

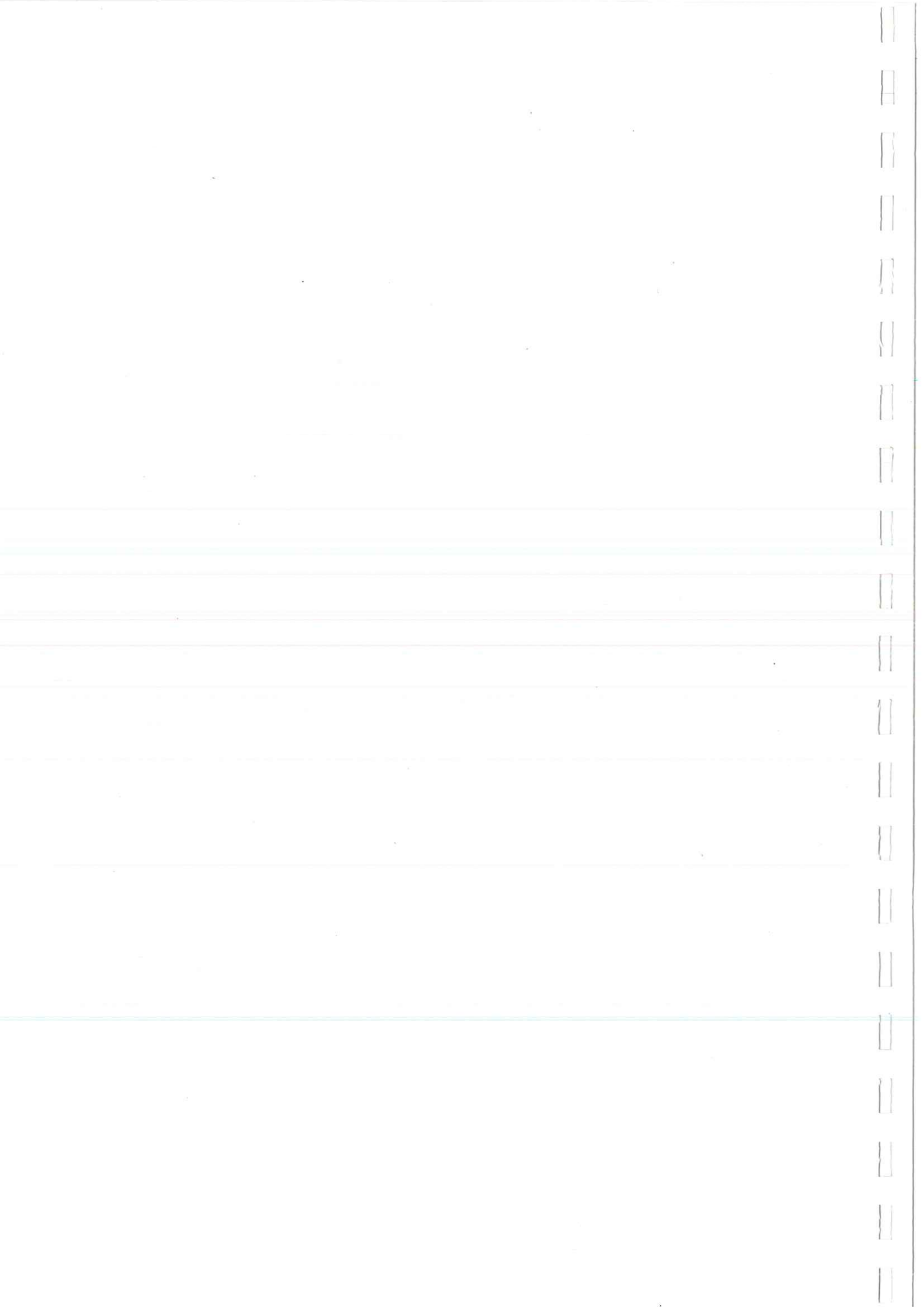
Contract Chemicals Ltd

Trade Effluent Overspill Sampling

Final Interpretive Report

January 2011

Entec UK Limited



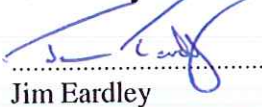
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Document Revisions

No.	Details	Date
1	Draft Report 10533i1	December 2010
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1. Introduction

1.1 Background and Terms of Reference

Entec UK Ltd (Entec) was commissioned by Contract Chemicals Ltd (the client) to investigate the possible presence of contamination within the near surface soils on land adjacent to their site at Knowsley Business Park. The contamination is understood to have occurred as a result of an overspill from a trade effluent outflow within the Contract Chemicals site.

The site lies within a largely industrial area. The potential source of contamination is from a trade effluent drain which became blocked recently and caused an overspill of process waste on to the surface of adjacent land owned by a third party.

1.1.1 Purpose of This Report

The purpose of this report is to provide an outline interpretation of the soil sample data relevant to a recent overspill of trade effluent and a brief description of the associated potential liabilities. In preparing this report we have assumed that all information and/or documents provided to Entec by the client in connection with the preparation of this report are accurate, complete and not misleading.

1.2 Legislative Context

With respect to the Contract Chemicals site, there are a number of ways in which liabilities can arise from the presence of soil and groundwater contamination on a site. Of particular importance are:

- i) Statutory liability for clean-up of contaminated land;
- ii) Statutory liability for clean-up of water pollution; and
- iii) Liability to third parties for damage caused by contamination.

1.2.1 Part IIA of the Environmental Protection Act (1990) Scope of Works

The principal legislation governing the identification and remediation of contaminated land that is not undergoing development is Part IIA of the Environment Protection Act (EPA) 1990 which was implemented in April 2000. It was introduced in England in April 2000 by the Contaminated Land (England) Regulations 2000, which were later updated in 2006. The regulations are in turn supported by Statutory Guidance issued by the Department for the Environment Food and Rural Affairs (DEFRA) in September 2006, DEFRA Circular 01/2006.

Part 2A provides a statutory definition of 'Contaminated Land' and sets out the nature of liabilities that can be incurred by owners of contaminated land and groundwater. According to the Act, 'contaminated land' is defined as:

"any land which appears to the local authority in whose area it is situated to be in such a condition, by reason of substance in, on, or under the land that:

- *significant harm is being caused, or there is significant possibility of such harm being caused; or*
- *pollution of controlled waters is being, or is likely to be caused."*

Where harm is attributable to radioactivity, the definition of contaminated land has been modified as:

"any land which appears to the local authority in whose area it is situated to be in such a condition, by reason of substances in, on or under the land, that:

- *Harm is being caused, or*
- *There is a significant possibility of such harm being caused."*

The following situations are defined where harm is to be regarded as significant:

- i) Death, disease, serious injury, genetic mutation, birth defects or the impairment of reproductive functions of humans;
- ii) Irreversible or other substantial adverse change to an ecological system, or harm which affects any special interest and which endangers the long term maintenance of the population of that species;
- iii) Structural failure, substantial damage, or interference with the right of occupation of buildings;
- iv) Death, serious disease or other physical damage to livestock or crops; and
- v) The pollution of controlled waters.

Central to the Part 2A regulatory approach is a rigorous procedure of risk assessment which is used to determine whether land meets the definition of 'contaminated land' in accordance with the Statutory Guidance. Under the risk assessment procedure for such harm to humans, the environment or pollution of controlled waters to be possible, there must be a 'pollutant linkage', as follows:

- A **Source** of pollution (Hazard);
- A **Pathway** for the pollutant to move from source to receptor; and
- A **Receptor** (Target) which is affected by the pollutant. This includes human beings, other living organisms, controlled waters, physical systems and built structures which could be affected by the hazard.

For a liability to exist a 'pollutant linkage' must exist which presents a risk to humans, to the environment or to controlled waters.

In apportioning liability for remediation the enforcing authority will, wherever possible, follow the 'polluter pays' principle. This will identify the 'appropriate person' under the Act who 'caused or knowingly permitted' the contamination to be present. There are two different categories of Appropriate Person:

Class A Person: The person who caused or knowingly permitted the contamination (i.e. the polluter). This has to be considered for each pollutant linkage.

Class B Person: The owner or occupier, where no Class A person can be found.

