethane	<10 µg/kg	TM116	<100	<100	<10	<100	<100	<100
Chloroform	<8 µg/kg	TM116	<80	<80	<8	<80	<80	<80
1,1,1-Trichloroethane	<7 µg/kg	TM116	2920	<70	2190	<70	<70	<70
1,1-Dichloropropene	<10 µg/kg	TM116	<100	<100	<10	<100	<100	<100
Carbontetrachloride	<10 µg/kg	TM116	<100	<100	<10	<100	<100	<100
1,2-Dichloroethane	<5 µg/kg	TM116	<50	<50	<5	<50	<50	<50
Benzene	<9 µg/kg	TM116	<90	<90	<9	<90	<90	<90
Trichloroethene	<9 µg/kg	TM116	17100	651	3420	168	<90	<90
1,2-Dichloropropane	<10 µg/kg	TM116	<100	<100	<10	<100	<100	<100
Dibromomethane	<9 µg/kg	TM116	<90	<90	<9	<90	<90	<90
Bromodichloromethane	<7 µg/kg	TM116	<70	<70	<7	<70	<70	<70
cis-1,3-Dichloropropene	<10 µg/kg	TM116	<100	<100	<10	<100	<100	<100
Toluene	<7 µg/kg	TM116	<70	<70	<7	<70	<70	<70
trans-1,3-Dichloropropene	<10 µg/kg	TM116	<100	<100	<10	<100	<100	<100
1,1,2-Trichloroethane	<10 µg/kg	TM116	<100	<100	167	<100	<100	<100
1,3-Dichloropropane	<7 µg/kg	TM116	<70	<70	<7	<70	<70	<70



CERTIFICATE OF ANALYSIS

Validated

SDG: 170722-52
Location: Crowland

Client Reference: Q-05843
Order Number: POP010762

Report Number: 418441
Superseded Report:

VOC MS (S)

Results Legend		Customer Sample Ref.	TP6	TP8	TP8	TP12	TP12	TP13
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	0.00 - 2.50	0.00 - 0.80	0.00 - 1.90	0.00 - 1.00	0.00 - 3.00	0.00 - 0.60
M	mCERTS accredited.		Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
aq	Aqueous / settled sample.		20/07/2017	19/07/2017	19/07/2017	20/07/2017	20/07/2017	20/07/2017
diss.filt	Dissolved / filtered sample.		.	.	.	.	.	.
tot.unfilt	Total / unfiltered sample.		22/07/2017	22/07/2017	22/07/2017	22/07/2017	22/07/2017	22/07/2017
*	Subcontracted test.		170722-52	170722-52	170722-52	170722-52	170722-52	170722-52
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery		15885229	15885378	15885383	15885270	15885279	15885313
(F)	Trigger breach confirmed							
1-5&5@	Sample deviation (see appendix)							
Component	LOD/Units	Method						
Tetrachloroethene	<5 µg/kg	TM116	21300	3440	859	324	382	111
			M	M	M	M	M	M
Dibromochloromethane	<10 µg/kg	TM116	<100	<100	<10	<100	<100	<100
			M	M	M	M	M	M
1,2-Dibromoethane	<10 µg/kg	TM116	<100	<100	<10	<100	<100	<100
			M	M	M	M	M	M
Chlorobenzene	<5 µg/kg	TM116	<50	<50	<5	<50	<50	<50
			M	M	M	M	M	M
1,1,1,2-Tetrachloroethane	<10 µg/kg	TM116	<100	<100	<10	<100	<100	<100
			M	M	M	M	M	M
Ethylbenzene	<4 µg/kg	TM116	<40	<40	<4	<40	<40	<40
			M	M	M	M	M	M
p/m-Xylene	<10 µg/kg	TM116	<100	<100	<10	<100	<100	<100
			#	#	#	#	#	#
o-Xylene	<10 µg/kg	TM116	<100	<100	<10	<100	<100	<100
			M	M	M	M	M	M
Styrene	<10 µg/kg	TM116	<100	<100	<10	<100	<100	<100
			#	#	#	#	#	#
Bromoform	<10 µg/kg	TM116	<100	<100	<10	<100	<100	<100
			M	M	M	M	M	M
Isopropylbenzene	<5 µg/kg	TM116	<50	<50	<5	<50	<50	<50
			#	#	#	#	#	#
1,1,2,2-Tetrachloroethane	<10 µg/kg	TM116	<100	<100	<10	<100	<100	<100
			M	M	M	M	M	M
1,2,3-Trichloropropane	<16 µg/kg	TM116	<160	<160	<16	<160	<160	<160
			M	M	M	M	M	M
Bromobenzene	<10 µg/kg	TM116	<100	<100	<10	<100	<100	<100
			M	M	M	M	M	M
Propylbenzene	<10 µg/kg	TM116	<100	<100	<10	<100	<100	<100
			M	M	M	M	M	M
2-Chlorotoluene	<9 µg/kg	TM116	<90	<90	<9	<90	<90	<90
			M	M	M	M	M	M
1,3,5-Trimethylbenzene	<8 µg/kg	TM116	<80	<80	<8	<80	<80	<80
			M	M	M	M	M	M
4-Chlorotoluene	<10 µg/kg	TM116	<100	<100	<10	<100	<100	<100
			M	M	M	M	M	M
tert-Butylbenzene	<14 µg/kg	TM116	<140	<140	<14	<140	<140	<140
			M	M	M	M	M	M
1,2,4-Trimethylbenzene	<9 µg/kg	TM116	<90	<90	<9	<90	<90	<90
			#	#	#	#	#	#
sec-Butylbenzene	<10 µg/kg	TM116	-	<100	<10	<100	<100	<100
4-Isopropyltoluene	<10 µg/kg	TM116	<100	<100	<10	<100	<100	<100
			M	M	M	M	M	M
1,3-Dichlorobenzene	<8 µg/kg	TM116	<80	<80	<8	<80	<80	<80
			M	M	M	M	M	M
1,4-Dichlorobenzene	<5 µg/kg	TM116	<50	<50	<5	<50	<50	<50
			M	M	M	M	M	M
n-Butylbenzene	<11 µg/kg	TM116	<110	<110	<11	<110	<110	<110
1,2-Dichlorobenzene	<10 µg/kg	TM116	<100	<100	<10	<100	<100	<100
			M	M	M	M	M	M
1,2-Dibromo-3-chloropropane	<14 µg/kg	TM116	<140	<140	<14	<140	<140	<140
			M	M	M	M	M	M
Tert-amyl methyl ether	<10 µg/kg	TM116	<100	<100	<10	<100	<100	<100
			#	#	#	#	#	#
1,2,4-Trichlorobenzene	<20 µg/kg	TM116	<200	<200	<20	<200	<200	<200
Hexachlorobutadiene	<20 µg/kg	TM116	<200	<200	<20	<200	<200	<200
Naphthalene	<13 µg/kg	TM116	<130	<130	<13	<130	<130	<130
			M	M	M	M	M	M
1,2,3-Trichlorobenzene	<20 µg/kg	TM116	<200	<200	<20	<200	<200	<200
			#	#	#	#	#	#



CERTIFICATE OF ANALYSIS

Validated

SDG: 170722-52
Location: Crowland

Client Reference: Q-05843
Order Number: POP010762

Report Number: 418441
Superseded Report:

VOC MS (S)

Results Legend			Customer Sample Ref.		TP13	TP14	TP14	TP15	TP15	TP17
#	ISO17025 accredited.		Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	TM116	0.00 - 3.00	0.00 - 1.00	0.00 - 3.00	0.00 - 0.80	0.00 - 3.60	0.00 - 0.90
M	mCERTS accredited.				Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
aq	Aqueous / settled sample.				20/07/2017	20/07/2017	20/07/2017	20/07/2017	20/07/2017	20/07/2017
diss.filt	Dissolved / filtered sample.									
tot.unfilt	Total / unfiltered sample.				22/07/2017	22/07/2017	22/07/2017	22/07/2017	22/07/2017	22/07/2017
*	Subcontracted test.				170722-52	170722-52	170722-52	170722-52	170722-52	170722-52
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery				15885321	15885292	15885302	15885352	15885359	15885327
(F)	Trigger breach confirmed									
1-5&*\$@	Sample deviation (see appendix)									
Component	LOD/Units	Method								
Dibromofluoromethane**	%	TM116			106	114	92.1	103	98.4	109
Toluene-d8**	%	TM116			93.8	99.4	87	96.7	99.8	87.4
4-Bromofluorobenzene**	%	TM116			79.2	95.8	108	101	95.4	72.3
Dichlorodifluoromethane	<6 µg/kg	TM116			<6	<60	<60	<60	<60	<60
Chloromethane	<7 µg/kg	TM116			<7	<70	<70	<70	<70	<70
Vinyl Chloride	<6 µg/kg	TM116			<6	<60	<60	<60	<60	<60
Bromomethane	<10 µg/kg	TM116			<10	<100	<100	<100	<100	<100
Chloroethane	<10 µg/kg	TM116			<10	<100	<100	<100	<100	<100
Trichlorofluoromethane	<6 µg/kg	TM116			<6	<60	<60	<60	<60	<60
1,1-Dichloroethene	<10 µg/kg	TM116			<10	<100	<100	<100	<100	<100
Carbon Disulphide	<7 µg/kg	TM116			<7	<70	<70	<70	<70	<70
Dichloromethane	<10 µg/kg	TM116			<10	<100	<100	<100	<100	<100
Methyl Tertiary Butyl Ether	<10 µg/kg	TM116			<10	<100	<100	<100	<100	<100
trans-1,2-Dichloroethene	<10 µg/kg	TM116			<10	<100	3250	<100	1500	<100
1,1-Dichloroethane	<8 µg/kg	TM116			<8	<80	366	<80	<80	<80
cis-1,2-Dichloroethene	<6 µg/kg	TM116			<6	<60	15900	<60	21400	503
2,2-Dichloropropane	<10 µg/kg	TM116			<10	<100	<100	<100	<100	<100
Bromochloromethane	<10 µg/kg	TM116			<10	<100	<100	<100	<100	<100
Chloroform	<8 µg/kg	TM116			<8	<80	<80	<80	<80	<80
1,1,1-Trichloroethane	<7 µg/kg	TM116			<7	<70	<70	<70	<70	1410
1,1-Dichloropropene	<10 µg/kg	TM116			<10	<100	<100	<100	<100	<100
Carbontetrachloride	<10 µg/kg	TM116			<10	<100	<100	<100	<100	<100
1,2-Dichloroethane	<5 µg/kg	TM116			<5	<50	<50	<50	<50	<50
Benzene	<9 µg/kg	TM116			<9	<90	<90	<90	<90	<90
Trichloroethene	<9 µg/kg	TM116			34.6	122	792	168	48300	<90
1,2-Dichloropropane	<10 µg/kg	TM116			<10	<100	<100	<100	<100	<100
Dibromomethane	<9 µg/kg	TM116			<9	<90	<90	<90	<90	<90
Bromodichloromethane	<7 µg/kg	TM116			<7	<70	<70	<70	<70	<70
cis-1,3-Dichloropropene	<10 µg/kg	TM116			<10	<100	<100	<100	<100	<100
Toluene	<7 µg/kg	TM116			<7	<70	<70	<70	<70	88.8
trans-1,3-Dichloropropene	<10 µg/kg	TM116			<10	<100	<100	<100	<100	<100
1,1,2-Trichloroethane	<10 µg/kg	TM116			<10	<100	<100	<100	<100	<100
1,3-Dichloropropane	<7 µg/kg	TM116			<7	<70	<70	<70	<70	<70



CERTIFICATE OF ANALYSIS

Validated

SDG: 170722-52
Location: Crowland

Client Reference: Q-05843
Order Number: POP010762

Report Number: 418441
Superseded Report:

