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Groundwater Verification Monitoring Report

**Former Units 25c - 25e
Solent Road, Havant, Hampshire**

Report No: In12899 CL 004

September 2014

Client: Hargreaves Properties Ltd

Report Prepared By:

Report Reviewed By:

James Skinner

Duncan Eastland

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List of Attachments

Attachment One:	Notice to Interested Parties
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1 Introduction

1.1 The Purpose of This Report

During August 2012, we were commissioned by Hargreaves Properties Ltd (Hargreaves) to undertake an environmental site assessment at the site of former Units 25c - 25e, Solent Road in Havant. Hargreaves had purchased the freehold of this site and proposes to redevelop for future retail/commercial use as Phase II of the Havant Retail Park development, to the immediate east.

The results of our initial investigation works indicated there were no significant contamination issues associated with the site. We understand that our report was submitted to Havant Borough Council to review as part of a pre-application review. Several comments were received from the Local Authority Environmental Health Officer relating to potential contamination sources at the site. We therefore completed additional delineation investigation and groundwater monitoring works during March 2013 following the demolition of a central warehouse unit.

Planning permission for the proposed redevelopment has been granted by Havant Borough Council (Planning application ref. APP/12/00852) in June 2013. The planning permission contains conditions relating to potential contamination issues at the site (Condition 2, 3 and 4); these set out a number of requirements; summarised as follows:

 shall take place until a remediation strategy that includes the risks associated with contamination of the site is submitted and approved by the local planning authority:

 Preliminary Risk Assessment that identifies all previous uses, potential contamination associated with those uses, conceptual site model and potential unacceptable risks arising from contamination at the site.

2.2 – Completion of site investigation to provide information for a detailed risk assessment.

2.3 – Completion of a remedial options appraisal and remediation strategy for the site, based on the results of the site investigation and risk assessment.

2.4 – Completion of a verification plan showing details of data that will be obtained to demonstrate the remedial works are complete and setting out any long-term monitoring requirements.

- Condition 3 – No occupation of the proposed development shall take place until a verification report demonstrating completion of remediation works at the site has been submitted and approved by the local planning authority. This shall also set out any long term monitoring requirements for the site.
- Condition 4 – If, during the development, contamination not previously identified is found to be present and no further development shall be carried out until a remediation strategy has been submitted to address the unforeseen contamination and approved by the local planning authority.

The purpose of the groundwater verification monitoring works reported in this document was to verify the underlying groundwater conditions remained the same and the conclusions of our previous reports remained valid. We consider the findings of our various environmental site assessment works to be sufficient to enable the discharge of planning Condition 2 and Condition 3.

The requirements of Condition 4 can not be fulfilled until the remaining buildings at the site are demolished, then allowing verification of soil and/or groundwater conditions under the existing building footprints.

All the activities comprising this assessment were carried out in accordance with the procedures set out in our Quality Manual. Your attention is drawn to the Notice to Interested Parties included as Attachment One.

1.2 Previous Reports Relating to the Site

As part of our environmental assessment we have reviewed the following environmental reports.

- Ref 1 - Environmental Investigation Report - Former Units 25c-25e, Solent Road, Havant, August 2012 – Completed by Subadra on behalf of Hargreaves Properties Ltd, (Our report ref. In12899 CL 001).
- Ref 2 - Environmental Investigation Report - Former Units 25c-25e, Solent Road, Havant, April 2013 – Completed by Subadra on behalf of Hargreaves Properties Ltd, (Our report ref. In12899 CL 003).

This document should be read in conjunction with these reports, although the findings of these two reports are summarised in Section 2, below.

2 **Summary of Previous Works**

2.1 Environmental Site Assessment Report - July 2012 (Ref 1)

We undertook our initial environmental assessment works during July 2012. Following the completion of a Preliminary Risk Assessment and historical review, we completed an intrusive site investigation comprising eight boreholes, five of which were completed as permanent groundwater monitoring wells. We recovered representative soil and groundwater samples from the site and submitted these for chemical analysis for a range of potential contaminants.

The geology underlying the site was found to comprise Made Ground and/or clay Alluvium, overlying flint gravel River Terrace Deposits and then the Upper Chalk. Groundwater was encountered at shallow depth within the Made Ground and/or River Terrace Deposits, with a resting elevation recorded at approximately 1.0m below ground level. Groundwater flow was calculated to be toward the west.

Our chemical testing identified low concentrations of hydrocarbon compounds in soil and/or groundwater taken from two locations:

- On the eastern corner of the site (BH8). We understand from a review of previous environmental assessment information provided by Hargreaves for the site to the immediate east, that a hydrocarbon contamination issue was identified and remedial works subsequently undertaken to the satisfaction of Havant Borough Council and the Environment Agency. We concluded the low concentrations of hydrocarbons identified in our BH8 to comprise residual contamination originating from the east.
- In a central location close to former above ground fuel tanks and a flammable materials store located on the eastern edge of Unit 25d (BH4). We concluded that the source of the limited hydrocarbon impact was most likely to comprise the fuel tanks. No hydrocarbon impact of groundwater was recorded in wells located hydraulically down gradient of BH4 on the western boundary of the site.

Our 2012 site investigation did not identify significant contamination of underlying soil or groundwater at the site. We also did not identify any current site activities that appear to pose an immediate ongoing risk of contamination. We completed a generic quantitative risk assessment for the site, using our investigation data, which concluded the site was suitable for continued commercial use.

2.2 Additional Environmental Site Assessment - April 2013 (Ref 2)

We understand that our initial site assessment report was submitted to Havant Borough Council as part of pre-application advice for the redevelopment scheme. Initial comments received from Havant Borough Council with regard to our initial environmental assessment indicated that many of the likely requirements of the recommended environmental planning conditions had been addressed.

However, concern was raised that the contamination identified in the centre of the site could represent a more significant issue.

We therefore completed additional delineation assessment works at the site to determine whether more extensive contamination could be present in the central area of the site, following the demolition of former Unit 25d. This additional data was also designed to determine whether any further detailed risk assessment and/or remedial action would be required at the site and allow the development of a suitable remedial strategy

The results of our additional investigation work demonstrated that the former fuel tanks and chemical store associated with Unit 25d have not caused significant contamination of underlying soils or groundwater. Our recent monitoring data also indicates that since the demolition of the building and decommissioning of the fuel tank installation, groundwater quality had improved.

On the basis of our additional investigation and monitoring data we concluded the following:

- The site data confirms previous conclusions that the former fuel tanks were the source of the low concentrations of hydrocarbons previously encountered in this area of the site. Following the demolition of the building and removal of these tanks, this potential contaminant source had been removed.
- We recorded an improvement in groundwater quality in the eastern corner of the site, suggesting any residual hydrocarbons present to the east are limited in extent, or degrading.
- Underlying groundwater has not been significantly impacted with heavy metals. Our original investigation had identified limited elevated concentrations of heavy metals in shallow Made Ground samples collected from various boreholes. We did not consider these concentrations to pose a potential risk to site users or underlying groundwater due to the presence of hard standing cover in previous and future site layouts, which will prevent infiltration of surface waters and any potential leaching of heavy metals from shallow Made Ground. Our additional monitoring data confirmed that leaching of heavy metals to underlying groundwater has not occurred
- The results of our additional investigation work confirm the conclusions of our 2012 environmental assessment of the site. We do not consider our site investigation works have identified any significant contamination of soils or groundwater at the site

On the basis of our investigation and generic risk assessment results we confirmed our initial conclusions that the site is suitable for redevelopment for continued commercial use. We concluded that further detailed quantitative risk assessment or remedial work action was not required.

A site plan, showing the locations of the various boreholes we constructed is provided overleaf.

3 Groundwater Verification Monitoring Results

We returned to the site on the 20th August 2014 to complete groundwater verification monitoring at the site. The site remains predominantly derelict, with all but one of the units unoccupied at the time of our monitoring works. The central site area (formally Unit 25d) is being used for the temporary storage of building materials associated with a neighbouring development being completed by Hargreaves. We understand that the remaining buildings are scheduled for demolition later this year.

We inspected each of the eleven permanent groundwater wells and gauged groundwater levels using an oil/water interface probe. We were unable to access BH106 as this was covered in building materials. We then obtained groundwater samples from nine of the remaining ten wells for chemical analysis, following suitable well development and purging.



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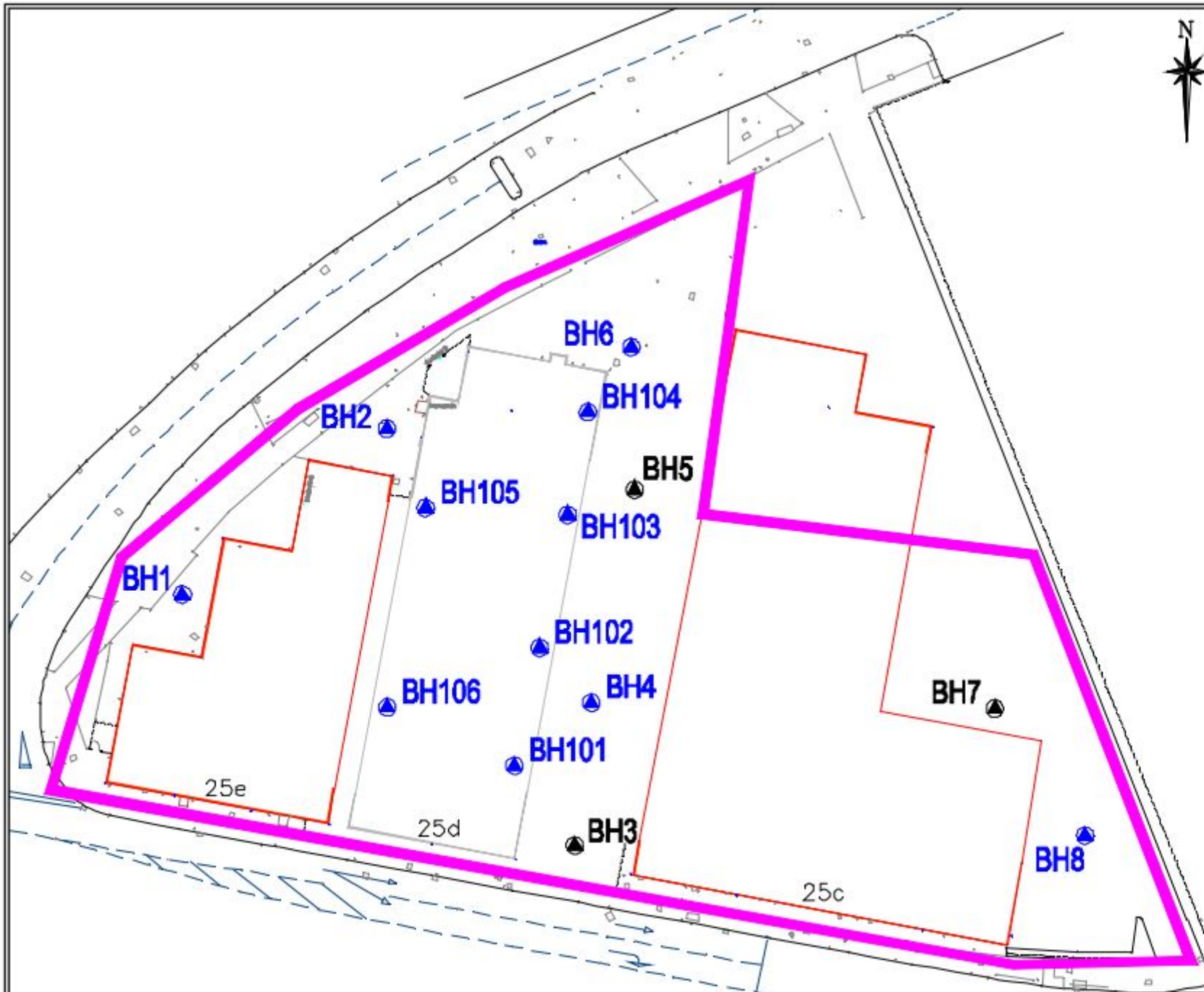
DATE : April 2013

SUBADRA ARCHIVE NO : IN12899 DR 004

DRAWING BY : KM CHECKED BY : JS

KEY

- BUILDING OUTLINE (SUBJECT SITE)
- FORMER BUILDING OUTLINE (SUBJECT SITE)
- INVESTIGATION SITE BOUNDARY
- ▲ BH1 PERMANENT WELL LOCATION
- BH1 BOREHOLE LOCATION



BOREHOLE LOCATIONS
— APRIL 2013

FIGURE ONE

3.1 Groundwater Verification Monitoring - 20th August 2014

Sampling Location	Groundwater Level – At Rest	Comments
BH1	1.475	Purge water light brown (chalky). No hydrocarbon odours or sheen noted.
BH2	1.365	
BH4	1.350	Purge water grey black in colour and silty. No hydrocarbon odours or sheen noted.
BH6	1.285	Purge water light brown or orange brown in colour. No hydrocarbon odours or sheen noted
BH8	1.60	
BH101	1.470	Purge water light brown or orange brown in colour. Sandy. No hydrocarbon odours or sheen noted.
BH102	1.490	
BH103	1.450	
BH104	1.475	
BH105	1.520	Well not sampled - BH2 immediately down gradient.
BH106	-	Could not access - well covered with building materials.