In most circumstances the site owner will be the Class A person unless the liabilities are transferred as part of any sale or lease agreement. The statutory guidance provides a basis for identifying liability groups, apportioning liability and exclusion tests for Class A persons where liability has been transferred e.g. 'payments have been made for remediation' or where the site has been 'sold with information' or other test.

Strict interpretation of pollution of controlled water under Part IIA means that any entry of contaminants from soil into controlled waters presents a liability. However in practice the Environment Agency typically assesses the risk from such pollution utilising water quality targets applicable to certain scenarios. For example this may comprise Drinking Water Standards for potable water and Environmental Quality Standards for rivers, estuaries etc. If, following risk assessment, it is considered that remediation is required remedial target for soils and / or groundwaters would need to be agreed with the Environment Agency. Derivation of such targets may utilise quantitative modelling (such as the Environment Agency's Remedial Targets Methodology), or some form of cost/benefit discussion.

In February 2010, Defra announced its decision to review the Statutory Guidance which underpins the contaminated land regime under Part 2A of the Environmental Protection Act 1990 and consider where it could be amended to reflect experience in delivering the regime and developments in scientific understanding.

It is anticipated that formal consultations on proposals to amend the Statutory Guidance will be undertaken in mid to late 2010. Defra has stated that while this work proceeds, Local Authorities should continue to fulfil their legal duty to identify and deal with contaminated land.

For the purpose of assessment within this report the legislation as it currently stands has been considered. However this appraisal may need to be re-assessed should there be changes in the Statutory Guidance.

It should be noted that in the event of change of site use it is likely that any issue of land quality would be addressed through the planning regime rather than Part IIA of the EPA.

1.2.2 Water Resources Act (1991)

Under Section 161 of the Water Resources Act 1991 (WRA) the Environment Agency has the power to take action to prevent or remedy the pollution of controlled waters by issuing a 'works notice' to any person who has 'caused or knowingly' permitted the pollutant or potential pollutant to be present. There is overlap between these powers and the Part IIA contaminated land regime.

Liability may also arise resulting in prosecution under Section 85, if a site owner fails to take adequate precautions to prevent unauthorised discharging of pollutants into controlled waters. In addition to unauthorised discharges direct into controlled waters, companies are held liable for unauthorised discharges to controlled waters occurring via surface water drains, or by discharge onto the land.

1.2.3 Civil Liabilities to Third Parties

If contamination on a site damages or unreasonably interferes with the use of a neighbouring property the owner/occupier may have a right for damages under private nuisance. For example, this can include damage to the right to extract groundwater from an aquifer, or damage to crops as a result of contaminant migration into groundwater abstracted for spray irrigation.

Nuisance can apply to isolated escapes from land even where the site owner has taken all possible precautions to prevent an escape (strict liability); however, there may be exceptions to this where the event was 'unforeseeable'.

1.2.4 Health and Safety

The Health and Safety at Work Act (1974) is concerned with risks to the public and employees at premises. Risks of this kind could arise from contamination. A number of Regulations have been made under the Act, all of which have a largely risk-based approach, requiring potential hazards to be identified and assessed, and control measures put in place to minimise all risks as far as is reasonably possible. These include:

- Management of Health and Safety at Work Regulations 1999;
- Control of Substances Hazardous to Health Regulations 2002; and
- Construction Design and Management Regulations 2007.

2. Investigation

2.1 Scope of Works

The works undertaken consisted of shallow soil samples taken from hand dug pits that were excavated on the site on 15th November 2010. Five hand dug pits were excavated to a maximum depth of 0.80m bgl. Four of the hand dug pits were excavated in an area indicated by the client as being where the spill impacted the ground, and one hand dug pit was excavated as a 'control' sample outside of the area impacted by the leak. Two samples were taken from each hand dug pit. The samples were taken to an MCERTS UKAS accredited laboratory (Alcontol) in Hawarden on the same day of sampling. The samples were scheduled for the following analysis:

- Volatile Organic Compounds (VOCs) including Tentatively Identified Compounds (TICs);
- Semi Volatile Organic Compounds (SVOCs) including Tentatively Identified Compounds (TICs);
- Alcohols Suite (including n-Heptyl alcohol);
- pH;
- Metals (arsenic, cadmium, chromium III and VI, lead, mercury, selenium, copper, nickel and zinc);
- Water soluble sulphate;
- Fraction Organic Carbon (FOC) (only on two uncontaminated samples from the control hand dug pit);
- Total Petroleum Hydrocarbons (TPH-CWG); and
- Leachate preparation and analysis (on one sample only).

2.2 Environmental Setting

The site lies in a largely industrial area. Information obtained from the Environment Agency website indicates that the site overlies a Secondary A Aquifer within the superficial geology beneath the site (Shirdley Hill Sand Formation) and a deeper Principal Aquifer within the Sherwood Sandstone Formation.

2.3 Ground Conditions

2.3.1 Hand Dug Pits

Hand dug pits were excavated to a maximum depth of 0.8m bgl. Table 2.1 below presents the hand dug pit logs which were logged in broad accordance with BS25177 2008:

Table 2.1 Hand Dug Pit Logs

Hand Dug Pit	Depth (m bgl)	Strata	Samples Taken (m bgl)
HDP01	0.0 - 0.4	Topsoil: Dark brown organic fine to medium SAND. Slight chemical odour.	0.1
	0.4 - 0.8	Dark brown organic slightly clayey fine to medium SAND, with occasional fine to coarse sub-angular brick gravel. End of hole at 0.8m bgl due to hollow sounding obstruction.	0.8
HDP02	0.0 - 0.2	Dark grey sandy TOPSOIL	0.1
	0.2 - 0.6	Very clayey fine to medium red brown SAND with occasional brick gravel and a slight chemical odour	
	0.6 - 0.8	Dark grey stained fine slightly clayey SAND with a strong chemical odour. End of hole at 0.8m bgl	0.7
HDP03	0.0 - 0.4	Very clayey SAND	0.1
	0.4 - 0.8	Fine to medium slightly clayey red brown SAND End of hole at 0.8m bgl	0.6
HDP04	0.0 - 0.3	Brown clayey TOPSOIL	0.1
	0.3 - 0.8	Very sandy stiff CLAY End of hole 0.8m bgl	0.7
HDP05	0.0 - 0.2	TOPSOIL: Medium to coarse sub-angular gravel hardcore	0.1
	0.2 - 0.7	Firm red brown CLAY	0.5

The location of hand dug pits is presented in Appendix C.

3. Chemical Assessment

3.1 Assessment Criteria

In order to identify contaminants of concern derived from the overspill incident and determine whether further assessment or management of risks is required a Generic Quantitative Risk Assessment (GQRA) has been undertaken. Chemical analysis data for soils and leachate have been compared with relevant generic assessment criteria (GAC), where available. Comparison was also made against the 'control' samples.

3.1.1 Soil Assessment Criteria

These GAC consist of either Entec GAC, Soil Guideline Values (SGVs), Chartered Institute of Environmental Health/LQM (CIEH/LQM) GAC or the Environmental Industries Commission/Association of Geotechnical and Geoenvironmental Specialists/CL:AIRE (EIC/AGS/CL:AIRE) GAC for the assessment of risks to human health. These GAC have been derived by Entec, Defra and the Environment Agency, the Chartered Institute of Environmental Health/LQM and EIC/AGS/CL:AIRE for selected substances in soils using the 'Contaminated Land Exposure Assessment' (CLEA) model.

SGVs were first published by Defra/Environment Agency in 2002. In 2008 these were withdrawn and a revised methodology for SGV derivation published (EA, 2009). To date updated SGVs have been published for eleven contaminants (benzene, toluene, ethylbenzene and xylene, selenium, mercury, arsenic, nickel, phenol, cadmium and dioxins, furans and dioxin-like PCBs). Where published we have used revised SGVs, in absence of updated SGVs we have used previously published SGVs.

SGVs are generic values for specific land-uses derived by Defra and the Environment Agency and calculated using the CLEA model.

The SGVs are presently published for the following land use:

- a) Residential;
- c) Allotments; and
- d) Commercial/industrial

Previous SGVs were published for an additional land-use of residential without plant uptake. Entec have therefore derived GAC for assessment of the residential without plant uptake land-use. For the purposes of this assessment GAC have been selected based on commercial/industrial land use.