VOC MS (S)

Results Legend			Customer Sample Ref.	TP13	TP14	TP14	TP15	TP15	TP17
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference		0.00 - 3.00	0.00 - 1.00	0.00 - 3.00	0.00 - 0.80	0.00 - 3.60	0.00 - 0.90
M	mCERTS accredited.			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
aq	Aqueous / settled sample.			20/07/2017	20/07/2017	20/07/2017	20/07/2017	20/07/2017	20/07/2017
diss.filt	Dissolved / filtered sample.								
tot.unfilt	Total / unfiltered sample.								
*	Subcontracted test.								
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery								
(F)	Trigger breach confirmed								
1-5&*\$@	Sample deviation (see appendix)								
Component	LOD/Units	Method							
Tetrachloroethene	<5 µg/kg	TM116	120	3420	214	3810	39400	520	
			M	M	M	M	M	M	
Dibromochloromethane	<10 µg/kg	TM116	<10	<100	<100	<100	<100	<100	
			M	M	M	M	M	M	
1,2-Dibromoethane	<10 µg/kg	TM116	<10	<100	<100	<100	<100	<100	
			M	M	M	M	M	M	
Chlorobenzene	<5 µg/kg	TM116	<5	<50	<50	<50	119	2820	
			M	M	M	M	M	M	
1,1,1,2-Tetrachloroethane	<10 µg/kg	TM116	<10	<100	<100	<100	<100	<100	
			M	M	M	M	M	M	
Ethylbenzene	<4 µg/kg	TM116	<4	<40	<40	<40	<40	3750	
			M	M	M	M	M	M	
p/m-Xylene	<10 µg/kg	TM116	<10	<100	<100	<100	<100	9260	
			#	#	#	#	#	#	
o-Xylene	<10 µg/kg	TM116	<10	<100	<100	<100	<100	1610	
			M	M	M	M	M	M	
Styrene	<10 µg/kg	TM116	<10	<100	<100	<100	<100	<100	
			#	#	#	#	#	#	
Bromoform	<10 µg/kg	TM116	<10	<100	<100	<100	<100	<100	
			M	M	M	M	M	M	
Isopropylbenzene	<5 µg/kg	TM116	<5	<50	<50	<50	<50	<50	
			#	#	#	#	#	#	
1,1,2,2-Tetrachloroethane	<10 µg/kg	TM116	<10	<100	<100	<100	<100	<100	
			M	M	M	M	M	M	
1,2,3-Trichloropropane	<16 µg/kg	TM116	<16	<160	<160	<160	<160	<160	
			M	M	M	M	M	M	
Bromobenzene	<10 µg/kg	TM116	<10	<100	<100	<100	<100	<100	
			M	M	M	M	M	M	
Propylbenzene	<10 µg/kg	TM116	<10	<100	<100	<100	<100	6740	
			M	M	M	M	M	M	
2-Chlorotoluene	<9 µg/kg	TM116	<9	<90	<90	<90	<90	<90	
			M	M	M	M	M	M	
1,3,5-Trimethylbenzene	<8 µg/kg	TM116	<8	<80	<80	<80	<80	37800	
			M	M	M	M	M	M	
4-Chlorotoluene	<10 µg/kg	TM116	<10	<100	<100	<100	<100	<100	
			M	M	M	M	M	M	
tert-Butylbenzene	<14 µg/kg	TM116	<14	<140	<140	<140	<140	<140	
			M	M	M	M	M	M	
1,2,4-Trimethylbenzene	<9 µg/kg	TM116	<9	<90	<90	<90	<90	178000	
			#	#	#	#	#	#	
sec-Butylbenzene	<10 µg/kg	TM116	<10	<100	<100	<100	<100	-	
4-Isopropyltoluene	<10 µg/kg	TM116	<10	<100	<100	<100	<100	<100	
			M	M	M	M	M	M	
1,3-Dichlorobenzene	<8 µg/kg	TM116	<8	<80	<80	<80	<80	<80	
			M	M	M	M	M	M	
1,4-Dichlorobenzene	<5 µg/kg	TM116	<5	<50	<50	<50	<50	<50	
			M	M	M	M	M	M	
n-Butylbenzene	<11 µg/kg	TM116	<11	<110	<110	<110	<110	<110	
1,2-Dichlorobenzene	<10 µg/kg	TM116	<10	<100	<100	<100	<100	<100	
			M	M	M	M	M	M	
1,2-Dibromo-3-chloropropane	<14 µg/kg	TM116	<14	<140	<140	<140	<140	<140	
			M	M	M	M	M	M	
Tert-amyl methyl ether	<10 µg/kg	TM116	<10	<100	<100	<100	<100	<100	
			#	#	#	#	#	#	
1,2,4-Trichlorobenzene	<20 µg/kg	TM116	<20	<200	<200	<200	<200	<200	
Hexachlorobutadiene	<20 µg/kg	TM116	<20	<200	<200	<200	<200	<200	
Naphthalene	<13 µg/kg	TM116	<13	<130	<130	<130	<130	8520	
			M	M	M	M	M	M	
1,2,3-Trichlorobenzene	<20 µg/kg	TM116	<20	<200	<200	<200	<200	<200	
			#	#	#	#	#	#	



CERTIFICATE OF ANALYSIS

Validated

SDG: 170722-52
Location: Crowland

Client Reference: Q-05843
Order Number: POP010762

Report Number: 418441
Superseded Report:

VOC MS (S)

Results Legend		Customer Sample Ref.		TP17	TP17	TP21	TP21	TP21	
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	TM116	0.00 - 1.80	0.00 - 3.50	0.00 - 0.90	0.00 - 2.50	0.00 - 4.00	
M	mCERTS accredited.			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	
aq	Aqueous / settled sample.			20/07/2017	20/07/2017	20/07/2017	20/07/2017	20/07/2017	
diss.filt	Dissolved / filtered sample.								
tot.unfilt	Total / unfiltered sample.								
*	Subcontracted test.								
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery			22/07/2017	22/07/2017	22/07/2017	22/07/2017	22/07/2017	
(F)	Trigger breach confirmed			170722-52	170722-52	170722-52	170722-52	170722-52	
1-5&*\$@	Sample deviation (see appendix)			15885333	15885346	15885241	15885250	15885257	
Component	LOD/Units			Method					
Dibromofluoromethane**	%			104	103	106	102	101	
Toluene-d8**	%			96.5	98.3	95	102	98.5	
4-Bromofluorobenzene**	%			96.9	103	94.4	99.3	103	
Dichlorodifluoromethane	<6 µg/kg			<60	<60	<60	<60	<60	
				M	M	M	M	M	
Chloromethane	<7 µg/kg			<70	<70	<70	<70	<70	
				#	#	#	#	#	
Vinyl Chloride	<6 µg/kg			<60	<60	<60	<60	<60	
				M	M	M	M	M	
Bromomethane	<10 µg/kg			<100	<100	<100	<100	<100	
				M	M	M	M	M	
Chloroethane	<10 µg/kg			<100	<100	<100	<100	<100	
				M	M	M	M	M	
Trichlorofluoromethane	<6 µg/kg			<60	<60	<60	<60	<60	
				M	M	M	M	M	
1,1-Dichloroethene	<10 µg/kg			<100	<100	<100	<100	<100	
				#	#	#	#	#	
Carbon Disulphide	<7 µg/kg			<70	<70	<70	<70	<70	
				M	M	M	M	M	
Dichloromethane	<10 µg/kg			<100	<100	<100	<100	<100	
				#	#	#	#	#	
Methyl Tertiary Butyl Ether	<10 µg/kg			<100	<100	<100	<100	<100	
				M	M	M	M	M	
trans-1,2-Dichloroethene	<10 µg/kg			<100	<100	<100	<100	<100	
				M	M	M	M	M	
1,1-Dichloroethane	<8 µg/kg			<80	<80	<80	<80	<80	
				M	M	M	M	M	
cis-1,2-Dichloroethene	<6 µg/kg			<60	107	<60	<60	<60	
				M	M	M	M	M	
2,2-Dichloropropane	<10 µg/kg			<100	<100	<100	<100	<100	
Bromochloromethane	<10 µg/kg			<100	<100	<100	<100	<100	
				M	M	M	M	M	
Chloroform	<8 µg/kg			<80	<80	<80	<80	<80	
				M	M	M	M	M	
1,1,1-Trichloroethane	<7 µg/kg			<70	<70	<70	<70	<70	
				M	M	M	M	M	
1,1-Dichloropropene	<10 µg/kg			<100	<100	<100	<100	<100	
				M	M	M	M	M	
Carbontetrachloride	<10 µg/kg			<100	<100	<100	<100	<100	
				M	M	M	M	M	
1,2-Dichloroethane	<5 µg/kg			<50	<50	<50	<50	<50	
				M	M	M	M	M	
Benzene	<9 µg/kg			<90	<90	<90	<90	<90	
				M	M	M	M	M	
Trichloroethene	<9 µg/kg			<90	<90	531	<90	<90	
				#	#	#	#	#	
1,2-Dichloropropane	<10 µg/kg			<100	<100	<100	<100	<100	
				M	M	M	M	M	
Dibromomethane	<9 µg/kg			<90	<90	<90	<90	<90	
				M	M	M	M	M	
Bromodichloromethane	<7 µg/kg			<70	<70	<70	<70	<70	
				M	M	M	M	M	
cis-1,3-Dichloropropene	<10 µg/kg			<100	<100	<100	<100	<100	
				M	M	M	M	M	
Toluene	<7 µg/kg			<70	<70	<70	<70	<70	
				M	M	M	M	M	
trans-1,3-Dichloropropene	<10 µg/kg			<100	<100	<100	<100	<100	
1,1,2-Trichloroethane	<10 µg/kg			<100	<100	<100	<100	<100	
				M	M	M	M	M	
1,3-Dichloropropane	<7 µg/kg			<70	<70	<70	<70	<70	
				M	M	M	M	M	



CERTIFICATE OF ANALYSIS

Validated

SDG: 170722-52
Location: Crowland

Client Reference: Q-05843
Order Number: POP010762

Report Number: 418441
Superseded Report:

VOC MS (S)