All dimensions in metres below ground level

Table One: Groundwater Monitoring Data – August 20143.2 Chemical Analysis Rationale

Analysis	Rationale	No of samples
		Water
Total petroleum hydrocarbons (TPH) reported by carbon range	Representative of compounds present in petrol, diesel and lube oils;	9
Benzene, toluene, ethylbenzene and xylenes (BTEX) and volatile TPH fractions	Representative of compounds present in petrol and other organic solvents	7
Volatile Organic Compounds (VOC) suite	Representative of compounds present in petrol and other organic solvents, including chlorinated solvents	4
The results of our analysis are summarised in the tables below. Certificates for all chemical analysis are included in Attachment Two.		

Table Two: Schedule of Analysis – Groundwater Samples

3.3 Groundwater Verification Monitoring - Analysis Results

Sampling Location	Total Petroleum Hydrocarbons - Concentration (µg/l)				
	>C ₈ -C ₁₀	>C ₁₀ -C ₁₂	>C ₁₂ -C ₁₆	>C ₁₆ -C ₂₁	>C ₂₁ -C ₃₅
BH1	<10	<10	<10	<10	<10
BH2	<10	<10	<10	<10	<10
BH4	11.7	<10	<10	<10	<10
BH6	<10	<10	<10	<10	<10
BH8	<10	<10	<10	<10	<10
BH101	<10	<10	<10	<10	<10
BH102	<10	<10	<10	<10	<10
BH103	<10	<10	<10	<10	<10
BH104	<10	<10	<10	<10	<10

Table Three: TPH Analysis Results – Groundwater - August 2014

Sampling Location	Concentration (µg/l)						
	Total Petroleum Hydrocarbons			Benzene	Toluene	Ethyl-benzene	Total Xylenes
	C ₆ -C ₈	>C ₈ -C ₁₀	>C ₁₀ -C ₁₂				
BH4	<50	<50	<50	<10	<10	<10	<20
BH6	<50	<50	<50	<10	<10	<10	<20
BH8	<50	<50	<50	<10	<10	<10	<20
BH101	<50	<50	<50	<10	<10	<10	<20
BH102	<50	<50	<50	<10	<10	<10	<20
BH103	<50	<50	<50	<10	<10	<10	<20
BH104	<50	<50	<50	<10	<10	<10	<20

Table Four: BTEX Analysis Results – Groundwater

Sampling Location	Concentration (µg/l)						
	Vinyl Chloride	1,1,1 Trichloroethane	Benzene	Trichloroethene	Toluene	Ethyl-benzene	Total Xylenes
BH4	<5	<5	<1	<5	<5	<5	<5
BH6	<5	<5	<1	<5	<5	<5	<5
BH103	<5	<5	<1	<5	<5	<5	<5
BH104	<5	<5	<1	<5	<5	<5	<5

Table Five: Selected VOC Analysis Results – Groundwater

4 Conclusions and Recommendations

Conclusions
The results of our groundwater verification monitoring works have confirmed that underlying groundwater quality has not changed since our last monitoring works completed during 2013. On the basis of our verification data and as there have been no changes in site use since our last assessment works were completed; we consider our previous conclusions to remain valid. On the basis of our previous site investigation works, generic risk assessment and verification monitoring results we consider the site is suitable for redevelopment for continued commercial use. We do not consider any further detailed quantitative risk assessment or remedial work action is required. We consider the environmental assessment works we have completed to date should be suitable for submission to the Havant Borough Council in support of the discharge of Planning Condition 2 and Condition 3.

Table Six: Conclusions

Recommendations
We have not identified any current site activities that appear to pose an immediate ongoing risk of contamination. However, industrial warehouses have occupied the site for many years and we were not able to complete intrusive investigations of all areas of the site due to the existing buildings present. Whilst we have monitoring data from down gradient locations of all the buildings present at the site, it is possible that additional potential sources of contamination are present (former below ground tanks, oil/water interceptors etc) that we haven't identified. We would recommend that verification of site conditions is completed during/following the demolition of the remaining site buildings and removal of the floor slabs and hard standing. This will allow for inspection of these areas of the site and confirmation that no previously unidentified potential sources of contamination are present. Additional sampling of soils and/or groundwater underlying the buildings may be required and we recommend that we maintain a 'watching brief' during this phase of the redevelopment in order to satisfy the requirements of Planning Condition 4.
Your attention is drawn to the Notice to Interested Parties included as Attachment One.

Table Seven: Recommendations

ATTACHMENT ONE: NOTICE TO INTERESTED PARTIES

NOTICE TO INTERESTED PARTIES

The purpose of our site assessment is to provide general information on the environmental and/or geotechnical conditions existing at the site and related to soil or groundwater. The Client or others specified the scope of the investigation and the validity of our conclusions may be limited by the scope of work specified. We are not responsible for any such limitations or omissions.

Where stated in this report, we have used information supplied by third parties. While we have evaluated as far as possible the validity of this information, we cannot guarantee its accuracy in any way whatsoever.

No investigation technique is capable of completely identifying all of the contaminants that might be present in the soil or groundwater under a site. Where specified in our report, we have examined the ground by constructing a number of boreholes and/or trial pits. We recovered samples of soil and/or groundwater from available exposures.

The depth and spacing of our sampling locations were selected to ensure with a reasonable probability that they would be representative of the actual conditions across the whole site. However, safety considerations relating to existing site infrastructure may have restricted our ability to investigate all potential contaminant sources. Specifically, we were unable to investigate the soil and groundwater condition immediately adjacent to the underground petroleum installation and other buried services. These limitations must be borne in mind when considering the conclusions reached in this report.

Soil is intrinsically variable and the spread of contaminants within the soil is therefore subject to a degree of non-uniformity. For these reasons no sampling technique can completely eliminate the possibility of obtaining samples that are not representative of the actual conditions. Our sampling techniques are intended to reduce the possibility to an acceptable level.

Groundwater levels and soil vapour levels that we report were accurate at the time of the investigation. Groundwater and soil vapour levels are variable. Long term monitoring may be required to ensure that the levels recorded during our investigation are representative of long term and possible 'worst case' conditions.

This investigation was carried out to assess the significance of contamination resulting from use of the site as identified in this report. Unless we have indicated otherwise, no assessment of the potential impact of any other previous uses has been made. No investigation was carried out to determine whether or not any deleterious or hazardous materials have been used in the construction of the buildings present on the site.

We do not accept any responsibility for the cost of remedial works or other costs incurred in whatever way whatsoever as a result of any omissions, errors or other shortcomings in this report unless we have been given reasonable opportunity to verify ourselves that such faults exist and we have been given a reasonable opportunity to carry out works to remedy such faults ourselves using the most practicable means available to us. We do not accept liability for any consequential losses incurred by you while we carry out any remedial works we deem necessary.

This report has been prepared for Hargreaves Properties Ltd. Use of, and reliance on, this report by other third parties will be at such third parties own risk, and we are unable to accept any liability or responsibility to third parties.

Neither the whole nor any part of this report, or any reference to it, may be included in any published document circular or statement or published in any way without our prior written approval.

This report and its contents, together with any supporting correspondence or other documentation, remain the property of Subadra Consulting Limited until paid for in full.

ATTACHMENT TWO: CHEMICAL ANALYSIS CERTIFICATES

Laboratory Analysis Report

Report Number 005276

Sampling Date 20th August 2014

Report Date 29th August 2014

Client	Site Name/Address
Hargreaves Properties Ltd Rustington House Worthing Road Rustington West Sussex BN16 3PS	Retail Park Phase II, Havent

Number of Samples	Sample Type	Analysis Completed	Blind Testing	UKAS	MCERTS
9	Water	IH QM:E9.5 based on TNRCC 1005 by GC-FID	RTCorp	Yes	No

QM E9.5: IH TPH Banded method C8 - C35 - Solvent (pentane) extraction then Liquid injection into GC-FID.
Samples were received 22/08/14
Samples were prepared and analysed 22/08/14

Analysis Report Approved By

Katherine Clark
Duty Reporting Manager



Glossary of Terms Used in This Report

Blank - A sample known to contain none of the compounds being analysed, and used to confirm that the analytical instrument is not giving false positives during analysis.

Blind Testing: Name of any blind testing scheme participated in. The laboratory's accuracy is reported as a Z score; the lower the Z score the more accurate the analysis, with a score of less than 2 considered excellent.

CRM - Certified Reference Material. A sample prepared by an accredited source and containing a known concentration of a given compound or compounds, which can be used to validate an analysis method.

Duplicate - A duplicate sample, used to give a measure of the repeatability of a given analysis.

External Calibration - External calibration samples are samples containing a known concentration of the compounds being analysed. They are added to the analysis sequence after every nth sample being analysed and provide confirmation that the instrument remains within its calibration range.

Field Blank - Similar to a blank sample, except a field blank accompanies the samples throughout their existence (i.e. from the site being sampled to the laboratory) and used to provide a check that the samples aren't being cross-contaminated during the transportation/storage process.

IRM - In house reference material. A sample prepared by our laboratory and containing a known concentration of a given compound or compounds, which can be used to validate an analysis method.

Linearity - The linearity of a given analytical method is the range of concentrations between which the analytical instrument's response is directly proportional to the concentration being analysed, and hence the range of concentrations that the instrument can be said to give quantitative results.

LOD - Limit of detection. This is the lowest response for any given compound generated at the instrument's detector, that can be differentiated from the instrument's baseline noise.

LOQ - Limit of quantification. This is the lowest concentration that a given compound can be both detected and its concentration accurately measured in a sample.

MCERTS - An accreditation scheme created by the Environment Agency for the analysis of soil samples used to determine land quality. The scheme does not apply to analysis of soil samples used for waste classification purposes or to the analysis of water samples.

Method Calibration - The means by which an analytical method is calibrated. Usually this involves analysing a number of external calibration samples, containing different concentrations of the compounds to be analysed.

Precision - A measure of the repeatability of the analysis.

Sample - The material provided by the client to the laboratory for analysis.

Sensitivity - The smallest increment in analytical result that can be reliably quantified.

Spike - Also known as an internal calibration, a spike sample is a sample to be analysed which has a known concentration of another compound added. This provides a check on that the compounds being analysed are being correctly extracted from the sample matrix.