The SGVs are derived for particular soil conditions, and therefore the specific values used have been selected based on soil organic matter content of the soil where appropriate. It should be noted that the updated SGVs have been derived using a sandy loam soil with 6% soil organic matter (SOM). For Made Ground materials such as those often encountered at contaminated land sites the soil organic matter content is generally lower than 6%. Entec has therefore

derived GAC for soil containing 1% and 3% SOM, which can be used as an alternative to the Environment Agency updated SGVs.

Entec has also derived GAC for 3% SOM for contaminants where LQM/CIEH and EIC/AGS/CL:AIRE GAC have derived GAC at 2.5% SOM in order to offer consistency in assessment across our use of GAC.

Any contaminants in excess of their respective GAC or the limit of detection (LOD) are taken forward for more detailed consideration using DQRA where appropriate for the conceptual model under consideration. Statistical consideration of the data has also been undertaken as part of the GQRA and DQRA.

In summary, the GQRA has been undertaken using the following assessment criteria:

Soils:

- Entec derived Generic Assessment Criteria for 1% Soil Organic Matter based on updated SGVs for a commercial land-use;
- Previously published CLEA Soil Guideline Values (SGVs) for a commercial land use (Lead only);
- Chartered Institute of Environmental Health/LQM Generic Assessment Criteria (CIEH/LQM) for a commercial land use, where published;
- Environmental Industries Commission/Association of Geotechnical and Geoenvironmental Specialists/CL:AIRE Generic Assessment Criteria (EIC/AGS/CL:AIRE) for a commercial land use, where published;
- Limit of Detection (LOD) (in the absence of any published GAC).

Organic Content of Soils

Fraction of organic carbon (*foc*) was analysed within the samples as part of the site investigation. The laboratory analysis recorded values ranging between 0.0114 and 0.0135 (average 0.012), equating to a soil organic matter (SOM) range from 1.97% to 2.33% (average 2.15 %). GAC applied to the samples of retrieved as part of the recent investigation will therefore assume the SOM band of 1%, as they are not above the 2.5% threshold.

3.1.2 Controlled Waters Assessment Criteria

There are currently no published UK guideline values for soils derived to be protective of controlled waters. However, identified contaminant concentrations in the leachate sample have been assessed using the following guidelines.

Environmental Quality Standards

Environmental Quality Standards (EQS) have been derived by the Environment Agency for the protection of surface water quality in England and Wales. Where an EQS value does not exist the appropriate DWS value has been used.

Drinking Water Standards

UK Drinking Water Standards (UKDWS), as set out in the Water Quality (Water Supply) Regulations, 2000. These values have been used for assessment where an EQS value does not exist. In addition, the former DWS for TPH (now withdrawn) has been used in the absence of any other suitable screening criteria.

3.1.3 Absence of Assessment Criteria

For a number of the determinands scheduled, in particular chlorinated solvents and other volatile and semi volatile compounds, there are no authoritative generic assessment criteria with which to assess potential risks to human health or the environment. Therefore, where these contaminants have been detected, they have been considered further at the risk evaluation stage. Where VOCs or SVOCs have been detected, consideration has also been given to associated compounds that may also be present at concentrations below the detection limit but which may be sufficient to present a risk to receptors.

3.2 Human Health Soils GQRA

Observed soil concentrations have been compared to the GAC discussed above. The comparison is presented below. Results screened against the relevant guideline values are presented in Appendix A.

None of the samples had concentrations in excess of any of the assessment criteria. Observations made within the data set are discussed below.

Values of pH ranged between 4.74 (HDP3 0.1m bgl) which is acidic to 8.45 (HDP1 0.8m bgl) which is slightly alkaline.

Metals and Metalloids

Hexavalent chromium was not encountered in excess of the laboratory limit of detection (LOD) and trivalent (total) chromium concentrations ranged between 18 and 54.9 mg/kg, arsenic ranged between 4.63 and 10.5 mg/kg, cadmium concentrations ranged between <0.02 and 0.451 mg/kg, copper concentrations ranged between 8.92 and 26.7 mg/kg, lead concentrations ranged between 11.5 and 34.9 mg/kg, mercury concentrations ranged between <0.14 and 0.63 mg/kg, nickel concentrations ranged between 15 and 100 mg/kg, selenium concentrations ranged between <1 and 1.05 mg/kg, zinc concentrations ranged between 33.2 and 235 mg/kg.

Inorganics

Water soluble sulphate was encountered in excess of the laboratory limit of detection (LOD) in eight out of the ten samples. HDP5 samples (the control) did not encounter sulphate in excess of the laboratory LOD.

Total Petroleum Hydrocarbons (TPH)

Speciated TPH analysis indicated that the majority of exceedance above the LOD were of the heavier fractions of aliphatic TPH. All ten samples were scheduled for TPH-CWG analysis and none of the samples encountered a concentration in excess of the screening criteria. The highest concentrations encountered for each fraction are detailed in Table 3.1:

Table 3.1 TPH Fraction Concentrations

TPH Fraction	Highest Concentration Encountered (mg/kg)	Sample	Sample Depth (m bgl)
Aliphatics >C5-C6	0.119	HDP1	0.8
Aliphatics >C6-C8	0.394	HDP2	0.7
Aliphatics >C8-C10	0.131	HDP1	0.8
Aliphatics >C10-C12	1.88	HDP2	0.7
Aliphatics >C12-C16	79.3	HDP3	0.1
Aliphatics >C16-C21	238	HDP2	0.1
Aliphatics >C21-C35	15.3	HDP2	0.7
Aliphatics >C35-C44	238	HDP2	0.1
Aromatics >EC5-EC7	None above detection limit		
Aromatics >EC7-EC8	0.0626	HDP1	0.8
Aromatics >EC8-EC10	0.124	HDP1	0.8
Aromatics >EC10-EC12	1.25	HDP2	0.7
Aromatics >EC12-EC16	30.5	HDP3	0.1
Aromatics >EC16-EC21	21.7	HDP2	0.7
Aromatics >EC21-EC35	229	HDP2	0.1
Aromatics >EC35-EC44	238	HDP2	0.1
Aromatics >EC40-EC44	102	HDP2	0.1

Alcohols

There were no exceedances above the laboratory limit of detection for alcohols encountered with the exception of methanol which was encountered in six of the samples taken, the highest concentration was 1.53 mg/kg which was encountered in HDP1 0.8m. Ethanol was also encountered in HDP2 0.7 m bgl (0.748 mg/kg).

Volatile and Semi Volatile Organic Compounds

There were no exceedances in excess of the available GAC. The following samples had concentrations in excess of the laboratory limit of detection:

- HDP2 0.7m encountered 2.58 mg/kg 1,2-Dichlorobenzene, 0.0239 mg/kg carbon disulphide, 0.0151 mg/kg chloroform, 3.97 mg/kg 1,2-Dichlorobenzene;

- HDP3 0.1m bgl encountered all of the PAHs exceedances encountered within the data set. 0.0136 mg/kg dichloromethane was also encountered, 0.123 mg/kg chloroform, 0.0283 mg/kg 1,3-Dichlorobenzene, 0.105 mg/kg 1,2-Dichlorobenzene;
- HDP1 0.8m encountered 0.0299 mg/kg carbon disulphide, 0.0499 mg/kg of dichloromethane, 0.0141 mg/kg methyl tertiary butyl ether, 0.0171 mg/kg chloroform, 0.0513 mg/kg 1,2-Dichlorobenzene;
- HDP1 0.1m bgl encountered 0.0195 mg/kg of dichloromethane, 0.0349 mg/kg chloroform, 0.015 mg/kg 1,3-Dichlorobenzene, 0.0628 mg/kg 1,2-Dichlorobenzene;
- HDP2 0.1m bgl encountered 0.0157 mg/kg of dichloromethane, 0.0822 mg/kg chloroform; and
- HDP3 0.6 m bgl encountered 0.014 mg/kg of dichloromethane.