Results Legend		Customer Sample Ref.	TP17	TP17	TP21	TP21	TP21	
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	0.00 - 1.80	0.00 - 3.50	0.00 - 0.90	0.00 - 2.50	0.00 - 4.00	
M	mCERTS accredited.		Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	
aq	Aqueous / settled sample.		20/07/2017	20/07/2017	20/07/2017	20/07/2017	20/07/2017	
diss.filt	Dissolved / filtered sample.		.	.	.	.	.	
tot.unfilt	Total / unfiltered sample.		22/07/2017	22/07/2017	22/07/2017	22/07/2017	22/07/2017	
*	Subcontracted test.		170722-52	170722-52	170722-52	170722-52	170722-52	
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery		15885333	15885346	15885241	15885250	15885257	
(F)	Trigger breach confirmed							
1-5&*\$@	Sample deviation (see appendix)							
Component	LOD/Units	Method						
Tetrachloroethene	<5 µg/kg	TM116	1180	<50	3570	<50	<50	
			M	M	M	M	M	
Dibromochloromethane	<10 µg/kg	TM116	<100	<100	<100	<100	<100	
			M	M	M	M	M	
1,2-Dibromoethane	<10 µg/kg	TM116	<100	<100	<100	<100	<100	
			M	M	M	M	M	
Chlorobenzene	<5 µg/kg	TM116	<50	<50	<50	<50	<50	
			M	M	M	M	M	
1,1,1,2-Tetrachloroethane	<10 µg/kg	TM116	<100	<100	<100	<100	<100	
			M	M	M	M	M	
Ethylbenzene	<4 µg/kg	TM116	<40	<40	<40	<40	<40	
			M	M	M	M	M	
p/m-Xylene	<10 µg/kg	TM116	<100	<100	<100	<100	<100	
			#	#	#	#	#	
o-Xylene	<10 µg/kg	TM116	<100	<100	<100	<100	<100	
			M	M	M	M	M	
Styrene	<10 µg/kg	TM116	<100	<100	<100	<100	<100	
			#	#	#	#	#	
Bromoform	<10 µg/kg	TM116	<100	<100	<100	<100	<100	
			M	M	M	M	M	
Isopropylbenzene	<5 µg/kg	TM116	<50	<50	<50	<50	<50	
			#	#	#	#	#	
1,1,2,2-Tetrachloroethane	<10 µg/kg	TM116	<100	<100	<100	<100	<100	
			M	M	M	M	M	
1,2,3-Trichloropropane	<16 µg/kg	TM116	<160	<160	<160	<160	<160	
			M	M	M	M	M	
Bromobenzene	<10 µg/kg	TM116	<100	<100	<100	<100	<100	
			M	M	M	M	M	
Propylbenzene	<10 µg/kg	TM116	<100	<100	<100	<100	<100	
			M	M	M	M	M	
2-Chlorotoluene	<9 µg/kg	TM116	<90	<90	<90	<90	<90	
			M	M	M	M	M	
1,3,5-Trimethylbenzene	<8 µg/kg	TM116	<80	<80	<80	<80	<80	
			M	M	M	M	M	
4-Chlorotoluene	<10 µg/kg	TM116	<100	<100	<100	<100	<100	
			M	M	M	M	M	
tert-Butylbenzene	<14 µg/kg	TM116	<140	<140	<140	<140	<140	
			M	M	M	M	M	
1,2,4-Trimethylbenzene	<9 µg/kg	TM116	<90	<90	<90	<90	<90	
			#	#	#	#	#	
sec-Butylbenzene	<10 µg/kg	TM116	<100	<100	<100	<100	<100	
4-Isopropyltoluene	<10 µg/kg	TM116	<100	<100	<100	<100	<100	
			M	M	M	M	M	
1,3-Dichlorobenzene	<8 µg/kg	TM116	<80	<80	<80	<80	<80	
			M	M	M	M	M	
1,4-Dichlorobenzene	<5 µg/kg	TM116	<50	<50	<50	<50	<50	
			M	M	M	M	M	
n-Butylbenzene	<11 µg/kg	TM116	<110	<110	<110	<110	<110	
1,2-Dichlorobenzene	<10 µg/kg	TM116	<100	<100	<100	<100	<100	
			M	M	M	M	M	
1,2-Dibromo-3-chloropropane	<14 µg/kg	TM116	<140	<140	<140	<140	<140	
			M	M	M	M	M	
Tert-amyl methyl ether	<10 µg/kg	TM116	<100	<100	<100	<100	<100	
			#	#	#	#	#	
1,2,4-Trichlorobenzene	<20 µg/kg	TM116	<200	<200	<200	<200	<200	
Hexachlorobutadiene	<20 µg/kg	TM116	<200	<200	<200	<200	<200	
Naphthalene	<13 µg/kg	TM116	<130	<130	<130	<130	<130	
			M	M	M	M	M	
1,2,3-Trichlorobenzene	<20 µg/kg	TM116	<200	<200	<200	<200	<200	
			#	#	#	#	#	



CERTIFICATE OF ANALYSIS

Validated

SDG: 170722-52
Location: Crowland

Client Reference: Q-05843
Order Number: POP010762

Report Number: 418441
Superseded Report:

Asbestos Identification - Bulk

		Date of Analysis	Analysed by	Comments	Actinolite, Fibrous	Anthophyllite, Fibrous	Asbestos, Amosite (brown)	Asbestos, Chrysotile (white)	Asbestos, Crocidolite (blue)	Non-asbestos fibre	Tremolite, Fibrous
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Received SDG Original Sample Method Number	ASB-1 0.00 - 0.00 SOLID 20/07/2017 00:00:00 22/07/2017 11:56:34 170722-52 15885236 TM048	01/08/17	Kevin Bowron	Material typical of Asbestos cement	Not Detected (#)	Not Detected (#)	Not Detected (#)	Detected (#)	Not Detected (#)	Not Detected	Not Detected (#)
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Received SDG Original Sample Method Number	ASB-2 0.00 - 0.00 SOLID 20/07/2017 00:00:00 22/07/2017 11:58:00 170722-52 15885308 TM048	01/08/17	Kevin Bowron	Material typical of Asbestos cement	Not Detected (#)	Not Detected (#)	Not Detected (#)	Detected (#)	Not Detected (#)	Not Detected	Not Detected (#)
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Received SDG Original Sample Method Number	ASB-3 0.00 - 0.00 SOLID 20/07/2017 00:00:00 22/07/2017 11:58:06 170722-52 15885310 TM048	01/08/17	Kevin Bowron	Material typical of Asbestos cement	Not Detected (#)	Not Detected (#)	Not Detected (#)	Detected (#)	Not Detected (#)	Not Detected	Not Detected (#)



CERTIFICATE OF ANALYSIS

Validated

SDG: 170722-52
Location: Crowland

Client Reference: Q-05843
Order Number: POP010762

Report Number: 418441
Superseded Report:

Asbestos Identification - Solid Samples

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Fibrous Actinolite	Fibrous Anthophyllite	Fibrous Tremolite	Non-Asbestos Fibre
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Received SDG Original Sample Method Number	TP2 0.00 - 2.40 SOLID 19/07/2017 00:00:00 26/07/2017 10:00:12 170722-52 15885394 TM048	31/7/17	Neville Mann	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Received SDG Original Sample Method Number	TP3 0.00 - 2.70 SOLID 19/07/2017 00:00:00 27/07/2017 14:35:48 170722-52 15885340 TM048	31/7/17	Neville Mann	Fibre bundles in soil	Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Received SDG Original Sample Method Number	TP6 0.00 - 0.80 SOLID 20/07/2017 00:00:00 26/07/2017 09:33:57 170722-52 15885220 TM048	31/7/17	Neville Mann	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Received SDG Original Sample Method Number	TP14 0.00 - 1.00 SOLID 20/07/2017 00:00:00 25/07/2017 12:11:39 170722-52 15885292 TM048	31/7/17	Neville Mann	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Received SDG Original Sample Method Number	TP17 0.00 - 1.80 SOLID 20/07/2017 00:00:00 26/07/2017 11:56:12 170722-52 15885333 TM048	31/7/17	Neville Mann	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected



CERTIFICATE OF ANALYSIS

Validated

SDG: 170722-52
Location: Crowland

Client Reference: Q-05843
Order Number: POP010762

Report Number: 418441
Superseded Report:

Table of Results - Appendix

Method No	Reference	Description	Wet/Dry Sample ¹	Surrogate Corrected
ASB_PREP				
PM001		Preparation of Samples for Metals Analysis		
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material		
TM048	HSG 248, Asbestos: The analysts' guide for sampling, analysis and clearance procedures	Identification of Asbestos in Bulk Material		
TM062 (S)	National Grid Property Holdings Methods for the Collection & Analysis of Samples from National Grid Sites version 1 Sec 3.9	Determination of Phenols in Soils by HPLC		
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) and BTEX (MTBE) compounds by Headspace GC-FID (C4-C12)		
TM116	Modified: US EPA Method 8260, 8120, 8020, 624, 610 & 602	Determination of Volatile Organic Compounds by Headspace / GC-MS		
TM132	In - house Method	ELTRA CS800 Operators Guide		
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter		
TM136	Method 17.10, Second Site property, March 2003	Determination of Sulphur by HPLC		
TM151	Method 3500D, AWWA/APHA, 20th Ed., 1999	Determination of Hexavalent Chromium using Kone analyser		
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		
TM173	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GC-FID		
TM180	Sulphide in waters and waste waters 1991 ISBN 01 175 7186 SCA rec. 2007 (unpublished) ¹	The Determination Of Easily Liberated Sulphide In Soil Samples by Ion Selective Electrode Technique		
TM181	US EPA Method 6010B	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES		
TM218	Determination of PAH by GCMS Microwave extraction	The determination of PAH in soil samples by microwave extraction and GC-MS		
TM222	In-House Method	Determination of Hot Water Soluble Boron in Soils (10:1 Water:soil) by IRIS Emission Spectrometer		

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

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).



CERTIFICATE OF ANALYSIS

Validated

SDG: 170722-52
Location: Crowland

Client Reference: Q-05843
Order Number: POP010762

Report Number: 418441
Superseded Report:

Test Completion Dates

Lab Sample No(s)
Customer Sample Ref.

AGS Ref.
Depth
Type

15885236	15885308	15885310	15885192	15885202	15885211	15885186	15885388	15885394	15885340
ASB-1	ASB-2	ASB-3	TP1	TP1	TP1	TP2	TP2	TP2	TP3
0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.90	0.00 - 2.00	0.00 - 3.00	0.00 - 4.00	0.00 - 1.00	0.00 - 2.40	0.00 - 0.70
Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Asbestos ID in Solid Samples								01-Aug-2017	01-Aug-2017
Asbestos Identification	01-Aug-2017	01-Aug-2017	01-Aug-2017						
Boron Water Soluble								31-Jul-2017	01-Aug-2017
Cyanide Comp/Free/Total/Thiocyanate								01-Aug-2017	28-Jul-2017
Easily Liberated Sulphide								31-Jul-2017	31-Jul-2017
Elemental Sulphur								01-Aug-2017	01-Aug-2017
EPH CWG (Aliphatic) GC (S)								01-Aug-2017	28-Jul-2017
EPH CWG (Aromatic) GC (S)								01-Aug-2017	28-Jul-2017
GRO by GC-FID (S)								01-Aug-2017	31-Jul-2017
Hexavalent Chromium (s)								31-Jul-2017	28-Jul-2017
Metals in solid samples by OES								01-Aug-2017	31-Jul-2017
PAH by GCMS								28-Jul-2017	27-Jul-2017
pH								26-Jul-2017	28-Jul-2017
Phenols by HPLC (S)								01-Aug-2017	28-Jul-2017
Sample description			25-Jul-2017	26-Jul-2017	26-Jul-2017	25-Jul-2017	26-Jul-2017	25-Jul-2017	24-Jul-2017
Total Organic Carbon								31-Jul-2017	28-Jul-2017
TPH CWG GC (S)								01-Aug-2017	31-Jul-2017
VOC MS (S)			01-Aug-2017	01-Aug-2017	28-Jul-2017	01-Aug-2017	01-Aug-2017	01-Aug-2017	31-Jul-2017

Lab Sample No(s)
Customer Sample Ref.

AGS Ref.
Depth
Type

15885365	15885371	15885174	15885262	15885220	15885229	15885378	15885383	15885270	15885279
TP3	TP3	TP4	TP4	TP6	TP6	TP8	TP8	TP12	TP12
0.00 - 1.60	0.00 - 2.40	0.00 - 1.20	0.00 - 2.00	0.00 - 0.80	0.00 - 2.50	0.00 - 0.80	0.00 - 1.90	0.00 - 1.00	0.00 - 3.00
Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Asbestos ID in Solid Samples				01-Aug-2017					
Boron Water Soluble				01-Aug-2017					
Cyanide Comp/Free/Total/Thiocyanate				28-Jul-2017					
Easily Liberated Sulphide				31-Jul-2017					
Elemental Sulphur				01-Aug-2017					
EPH CWG (Aliphatic) GC (S)				27-Jul-2017					
EPH CWG (Aromatic) GC (S)				27-Jul-2017					
GRO by GC-FID (S)				27-Jul-2017					
Hexavalent Chromium (s)				27-Jul-2017					
Metals in solid samples by OES				01-Aug-2017					
PAH by GCMS				26-Jul-2017					
pH				27-Jul-2017					
Phenols by HPLC (S)				27-Jul-2017					
Sample description	24-Jul-2017	24-Jul-2017	24-Jul-2017	24-Jul-2017	25-Jul-2017	24-Jul-2017	26-Jul-2017	25-Jul-2017	25-Jul-2017
Total Organic Carbon				28-Jul-2017					
TPH CWG GC (S)				27-Jul-2017					
VOC MS (S)	01-Aug-2017	01-Aug-2017	01-Aug-2017	01-Aug-2017	28-Jul-2017	01-Aug-2017	31-Jul-2017	01-Aug-2017	31-Jul-2017

Lab Sample No(s)
Customer Sample Ref.