UKAS - The UK's implementation of ISO 17025, the international standard accreditation for laboratory analysis

Quality Control/Quality Assurance Information

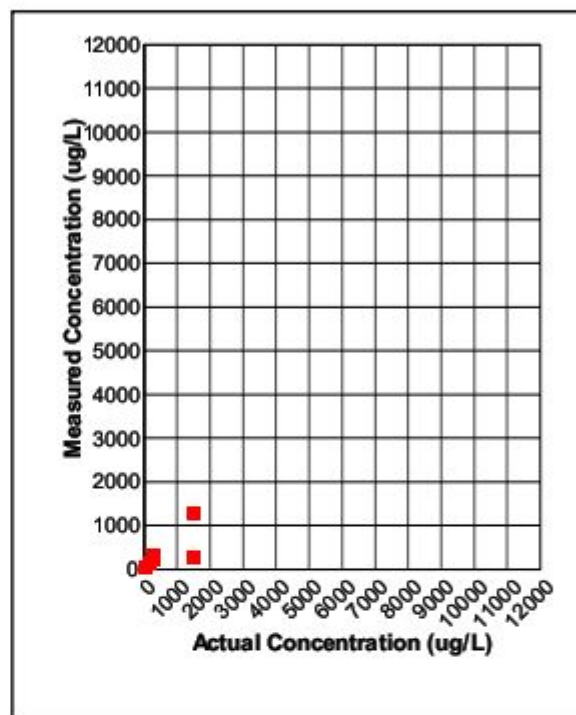
TPH Banded - Water

Our laboratory carries out a wide variety of verification analyses in order to ensure the validity of the analysis results we produce.

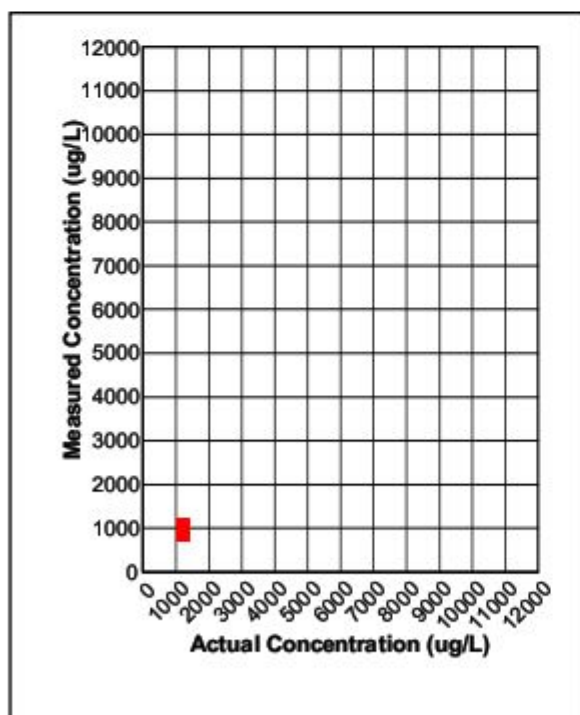
Samples are analysed in batches, usually according to the sample chain of custody form we receive. However, we also add additional samples into the sample sequence. These additional samples may include blanks, calibration samples, in-house reference material samples and duplicate samples. In addition to

this, each sample is 'spiked' with a known concentration of a compound. In the case of this analysis, we use a combination of

2-fluorobiphenyl and 1-chlorooctadecane. The results of the analyses we have carried out on the additional quality assurance samples during the ten days prior to the samples reported here are shown in the accompanying graphs. Results are reported in ug/litre for the C8-C10 band. These provide a visual indication of the stability of our laboratory analysis.



Calibration Samples - Previous 10 days



Spike Samples - Previous 10 days

Retail Park Phase II, Havent

Summary of Results

TPH Banded - Water

Accreditation	UKAS	Blind Testing	RTCorp		
Results Reported As	Not Applicable	Last Three Z Scores	0.57	-0.43	-0.91

Analysis Method Parameters			
Reporting Units	µg/litre	Limit of Detection	5ug/litre
Linearity	10-10,000 ug/litre	Limit of Quantification	10 ug/litre
Sensitivity	100 ug/litre	Precision	+/-1.0ug/litre

Sample Location	Sample	Depth	Total Petroleum Hydrocarbons				
			C8-C10	>C10-C12	>C12-C16	>C16-C21	>C21-C35
BH1	wln12899.003001	1.48	<10	<10	<10	<10	<10
BH2	wln12899.003002	1.37	<10	<10	<10	<10	<10
BH4	wln12899.003003	1.35	11.7	<10	<10	<10	<10
BH6	wln12899.003004	1.29	<10	<10	<10	<10	<10
BH8	wln12899.003005	1.60	<10	<10	<10	<10	<10
BH101	wln12899.003006	1.47	<10	<10	<10	<10	<10
BH102	wln12899.003007	1.49	<10	<10	<10	<10	<10
BH103	wln12899.003008	1.45	<10	<10	<10	<10	<10
BH104	wln12899.003009	1.48	<10	<10	<10	<10	<10

Retail Park Phase II, Havent

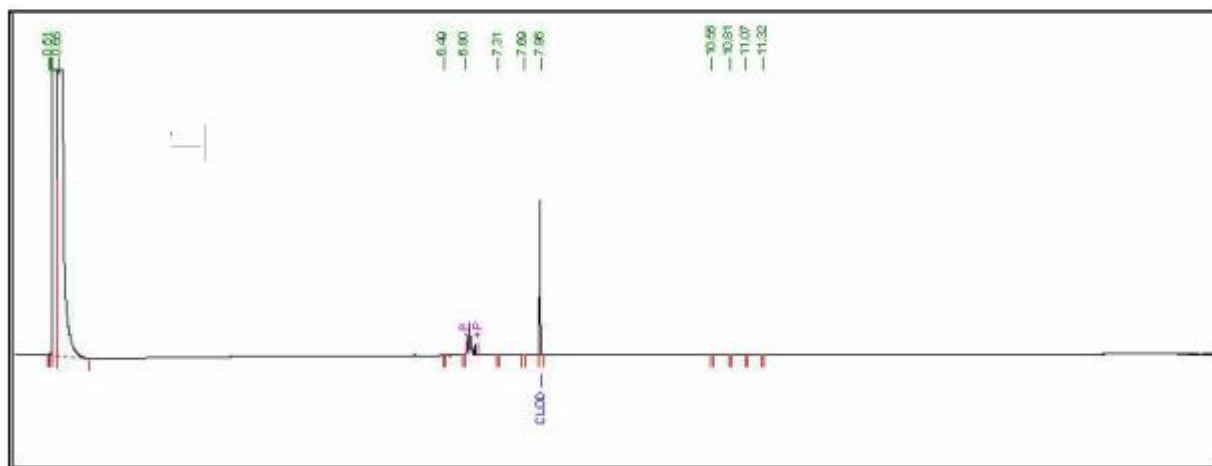
Individual Sample Results

TPH Banded - Water

Sample Location	BH1	Results Reported As	Not Applicable
Sample	wln12899.003001	Reporting Units	ug/litre
Depth(m)	1.48	Date Received	22/08/2014
Chain of Custody No.	8841	Date of Sampling	20/08/2014
Accreditation	UKAS	Date of Analysis	26/08/2014

VES (ml)	MES (g)	CRF	BSV	Results				
				C8-C10	>C10-C12	>C12-C16	>C16-C21	>C21-C35
3	125.3	0.85	0.00	<10	<10	<10	<10	<10

Note: VES denotes volume of extraction solvent; MES denotes mass of extracted sample; CRF denotes calibration recovery factor; BSV denotes blank subtraction value



Gas Chromatogram for Sample

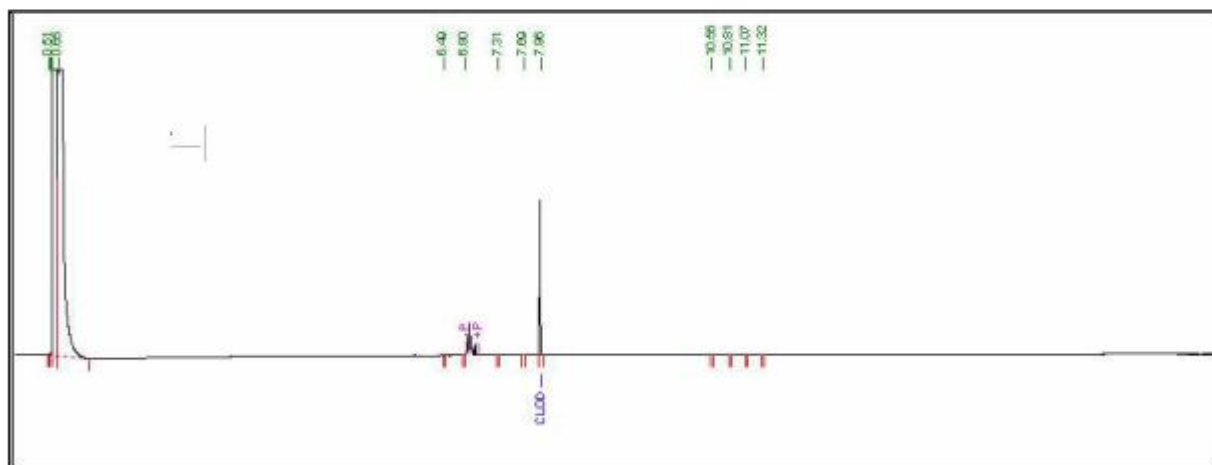
Individual Sample Results

TPH Banded - Water

Sample Location	BH2	Results Reported As	NotApplicable
Sample	win12899.003002	Reporting Units	ug/litre
Depth(m)	1.37	Date Received	22/08/2014
Chain of Custody No.	8841	Date of Sampling	20/08/2014
Accreditation	UKAS	Date of Analysis	26/08/2014

VES (ml)	MES (g)	CRF	BSV	Results				
				C8-C10	>C10-C12	>C12-C16	>C16-C21	>C21-C35
3	124.89	0.89	0.00	<10	<10	<10	<10	<10

Note: VES denotes volume of extraction solvent; MES denotes mass of extracted sample; CRF denotes calibration recovery factor; BSV denotes blank subtraction value



Gas Chromatogram for Sample

Retail Park Phase II, Havent

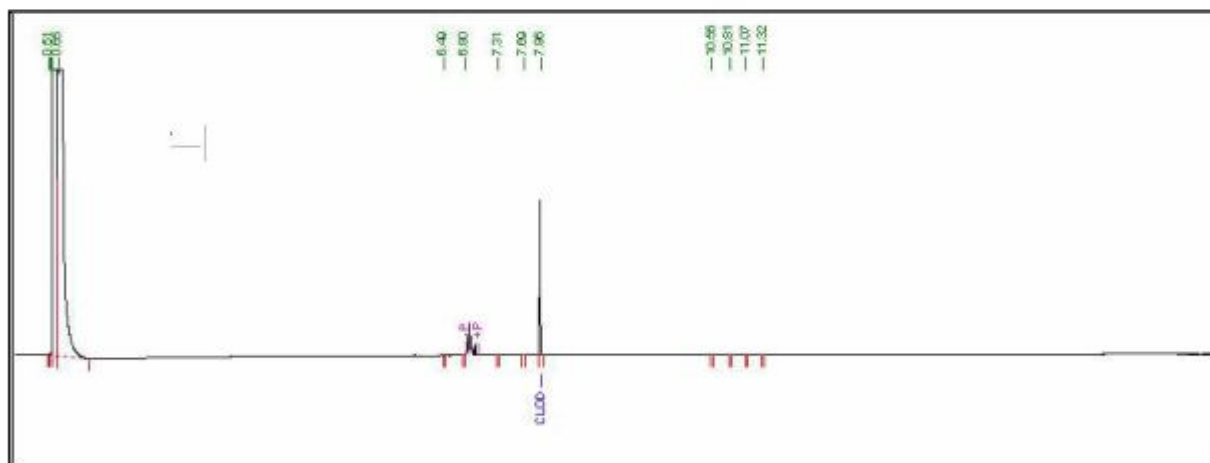
Individual Sample Results

TPH Banded - Water

Sample Location	BH4	Results Reported As	NotApplicable
Sample	win12899.003003	Reporting Units	ug/litre
Depth(m)	1.35	Date Received	22/08/2014
Chain of Custody No.	8841	Date of Sampling	20/08/2014
Accreditation	UKAS	Date of Analysis	26/08/2014