BTEX

BTEX compounds consist of benzene, ethylbenzene, toluene and xylenes. BTEX was analysed via two methods and the data is discussed below:

- Benzene was encountered in excess of the laboratory limit of detection in samples: HDP1 0.8 (highest concentration of 0.0233mg/kg) and HDP4 0.1;
- Toluene was encountered in excess of the laboratory limit of detection in samples: HDP1 0.1 and 0.8 (highest concentration 0.117 mg/kg), HDP2 0.1 and 0.7, HDP3 0.1 and 0.6 and HDP4 0.1;
- Ethylbenzene was encountered in excess of the laboratory limit of detection in samples: HDP1 0.8 and HDP2 0.1 (highest concentration 0.00615 mg/kg); and
- Xylene compounds were encountered in HDP1 0.8 (0.0232 mg/kg m,p-xylene, 0.00812 mg/kg o-xylene).

Tentatively Identified Compounds (TICs)

Tentatively Identified Compounds (TICs) were encountered in some of the samples analysed. There are no GAC available for TICs and the identification and semi-quantification is outside the scope of the laboratory UKAS accreditation. TICs were encountered in a majority of the samples scheduled for analysis and the data is presented in Table 3.2:

Table 3.2 Tentatively Identified Compounds (TICs)

Hand Dug Pit	Depth of Sample (m bgl)	Tentative Compound Identification	Concentration (µg/kg)
HDP 1	0.80	Methanone, diphenyl-	3203
HDP 2	0.70	Tetradecane, bromo-	13841
		Benzene, bromo-methyl-	3612
		Propenamide, -methyl-phenyl-	1015
		Bromododecane	10523
		Diphenylmethanone	2610
		Sulphur, mol.	1507
		C4 – C12 Aliphatic Hydrocarbons	3902
		C7 – C12 Aromatic Hydrocarbons	1150
HDP 3	0.10	Cyclohexyl-cyclohexylamine isomer	1589
		Bromododecane isomer	27605
		Bromo methyl benzene isomer	416
		Dimethyl undecane	174
HDP 3	0.60	Benzenamine, methyenebis-dimethyl-	1565
		Chloro dodecane	408
		Diphenyl methane	208
		Bromo decane	3655
HDP 4	0.10	(Bromomethyl) fluoranthene	7398
		('Hydroxy-'-methoxyphenylazo)-	322
		Methanone, diphenyl-,	1192
		Bromo undecane	22960
HDP 4	0.70	Bromo decane	107
HDP 5	0.10	Dimethylbenzene isomer	1393
HDP 5	0.50	Dimethylbenzene isomer	1631

Note: No TICs were identified in HDP 1 0.10m, HDP 2 0.10m. There are a number of concentrations which are noted as 'unknown' in the laboratory certificate which have not been included in the table, and are presented in Appendix B.

Table 3.3 Tentatively Identified Compounds (TICs) in Leachate

Hand Dug Pit	Depth of Sample (m bgl)	Tentative Compound Identification	Concentration (µg/l)
HDP 2	0.10	bromo-Butane Isomer	17
		bromo-methyl-Butane Isomer	20
		bromo-methyl-Benzene Isomer	64
		butanoic acid, bromo-	38
		hexanoic acid, bromo-	209
		benzoic acid, bromo-	79
		methanone, diphenyl-	14

3.3 Controlled Waters GQRA

Leachate analysis was undertaken on the HDP2 0.1m bgl sample. It should be noted that leachate analysis only provides useful information for potential water contamination. In particular volatile contaminants are prone to being volatilised as part of the leachate preparation process. As such this analysis is useful for contaminants in proving a positive, i.e. a contaminant can be identified as present. However, the absence of volatile contaminants within leachate samples can not be taken as evidence that the contamination of the water is unlikely, as the bulk of the contaminant may have been lost during the preparation process.

There were two of exceedances encountered within the sample when screened against the relevant Controlled Waters Assessment Criteria:

- 0.00653 mg/l of copper was encountered in the 10:1 leach test;
- 0.112 mg/l selenium was encountered in the 10:1 leach test; and
- 0.161 mg/l gasoline range organics (GRO) >C5-C12.

A number of determinands (for which there are no assessment criteria) were encountered above the laboratory limit of detection:

- 0.047 mg/l Aliphatic >C6-C8, 0.013 mg/l Aliphatic >C8-C10, 0.051 mg/l Aliphatic >C10-C12;
- 0.034 mg/l Aromatic >EC10-EC12, 0.013 mg/l, 0.013 mg/l Aromatic >EC16-EC21; and
- 0.00209 mg/l nitrobenzene.

3.4 Assessment of Impact Against 'Control' Sample

HDP5 was excavated away from the area that was indicated as being impacted by the overspill. Two samples were taken from this pit, and the deeper sample taken from 0.5m bgl was used as the basis for the screening criteria against the other data. The screening was carried out against criteria of an order of magnitude greater than that detected in the HDP5 sample. Details of the screening can be seen in Appendix B.

Comparison with the control sample indicated more elevated petroleum hydrocarbon concentrations in the area of the former spill. However, it should be noted that these concentrations are not considered significantly elevated.

4. Conclusions and Recommendations

4.1 Conclusions

Slightly elevated organic contamination (in the form of petroleum hydrocarbon fractions) was identified in the samples from the spill area when compared to the control sample outside the spill area. However, none of the samples taken have contaminants present in excess of the commercial / industrial GAC for human health.

Assessment of the leachate result indicates that there is the possibility of slight impact on pore water quality from petroleum hydrocarbons. However, such impact is likely to be below the threshold for which remediation would be effective.

One sample location within the overspill area, HDP3, had a low near surface (0.1m depth) pH of 4.74 and higher pH of 8.15 at 0.6m depth indicating a near surface impact.

From discussion with site staff it is understood that the bulk of the spill appeared to run off the affected area quickly. Considering this and the general absence of significant contamination relative to both industrial/commercial GACs and the control samples it does not appear that significant residual contamination from the spill remains in soils of the affected area. The distressed vegetation is, therefore, likely to be associated with short term direct contact with the acidic effluent rather than up take from the soil.

4.2 Recommendations

Considering the lack of significant contaminative impact attributable to the overspill it is not considered that substantial remedial works will be required. It may be prudent to undertake a thin scrape of near surface soils (0.3 m) and replacement with suitable topsoil, where distressed vegetation is present to allow reseedling of the bank.

Appendix A

Laboratory Chemical Analysis Certificates

56 Pages



ALcontrol Laboratories

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Website: www.alcontrol.com

Entec UK Ltd
Windsor House
Gadbrook Business Centre
Gadbrook Park
Northwich
Cheshire
CW9 7TN

Attention: Jim Eardley

CERTIFICATE OF ANALYSIS

Date:	26 November 2010	
Customer:	H_ENTEC_NWC-18	
Sample Delivery Group (SDG):	101115-88	Report No.: 104951
Your Reference:	29060	
Location:	Contract Chemicals	

We received 11 samples on Monday November 15, 2010 and 11 of these samples were scheduled for analysis which was completed on Tuesday November 23, 2010. 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.

All chemical testing (unless subcontracted) is performed at ALcontrol Hawarden Laboratories.

Asbestos testing - we are not accredited for screening soil samples for asbestos fibres. We are only accredited to identify asbestos fibres in bulk material (ACM).

Approved By:

Iain Swinton

Business Director - Land, UK & Ireland



Validated

ALcontrol Laboratories Analytical Services

SDG:	101115-88	Customer:	Entec UK Ltd
Job:	H_ENTEC_NWC-18	Attention:	Jim Eardley
Client Reference:	29060	Order No.:	231202
Location:	Contract Chemicals	Report No:	104951

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
2405876	HDP 1		0.10	15/11/2010
2405894	HDP 1		0.80	15/11/2010
2405910	HDP 2		0.10	15/11/2010
2405934	HDP 2		0.70	15/11/2010
2405954	HDP 3		0.10	15/11/2010
2405972	HDP 3		0.60	15/11/2010
2405994	HDP 4		0.10	15/11/2010
2406012	HDP 4		0.70	15/11/2010
2406029	HDP 5		0.10	15/11/2010
2406044	HDP 5		0.50	15/11/2010
2405930	HDP 2 / Leach		0.10	15/11/2010

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

SDG: 101115-88
 Job: H_ENTEC_NWC-18
 Client Reference: 29060
 Location: Contract Chemicals

Customer: Entec UK Ltd
 Attention: Jim Eardley
 Order No.: 231202
 Report No: 104951