AGS Ref.
Depth
Type

15885313	15885321	15885292	15885302	15885352	15885359	15885327	15885333	15885346	15885241
TP13	TP13	TP14	TP14	TP15	TP15	TP17	TP17	TP17	TP21
0.00 - 0.60	0.00 - 3.00	0.00 - 1.00	0.00 - 3.00	0.00 - 0.80	0.00 - 3.60	0.00 - 0.90	0.00 - 1.80	0.00 - 3.50	0.00 - 0.90
Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Asbestos ID in Solid Samples		01-Aug-2017					01-Aug-2017		
Boron Water Soluble		01-Aug-2017					31-Jul-2017		
Cyanide Comp/Free/Total/Thiocyanate		27-Jul-2017					28-Jul-2017		
Easily Liberated Sulphide		31-Jul-2017					27-Jul-2017		
Elemental Sulphur		01-Aug-2017					01-Aug-2017		
EPH CWG (Aliphatic) GC (S)		27-Jul-2017					28-Jul-2017		
EPH CWG (Aromatic) GC (S)		27-Jul-2017					28-Jul-2017		
GRO by GC-FID (S)		29-Jul-2017					27-Jul-2017		
Hexavalent Chromium (s)		27-Jul-2017					28-Jul-2017		
Metals in solid samples by OES		31-Jul-2017					01-Aug-2017		
PAH by GCMS		26-Jul-2017					27-Jul-2017		
pH		26-Jul-2017					31-Jul-2017		
Phenols by HPLC (S)		27-Jul-2017					28-Jul-2017		
Sample description	25-Jul-2017	25-Jul-2017	25-Jul-2017	25-Jul-2017	26-Jul-2017	25-Jul-2017	29-Jul-2017	26-Jul-2017	25-Jul-2017
Total Organic Carbon			31-Jul-2017				31-Jul-2017		
TPH CWG GC (S)			29-Jul-2017				28-Jul-2017		
VOC MS (S)	01-Aug-2017	28-Jul-2017	31-Jul-2017	28-Jul-2017	28-Jul-2017	28-Jul-2017	01-Aug-2017	28-Jul-2017	28-Jul-2017



CERTIFICATE OF ANALYSIS

Validated

SDG: 170722-52
Location: Crowland

Client Reference: Q-05843
Order Number: POP010762

Report Number: 418441
Superseded Report:

Lab Sample No(s)	15885250	15885257
Customer Sample Ref.	TP21	TP21
AGS Ref.		
Depth	0.00 - 2.50	0.00 - 4.00
Type	Soil/Solid (S)	Soil/Solid (S)
Sample description	26-Jul-2017	25-Jul-2017
VOC MS (S)	28-Jul-2017	28-Jul-2017



CERTIFICATE OF ANALYSIS

SDG:	170722-52	Client Reference:	Q-05843	Report Number:	418441
Location:	Crowland	Order Number:	POP010762	Superseded Report:	

Appendix

1. Results are expressed on a dry weight basis (dried at 35°C) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH₄ by the BRE method, VOC TICs and SVOC TICs.

2. Samples will be run in duplicate upon request, but an additional charge may be incurred.

3. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

6. When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as "Not detected". If no asbestos fibre types are found all will be reported as "Not detected" and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

7. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

8. If appropriate preserved bottles are not received preservation will take place on receipt. However, the integrity of the data may be compromised.

9. NDP - No determination possible due to insufficient/unsuitable sample.

10. Metals in water are performed on a filtered sample, and therefore represent dissolved metals - total metals must be requested separately.

11. Results relate only to the items tested.

12. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

13. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%, they are generally wider for volatiles analysis, 50-150%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

14. **Product analyses** - Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors employed.

15. Phenols monohydric by HPLC include phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethylphenol, 3,5 Dimethylphenol).

16. Total of 5 speciated phenols by HPLC includes Phenol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, Cresols and Xylenols (as detailed in 15).

17. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

18. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

19. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

20. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

General

21. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

22. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

23. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

24. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as "mixed hydrocarbons". Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

Sample Deviations

If a sample is classed as deviated then the associated results may be compromised.

1	Container with Headspace provided for volatiles analysis
2	Incorrect container received
3	Deviation from method
4	Holding time exceeded before sample received
5	Samples exceeded holding time before preservation was performed
§	Sampled on date not provided
◆	Sample holding time exceeded in laboratory
@	Sample holding time exceeded due to sampled on date
&	Sample Holding Time exceeded - Late arrival of instructions.

Asbestos

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.



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QDS Remediation
Midland Road
Masbrough
Rotherham
South Yorkshire
S63 5DB

Attention: Rob Timson

CERTIFICATE OF ANALYSIS

Date: 10 August 2017
Customer: H_QDS_ROT
Sample Delivery Group (SDG): 170721-85
Your Reference: Q-04971
Location: Crowland
Report No: 419628

We received 7 samples on Friday July 21, 2017 and 7 of these samples were scheduled for analysis which was completed on Thursday August 10, 2017. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).

Approved By:

Sonia McWhan

Operations Manager





CERTIFICATE OF ANALYSIS

Validated

SDG: 170721-85
Location: Crowland

Client Reference: Q-04971
Order Number: POP010762

Report Number: 419628
Superseded Report:

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
15878951	406		0.00 - 0.00	19/07/2017
15878936	408		0.00 - 0.00	19/07/2017
15878895	409		0.00 - 0.00	18/07/2017
15878904	BH108		0.00 - 0.00	18/07/2017
15878927	BH201		0.00 - 0.00	18/07/2017
15878912	BH206		0.00 - 0.00	18/07/2017
15878919	(BH107) 410		0.00 - 0.00	18/07/2017

Maximum Sample/Coolbox Temperature (°C) :

12.4

ISO5667-3 Water quality - Sampling - Part3 -

During Transportation samples shall be stored in a cooling device capable of maintaining a temperature of (5±3)°C.

ALS have data which show that a cool box with 4 frozen icepacks is capable of maintaining pre-chilled samples at a temperature of (5±3)°C for a period of up to 24hrs.

Only received samples which have had analysis scheduled will be shown on the following pages.



CERTIFICATE OF ANALYSIS

Validated

SDG: 170721-85
Location: Crowland

Client Reference: Q-04971
Order Number: POP010762

Report Number: 419628
Superseded Report:

Results Legend

X Test
N No Determination Possible

Sample Types -

S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Results Legend	Lab Sample No(s)		Customer Sample Reference		AGS Reference		Depth (m)		Container		Sample Type	
	15878919		(BH107) 410				0.00 - 0.00		1000ml glass bottle (ALE220)	GW		
	15878912		BH206				0.00 - 0.00		Vial (ALE297)	GW		
	15878927		BH201				0.00 - 0.00		500ml Plastic (ALE208)	GW		
	15878904		BH108				0.00 - 0.00		1000ml glass bottle (ALE220)	GW		
	15878895		409				0.00 - 0.00		Vial (ALE297)	GW		
	15878936		408				0.00 - 0.00		500ml Plastic (ALE208)	GW		
	15878951		406				0.00 - 0.00		1000ml glass bottle (ALE220)	GW		
									500ml Plastic (ALE208)	GW		
									Vial (ALE297)	GW		
									1000ml glass bottle (ALE220)	GW		
									500ml Plastic (ALE208)	GW		
									Vial (ALE297)	GW		
									1000ml glass bottle (ALE220)	GW		
Ammoniacal Nitrogen	All		NDPs: 0 Tests: 7									
Anions by Kone (w)	All		NDPs: 0 Tests: 7									
Bromate*	All		NDPs: 0 Tests: 7									
Chromium III	All		NDPs: 0 Tests: 7									
Conductivity (at 20 deg.C)	All		NDPs: 0 Tests: 7									
Cyanide Comp/Free/Total/Thiocyanate	All		NDPs: 0 Tests: 7									
Dissolved Metals by ICP-MS	All		NDPs: 0 Tests: 7									
Dissolved Tin by ICPMS	All		NDPs: 0 Tests: 7									
EPH CWG (Aliphatic) Aqueous GC (W)	All		NDPs: 0 Tests: 7									
EPH CWG (Aromatic) Aqueous GC (W)	All		NDPs: 0 Tests: 7									
Fluoride	All		NDPs: 0 Tests: 7									
GRO by GC-FID (W)	All		NDPs: 0 Tests: 7									
Hexavalent Chromium (w)	All		NDPs: 0 Tests: 7									
Low Level Phenols by HPLC (W)	All		NDPs: 0 Tests: 7									
Mercury Dissolved	All		NDPs: 0 Tests: 7									



CERTIFICATE OF ANALYSIS

Validated

SDG: 170721-85
Location: Crowland

Client Reference: Q-04971
Order Number: POP010762

Report Number: 419628
Superseded Report:

Results Legend		Customer Sample Ref.	406	408	409	BH108	BH201	BH206
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
M	mCERTS accredited.		Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
aq	Aqueous / settled sample.		19/07/2017	19/07/2017	18/07/2017	18/07/2017	18/07/2017	18/07/2017
diss.filt	Dissolved / filtered sample.		21/07/2017	21/07/2017	21/07/2017	21/07/2017	21/07/2017	21/07/2017
tot.unfilt	Total / unfiltered sample.		170721-85	170721-85	170721-85	170721-85	170721-85	170721-85
*	Subcontracted test.		15878951	15878936	15878895	15878904	15878927	15878912
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery							
(F)	Trigger breach confirmed							
1-5&5@	Sample deviation (see appendix)							
Component	LOD/Units	Method						
Bromate*	<0.37 µg/l	SUB	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37
Ammoniacal Nitrogen as NH4	<0.3 mg/l	TM099	8.27	5.88	15.4	3.42	3.39	6.45
			#	#	#	#	#	#
Fluoride	<0.5 mg/l	TM104	0.567	0.748	<0.5	<0.5	<0.5	<0.5
			#	#	#	#	#	#
Conductivity @ 20 deg.C	<0.005 mS/cm	TM120	1.38	3.75	3.77	3.92	2.37	3.16
			#	#	#	#	#	#
Chromium, Trivalent	<0.03 mg/l	TM152	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Aluminium (diss.filt)	<2 µg/l	TM152	<2	<2	<2	<2	<2	<2
			#	#	#	#	#	#
Antimony (diss.filt)	<0.1 µg/l	TM152	0.44	0.537	0.525	0.489	<0.1	<0.1
Arsenic (diss.filt)	<0.5 µg/l	TM152	1.62	3.81	5.79	2.7	3.42	2.43
			#	#	#	#	#	#
Barium (diss.filt)	<0.2 µg/l	TM152	35.6	20.7	55.2	53.3	29.5	48.4
			#	#	#	#	#	#
Boron (diss.filt)	<5 µg/l	TM152	364	1020	1250	1200	377	749
			#	#	#	#	#	#
Cadmium (diss.filt)	<0.08 µg/l	TM152	<0.08	<0.08	0.0893	<0.08	<0.08	0.082
			#	#	#	#	#	#
Chromium (diss.filt)	<1 µg/l	TM152	<1	<1	<1	<1	<1	<1
			#	#	#	#	#	#
Cobalt (diss.filt)	<0.15 µg/l	TM152	0.675	1.08	3.95	2.25	1.1	12
			#	#	#	#	#	#
Copper (diss.filt)	<0.3 µg/l	TM152	1.5	3.31	1.59	1.13	0.546	<0.3
			#	#	#	#	#	#
Lead (diss.filt)	<0.2 µg/l	TM152	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
			#	#	#	#	#	#
Manganese (diss.filt)	<1 µg/l	TM152	1010	923	5780	1230	168	1940
			#	#	#	#	#	#
Molybdenum (diss.filt)	<0.5 µg/l	TM152	3.93	2.55	4.9	2.39	<0.5	0.862
			#	#	#	#	#	#
Nickel (diss.filt)	<0.4 µg/l	TM152	4.68	10.8	9.6	11.3	10.6	20.5
			#	#	#	#	#	#
Selenium (diss.filt)	<0.5 µg/l	TM152	0.566	0.599	0.92	<0.5	<0.5	<0.5
			#	#	#	#	#	#
Vanadium (diss.filt)	<1 µg/l	TM152	<1	1.66	<1	<1	<1	<1
			#	#	#	#	#	#
Zinc (diss.filt)	<1 µg/l	TM152	6.25	1.15	10.8	11.7	1.73	33.1
			#	#	#	#	#	#
Silver (diss.filt)	<0.5 µg/l	TM152	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Mercury (diss.filt)	<0.01 µg/l	TM183	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
			#	#	#	#	#	#
Nitrite as NO2	<0.05 mg/l	TM184	0.335	<0.05	<0.05	<0.05	<0.05	<0.05
			2 #	2 #	2 #	2 #	2 #	2 #
Sulphate	<2 mg/l	TM184	563	1460	1490	1560	1310	1640
			#	#	#	#	#	#
Chloride	<2 mg/l	TM184	25.5	532	577	441	70.2	163
			#	#	#	#	#	#
Nitrate as NO3	<0.3 mg/l	TM184	20.4	2.57	<0.3	<0.3	0.561	<0.3
Zinc (tot.unfilt)	<3 µg/l	TM191	192	3.08	10.6	22.8	7.95	39.7
Cyanide, Total	<0.05 mg/l	TM227	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
			#	#	#	#	#	#
Cyanide, Free	<0.05 mg/l	TM227	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
			#	#	#	#	#	#
Sodium (diss.filt)	<0.076 mg/l	TM228	60	304	284	446	74.5	159
Iron (diss.filt)	<0.019 mg/l	TM228	0.182	0.125	0.765	0.0798	0.0507	0.0468
Hardness, Total as CaCO3 unfiltered	<0.35 mg/l	TM228	942	1320	1540	1610	1670	1900



CERTIFICATE OF ANALYSIS

Validated

SDG: 170721-85
Location: Crowland

Client Reference: Q-04971
Order Number: POP010762

Report Number: 419628
Superseded Report:

Results Legend		Customer Sample Ref.	(BH107) 410				
#	ISO17025 accredited.						
M	mCERTS accredited.						
aq	Aqueous / settled sample.						
diss.filt	Dissolved / filtered sample.						
tot.unfilt	Total / unfiltered sample.						
*	Subcontracted test.						
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery						
(F)	Trigger breach confirmed						
1-5&+5@	Sample deviation (see appendix)						
Component	LOD/Units	Method					
Bromate*	<0.37 µg/l	SUB	<0.37				
Ammoniacal Nitrogen as NH4	<0.3 mg/l	TM099	1.35				
Fluoride	<0.5 mg/l	TM104	<0.5				
Conductivity @ 20 deg.C	<0.005 mS/cm	TM120	2.27				
Chromium, Trivalent	<0.03 mg/l	TM152	<0.03				
Aluminium (diss.filt)	<2 µg/l	TM152	<2				
Antimony (diss.filt)	<0.1 µg/l	TM152	0.319				
Arsenic (diss.filt)	<0.5 µg/l	TM152	3.4				
Barium (diss.filt)	<0.2 µg/l	TM152	149				
Boron (diss.filt)	<5 µg/l	TM152	393				
Cadmium (diss.filt)	<0.08 µg/l	TM152	<0.08				
Chromium (diss.filt)	<1 µg/l	TM152	<1				
Cobalt (diss.filt)	<0.15 µg/l	TM152	0.517				
Copper (diss.filt)	<0.3 µg/l	TM152	0.844				
Lead (diss.filt)	<0.2 µg/l	TM152	<0.2				
Manganese (diss.filt)	<1 µg/l	TM152	1000				
Molybdenum (diss.filt)	<0.5 µg/l	TM152	1.11				
Nickel (diss.filt)	<0.4 µg/l	TM152	3.45				
Selenium (diss.filt)	<0.5 µg/l	TM152	<0.5				
Vanadium (diss.filt)	<1 µg/l	TM152	1.64				
Zinc (diss.filt)	<1 µg/l	TM152	4.49				
Silver (diss.filt)	<0.5 µg/l	TM152	<0.5				
Mercury (diss.filt)	<0.01 µg/l	TM183	<0.01				
Nitrite as NO2	<0.05 mg/l	TM184	<0.05				
Sulphate	<2 mg/l	TM184	1030				
Chloride	<2 mg/l	TM184	75.3				
Nitrate as NO3	<0.3 mg/l	TM184	<0.3				
Zinc (tot.unfilt)	<3 µg/l	TM191	18.8				
Cyanide, Total	<0.05 mg/l	TM227	<0.05				
Cyanide, Free	<0.05 mg/l	TM227	<0.05				
Sodium (diss.filt)	<0.076 mg/l	TM228	58.7				
Iron (diss.filt)	<0.019 mg/l	TM228	0.0243				
Hardness, Total as CaCO3 unfiltered	<0.35 mg/l	TM228	1220				



CERTIFICATE OF ANALYSIS

Validated

SDG: 170721-85
Location: Crowland

Client Reference: Q-04971
Order Number: POP010762

Report Number: 419628
Superseded Report:

TPH CWG (W)

Results Legend		Customer Sample Ref.	406	408	409	BH108	BH201	BH206
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
M	mCERTS accredited.		Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
aq	Aqueous / settled sample.		19/07/2017	19/07/2017	18/07/2017	18/07/2017	18/07/2017	18/07/2017
diss.filt	Dissolved / filtered sample.		21/07/2017	21/07/2017	21/07/2017	21/07/2017	21/07/2017	21/07/2017
tot.unfilt	Total / unfiltered sample.		170721-85	170721-85	170721-85	170721-85	170721-85	170721-85
*	Subcontracted test.		15878951	15878936	15878895	15878904	15878927	15878912
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery							
(F)	Trigger breach confirmed							
1-5&+5@	Sample deviation (see appendix)							
Component	LOD/Units	Method						
GRO Surrogate % recovery**	%	TM245	100	92	93	88	94	92
GRO >C5-C12	<50 µg/l	TM245	<50	1420	30500	<50	<50	1000
			#	#	#	#	#	#
Methyl tertiary butyl ether (MTBE)	<3 µg/l	TM245	<3	<3	<3	<3	<3	<3
Benzene	<7 µg/l	TM245	<7	<7	<7	<7	<7	<7
Toluene	<4 µg/l	TM245	<4	<4	<4	<4	<4	<4
Ethylbenzene	<5 µg/l	TM245	<5	<5	<5	<5	<5	<5
m,p-Xylene	<8 µg/l	TM245	<8	<8	<8	<8	<8	<8
o-Xylene	<3 µg/l	TM245	<3	<3	3	<3	<3	<3
Sum of detected Xylenes	<11 µg/l	TM245	<11	<11	<11	<11	<11	<11
Sum of detected BTEX	<28 µg/l	TM245	<28	<28	<28	<28	<28	<28
Aliphatics >C5-C6	<10 µg/l	TM245	<10	1250	18700	<10	<10	963
Aliphatics >C6-C8	<10 µg/l	TM245	<10	140	11000	<10	<10	<10
Aliphatics >C8-C10	<10 µg/l	TM245	<10	10	460	<10	<10	<10
Aliphatics >C10-C12	<10 µg/l	TM245	<10	<10	26	<10	<10	11
Aliphatics >C12-C16 (aq)	<10 µg/l	TM174	<10	<10	<10	<10	<10	<10
Aliphatics >C16-C21 (aq)	<10 µg/l	TM174	<10	<10	<10	<10	<10	<10
Aliphatics >C21-C35 (aq)	<10 µg/l	TM174	<10	<10	<10	<10	<10	<10
Total Aliphatics >C12-C35 (aq)	<10 µg/l	TM174	<10	<10	<10	<10	<10	<10
Aromatics >EC5-EC7	<10 µg/l	TM245	<10	<10	<10	<10	<10	<10
Aromatics >EC7-EC8	<10 µg/l	TM245	<10	<10	<10	<10	<10	<10
Aromatics >EC8-EC10	<10 µg/l	TM245	<10	<10	311	<10	<10	<10
Aromatics >EC10-EC12	<10 µg/l	TM245	<10	<10	17	<10	<10	<10
Aromatics >EC12-EC16 (aq)	<10 µg/l	TM174	<10	10	<10	<10	<10	<10
Aromatics >EC16-EC21 (aq)	<10 µg/l	TM174	<10	<10	<10	<10	<10	<10
Aromatics >EC21-EC35 (aq)	<10 µg/l	TM174	<10	17	<10	<10	<10	<10
Total Aromatics >EC12-EC35 (aq)	<10 µg/l	TM174	<10	27	<10	<10	<10	<10
Total Aliphatics & Aromatics >C5-C35 (aq)	<10 µg/l	TM174	<10	1450	30500	<10	<10	1000



CERTIFICATE OF ANALYSIS

Validated

SDG: 170721-85
Location: Crowland

Client Reference: Q-04971
Order Number: POP010762

Report Number: 419628
Superseded Report:

TPH CWG (W)

Results Legend		Customer Sample Ref.	(BH107) 410				
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	0.00 - 0.00 Ground Water (GW) 18/07/2017 21/07/2017 170721-85 15878919				
M	mCERTS accredited.						
aq	Aqueous / settled sample.						
diss.filt	Dissolved / filtered sample.						
tot.unfilt	Total / unfiltered sample.						
*	Subcontracted test.						
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery						
(F)	Trigger breach confirmed						
1-5&+5@	Sample deviation (see appendix)						
Component	LOD/Units	Method					
GRO Surrogate % recovery**	%	TM245	88				
GRO >C5-C12	<50 µg/l	TM245	<50	#			
Methyl tertiary butyl ether (MTBE)	<3 µg/l	TM245	<3				
Benzene	<7 µg/l	TM245	<7				
Toluene	<4 µg/l	TM245	<4				
Ethylbenzene	<5 µg/l	TM245	<5				
m,p-Xylene	<8 µg/l	TM245	<8				
o-Xylene	<3 µg/l	TM245	<3				
Sum of detected Xylenes	<11 µg/l	TM245	<11				
Sum of detected BTEX	<28 µg/l	TM245	<28				
Aliphatics >C5-C6	<10 µg/l	TM245	<10				
Aliphatics >C6-C8	<10 µg/l	TM245	<10				
Aliphatics >C8-C10	<10 µg/l	TM245	<10				
Aliphatics >C10-C12	<10 µg/l	TM245	<10				
Aliphatics >C12-C16 (aq)	<10 µg/l	TM174	<10				
Aliphatics >C16-C21 (aq)	<10 µg/l	TM174	<10				
Aliphatics >C21-C35 (aq)	<10 µg/l	TM174	<10				
Total Aliphatics >C12-C35 (aq)	<10 µg/l	TM174	<10				
Aromatics >EC5-EC7	<10 µg/l	TM245	<10				
Aromatics >EC7-EC8	<10 µg/l	TM245	<10				
Aromatics >EC8-EC10	<10 µg/l	TM245	<10				
Aromatics >EC10-EC12	<10 µg/l	TM245	<10				
Aromatics >EC12-EC16 (aq)	<10 µg/l	TM174	15				
Aromatics >EC16-EC21 (aq)	<10 µg/l	TM174	<10				
Aromatics >EC21-EC35 (aq)	<10 µg/l	TM174	<10				
Total Aromatics >EC12-EC35 (aq)	<10 µg/l	TM174	15				
Total Aliphatics & Aromatics >C5-35 (aq)	<10 µg/l	TM174	35				