VES (ml)	MES (g)	CRF	BSV	Results				
				C8-C10	>C10-C12	>C12-C16	>C16-C21	>C21-C35
3	125.11	1.00	0.00	11.7	<10	<10	<10	<10

Note: VES denotes volume of extraction solvent; MES denotes mass of extracted sample; CRF denotes calibration recovery factor; BSV denotes blank subtraction value



Gas Chromatogram for Sample

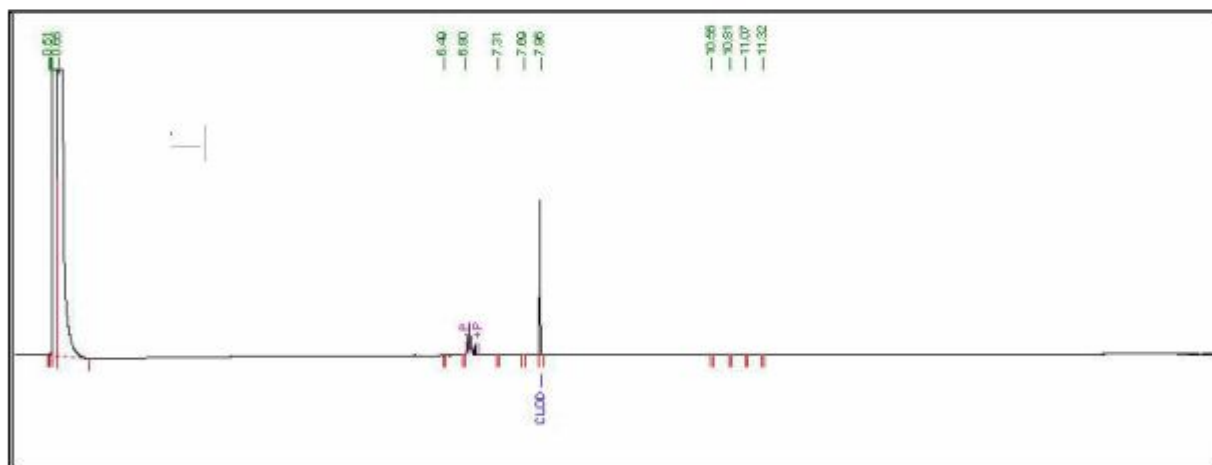
Individual Sample Results

TPH Banded - Water

Sample Location	BH6	Results Reported As	NotApplicable
Sample	win12899.003004	Reporting Units	ug/litre
Depth(m)	1.29	Date Received	22/08/2014
Chain of Custody No.	8841	Date of Sampling	20/08/2014
Accreditation	UKAS	Date of Analysis	26/08/2014

VES (ml)	MES (g)	CRF	BSV	Results				
				C8-C10	>C10-C12	>C12-C16	>C16-C21	>C21-C35
3	125.08	0.94	0.00	<10	<10	<10	<10	<10

Note: VES denotes volume of extraction solvent; MES denotes mass of extracted sample; CRF denotes calibration recovery factor; BSV denotes blank subtraction value



Gas Chromatogram for Sample

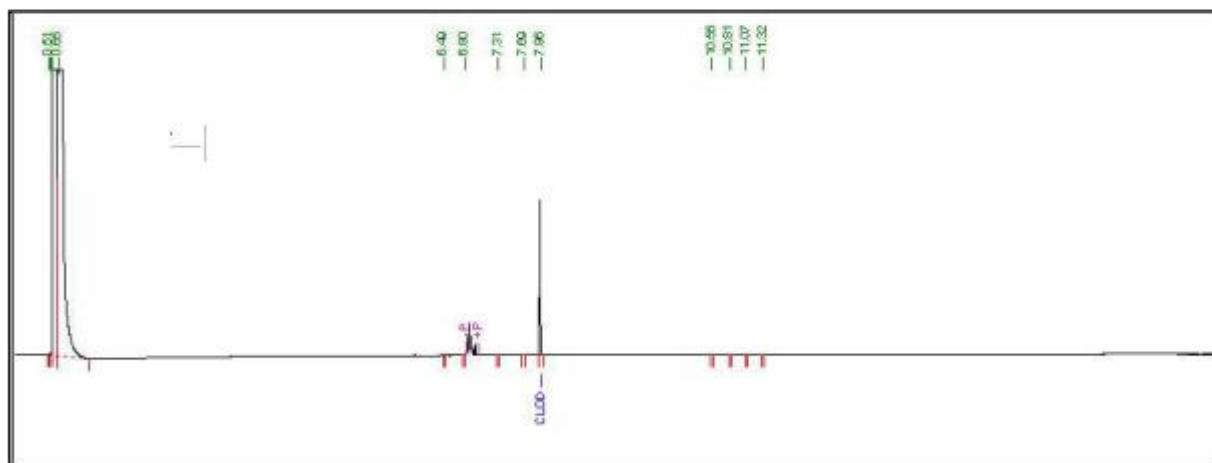
Individual Sample Results

TPH Banded - Water

Sample Location	BH8	Results Reported As	NotApplicable
Sample	wln12899.003005	Reporting Units	ug/litre
Depth(m)	1.60	Date Received	22/08/2014
Chain of Custody No.	8841	Date of Sampling	20/08/2014
Accreditation	UKAS	Date of Analysis	26/08/2014

VES (ml)	MES (g)	CRF	BSV	Results				
				C8-C10	>C10-C12	>C12-C16	>C16-C21	>C21-C35
3	125.31	0.96	0.00	<10	<10	<10	<10	<10

Note: VES denotes volume of extraction solvent; MES denotes mass of extracted sample; CRF denotes calibration recovery factor; BSV denotes blank subtraction value



Gas Chromatogram for Sample

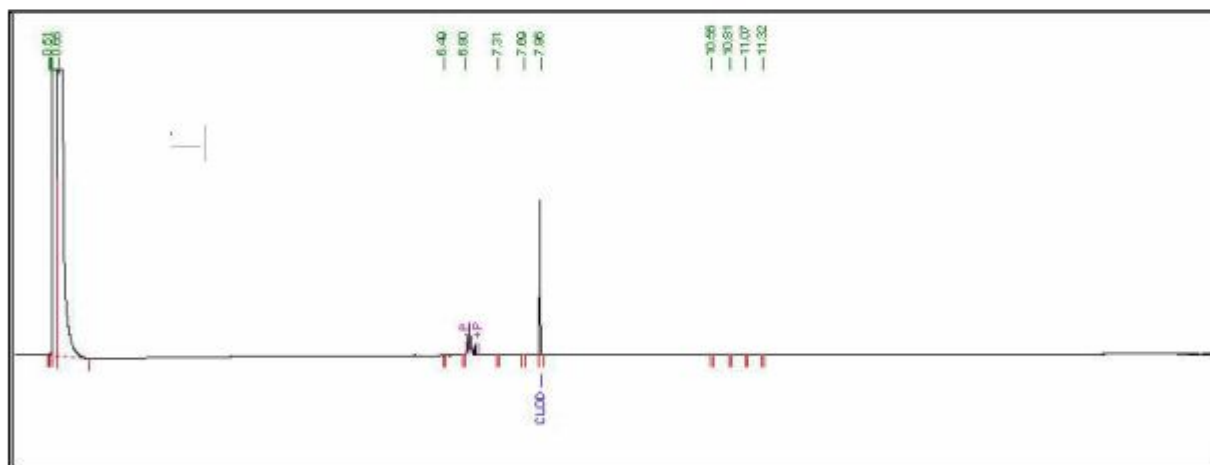
Individual Sample Results

TPH Banded - Water

Sample Location	BH101	Results Reported As	NotApplicable
Sample	wln12899.003006	Reporting Units	ug/litre
Depth(m)	1.47	Date Received	22/08/2014
Chain of Custody No.	8841	Date of Sampling	20/08/2014
Accreditation	UKAS	Date of Analysis	26/08/2014

VES (ml)	MES (g)	CRF	BSV	Results				
				C8-C10	>C10-C12	>C12-C16	>C16-C21	>C21-C35
3	125.33	0.96	0.00	<10	<10	<10	<10	<10

Note: VES denotes volume of extraction solvent; MES denotes mass of extracted sample; CRF denotes calibration recovery factor; BSV denotes blank subtraction value



Gas Chromatogram for Sample

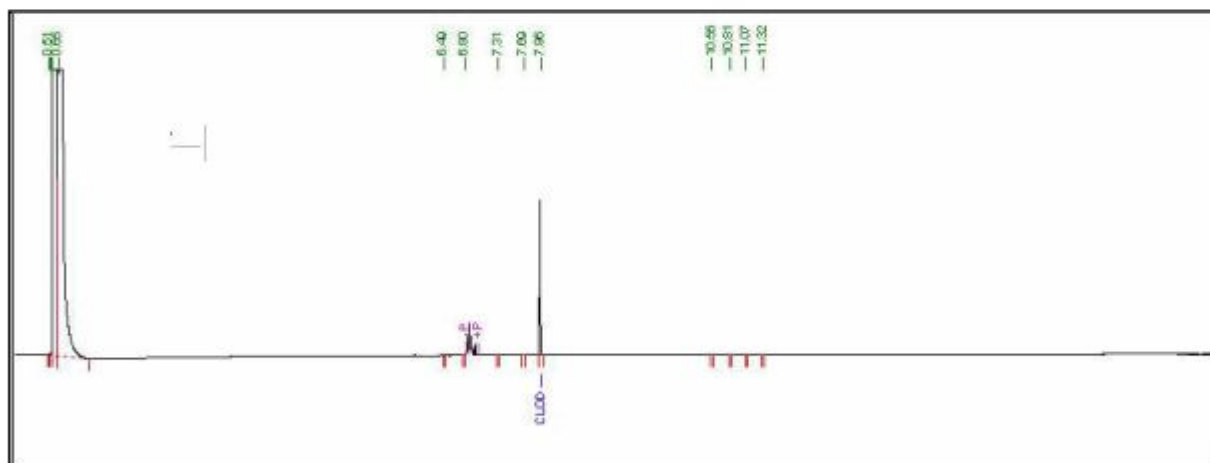
Individual Sample Results

TPH Banded - Water

Sample Location	BH102	Results Reported As	NotApplicable
Sample	win12899.003007	Reporting Units	ug/litre
Depth(m)	1.49	Date Received	22/08/2014
Chain of Custody No.	8841	Date of Sampling	20/08/2014
Accreditation	UKAS	Date of Analysis	26/08/2014

VES (ml)	MES (g)	CRF	BSV	Results				
				C8-C10	>C10-C12	>C12-C16	>C16-C21	>C21-C35
3	125.39	1.07	0.00	<10	<10	<10	<10	<10

Note: VES denotes volume of extraction solvent; MES denotes mass of extracted sample; CRF denotes calibration recovery factor; BSV denotes blank subtraction value