SOLID Results Legend	Lab Sample No(s)		Customer Sample Ref.		AGS Ref.		Depth (m)		Container	
	2406044		HDP 5				0.50		(6) VOC 4000 Tba 250g Amber Jar 60g VOC	
	2406029		HDP 5				0.10		4000 Tba 250g Amber Jar 60g VOC	
	2406012		HDP 4				0.70		4000 Tba 250g Amber Jar 60g VOC	
	2406094		HDP 4				0.10		4000 Tba 250g Amber Jar 60g VOC	
	2406072		HDP 3				0.60		4000 Tba 250g Amber Jar 60g VOC	
	2406054		HDP 3				0.10		4000 Tba 250g Amber Jar 60g VOC	
	2406034		HDP 2				0.70		4000 Tba 250g Amber Jar 60g VOC	
	2406030		HDP 2, Lachn				0.10		4000 Tba 250g Amber Jar 60g VOC	
	2406010		HDP 2				0.10		4000 Tba 250g Amber Jar 60g VOC	
	2406094		HDP 1				0.80		4000 Tba 250g Amber Jar 60g VOC	
	2406076		HDP 1				0.10		4000 Tba 250g Amber Jar 60g VOC	
Alcohols/Acetates MS (S)	All	NDPs: 0 Tests: 10								
Alcohols/Acetates MS (W)	All	NDPs: 0 Tests: 1								
Anions by Kone (soil)	All	NDPs: 0 Tests: 10								
Anions by Kone (w)	All	NDPs: 0 Tests: 1								
CEN Readings	All	NDPs: 0 Tests: 1								
Chromium III	All	NDPs: 0 Tests: 11								
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 1								
EPH CWG (Aliphatic) Aqueous GC (W)	All	NDPs: 0 Tests: 1								
EPH CWG (Aliphatic) GC (S)	All	NDPs: 0 Tests: 10								
EPH CWG (Aromatic) Aqueous GC (W)	All	NDPs: 0 Tests: 1								
EPH CWG (Aromatic) GC (S)	All	NDPs: 0 Tests: 10								
GRO by GC-FID (S)	All	NDPs: 0 Tests: 10								
GRO by GC-FID (W)	All	NDPs: 0 Tests: 1								
Hexavalent Chromium (s)	All	NDPs: 0 Tests: 10								
Hexavalent Chromium (w)	All	NDPs: 0 Tests: 1								
Mercury Dissolved	All	NDPs: 0 Tests: 1								

SDG: 101115-88
 Job: H_ENTEC_NWC-18
 Client Reference: 29060
 Location: Contract Chemicals

Customer: Entec UK Ltd
 Attention: Jim Eardley
 Order No.: 231202
 Report No: 104951

SOLID**Results Legend**

Test



No Determination Possible

Lab Sample No(s)

Customer Sample Ref.

AGS Ref.

Depth (m)

Container

Metals by iCap-OES (Soil)

Arsenic

NDPs: 0
Tests: 10

Cadmium

NDPs: 0
Tests: 10

Chromium

NDPs: 0
Tests: 10

Copper

NDPs: 0
Tests: 10

Lead

NDPs: 0
Tests: 10

Mercury

NDPs: 0
Tests: 10

Nickel

NDPs: 0
Tests: 10

Selenium

NDPs: 0
Tests: 10

Zinc

NDPs: 0
Tests: 10

pH

All

NDPs: 0
Tests: 10

pH Value

All

NDPs: 0
Tests: 1

Sample description

All

NDPs: 0
Tests: 11

Semi Volatile Organic Compounds

All

NDPs: 0
Tests: 10

SVOC MS (W) - Aqueous

All

NDPs: 0
Tests: 1

Total Organic Carbon

All

NDPs: 0
Tests: 2

TPH CWG (W)

All

NDPs: 0
Tests: 1

TPH CWG GC (S)

All

NDPs: 0
Tests: 10

Validated

ALcontrol Laboratories Analytical Services

SDG: 101115-88
 Job: H_ENTEC_NWC-18
 Client Reference: 29060
 Location: Contract Chemicals

Customer: Entec UK Ltd
 Attention: Jim Eardley
 Order No.: 231202
 Report No: 104951

SOLID

Results Legend



Test



No Determination Possible

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Container
2406044	HDP 5		0.50	400 VCC 400g Tub
2406029	HDP 5		0.10	250g Ambient Air 400 VCC 400g Tub
2406012	HDP 4		0.70	250g Ambient Air 400 VCC 400g Tub
2405994	HDP 4		0.10	250g Ambient Air 400 VCC 400g Tub
2405972	HDP 3		0.60	250g Ambient Air 400 VCC 400g Tub
2405954	HDP 3		0.10	250g Ambient Air 400 VCC 400g Tub
2405934	HDP 2		0.70	250g Ambient Air 400 VCC 400g Tub
2405930	HDP 2 / Leach		0.10	250g Ambient Air 400 VCC 400g Tub
2405910	HDP 2		0.10	250g Ambient Air 400 VCC 400g Tub
2405894	HDP 1		0.80	250g Ambient Air 400 VCC 400g Tub
2405876	HDP 1		0.10	250g Ambient Air 400 VCC 400g Tub
VOC MS (S)	All	NDPs: 0 Tests: 10		X X X X X X X X X X
VOC MS (W)	All	NDPs: 0 Tests: 1		X

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	Grain size	Inclusions	Inclusions 2
2405876	HDP 1	0.10	Dark Brown	Sandy Loam	0.1 - 2 mm	Stones	Vegetation
2405894	HDP 1	0.80	Dark Brown	Sandy Clay Loam	0.1 - 2 mm	Vegetation	None
2405910	HDP 2	0.10	Dark Brown	Sandy Clay Loam	0.1 - 2 mm	Stones	Vegetation
2405934	HDP 2	0.70	Dark Brown	Silt Loam	0.063 - 0.1 mm	Stones	None
2405954	HDP 3	0.10	Light Brown	Silt Loam	0.1 - 2 mm	Stones	Vegetation
2405972	HDP 3	0.60	Orange	Sand	0.1 - 2 mm	Stones	N/A
2405994	HDP 4	0.10	Dark Brown	Sandy Clay Loam	0.1 - 2 mm	None	None
2406012	HDP 4	0.70	Orange	Sandy Loam	0.1 - 2 mm	Stones	N/A
2406029	HDP 5	0.10	Light Brown	Sandy Loam	0.1 - 2 mm	Stones	Vegetation
2406044	HDP 5	0.50	Dark Brown	Sandy Clay	0.1 - 2 mm	Stones	N/A
2405930	HDP 2 / Leach	0.10	Light Brown	Sandy Clay	0.063 - 0.1 mm	Stones	N/A

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.

Validated

ALcontrol Laboratories Analytical Services

SDG:	101115-88	Customer:	Entec UK Ltd
Job:	H_ENTEC_NWC-18	Attention:	Jim Eardley
Client Reference:	29060	Order No.:	231202
Location:	Contract Chemicals	Report No:	104951

Validated

ALcontrol Laboratories Analytical Services

SDG 101115-88
 Job: H_ENTEC_NWC-18
 Client Reference: 29060
 Location: Contract Chemicals

Customer: Entec UK Ltd
 Attention: Jim Eardley
 Order No.: 231202
 Report No: 104951