CERTIFICATE OF ANALYSIS

Validated

SDG: 170721-85
Location: Crowland

Client Reference: Q-04971
Order Number: POP010762

Report Number: 419628
Superseded Report:

VOC MS (W)

Results Legend		Customer Sample Ref.	406	408	409	BH108	BH201	BH206
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
M	mCERTS accredited.		Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
aq	Aqueous / settled sample.		19/07/2017	19/07/2017	18/07/2017	18/07/2017	18/07/2017	18/07/2017
diss.filt	Dissolved / filtered sample.		21/07/2017	21/07/2017	21/07/2017	21/07/2017	21/07/2017	21/07/2017
tot.unfilt	Total / unfiltered sample.		170721-85	170721-85	170721-85	170721-85	170721-85	170721-85
*	Subcontracted test.		15878951	15878936	15878895	15878904	15878927	15878912
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery							
(F)	Trigger breach confirmed							
1-5&5@	Sample deviation (see appendix)							
Component	LOD/Units	Method						
Dibromofluoromethane**	%	TM208	109	111	112	109	110	111
Toluene-d8**	%	TM208	101	99.5	99.4	100	101	101
4-Bromofluorobenzene**	%	TM208	97.5	98.4	100	98.9	101	99.3
Dichlorodifluoromethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1
Chloromethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1
Vinyl chloride	<1 µg/l	TM208	<1	245	30.4	<1	<1	1350
Bromomethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1
Chloroethane	<1 µg/l	TM208	<1	<1	10.4	<1	<1	<1
Trichlorofluoromethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1
1,1-Dichloroethene	<1 µg/l	TM208	<1	19	480	<1	<1	2.48
Carbon disulphide	<1 µg/l	TM208	<1	1.33	<1	<1	<1	<1
Dichloromethane	<3 µg/l	TM208	<3	<3	2880	<3	<3	<3
Methyl tertiary butyl ether (MTBE)	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1
trans-1,2-Dichloroethene	<1 µg/l	TM208	<1	451	528	4.43	1.86	326
1,1-Dichloroethane	<1 µg/l	TM208	<1	2220	54600	2.51	2.81	36.3
cis-1,2-Dichloroethene	<1 µg/l	TM208	<1	3570	31100	46.4	29.4	4080
2,2-Dichloropropane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1
Bromochloromethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1
Chloroform	<1 µg/l	TM208	<1	<1	20.4	<1	<1	<1
1,1,1-Trichloroethane	<1 µg/l	TM208	<1	136	3370	<1	<1	<1
1,1-Dichloropropene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1
Carbontetrachloride	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1
1,2-Dichloroethane	<1 µg/l	TM208	5.11	3.99	135	<1	<1	<1
Benzene	<1 µg/l	TM208	<1	<1	2.8	<1	<1	<1
Trichloroethene	<1 µg/l	TM208	<1	335	50800	1.58	9.82	5.05
1,2-Dichloropropane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1
Dibromomethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1
Bromodichloromethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1
cis-1,3-Dichloropropene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1
Toluene	<1 µg/l	TM208	<1	<1	2.11	<1	<1	<1
trans-1,3-Dichloropropene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1
1,1,2-Trichloroethane	<1 µg/l	TM208	<1	16.5	148	<1	<1	<1
1,3-Dichloropropane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1



CERTIFICATE OF ANALYSIS

Validated

SDG: 170721-85 Client Reference: Q-04971 Report Number: 419628
Location: Crowland Order Number: POP010762 Superseded Report:

VOC MS (W)

Results Legend			Customer Sample Ref.		406	408	409	BH108	BH201	BH206
#	ISO17025 accredited.		Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	406	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
M	mCERTS accredited.				Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
aq	Aqueous / settled sample.				19/07/2017	19/07/2017	18/07/2017	18/07/2017	18/07/2017	18/07/2017
diss.filt	Dissolved / filtered sample.				21/07/2017	21/07/2017	21/07/2017	21/07/2017	21/07/2017	21/07/2017
tot.unfilt	Total / unfiltered sample.				170721-85	170721-85	170721-85	170721-85	170721-85	170721-85
*	Subcontracted test.				15878951	15878936	15878895	15878904	15878927	15878912
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery									
(F)	Trigger breach confirmed									
1-5&*\$@	Sample deviation (see appendix)									
Component	LOD/Units	Method								
Tetrachloroethene	<1 µg/l	TM208			<1	62.7	9010	1.27	10.8	4.5
					#	#	#	#	#	#
Dibromochloromethane	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
1,2-Dibromoethane	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
Chlorobenzene	<1 µg/l	TM208			<1	<1	<1	<1	<1	3.48
					#	#	#	#	#	#
1,1,1,2-Tetrachloroethane	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
Ethylbenzene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
m,p-Xylene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
o-Xylene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
Styrene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
Bromoform	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
Isopropylbenzene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
1,1,2,2-Tetrachloroethane	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
1,2,3-Trichloropropane	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
Bromobenzene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
Propylbenzene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
2-Chlorotoluene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
1,3,5-Trimethylbenzene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
4-Chlorotoluene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
tert-Butylbenzene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
1,2,4-Trimethylbenzene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
sec-Butylbenzene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
4-iso-Propyltoluene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
1,3-Dichlorobenzene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
1,4-Dichlorobenzene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
n-Butylbenzene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
1,2-Dichlorobenzene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
1,2-Dibromo-3-chloropropane	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
1,2,4-Trichlorobenzene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
Hexachlorobutadiene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
tert-Amyl methyl ether (TAME)	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
Naphthalene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#
1,2,3-Trichlorobenzene	<1 µg/l	TM208			<1	<1	<1	<1	<1	<1
					#	#	#	#	#	#



CERTIFICATE OF ANALYSIS

Validated

SDG: 170721-85
Location: Crowland

Client Reference: Q-04971
Order Number: POP010762

Report Number: 419628
Superseded Report:

VOC MS (W)

Results Legend		Customer Sample Ref.	(BH107) 410				
#	ISO17025 accredited.						
M	mCERTS accredited.						
aq	Aqueous / settled sample.						
diss.filt	Dissolved / filtered sample.						
tot.unfilt	Total / unfiltered sample.						
*	Subcontracted test.						
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery						
(F)	Trigger breach confirmed						
1-5&*\$@	Sample deviation (see appendix)						
Component	LOD/Units	Method	AGS Reference				
Dibromofluoromethane**	%	TM208	110				
Toluene-d8**	%	TM208	101				
4-Bromofluorobenzene**	%	TM208	99.8				
Dichlorodifluoromethane	<1 µg/l	TM208	<1	#			
Chloromethane	<1 µg/l	TM208	<1	#			
Vinyl chloride	<1 µg/l	TM208	3.75	#			
Bromomethane	<1 µg/l	TM208	<1	#			
Chloroethane	<1 µg/l	TM208	<1	#			
Trichlorofluoromethane	<1 µg/l	TM208	<1	#			
1,1-Dichloroethene	<1 µg/l	TM208	<1	#			
Carbon disulphide	<1 µg/l	TM208	<1	#			
Dichloromethane	<3 µg/l	TM208	<3	#			
Methyl tertiary butyl ether (MTBE)	<1 µg/l	TM208	<1	#			
trans-1,2-Dichloroethene	<1 µg/l	TM208	<1	#			
1,1-Dichloroethane	<1 µg/l	TM208	66.3	#			
cis-1,2-Dichloroethene	<1 µg/l	TM208	1.31	#			
2,2-Dichloropropane	<1 µg/l	TM208	<1				
Bromochloromethane	<1 µg/l	TM208	<1	#			
Chloroform	<1 µg/l	TM208	<1	#			
1,1,1-Trichloroethane	<1 µg/l	TM208	8.05	#			
1,1-Dichloropropene	<1 µg/l	TM208	<1	#			
Carbontetrachloride	<1 µg/l	TM208	<1	#			
1,2-Dichloroethane	<1 µg/l	TM208	<1	#			
Benzene	<1 µg/l	TM208	<1	#			
Trichloroethene	<1 µg/l	TM208	1.04	#			
1,2-Dichloropropane	<1 µg/l	TM208	<1	#			
Dibromomethane	<1 µg/l	TM208	<1	#			
Bromodichloromethane	<1 µg/l	TM208	<1	#			
cis-1,3-Dichloropropene	<1 µg/l	TM208	<1	#			
Toluene	<1 µg/l	TM208	<1	#			
trans-1,3-Dichloropropene	<1 µg/l	TM208	<1	#			
1,1,2-Trichloroethane	<1 µg/l	TM208	<1	#			
1,3-Dichloropropane	<1 µg/l	TM208	<1	#			



CERTIFICATE OF ANALYSIS

Validated

SDG: 170721-85
Location: Crowland

Client Reference: Q-04971
Order Number: POP010762

Report Number: 419628
Superseded Report:

VOC MS (W)

Results Legend		Customer Sample Ref.	(BH107) 410				
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	0.00 - 0.00				
M	mCERTS accredited.		Ground Water (GW)				
aq	Aqueous / settled sample.		18/07/2017				
diss.filt	Dissolved / filtered sample.		-				
tot.unfilt	Total / unfiltered sample.		21/07/2017				
*	Subcontracted test.		170721-85				
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery		15878919				
(F)	Trigger breach confirmed						
1-5&\$\$@	Sample deviation (see appendix)						
Component	LOD/Units	Method					
Tetrachloroethene	<1 µg/l	TM208	<1	#			
Dibromochloromethane	<1 µg/l	TM208	<1	#			
1,2-Dibromoethane	<1 µg/l	TM208	<1	#			
Chlorobenzene	<1 µg/l	TM208	1.37	#			
1,1,1,2-Tetrachloroethane	<1 µg/l	TM208	<1	#			
Ethylbenzene	<1 µg/l	TM208	<1	#			
m,p-Xylene	<1 µg/l	TM208	<1	#			
o-Xylene	<1 µg/l	TM208	<1	#			
Styrene	<1 µg/l	TM208	<1	#			
Bromoform	<1 µg/l	TM208	<1	#			
Isopropylbenzene	<1 µg/l	TM208	<1	#			
1,1,2,2-Tetrachloroethane	<1 µg/l	TM208	<1	#			
1,2,3-Trichloropropane	<1 µg/l	TM208	<1	#			
Bromobenzene	<1 µg/l	TM208	<1	#			
Propylbenzene	<1 µg/l	TM208	<1	#			
2-Chlorotoluene	<1 µg/l	TM208	<1	#			
1,3,5-Trimethylbenzene	<1 µg/l	TM208	<1	#			
4-Chlorotoluene	<1 µg/l	TM208	<1	#			
tert-Butylbenzene	<1 µg/l	TM208	<1	#			
1,2,4-Trimethylbenzene	<1 µg/l	TM208	<1	#			
sec-Butylbenzene	<1 µg/l	TM208	<1	#			
4-iso-Propyltoluene	<1 µg/l	TM208	<1	#			
1,3-Dichlorobenzene	<1 µg/l	TM208	<1	#			
1,4-Dichlorobenzene	<1 µg/l	TM208	<1	#			
n-Butylbenzene	<1 µg/l	TM208	<1	#			
1,2-Dichlorobenzene	<1 µg/l	TM208	<1	#			
1,2-Dibromo-3-chloropropane	<1 µg/l	TM208	<1				
1,2,4-Trichlorobenzene	<1 µg/l	TM208	<1	#			
Hexachlorobutadiene	<1 µg/l	TM208	<1	#			
tert-Amyl methyl ether (TAME)	<1 µg/l	TM208	<1	#			
Naphthalene	<1 µg/l	TM208	<1	#			
1,2,3-Trichlorobenzene	<1 µg/l	TM208	<1	#			