Gas Chromatogram for Sample

Retail Park Phase II, Havent

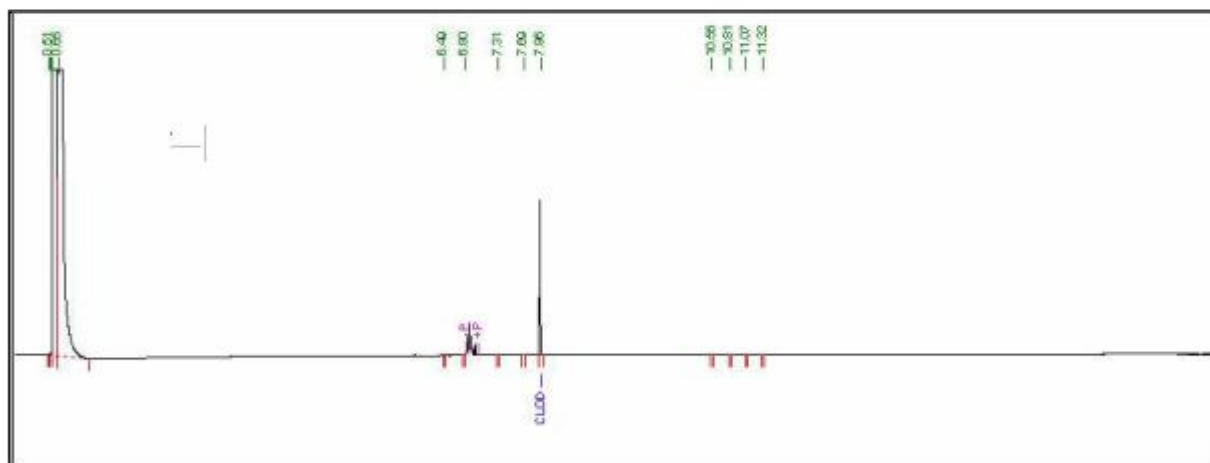
Individual Sample Results

TPH Banded - Water

Sample Location	BH103	Results Reported As	NotApplicable
Sample	win12899.003008	Reporting Units	ug/litre
Depth(m)	1.45	Date Received	22/08/2014
Chain of Custody No.	8841	Date of Sampling	20/08/2014
Accreditation	UKAS	Date of Analysis	26/08/2014

VES (ml)	MES (g)	CRF	BSV	Results				
				C8-C10	>C10-C12	>C12-C16	>C16-C21	>C21-C35
3	125.02	1.06	0.00	<10	<10	<10	<10	<10

Note: VES denotes volume of extraction solvent; MES denotes mass of extracted sample; CRF denotes calibration recovery factor; BSV denotes blank subtraction value



Gas Chromatogram for Sample

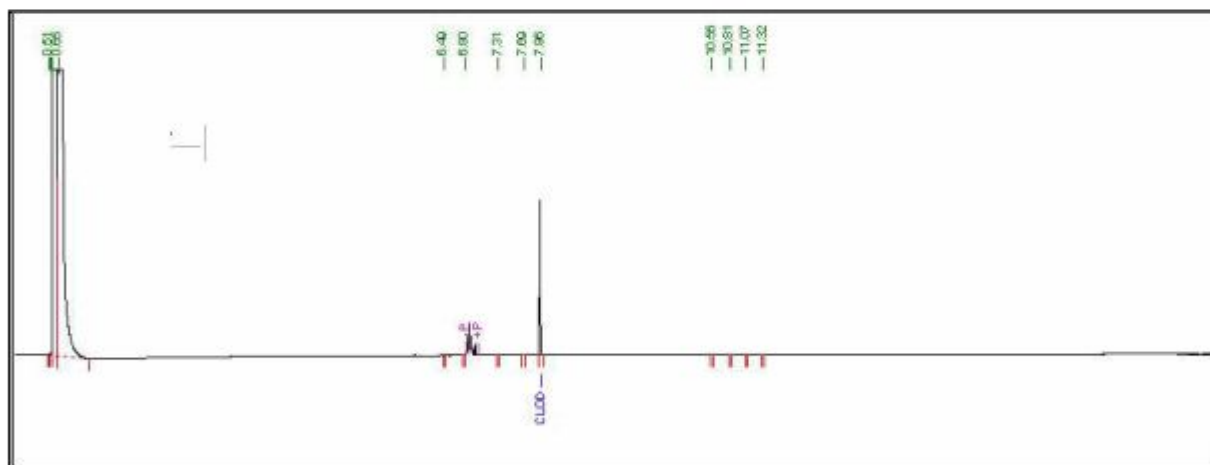
Individual Sample Results

TPH Banded - Water

Sample Location	BH104	Results Reported As	NotApplicable
Sample	win12899.003009	Reporting Units	ug/litre
Depth(m)	1.48	Date Received	22/08/2014
Chain of Custody No.	8841	Date of Sampling	20/08/2014
Accreditation	UKAS	Date of Analysis	26/08/2014

VES (ml)	MES (g)	CRF	BSV	Results				
				C8-C10	>C10-C12	>C12-C16	>C16-C21	>C21-C35
3	125.14	1.01	0.00	<10	<10	<10	<10	<10

Note: VES denotes volume of extraction solvent; MES denotes mass of extracted sample; CRF denotes calibration recovery factor; BSV denotes blank subtraction value



Gas Chromatogram for Sample

Retail Park Phase II, Havent

End of Report

Laboratory Analysis Report

Report Number 005268

Sampling Date 20th August 2014

Report Date 28th August 2014

Client	Site Name/Address
Hargreaves Properties Ltd Rustington House Worthing Road Rustington West Sussex BN16 3PS	Retail Park Phase II, Havent

Number of Samples	Sample Type	Analysis Completed	Blind Testing	UKAS	MCERTS
7	Water	IH QM:E9.4 based on US EPA 5021 by GC-FID	RTCorp	Yes	No

QM E9.4: In-House BTEX by Headspace method - Liquid-Gas extraction using headspace then Gas injection into GC-FID.

Samples were received 26/08/14

Samples were prepared and analysed 26/08/14

Analysis Report Approved By



Katherine Clark

Duty Reporting Manager



Glossary of Terms Used in This Report

Blank - A sample known to contain none of the compounds being analysed, and used to confirm that the analytical instrument is not giving false positives during analysis.

Blind Testing: Name of any blind testing scheme participated in. The laboratory's accuracy is reported as a Z score; the lower the Z score the more accurate the analysis, with a score of less than 2 considered excellent.

CRM - Certified Reference Material. A sample prepared by an accredited source and containing a known concentration of a given compound or compounds, which can be used to validate an analysis method.

Duplicate - A duplicate sample, used to give a measure of the repeatability of a given analysis.

External Calibration - External calibration samples are samples containing a known concentration of the compounds being analysed. They are added to the analysis sequence after every nth sample being analysed and provide confirmation that the instrument remains within its calibration range.

Field Blank - Similar to a blank sample, except a field blank accompanies the samples throughout their existence (i.e. from the site being sampled to the laboratory) and used to provide a check that the samples aren't being cross-contaminated during the transportation/storage process.

IRM - In house reference material. A sample prepared by our laboratory and containing a known concentration of a given compound or compounds, which can be used to validate an analysis method.

Linearity - The linearity of a given analytical method is the range of concentrations between which the analytical instrument's response is directly proportional to the concentration being analysed, and hence the range of concentrations that the instrument can be said to give quantitative results.

LOD - Limit of detection. This is the lowest response for any given compound generated at the instrument's detector, that can be differentiated from the instrument's baseline noise.

LOQ - Limit of quantification. This is the lowest concentration that a given compound can be both detected and its concentration accurately measured in a sample.

MCERTS - An accreditation scheme created by the Environment Agency for the analysis of soil samples used to determine land quality. The scheme does not apply to analysis of soil samples used for waste classification purposes or to the analysis of water samples.

Method Calibration - The means by which an analytical method is calibrated. Usually this involves analysing a number of external calibration samples, containing different concentrations of the compounds to be analysed.

Precision - A measure of the repeatability of the analysis.

Sample - The material provided by the client to the laboratory for analysis.

Sensitivity - The smallest increment in analytical result that can be reliably quantified.

Spike - Also known as an internal calibration, a spike sample is a sample to be analysed which has a known concentration of another compound added. This provides a check on that the compounds being analysed are being correctly extracted from the sample matrix.

UKAS - The UK's implementation of ISO 17025, the international standard accreditation for laboratory analysis

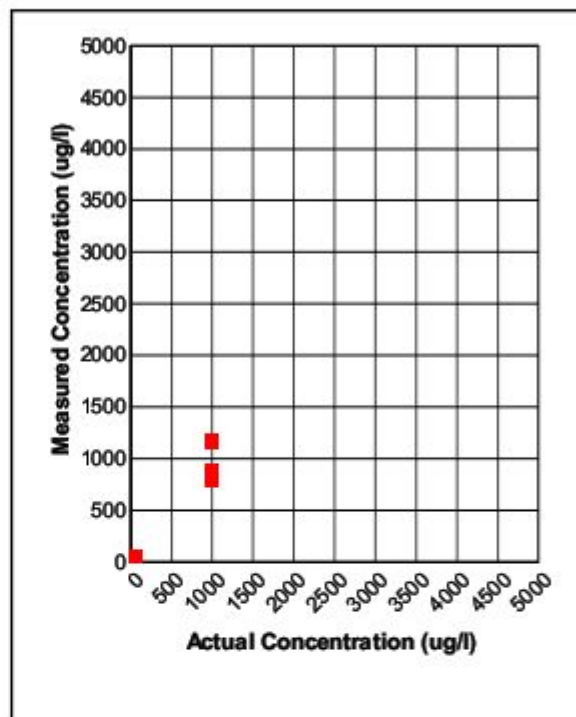
Quality Control/Quality Assurance Information

BTEX by Headspace - Water

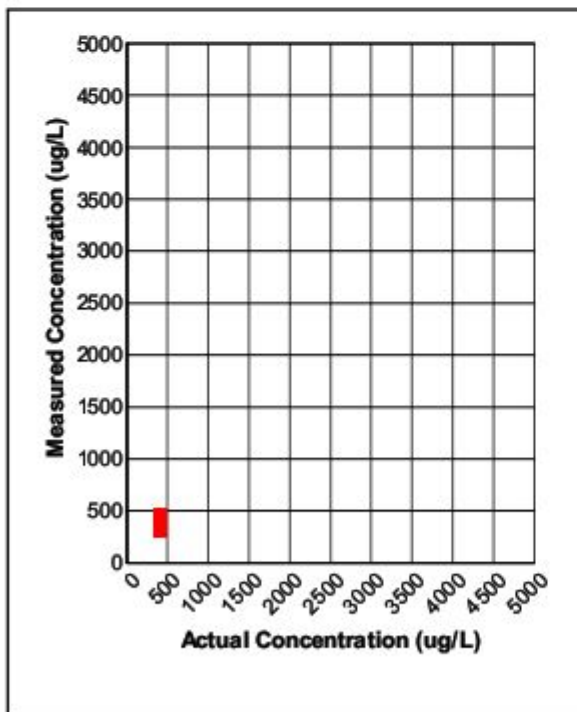
Our laboratory carries out a wide variety of verification analyses in order to ensure the validity of the analysis results we produce.

Samples are analysed in batches, usually according to the sample chain of custody form we receive. However, we also add additional samples into the sample sequence. These additional samples may include blanks, calibration samples, in-house reference material samples and duplicate samples. In addition to this each sample being analysed is 'spiked' with a known concentration of a compound. In the case of BTEX analyses, we use bromobenzene to spike the samples.

The results of the benzene analyses we have carried out on the additional quality assurance samples during the ten days prior to the samples reported here are shown in the accompanying graphs. Results are reported in ug/litre. These provide a visual indication of the stability of our laboratory analysis.