Test Completion Dates

Lab Sample No(s)	2405876	2405894	2405910	2405934	2405954	2405972	2405994	2406012	2406029	2405930
Customer Sample Ref.	HDP 1	HDP 1	HDP 2	HDP 2	HDP 3	HDP 3	HDP 4	HDP 4	HDP 5	HDP 2 / Leach
AGS Ref.										
Depth	0.10	0.80	0.10	0.70	0.10	0.60	0.10	0.70	0.10	0.10
Type	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
Alcohols/Acetates MS (S)	22/11/2010	22/11/2010	22/11/2010	22/11/2010	22/11/2010	22/11/2010	22/11/2010	22/11/2010	22/11/2010	
Alcohols/Acetates MS (W)										23/11/2010
Anions by Kone (soil)	18/11/2010	18/11/2010	18/11/2010	18/11/2010	17/11/2010	17/11/2010	18/11/2010	17/11/2010	17/11/2010	
Anions by Kone (w)										18/11/2010
CEN 10:1 Leachate (1 Stage)										16/11/2010
CEN Readings										17/11/2010
Chromium III	18/11/2010	18/11/2010	18/11/2010	18/11/2010	18/11/2010	19/11/2010	19/11/2010	18/11/2010	18/11/2010	19/11/2010
Dissolved Metals by ICP-MS										19/11/2010
EPH CWG (Aliphatic) Aqueous GC (W)										22/11/2010
EPH CWG (Aliphatic) GC (S)	19/11/2010	19/11/2010	19/11/2010	20/11/2010	19/11/2010	19/11/2010	19/11/2010	19/11/2010	19/11/2010	
EPH CWG (Aromatic) Aqueous GC (W)										22/11/2010
EPH CWG (Aromatic) GC (S)	19/11/2010	19/11/2010	19/11/2010	20/11/2010	19/11/2010	19/11/2010	19/11/2010	19/11/2010	19/11/2010	
GRO by GC-FID (S)	19/11/2010	19/11/2010	19/11/2010	22/11/2010	22/11/2010	22/11/2010	22/11/2010	22/11/2010	22/11/2010	
GRO by GC-FID (W)										22/11/2010
Hexavalent Chromium (s)	18/11/2010	18/11/2010	18/11/2010	18/11/2010	18/11/2010	19/11/2010	19/11/2010	18/11/2010	18/11/2010	
Hexavalent Chromium (w)										19/11/2010
Mercury Dissolved										18/11/2010
Metals by iCap-OES (Soil)	18/11/2010	18/11/2010	18/11/2010	18/11/2010	18/11/2010	18/11/2010	18/11/2010	18/11/2010	18/11/2010	
pH	18/11/2010	18/11/2010	18/11/2010	18/11/2010	18/11/2010	18/11/2010	18/11/2010	18/11/2010	18/11/2010	
pH Value										18/11/2010
Sample description	16/11/2010	16/11/2010	16/11/2010	16/11/2010	16/11/2010	16/11/2010	16/11/2010	16/11/2010	16/11/2010	16/11/2010
Semi Volatile Organic Compounds	17/11/2010	17/11/2010	17/11/2010	17/11/2010	19/11/2010	19/11/2010	17/11/2010	19/11/2010	19/11/2010	
SVOC MS (W) - Aqueous										22/11/2010
Total Organic Carbon									18/11/2010	
TPH CWG (W)										22/11/2010
TPH CWG GC (S)	19/11/2010	19/11/2010	19/11/2010	22/11/2010	22/11/2010	22/11/2010	22/11/2010	22/11/2010	22/11/2010	
VOC MS (S)	22/11/2010	22/11/2010	22/11/2010	22/11/2010	22/11/2010	22/11/2010	22/11/2010	22/11/2010	22/11/2010	
VOC MS (W)										18/11/2010

Lab Sample No(s)	2406044
Customer Sample Ref.	HDP 5
AGS Ref.	
Depth	0.50
Type	SOLID

Alcohols/Acetates MS (S)	22/11/2010
Anions by Kone (soil)	19/11/2010
Chromium III	22/11/2010
EPH CWG (Aliphatic) GC (S)	20/11/2010
EPH CWG (Aromatic) GC (S)	20/11/2010
GRO by GC-FID (S)	22/11/2010
Hexavalent Chromium (s)	19/11/2010
Metals by iCap-OES (Soil)	22/11/2010
pH	18/11/2010
Sample description	17/11/2010
Semi Volatile Organic Compounds	19/11/2010
Total Organic Carbon	22/11/2010
TPH CWG GC (S)	22/11/2010
VOC MS (S)	22/11/2010

SDG 101115-88
 Job: H_ENTEC_NWC-18
 Client Reference: 29060
 Location: Contract Chemicals

Customer: Entec UK Ltd
 Attention: Jim Eardley
 Order No.: 231202
 Report No.: 104951

Results Legend		Customer Sample Ref.	HDP 1	HDP 1	HDP 2	HDP 2	HDP 3	HDP 3
#	ISO17025 accredited.	Depth (m)	0.10	0.60	0.10	0.70	0.10	0.60
M	mCERIS accredited.	Sample Type	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid
aq	Aqueous / settled sample.	Date Sampled	15/11/2010	15/11/2010	15/11/2010	15/11/2010	15/11/2010	15/11/2010
dis. filt	Dissolved / filtered sample.	Date Received	15/11/2010	15/11/2010	15/11/2010	15/11/2010	15/11/2010	15/11/2010
tot. unfilt	Total / unfiltered sample.	SDG Ref	101115-88	101115-88	101115-88	101115-88	101115-88	101115-88
*	subcontracted test.	Lab Sample No.(s)	2405876	2405894	2405910	2405934	2405954	2405972
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.	AGS Reference						
Component	LOD/Units	Method						
pH	1 pH Units	TM133	6.13	8.45	7.08	7.92	4.74	8.15
Chromium, Hexavalent	<0.6 mg/kg	TM151	<0.6	<0.6	<0.6	<0.6	<3	<0.6
Chromium, Trivalent	<0.9 mg/kg	TM181	23.4	24.2	24	20.6	23	29.5
Arsenic	<0.6 mg/kg	TM181	10.5	6.95	10.3	6.38	8.76	4.63
Cadmium	<0.02 mg/kg	TM181	<0.02	<0.02	<0.02	<0.02	0.451	0.361
Chromium	<0.9 mg/kg	TM181	23.4	24.2	24	20.6	23	29.5
Copper	<1.4 mg/kg	TM181	16.5	14.9	16.1	15.1	17.8	8.92
Lead	<0.7 mg/kg	TM181	34.9	25.2	31.2	17.3	28.3	11.5
Mercury	<0.14 mg/kg	TM181	<0.14	<0.14	<0.14	<0.14	<0.14	0.541
Nickel	<0.2 mg/kg	TM181	17.5	21.1	19.3	17.9	18.5	17.9
Selenium	<1 mg/kg	TM181	1.03	1.05	<1	<1	<1	1.04
Zinc	<1.9 mg/kg	TM181	215	55	87.5	64.9	84.1	37.3
Water Soluble Sulphate as SO4 2:1 Extract	<0.008 g/l	TM243	0.0745	0.102	0.2	0.141	0.301	0.063

ALcontrol Laboratories Analytical Services

Customer: Entec UK Ltd
Attention: Jim Eardley
Order No.: 231202
Report No: 104951

[illegible]

SDG 101115-88
 Job: H_ENTEC_NWC-18
 Client Reference: 29060
 Location: Contract Chemicals

Customer: Entec UK Ltd
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 Report No.: 104951

Semi Volatile Organic Compounds

#	M	aq	dis.filt	tot.unfilt	* % recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.	Customer Sample Ref.	Depth (m)	Sample Type	Date Sampled	Date Received	SDG Ref	Lab Sample No.(s)	AGS Reference	HDP 1	HDP 1	HDP 2	HDP 2	HDP 3	HDP 3
Phenol														<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Pentachlorophenol														<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
n-Nitroso-n-dipropylamine														<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Nitrobenzene														<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Isophorone														<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Hexachloroethane														<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Hexachlorocyclopentadiene														<0.1	<0.1	<0.1	<0.1	<0.2	<0.2
Hexachlorobutadiene														<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Hexachlorobenzene														<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
n-Dioctyl phthalate														<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethyl phthalate														<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Diethyl phthalate														<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
n-Dibutyl phthalate														<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzofuran														<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Carbazole														<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Butylbenzyl phthalate														<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
bis(2-Ethylhexyl) phthalate														<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
bis(2-Chloroethoxy)methane														<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
bis(2-Chloroethyl)ether														<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Azobenzene														<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
4-Nitrophenol														<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
4-Nitroaniline														<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
4-Methylphenol														<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
4-Chlorophenylphenylether														<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
4-Chloroaniline														<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
4-Chloro-3-methylphenol														<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
4-Bromophenylphenylether														<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
3-Nitroaniline														<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-Nitrophenol														<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-Nitroaniline														<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-Methylphenol														<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1,2,4-Trichlorobenzene														<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-Chlorophenol														<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2,6-Dinitrotoluene														<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2,4-Dinitrotoluene														<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2,4-Dimethylphenol														<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2,4-Dichlorophenol														<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2,4,6-Trichlorophenol														<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2,4,5-Trichlorophenol														<0.1	<0.1	<0.1	<0.1	<0.1	<0.1