CERTIFICATE OF ANALYSIS

Validated

SDG: 170721-85
Location: Crowland

Client Reference: Q-04971
Order Number: POP010762

Report Number: 419628
Superseded Report:

Table of Results - Appendix

Method No	Reference	Description	Wet/Dry Sample ¹	Surrogate Corrected
SUB		Subcontracted Test		
TM061	Method for the Determination of EPH,Massachusetts Dept.of EP, 1998	Determination of Extractable Petroleum Hydrocarbons by GC-FID (C10-C40)		
TM099	BS 2690: Part 7:1968 / BS 6068: Part2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser		
TM104	Method 4500F, AWWA/APHA, 20th Ed., 1999	Determination of Fluoride using the Kone Analyser		
TM120	Method 2510B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part 9:1970	Determination of Electrical Conductivity using a Conductivity Meter		
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS		
TM174	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Waters by GC-FID		
TM178	Modified: US EPA Method 8100	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS in Waters		
TM183	BS EN 23506:2002, (BS 6068-2.74:2002) ISBN 0 580 38924 3	Determination of Trace Level Mercury in Waters and Leachates by PSA Cold Vapour Atomic Fluorescence Spectrometry		
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers		
TM191	Standard Methods for the examination of waters and wastewaters 16th Edition, ALPHA, Washington DC, USA. ISBN 0-87553-131-8.	Determination of Unfiltered Metals in Water Matrices by ICP-MS		
TM208	Modified: US EPA Method 8260b & 624	Determination of Volatile Organic Compounds by Headspace / GC-MS in Waters		
TM227	Standard methods for the examination of waters and wastewaters 20th Edition, AWWA/APHA Method 4500.	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate		
TM228	US EPA Method 6010B	Determination of Major Cations in Water by iCap 6500 Duo ICP-OES		
TM241	Methods for the Examination of Waters and Associated Materials; Chromium in Raw and Potable Waters and Sewage Effluents 1980.	The Determination of Hexavalent Chromium in Waters and Leachates using the Kone Analyser		
TM245	By GC-FID	Determination of GRO by Headspace in waters		
TM255		Determination of Low Level Phenols in Waters and Leachates by HPLC		
TM256	The measurement of Electrical Conductivity and the Laboratory determination of pH Value of Natural, Treated and Wastewaters. HMSO, 1978. ISBN 011 751428 4.	Determination of pH in Water and Leachate using the GLpH pH Meter		
TM283		Determination of Dissolved Niobium, Tungsten, and Zirconium in Water Matrices by ICP-MS		

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

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).



CERTIFICATE OF ANALYSIS

SDG: 170721-85
Location: CrowlandClient Reference: Q-04971
Order Number: POP010762Report Number: 419628
Superseded Report:

Test Completion Dates

Lab Sample No(s)	15878951	15878936	15878895	15878919	15878904	15878927	15878912
Customer Sample Ref.	406	408	409	(BH107) 410	BH108	BH201	BH206
AGS Ref.							
Depth	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
Ammoniacal Nitrogen	24-Jul-2017	24-Jul-2017	24-Jul-2017	24-Jul-2017	24-Jul-2017	27-Jul-2017	27-Jul-2017
Anions by Kone (w)	31-Jul-2017	31-Jul-2017	31-Jul-2017	31-Jul-2017	31-Jul-2017	31-Jul-2017	31-Jul-2017
Bromate*	28-Jul-2017	28-Jul-2017	10-Aug-2017	10-Aug-2017	10-Aug-2017	10-Aug-2017	10-Aug-2017
Chromium III	28-Jul-2017	28-Jul-2017	28-Jul-2017	28-Jul-2017	28-Jul-2017	28-Jul-2017	28-Jul-2017
Conductivity (at 20 deg.C)	28-Jul-2017	31-Jul-2017	28-Jul-2017	28-Jul-2017	28-Jul-2017	28-Jul-2017	28-Jul-2017
Cyanide Comp/Free/Total/Thiocyanate	24-Jul-2017	24-Jul-2017	28-Jul-2017	28-Jul-2017	28-Jul-2017	28-Jul-2017	28-Jul-2017
Dissolved Metals by ICP-MS	28-Jul-2017	28-Jul-2017	28-Jul-2017	28-Jul-2017	28-Jul-2017	28-Jul-2017	28-Jul-2017
Dissolved Tin by ICPMS	25-Jul-2017	26-Jul-2017	26-Jul-2017	25-Jul-2017	25-Jul-2017	31-Jul-2017	31-Jul-2017
EPH CWG (Aliphatic) Aqueous GC (W)	26-Jul-2017	24-Jul-2017	31-Jul-2017	31-Jul-2017	31-Jul-2017	31-Jul-2017	31-Jul-2017
EPH CWG (Aromatic) Aqueous GC (W)	26-Jul-2017	24-Jul-2017	31-Jul-2017	31-Jul-2017	31-Jul-2017	31-Jul-2017	31-Jul-2017
Fluoride	27-Jul-2017	27-Jul-2017	27-Jul-2017	27-Jul-2017	27-Jul-2017	27-Jul-2017	27-Jul-2017
GRO by GC-FID (W)	28-Jul-2017	28-Jul-2017	28-Jul-2017	28-Jul-2017	28-Jul-2017	28-Jul-2017	28-Jul-2017
Hexavalent Chromium (w)	28-Jul-2017	28-Jul-2017	28-Jul-2017	28-Jul-2017	28-Jul-2017	28-Jul-2017	28-Jul-2017
Low Level Phenols by HPLC (W)	27-Jul-2017	27-Jul-2017	28-Jul-2017	29-Jul-2017	28-Jul-2017	29-Jul-2017	28-Jul-2017
Mercury Dissolved	28-Jul-2017	28-Jul-2017	31-Jul-2017	28-Jul-2017	28-Jul-2017	28-Jul-2017	28-Jul-2017
Metals by iCap-OES Dissolved (W)	26-Jul-2017	26-Jul-2017	27-Jul-2017	26-Jul-2017	31-Jul-2017	28-Jul-2017	28-Jul-2017
Metals by iCap-OES Unfiltered (W)	25-Jul-2017	26-Jul-2017	26-Jul-2017	26-Jul-2017	26-Jul-2017	31-Jul-2017	31-Jul-2017
Nitrite by Kone (w)	27-Jul-2017	27-Jul-2017	28-Jul-2017	27-Jul-2017	28-Jul-2017	28-Jul-2017	28-Jul-2017
PAH Spec MS - Aqueous (W)	31-Jul-2017	31-Jul-2017	28-Jul-2017	28-Jul-2017	28-Jul-2017	28-Jul-2017	28-Jul-2017
pH Value	25-Jul-2017	25-Jul-2017	25-Jul-2017	25-Jul-2017	25-Jul-2017	27-Jul-2017	27-Jul-2017
Total Metals by ICP-MS	26-Jul-2017	25-Jul-2017	25-Jul-2017	25-Jul-2017	25-Jul-2017	31-Jul-2017	31-Jul-2017
TPH CWG (W)	28-Jul-2017	28-Jul-2017	31-Jul-2017	31-Jul-2017	31-Jul-2017	31-Jul-2017	31-Jul-2017
VOC MS (W)	28-Jul-2017	28-Jul-2017	28-Jul-2017	28-Jul-2017	28-Jul-2017	28-Jul-2017	28-Jul-2017



Certificate of Analysis

Alcontrol Chester
Units 7 & 8 Hawarden Business Park
Off Manor Lane
Hawarden
Deeside
CH5 3US

Sample Date: 19-Jul-17
Received Date: 25-Jul-17
Test Date : 26-Jul-17
Certificate Ref: 494029-28/07/2017 12:55:19 (1)
Certificate ID: 1573236
Order Number: 170721-85
SDG Reference: ALC_CH 25-07-17 1
Laboratory Reference: ALC_CH[RM]2640661

Sample Type: Surface & Ground

Sample : 15883499 406

Details : 170721-85

Method Ref	Determination	Result	Units
8.102	Bromate	<0.37	µg/l

Approved By: Lisa Shutt(Waters Chemistry Team Leader)

Date: 28-Jul-17

Page 1 of 2

Abbreviations :< = Less than, > = Greater than. SDG = Sample Delivery Group. The results are given for the sample as received by the laboratory.

The analysis was carried out at the location shown at the bottom of this certificate unless the following lab identifiers are noted next to the test reference; RM = Rotherham. Opinions and interpretations expressed herein are outside the scope of our UKAS accreditation. Method details and performance characteristics are available on request.



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Certificate of Analysis

Alcontrol Chester
Units 7 & 8 Hawarden Business Park
Off Manor Lane
Hawarden
Deeside
CH5 3US

Sample Date: 19-Jul-17
Received Date: 25-Jul-17
Test Date : 26-Jul-17
Certificate Ref: 494029-28/07/2017 12:55:19 (1)
Certificate ID: 1573236
Order Number: 170721-85
SDG Reference: ALC_CH 25-07-17 1
Laboratory Reference: ALC_CH[RM]2640662

Sample Type: Surface & Ground

Sample : 15883556 408

Details : 170721-85

Method Ref	Determination	Result	Units
8.102	Bromate	<0.37	µg/l

Approved By: Lisa Shutt(Waters Chemistry Team Leader)

Date: 28-Jul-17

Page 2 of 2

Abbreviations :< = Less than, > = Greater than. SDG = Sample Delivery Group. The results are given for the sample as received by the laboratory.

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Certificate of Analysis

Alcontrol Chester
Units 7 & 8 Hawarden Business Park
Off Manor Lane
Hawarden
Deeside
CH5 3US

Sample Date: 18-Jul-17
Received Date: 27-Jul-17
Test Date : 08-Aug-17
Certificate Ref: 494467-10/08/2017 08:51:29 (1)
Certificate ID: 1578538
Order Number: 170721-85
SDG Reference: ALC_CH 27-07-17 4
Laboratory Reference: ALC_CH[RM]2642915

Sample Type: Potable

Sample : 15894286 (BH107) 410

Details : 170721-85

Method Ref	Determination	Result	Units
8.102	Bromate	<0.37	µg/l

Approved By: Justin Keeton(Waters Chemistry Team Leader)

Date: 09-Aug-17

Page 1 of 5

Abbreviations :< = Less than, > = Greater than. SDG = Sample Delivery Group. The results are given for the sample as received by the laboratory.