Calibration Samples - Previous 10 days



Spike Samples - Previous 10 days

Retail Park Phase II, Havent

Summary of Results

BTEX by Headspace - Water

Accreditation	UKAS	Blind Testing	RTCorp		
Results Reported As	NotApplicable	Last Three Z Scores	0.77	0.30	-0.63

Analysis Method Parameters			
Reporting Units	ug/litre	Limit of Detection	0.1 ug/litre
Linearity	10-5000 ug/litre	Limit of Quantification	5 ug/litre
Sensitivity	1.0 ug/litre	Precision	+/- 0.5 ug/litre

Sample Location	Sample	Depth	Benzene	Ethyl-Benzene	Toluene	m+p Xylenes	o-Xylene
BH4	wln12899.002003	1.35	<10	<10	<10	<10	<10
BH6	wln12899.002004	1.29	<10	<10	<10	<10	<10
BH8	wln12899.002005	1.60	<10	<10	<10	<10	<10
BH101	wln12899.002006	1.47	<10	<10	<10	<10	<10
BH102	wln12899.002007	1.49	<10	<10	<10	<10	<10
BH103	wln12899.002008	1.45	<10	<10	<10	<10	<10
BH104	wln12899.002009	1.48	<10	<10	<10	<10	<10

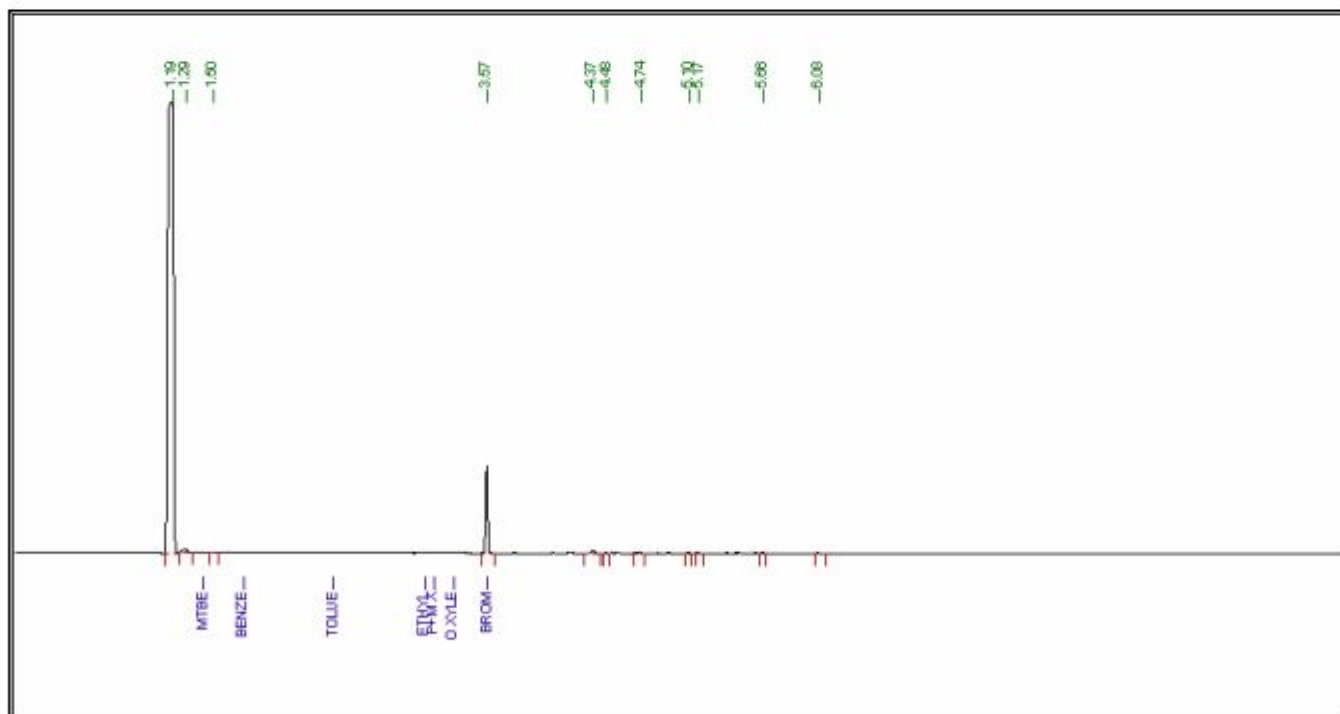
Sample Location	Sample	Depth	C6-C8	>C8-C10	>C10-C12	>C12-C15
BH4	wln12899.002003	1.35	<50	<50	<50	<50
BH6	wln12899.002004	1.29	<50	<50	<50	<50
BH8	wln12899.002005	1.60	<50	<50	<50	<50
BH101	wln12899.002006	1.47	<50	<50	<50	<50
BH102	wln12899.002007	1.49	<50	<50	<50	<50
BH103	wln12899.002008	1.45	<50	<50	<50	<50
BH104	wln12899.002009	1.48	<50	<50	<50	<50

Individual Sample Results

BTEX By Headspace - Water

Sample Location	BH4	Results Reported As	Not Applicable
Sample	win12899.002003	Reporting Units	ug/litre
Depth(m)	1.35	Date Received	26/08/2014
Chain of Custody No.	8840	Date of Sampling	20/08/2014
Accreditation	UKAS	Date of Analysis	26/08/2014

Results								
Benzene	Ethyl-Benzene	Toluene	m+p Xylene	o Xylene	C6-C8	>C8-C10	>C10- C12	>C12- C15
<10	<10	<10	<10	<10	<50	<50	<50	<50



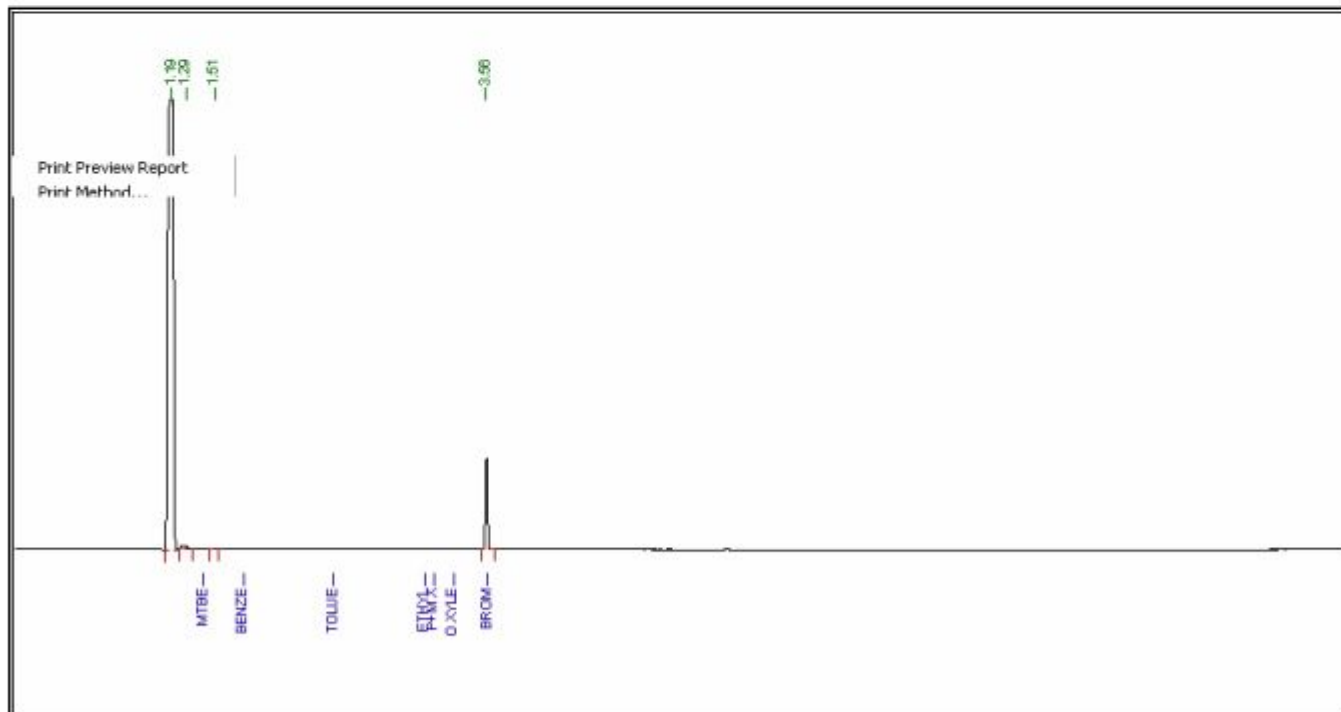
Gas Chromatogram for Sample

Individual Sample Results

BTEX By Headspace - Water

Sample Location	BH6	Results Reported As	Not Applicable
Sample	wln12899.002004	Reporting Units	ug/litre
Depth(m)	1.29	Date Received	26/08/2014
Chain of Custody No.	8840	Date of Sampling	20/08/2014
Accreditation	UKAS	Date of Analysis	26/08/2014

Results								
Benzene	Ethyl-Benzene	Toluene	m+p Xylene	o Xylene	C6-C8	>C8-C10	>C10- C12	>C12- C15
<10	<10	<10	<10	<10	<50	<50	<50	<50



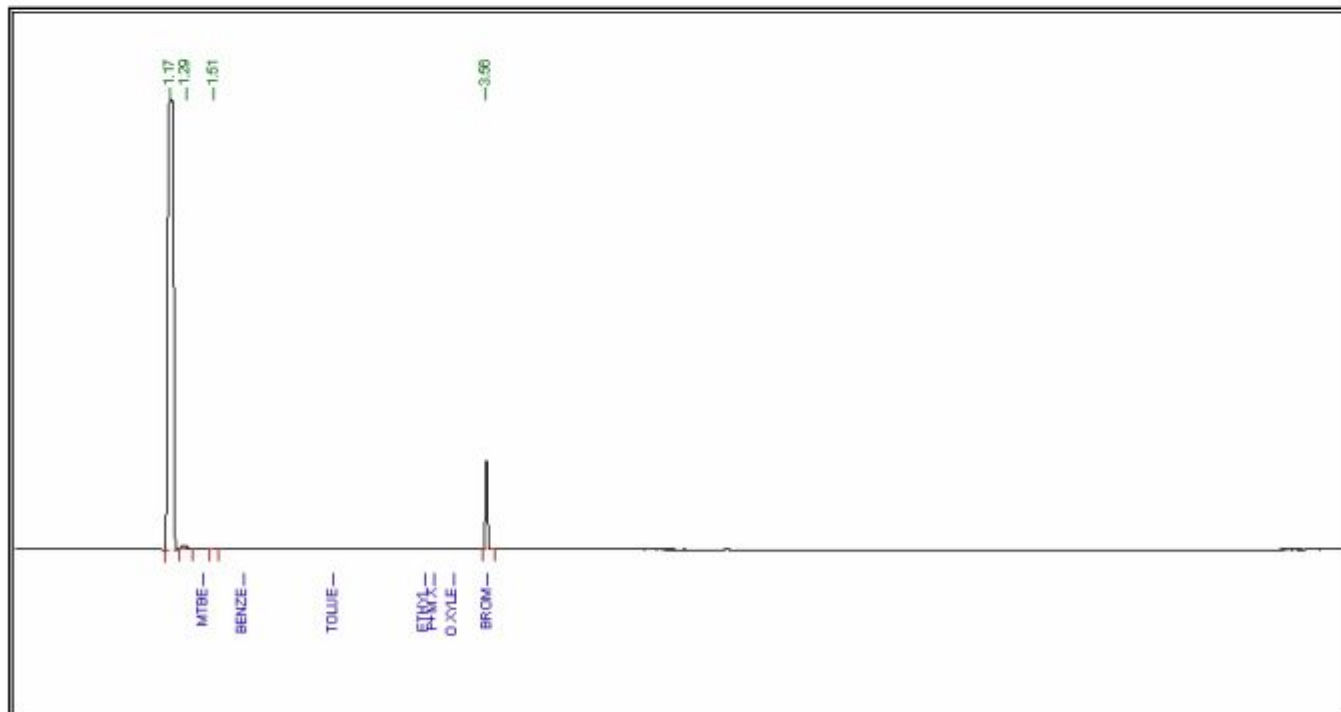
Gas Chromatogram for Sample

Individual Sample Results

BTEX By Headspace - Water

Sample Location	BH8	Results Reported As	Not Applicable
Sample	win12899.002005	Reporting Units	ug/litre
Depth(m)	1.60	Date Received	26/08/2014
Chain of Custody No.	8840	Date of Sampling	20/08/2014
Accreditation	UKAS	Date of Analysis	26/08/2014