Validated

ALcontrol Laboratories Analytical Services

SDG 101115-88
 Job: H_ENTEC_NWC-18
 Client Reference: 29060
 Location: Contract Chemicals

Customer: Entec UK Ltd
 Attention: Jim Eardley
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 Report No: 104951

Semi Volatile Organic Compounds

Results Legend		Customer Sample Ref.	HDP 1		HDP 1		HDP 2		HDP 2		HDP 3		HDP 3	
#	ISO17025 accredited.		Depth (m)	0.10	0.80	0.10	0.70	0.10	0.60					
M	mCERTS accredited.	Sample Type	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid					
eq	Aqueous / settled sample.	Date Sampled	15/11/2010	15/11/2010	15/11/2010	15/11/2010	15/11/2010	15/11/2010	15/11/2010					
dis. fil	Dissolved / filtered sample.	Date Received	15/11/2010	15/11/2010	15/11/2010	15/11/2010	15/11/2010	15/11/2010	15/11/2010					
tot.unfil	Total / unfiltered sample.	SDG Ref	101115-88	101115-88	101115-88	101115-88	101115-88	101115-88	101115-88					
*	subcontracted test.	Lab Sample No.(s)	2405876	2405894	2405910	2405934	2405954	2405972						
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.	AGS Reference												
Component	LOD/Units	Method	HDP 1		HDP 1		HDP 2		HDP 2		HDP 3		HDP 3	
1,4-Dichlorobenzene	<0.1 mg/kg	TM157	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	
1,3-Dichlorobenzene	<0.1 mg/kg	TM157	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	
1,2-Dichlorobenzene	<0.1 mg/kg	TM157	<0.1	<0.1	<0.1	<0.1	2.58	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	
2-Chloronaphthalene	<0.1 mg/kg	TM157	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	
2-Methylnaphthalene	<0.1 mg/kg	TM157	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	
Acenaphthylene	<0.1 mg/kg	TM157	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	
Acenaphthene	<0.1 mg/kg	TM157	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	
Anthracene	<0.1 mg/kg	TM157	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	
Benzo(a)anthracene	<0.1 mg/kg	TM157	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.19	<0.1	<0.1	<0.1	<0.1	
Benzo(b)fluoranthene	<0.1 mg/kg	TM157	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.166	<0.1	<0.1	<0.1	<0.1	
Benzo(k)fluoranthene	<0.1 mg/kg	TM157	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.159	<0.1	<0.1	<0.1	<0.1	
Benzo(a)pyrene	<0.1 mg/kg	TM157	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.202	<0.1	<0.1	<0.1	<0.1	
Benzo(g,h,i)perylene	<0.1 mg/kg	TM157	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	
Chrysene	<0.1 mg/kg	TM157	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.25	<0.1	<0.1	<0.1	<0.1	
Fluoranthene	<0.1 mg/kg	TM157	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.517	<0.1	<0.1	<0.1	<0.1	
Fluorene	<0.1 mg/kg	TM157	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	
Indeno(1,2,3-cd)pyrene	<0.1 mg/kg	TM157	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	
Phenanthrene	<0.1 mg/kg	TM157	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.326	<0.1	<0.1	<0.1	<0.1	
Pyrene	<0.1 mg/kg	TM157	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.483	<0.1	<0.1	<0.1	<0.1	
Naphthalene	<0.1 mg/kg	TM157	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	
Dibenzo(a,h)anthracene	<0.1 mg/kg	TM157	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	
TIC report	-	TM157	See Attached	See Attached	See Attached	See Attached	See Attached	See Attached	See Attached	See Attached	See Attached	See Attached	See Attached	
				</										

SDG 101115-88
 Job: H_ENTEC_NWC-18
 Client Reference: 29060
 Location: Contract Chemicals

Customer: Entec UK Ltd
 Attention: Jim Eardley
 Order No.: 231202
 Report No: 104951

TPH CWG (S)

Results Legend			Customer Sample Ref.		HDP 1	HDP 1	HDP 2	HDP 2	HDP 3	HDP 3
#	ISO17025 accredited.		Depth (m) Sample Type Date Sampled Date Received SDG Ref Lab Sample No.(s) AGS Reference		0.10	0.60	0.10	0.70	0.10	0.60
M	mCERTS accredited.				Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid
AQ	Aqueous / settled sample.				15/11/2010	15/11/2010	15/11/2010	15/11/2010	15/11/2010	15/11/2010
DIS/FIL	Dissolved / filtered sample.				15/11/2010	15/11/2010	15/11/2010	15/11/2010	15/11/2010	15/11/2010
TOT/UNFIL	Total / unfiltered sample.				101115-88	101115-88	101115-88	101115-88	101115-88	101115-88
*	subcontracted test.				2405876	2405894	2405910	2405934	2405954	2405972
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.									
Component	LOD/Units	Method								
Aliphatics >C12-C16	<0.1 mg/kg	TM173			5.21	6.1	4.22	22.2	79.3	4.7
Aliphatics >C16-C21	<0.1 mg/kg	TM173			2.08	3.05	238	38.1	9.51	1.66
Aliphatics >C21-C35	<0.1 mg/kg	TM173			10.7	8.59	<0.1	15.3	11.4	5.18
Aliphatics >C35-C44	<0.1 mg/kg	TM173			<0.1	<0.1	238	0.94	1.71	<0.1
Aromatics >EC12-EC16	<0.1 mg/kg	TM173			1.44	1.87	<0.1	15.9	30.5	<0.1
Aromatics >EC16-EC21	<0.1 mg/kg	TM173			2.41	6.47	7.37	21.7	6.54	<0.1
Aromatics >EC21-EC35	<0.1 mg/kg	TM173			4.09	0.178	229	31.8	19.4	<0.1
Aromatics >EC35-EC44	<0.1 mg/kg	TM173			0.916	0.253	238	9.39	5.89	<0.1
Aromatics >EC40-EC44	<0.1 mg/kg	TM173			<0.1	<0.1	102	2.61	1.77	<0.1
Total Aliphatics >C12-C44	<0.1 mg/kg	TM173			18	17.7	480	76.4	102	11.5
Total Aromatics >EC12-EC44	<0.1 mg/kg	TM173			8.85	8.77	475	78.7	62.3	<0.1
Total Aliphatics >C5-35	<0.1 mg/kg	TM173			18.1	18.3	243	77.9	101	11.6
Total Aromatics >C5-35	<0.1 mg/kg	TM173			7.98	8.86	236	70.7	56.6	<0.1
Total Aliphatics & Aromatics >C5-35	<0.1 mg/kg	TM173			26.1	27.2	479	149	157	11.6
Total Aliphatics & Aromatics >C5-C44	<0.1 mg/kg	TM173			27	27.4	955	159	165	11.6
GRO Surrogate % recovery**	%	TM089			107	104	123	62	62	94
GRO >C5-C12	<0.044 mg/kg	TM089			0.141	0.936	0.399	3.77	0.517	0.0531
Methyl tertiary butyl ether (MTBE)	<0.005 mg/kg	TM089			<0.005	0.0162	<0.005	<0.005	<0.005	<0.005
Benzene	<0.01 mg/kg	TM089			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Toluene	<0.002 mg/kg	TM089			0.00372	0.0626	0.00615	0.00238	<0.002	0.00452
Ethylbenzene	<0.003 mg/kg	TM089			<0.003	0.00464	0.00615	<0.003	<0.003	<0.003
m,p-Xylene	<0.006 mg/kg	TM089			<0.006	0.0232	<0.006	<0.006	<0.006	<0.006
o-Xylene	<0.003 mg/kg	TM089			<0.003	0.00812	<0.003	<0.003	<0.003	<0.003
Aliphatics >C5-C6	<0.01 mg/kg	TM089			<0.01	0.119	0.059	0.0452	0.0189	<0.01
Aliphatics >C6-C8	<0.01 mg/kg	TM089			0.0285	0.109	0.177	0.394	0.0403	<0.01
Aliphatics >C8-C10	<0.01 mg/kg	TM089			0.026	0.131	0.0431	0.117	0.0252	0.0102
Aliphatics >C10-C12	<0.01 mg/kg	TM089			0.0322	0.218	0.0467	1.88	0.246	0.0124
Aromatics >EC5-EC7	<0.01 mg/kg	TM089			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Aromatics >EC7-EC8	<0.01 mg/kg	TM089			<0.01	0.0626	<0.01	<0.01	<0.01	<0.01
Aromatics >EC8-EC10	<0.01 mg/kg	TM089			0.0198	0.124	0.0344	0.0809	0.0214	<0.01
Aromatics >EC10-EC12	<0.01 mg/kg	TM089			0.0211	0.146	0.0308	1.25	0.164	<0.01
m,p,o-Xylene	<0.01 mg/kg	TM089			<0.01	0.0313	<0.01	<0.01	<0.01	<0.01
BTEX, Total	<0.01 mg/kg	TM089			<0.01	0.0986	0.0123	<0.01	<0.01	<0.01