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Certificate of Analysis

Alcontrol Chester
Units 7 & 8 Hawarden Business Park
Off Manor Lane
Hawarden
Deeside
CH5 3US

Sample Date: 18-Jul-17
Received Date: 27-Jul-17
Test Date : 08-Aug-17
Certificate Ref: 494467-10/08/2017 08:51:29 (1)
Certificate ID: 1578538
Order Number: 170721-85
SDG Reference: ALC_CH 27-07-17 4
Laboratory Reference: ALC_CH[RM]2642916

Sample Type: Potable

Sample : 15894281 410

Details : 170721-85

Method Ref	Determination	Result	Units
8.102	Bromate	<0.37	µg/l

Approved By: Justin Keeton(Waters Chemistry Team Leader)

Date: 09-Aug-17

Page 2 of 5

Abbreviations :< = Less than, > = Greater than. SDG = Sample Delivery Group. The results are given for the sample as received by the laboratory.

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Certificate of Analysis

Alcontrol Chester
Units 7 & 8 Hawarden Business Park
Off Manor Lane
Hawarden
Deeside
CH5 3US

Sample Date: 18-Jul-17
Received Date: 27-Jul-17
Test Date : 08-Aug-17
Certificate Ref: 494467-10/08/2017 08:51:29 (1)
Certificate ID: 1578538
Order Number: 170721-85
SDG Reference: ALC_CH 27-07-17 4
Laboratory Reference: ALC_CH[RM]2642917

Sample Type: Potable

Sample : 15894277 BH108

Details : 170721-85

Method Ref	Determination	Result	Units
8.102	Bromate	<0.37	µg/l

Approved By: Justin Keeton(Waters Chemistry Team Leader)

Date: 09-Aug-17

Page 3 of 5

Abbreviations :< = Less than, > = Greater than. SDG = Sample Delivery Group. The results are given for the sample as received by the laboratory.

The analysis was carried out at the location shown at the bottom of this certificate unless the following lab identifiers are noted next to the test reference; RM = Rotherham. Opinions and interpretations expressed herein are outside the scope of our UKAS accreditation. Method details and performance characteristics are available on request.



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Certificate of Analysis

Alcontrol Chester
Units 7 & 8 Hawarden Business Park
Off Manor Lane
Hawarden
Deeside
CH5 3US

Sample Date: 18-Jul-17
Received Date: 27-Jul-17
Test Date : 08-Aug-17
Certificate Ref: 494467-10/08/2017 08:51:29 (1)
Certificate ID: 1578538
Order Number: 170721-85
SDG Reference: ALC_CH 27-07-17 4
Laboratory Reference: ALC_CH[RM]2642918

Sample Type: Potable

Sample : 15894270 BH201

Details : 170721-85

Method Ref	Determination	Result	Units
8.102	Bromate	<0.37	µg/l

Approved By: Justin Keeton(Waters Chemistry Team Leader)

Date: 09-Aug-17

Page 4 of 5

Abbreviations :< = Less than, > = Greater than. SDG = Sample Delivery Group. The results are given for the sample as received by the laboratory.

The analysis was carried out at the location shown at the bottom of this certificate unless the following lab identifiers are noted next to the test reference; RM = Rotherham. Opinions and interpretations expressed herein are outside the scope of our UKAS accreditation. Method details and performance characteristics are available on request.



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Certificate of Analysis

Alcontrol Chester
Units 7 & 8 Hawarden Business Park
Off Manor Lane
Hawarden
Deeside
CH5 3US

Sample Date: 18-Jul-17
Received Date: 27-Jul-17
Test Date : 08-Aug-17
Certificate Ref: 494467-10/08/2017 08:51:29 (1)
Certificate ID: 1578538
Order Number: 170721-85
SDG Reference: ALC_CH 27-07-17 4
Laboratory Reference: ALC_CH[RM]2642919

Sample Type: Potable

Sample : 15894294 BH206

Details : 170721-85

Method Ref	Determination	Result	Units
8.102	Bromate	<0.37	µg/l

Approved By: Justin Keeton(Waters Chemistry Team Leader)

Date: 09-Aug-17

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Abbreviations :< = Less than, > = Greater than. SDG = Sample Delivery Group. The results are given for the sample as received by the laboratory.

The analysis was carried out at the location shown at the bottom of this certificate unless the following lab identifiers are noted next to the test reference; RM = Rotherham. Opinions and interpretations expressed herein are outside the scope of our UKAS accreditation. Method details and performance characteristics are available on request.



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CERTIFICATE OF ANALYSIS

SDG:	170721-85	Client Reference:	Q-04971	Report Number:	419628
Location:	Crowland	Order Number:	POP010762	Superseded Report:	

Appendix

1. Results are expressed on a dry weight basis (dried at 35°C) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH₄ by the BRE method, VOC TICs and SVOC TICs.

2. Samples will be run in duplicate upon request, but an additional charge may be incurred.

3. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

6. When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as "Not detected". If no asbestos fibre types are found all will be reported as "Not detected" and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

7. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

8. If appropriate preserved bottles are not received preservation will take place on receipt. However, the integrity of the data may be compromised.

9. NDP - No determination possible due to insufficient/unsuitable sample.

10. Metals in water are performed on a filtered sample, and therefore represent dissolved metals - total metals must be requested separately.

11. Results relate only to the items tested.

12. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

13. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%, they are generally wider for volatiles analysis, 50-150%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

14. **Product analyses** - Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors employed.

15. Phenols monohydric by HPLC include phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethylphenol, 3,5 Dimethylphenol).

16. Total of 5 speciated phenols by HPLC includes Phenol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, Cresols and Xylenols (as detailed in 15).

17. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

18. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

19. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

20. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

General

21. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

22. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

23. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

24. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as "mixed hydrocarbons". Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

Sample Deviations

If a sample is classed as deviated then the associated results may be compromised.

1	Container with Headspace provided for volatiles analysis
2	Incorrect container received
3	Deviation from method
4	Holding time exceeded before sample received
5	Samples exceeded holding time before preservation was performed
§	Sampled on date not provided
◆	Sample holding time exceeded in laboratory
@	Sample holding time exceeded due to sampled on date
&	Sample Holding Time exceeded - Late arrival of instructions.

Asbestos

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asteststos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.



Plate 1: Site view westwards



Plate 2: Site view eastwards



Plate 3: Welfare setup and site entrance



Plate 4 (A): TP1- 0.9m

SITE NAME <i>Crowland</i>	
LOCATION DESCRIPTION <i>Test Pit</i>	
LOCATION ID NO. <i>TP1</i>	
DEPTH <i>2m</i>	DATE <i>19/07/17</i>
NORTH ARROW	

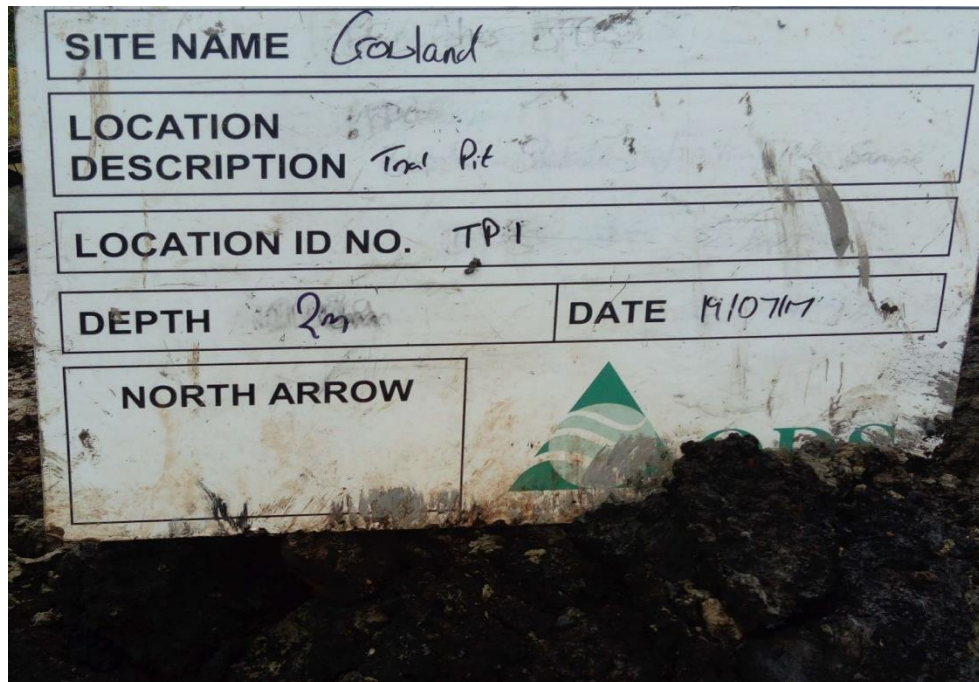


Plate 4 (B): TP1 at 2m

SITE NAME <i>Crowland</i>	
LOCATION DESCRIPTION <i>Test Pit</i>	
LOCATION ID NO. <i>TP1</i>	
DEPTH <i>3m</i>	DATE <i>19/07/17</i>
NORTH ARROW	



Plate 4 ©: TP1 at 3m



Plate 5 (A): TP2 at 1m

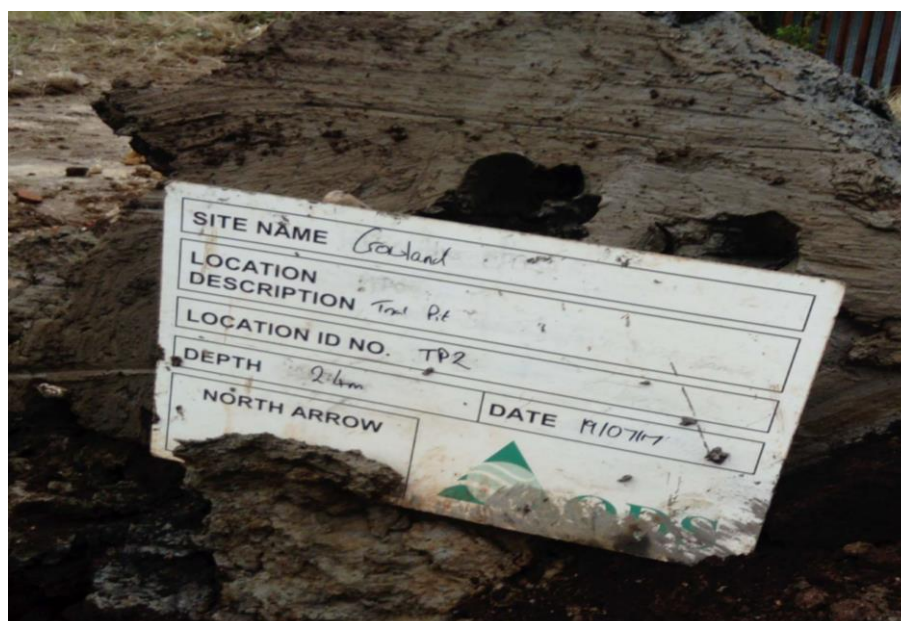


Plate 5 (B): TP2 at 2.4m



Plate 5 ©: TP2 at 4m



Plate 6 (A): TP3 at 0.7m



Plate 6 (B): TP3 at 1.6m



Plate 6 ©: TP3 at 2.4m



Plate 7 (A): TP4 at 1.2m



Plate 7 (B): TP4 at 2m



Plate 8 (A): TP6 at 0.8m



Plate 8 (B): TP6 at 2.5m



Plate 9 (A): TP8 at 0.8m



Plate 9 (B): TP8 at 1.9m



Plate 10 (A): TP12 at 1m



Plate 10 (B): TP12 at 3m



Plate 11 (A): TP14 at 1m



Plate 11 (B): TP14 at 3m



Plate 12 (A): TP15 at 0.8m



Plate 12 (B): TP15 at 3.6m



Plate 13 (A): TP17 at 0.9m



Plate 13 (B): TP17 at 1.8m



Plate 13 (C): TP17 at 3.5m



Plate 14 (A): TP21 at 0.9m



Plate 14 (B): TP21 at 2.5m



Plate 14 (C): TP21 at 4m