Results								
Benzene	Ethyl-Benzene	Toluene	m+p Xylene	o Xylene	C6-C8	>C8-C10	>C10- C12	>C12- C15
<10	<10	<10	<10	<10	<50	<50	<50	<50



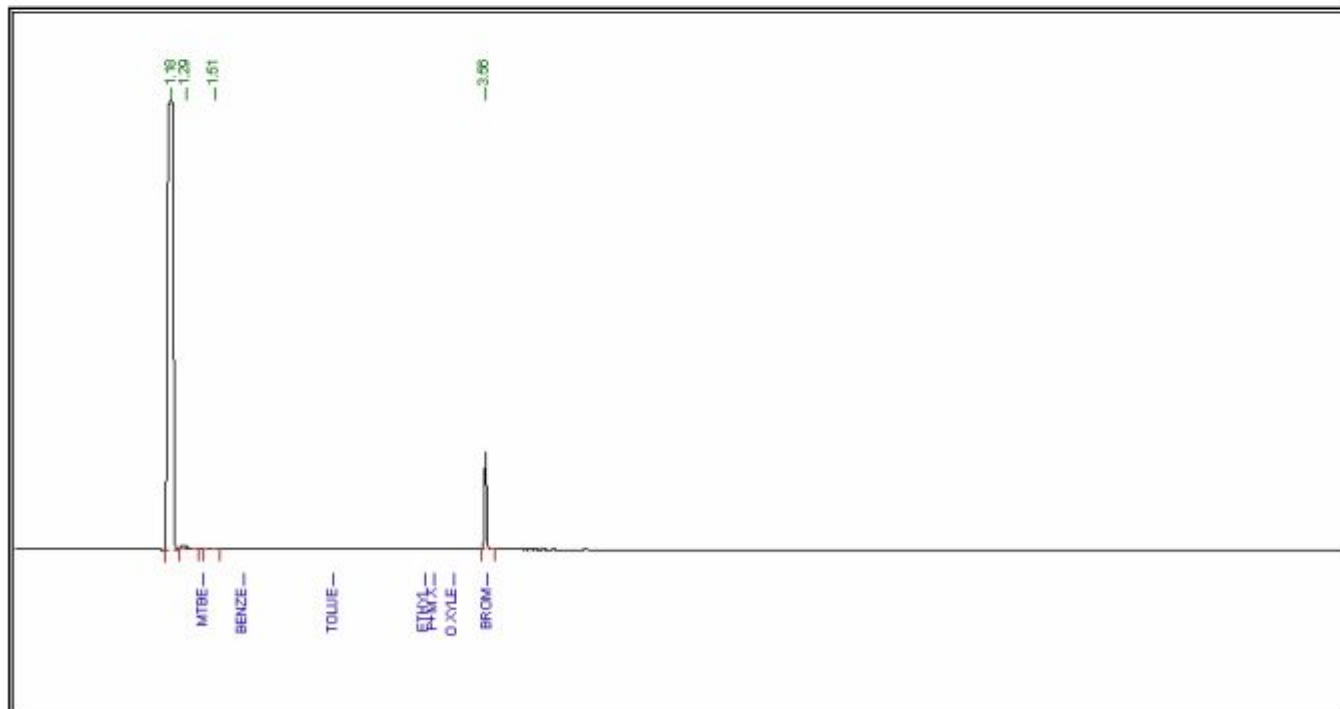
Gas Chromatogram for Sample

Individual Sample Results

BTEX By Headspace - Water

Sample Location	BH101	Results Reported As	Not Applicable
Sample	wln12899.002006	Reporting Units	ug/litre
Depth(m)	1.47	Date Received	26/08/2014
Chain of Custody No.	8840	Date of Sampling	20/08/2014
Accreditation	UKAS	Date of Analysis	26/08/2014

Results								
Benzene	Ethyl-Benzene	Toluene	m+p Xylene	o Xylene	C6-C8	>C8-C10	>C10- C12	>C12- C15
<10	<10	<10	<10	<10	<50	<50	<50	<50



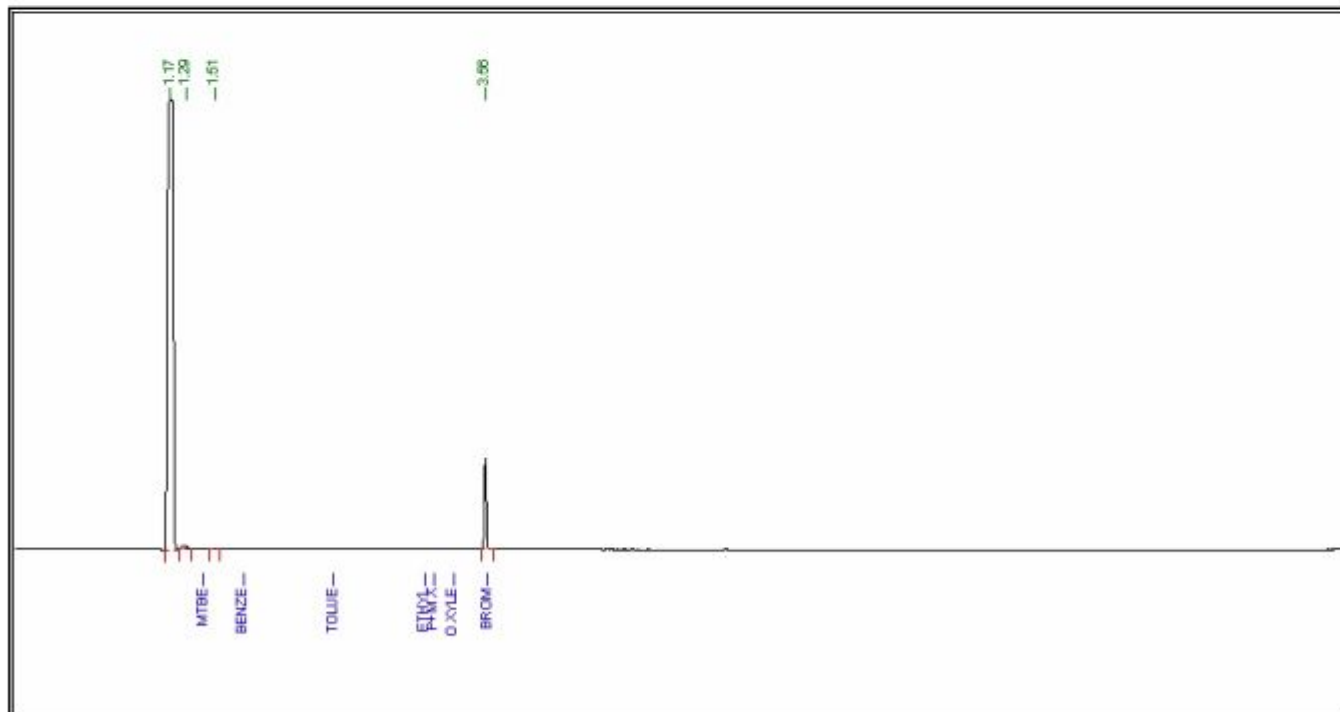
Gas Chromatogram for Sample

Individual Sample Results

BTEX By Headspace - Water

Sample Location	BH102	Results Reported As	Not Applicable
Sample	win12899.002007	Reporting Units	ug/litre
Depth(m)	1.49	Date Received	26/08/2014
Chain of Custody No.	8840	Date of Sampling	20/08/2014
Accreditation	UKAS	Date of Analysis	26/08/2014

Results								
Benzene	Ethyl-Benzene	Toluene	m+p Xylene	o Xylene	C6-C8	>C8-C10	>C10- C12	>C12- C15
<10	<10	<10	<10	<10	<50	<50	<50	<50



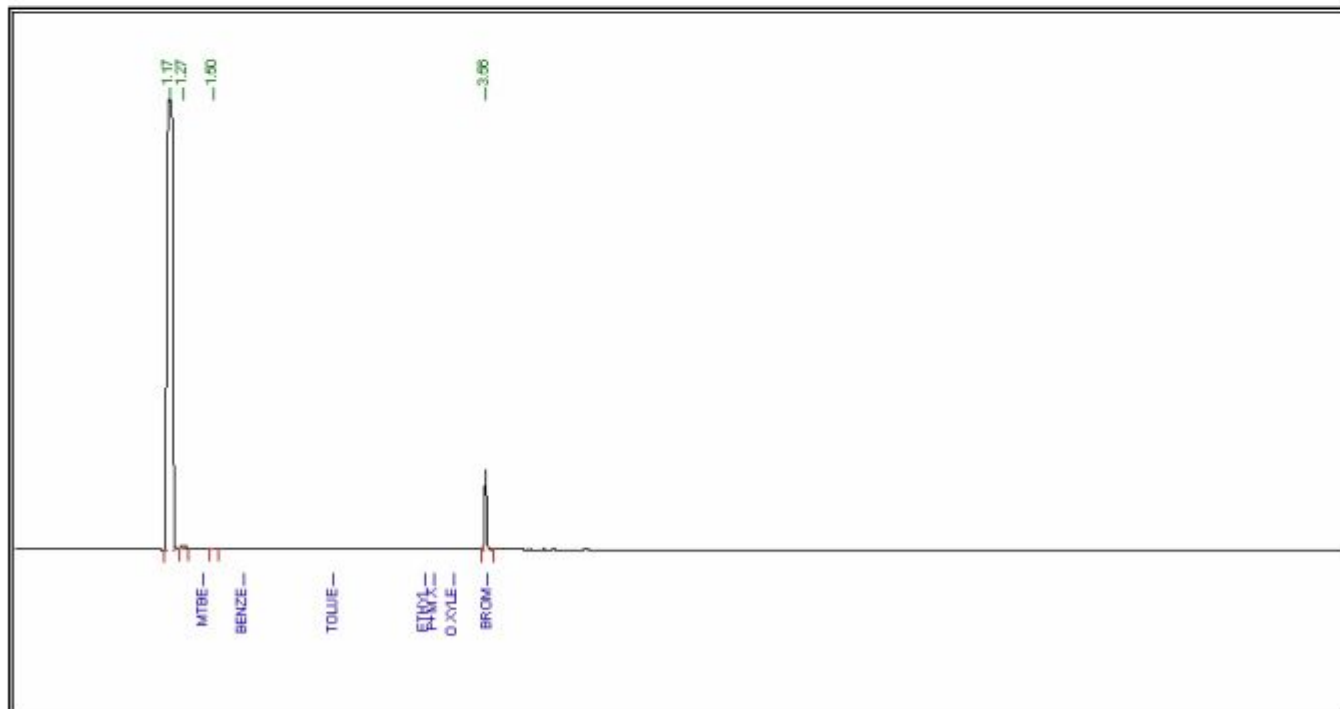
Gas Chromatogram for Sample

Individual Sample Results

BTEX By Headspace - Water

Sample Location	BH103	Results Reported As	Not Applicable
Sample	wln12899.002008	Reporting Units	ug/litre
Depth(m)	1.45	Date Received	26/08/2014
Chain of Custody No.	8840	Date of Sampling	20/08/2014
Accreditation	UKAS	Date of Analysis	26/08/2014

Results								
Benzene	Ethyl-Benzene	Toluene	m+p Xylene	o Xylene	C6-C8	>C8-C10	>C10- C12	>C12- C15
<10	<10	<10	<10	<10	<50	<50	<50	<50



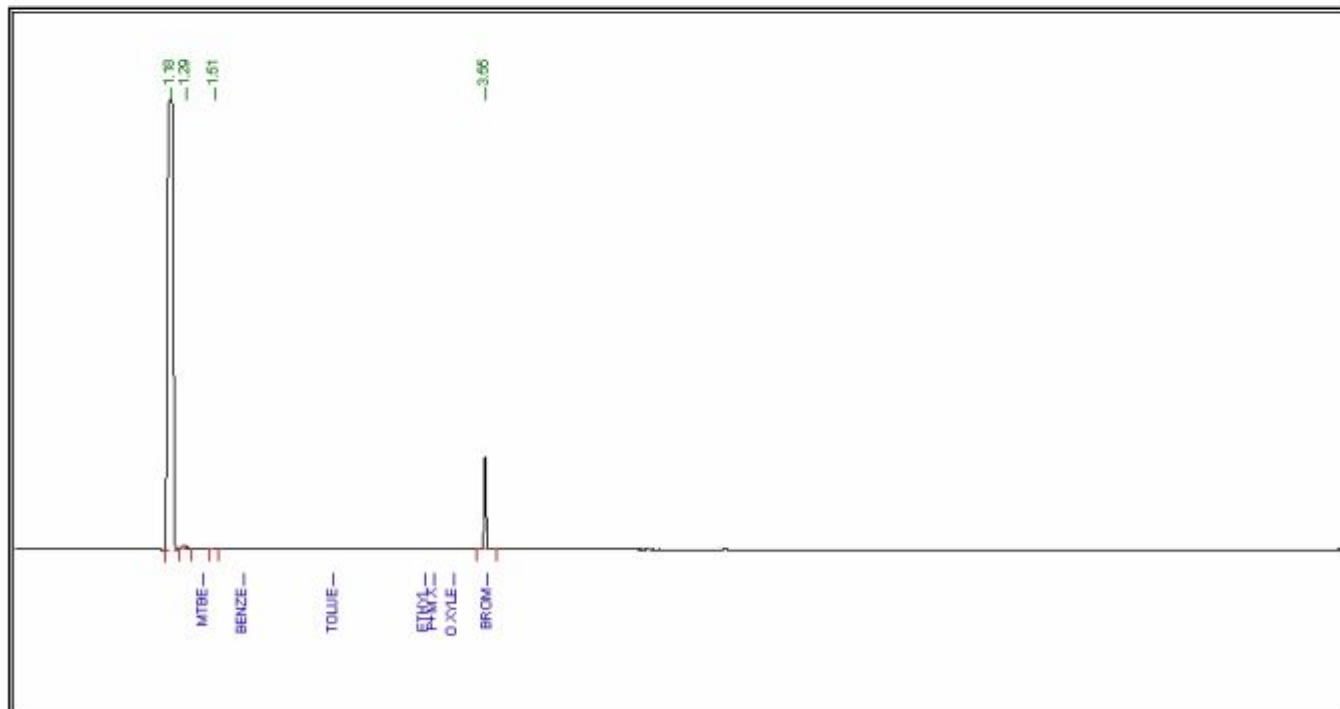
Gas Chromatogram for Sample

Individual Sample Results

BTEX By Headspace - Water

Sample Location	BH104	Results Reported As	Not Applicable
Sample	wln12899.002009	Reporting Units	ug/litre
Depth(m)	1.48	Date Received	26/08/2014
Chain of Custody No.	8840	Date of Sampling	20/08/2014
Accreditation	UKAS	Date of Analysis	26/08/2014

Results								
Benzene	Ethyl-Benzene	Toluene	m+p Xylene	o Xylene	C6-C8	>C8-C10	>C10- C12	>C12- C15
<10	<10	<10	<10	<10	<50	<50	<50	<50



Gas Chromatogram for Sample

Retail Park Phase II, Havent

End of Report



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russell.jarvis@qtsenvironmental.com

QTS Environmental Report No: 14-24139

Site Reference: Retail Park Phase II, Havent

Project / Job Ref: IN12899

Order No: 13892

Sample Receipt Date: 22/08/2014

Sample Scheduled Date: 22/08/2014

Report Issue Number: 1

Reporting Date: 29/08/2014

Authorised by

Russell Jarvis
Director

On behalf of QTS Environmental Ltd

On behalf of QTS Environmental Ltd



QTS Environmental Ltd
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410



Water Analysis Certificate - Volatile Organic Compounds (VOC)

QTS Environmental Report No: 14-24139	Date Sampled	20/08/14	20/08/14	20/08/14	20/08/14
Subadra Consulting Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Retail Park Phase II, Havent	TP / BH No	BH1	BH2	BH4	BH8
Project / Job Ref: IN12899	Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied
Order No: 13892	Depth (m)	1.48	1.37	1.35	1.60
Reporting Date: 29/08/2014	QTSE Sample No	115241	115242	115243	115244

Determinand	Unit	RL	Accreditation				
Dichlorodifluoromethane	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5
Vinyl Chloride	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5
Chloromethane	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5
Chloroethane	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5
Bromomethane	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5
Trichlorofluoromethane	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5
1,1-Dichloroethene	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5
MTBE	ug/l	< 10	ISO17025	< 10	< 10	< 10	< 10
trans-1,2-Dichloroethene	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5
1,1-Dichloroethane	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5
cis-1,2-Dichloroethene	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5
2,2-Dichloropropane	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5
Chloroform	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5
Bromochloromethane	ug/l	< 10	ISO17025	< 10	< 10	< 10	< 10
1,1,1-Trichloroethane	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5
1,1-Dichloropropene	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5
Carbon Tetrachloride	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5
1,2-Dichloroethane	ug/l	< 10	ISO17025	< 10	< 10	< 10	< 10
Benzene	ug/l	< 1	ISO17025	< 1	< 1	< 1	< 1
1,2-Dichloropropane	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5
Trichloroethene	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5
Bromodichloromethane	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5
Dibromomethane	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5
TAME	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5
cis-1,3-Dichloropropene	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5
Toluene	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5
trans-1,3-Dichloropropene	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5
1,1,2-Trichloroethane	ug/l	< 10	ISO17025	< 10	< 10	< 10	< 10
1,3-Dichloropropane	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5
Tetrachloroethene	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5
Dibromochloromethane	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5
1,2-Dibromoethane	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5
Chlorobenzene	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5
1,1,1,2-Tetrachloroethane	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5
Ethyl Benzene	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5
m,p-Xylene	ug/l	< 10	ISO17025	< 10	< 10	< 10	< 10
o-Xylene	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5
Styrene	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5
Bromoform	ug/l	< 10	ISO17025	< 10	< 10	< 10	< 10
Isopropylbenzene	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5
1,1,2,2-Tetrachloroethane	ug/l	< 10	ISO17025	< 10	< 10	< 10	< 10
1,2,3-Trichloropropane	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5
n-Propylbenzene	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5
Bromobenzene	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5
2-Chlorotoluene	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5
1,3,5-Trimethylbenzene	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5
4-Chlorotoluene	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5
tert-Butylbenzene	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5
1,2,4-Trimethylbenzene	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5
sec-Butylbenzene	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5
p-Isopropyltoluene	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5
1,3-Dichlorobenzene	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5
1,4-Dichlorobenzene	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5
n-Butylbenzene	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5
1,2-Dichlorobenzene	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5
1,2-Dibromo-3-chloropropane	ug/l	< 10	ISO17025	< 10	< 10	< 10	< 10
Hexachlorobutadiene	ug/l	< 5	ISO17025	< 5	< 5	< 5	< 5



QTS Environmental Ltd
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410



Soil Analysis Certificate - Methodology & Miscellaneous Information

QTS Environmental Report No: 14-24139

Subadra Consulting Ltd

Site Reference: Retail Park Phase II, Havent

Project / Job Ref: IN12899

Order No: 13892

Reporting Date: 29/08/2014

Matrix	Analysed On	Determinand	Brief Method Description	Method No
Water	UF	Alkalinity	Determination of alkalinity by titration against hydrochloric acid using bromocresol green as the end point	E103
Water	UF	BTEX	Determination of BTEX by headspace GC-MS	E101
Water	F	Cations	Determination of cations by filtration followed by ICP-MS	E102
Water	UF	Chemical Oxygen Demand (COD)	Determination using a COD reactor followed by colorimetry	E112
Water	F	Chloride	Determination of chloride by filtration & analysed by ion chromatography	E109
Water	F	Chromium - Hexavalent	Determination of hexavalent chromium by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry	E116
Water	UF	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E115
Water	UF	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E115
Water	UF	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E115
Water	UF	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through liquid:liquid extraction with cyclohexane	E111
Water	F	Diesel Range Organics (C10 - C24)	Determination of liquid:liquid extraction with hexane followed by GI-FID	E104
Water	F	Dissolved Organic Content (DOC)	Determination of DOC by filtration followed by low heat with persulphate addition followed by IR detection	E110
Water	UF	Electrical Conductivity	Determination of electrical conductivity by electrometric measurement	E123
Water	F	EPH (C10 - C40)	Determination of liquid:liquid extraction with hexane followed by GI-FID	E104
Water	F	EPH TEXAS	Determination of liquid:liquid extraction with hexane followed by GI-FID	E104
Water	F	Fluoride	Determination of Fluoride by filtration & analysed by ion chromatography	E109
Water	F	Hardness	Determination of Ca and Mg by ICP-MS followed by calculation	E102
Leachate	F	Leachate Preparation - NRA	Based on National Rivers Authority leaching test 1994	E301
Leachate	F	Leachate Preparation - WAC	Based on BS EN 12457 Pt1, 2, 3	E302
Water	F	Metals	Determination of metals by filtration followed by ICP-MS	E102
Water	F	Mineral Oil (C10 - C40)	Determination of liquid:liquid extraction with hexane followed by GI-FID	E104
Water	F	Nitrate	Determination of nitrate by filtration & analysed by ion chromatography	E109
Water	UF	Monohydric Phenol	Determination of phenols by distillation followed by colorimetry	E121
Water	F	PAH - Speciated (EPA 16)	Determination of PAH compounds by concentration through SPE cartridge, collection in dichloromethane followed by GC-MS	E105
Water	F	PCB - 7 Congeners	Determination of PCB compounds by concentration through SPE cartridge, collection in dichloromethane followed by GC-MS	E108
Water	UF	Petroleum Ether Extract (PEE)	Gravimetrically determined through liquid:liquid extraction with petroleum ether	E111
Water	UF	pH	Determination of pH by electrometric measurement	E107
Water	F	Phosphate	Determination of phosphate by filtration & analysed by ion chromatography	E109
Water	UF	Redox Potential	Determination of redox potential by electrometric measurement	E113
Water	F	Sulphate (as SO4)	Determination of sulphate by filtration & analysed by ion chromatography	E109
Water	UF	Sulphide	Determination of sulphide by distillation followed by colorimetry	E118
Water	F	SVOC	Determination of semi-volatile organic compounds by concentration through SPE cartridge, collection in dichloromethane followed by GC-MS	E106
Water	UF	Toluene Extractable Matter (TEM)	Gravimetrically determined through liquid:liquid extraction with toluene	E111
Water	UF	Total Organic Carbon (TOC)	Low heat with persulphate addition followed by IR detection	E110
Water	F	TPH CWG	Determination of liquid:liquid extraction with hexane, fractionating with SPE followed by GC-FID	E104
Water	F	TPH LQM	Determination of liquid:liquid extraction with hexane, fractionating with SPE followed by GC-FID	E104
Water	UF	VOCs	Determination of volatile organic compounds by headspace GC-MS	E101
Water	UF	VPH (C6 - C10)	Determination of hydrocarbons C6-C10 by headspace GC-MS	E101

Key

F Filtered
UF Unfiltered