Validated

ALcontrol Laboratories Analytical Services

SDG 101115-88
 Job: H_ENTEC_NWC-18
 Client Reference: 29060
 Location: Contract Chemicals

Customer: Entec UK Ltd
 Attention: Jim Eardley
 Order No.: 231202
 Report No: 104951

VOC MS (S)

Results Legend			Customer Sample Ref.		HDP 1	HDP 1	HDP 2	HDP 2	HDP 3	HDP 3
#	M	eq	Depth (m)	Sample Type	0.10	0.60	0.10	0.70	0.10	0.60
ISO17025 accredited.					Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid
mCERTS accredited.					15/11/2010	15/11/2010	15/11/2010	15/11/2010	15/11/2010	15/11/2010
Aqueous / settled sample.					15/11/2010	15/11/2010	15/11/2010	15/11/2010	15/11/2010	15/11/2010
Dissolved / filtered sample.					101115-88	101115-88	101115-88	101115-88	101115-88	101115-88
Total / unfiltered sample.					2405876	2405894	2405910	2405934	2405954	2405972
Subcontracted test.										
% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.										
Component	LOD/Units	Method								
Dibromofluoromethane**	%	TM116			106	104	104	99.7	105	106
Toluene-d8**	%	TM116			103	104	102	104	101	105
4-Bromofluorobenzene**	%	TM116			116	110	117	114	124	103
Dichlorodifluoromethane	<0.004 mg/kg	TM116			<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Chloromethane	<0.007 mg/kg	TM116			<0.007	<0.007	<0.007	<0.007	<0.007	<0.007
Vinyl Chloride	<0.01 mg/kg	TM116			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Bromomethane	<0.013 mg/kg	TM116			<0.013	<0.013	<0.013	<0.013	<0.013	<0.013
Chloroethane	<0.014 mg/kg	TM116			<0.014	<0.014	<0.014	<0.014	<0.014	<0.014
Trichlorofluoromethane	<0.006 mg/kg	TM116			<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
1,1-Dichloroethene	<0.01 mg/kg	TM116			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Carbon Disulphide	<0.007 mg/kg	TM116			<0.007	0.0299	<0.007	0.0239	<0.007	<0.007
Dichloromethane	<0.01 mg/kg	TM116			0.0195	0.0499	0.0157	<0.01	0.0136	0.014
Methyl Tertiary Butyl Ether	<0.011 mg/kg	TM116			<0.011	0.0141	<0.011	<0.011	<0.011	<0.011
trans-1,2-Dichloroethene	<0.011 mg/kg	TM116			<0.011	<0.011	<0.011	<0.011	<0.011	<0.011
1,1-Dichloroethane	<0.008 mg/kg	TM116			<0.008	<0.008	<0.008	<0.008	<0.008	<0.008
cis-1,2-Dichloroethene	<0.005 mg/kg	TM116			<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
2,2-Dichloropropane	<0.012 mg/kg	TM116			<0.012	<0.012	<0.012	<0.012	<0.012	<0.012
Bromochloromethane	<0.014 mg/kg	TM116			<0.014	<0.014	<0.014	<0.014	<0.014	<0.014
Chloroform	<0.008 mg/kg	TM116			0.0349	0.0171	0.0822	0.0151	0.123	<0.008
1,1,1-Trichloroethane	<0.007 mg/kg	TM116			<0.007	<0.007	<0.007	<0.007	<0.007	<0.007
1,1-Dichloropropene	<0.011 mg/kg	TM116			<0.011	<0.011	<0.011	<0.011	<0.011	<0.011
Carbontetrachloride	<0.014 mg/kg	TM116			<0.014	<0.014	<0.014	<0.014	<0.014	<0.014
1,2-Dichloroethane	<0.005 mg/kg	TM116			<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Benzene	<0.009 mg/kg	TM116			<0.009	0.0233	<0.009	<0.009	<0.009	<0.009
Trichloroethene	<0.009 mg/kg	TM116			<0.009	<0.009	<0.009	<0.009	<0.009	<0.009
1,2-Dichloropropane	<0.012 mg/kg	TM116			<0.012	<0.012	<0.012	<0.012	<0.012	<0.012
Dibromomethane	<0.009 mg/kg	TM116			<0.009	<0.009	<0.009	<0.009	<0.009	<0.009
Bromodichloromethane	<0.007 mg/kg	TM116			<0.007	<0.007	<0.007	<0.007	<0.007	<0.007
cis-1,3-Dichloropropene	<0.014 mg/kg	TM116			<0.014	<0.014	<0.014	<0.014	<0.014	<0.014
Toluene	<0.005 mg/kg	TM116			0.0145	0.117	0.00961	0.0226	0.00793	0.0102
trans-1,3-Dichloropropene	<0.014 mg/kg	TM116			<0.014	<0.014	<0.014	<0.014	<0.014	<0.014
1,1,2-Trichloroethane	<0.01 mg/kg	TM116			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
1,3-Dichloropropane	<0.007 mg/kg	TM116			<0.007	<0.007	<0.007	<0.007	<0.007	<0.007
Tetrachloroethene	<0.005 mg/kg	TM116			<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Dibromochloromethane	<0.013 mg/kg	TM116			<0.013	<0.013	<0.013	<0.013	<0.013	<0.013
1,2-Dibromoethane	<0.012 mg/kg	TM116			<0.012	<0.012	<0.012	<0.012	<0.012	<0.012
Chlorobenzene	<0.005 mg/kg	TM116			<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1,1,2-Tetrachloroethane	<0.01 mg/kg	TM116			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Ethylbenzene	<0.004 mg/kg	TM116			<0.004	<0.004	<0.004	<0.004	<0.004	<0.004

Validated

ALcontrol Laboratories Analytical Services

SDG 101115-88
 Job: H_ENTEC_NWC-18
 Client Reference: 29060
 Location: Contract Chemicals

Customer: Entec UK Ltd
 Attention: Jim Eardley
 Order No.: 231202
 Report No: 104951

VOC MS (S)

Results Legend		Customer Sample Ref.	HDP 1		HDP 1		HDP 2		HDP 2		HDP 3		HDP 3	
#	ISO17025 accredited.		0.10	0.80	0.10	0.70	0.10	0.70	0.10	0.60	0.10	0.60	0.10	0.60
M	mCERTS accredited.		Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid
AQ	Aqueous / settled sample.		15/11/2010	15/11/2010	15/11/2010	15/11/2010	15/11/2010	15/11/2010	15/11/2010	15/11/2010	15/11/2010	15/11/2010	15/11/2010	15/11/2010
dis	Dissolved / Filtered sample.		15/11/2010	15/11/2010	15/11/2010	15/11/2010	15/11/2010	15/11/2010	15/11/2010	15/11/2010	15/11/2010	15/11/2010	15/11/2010	15/11/2010
tot	Total / unfiltered sample.		101115-88	101115-88	101115-88	101115-88	101115-88	101115-88	101115-88	101115-88	101115-88	101115-88	101115-88	101115-88
unfilt	subcontracted test.		2405876	2405894	2405910	2405934	2405954	2405972						
..	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.													
Component	LOD/Units	Method	HDP 1		HDP 1		HDP 2		HDP 2		HDP 3		HDP 3	
p/m-Xylene	<0.014 mg/kg	TM116	<0.014	#	0.02	#	<0.014	#	<0.014	#	<0.014	#	<0.014	#
o-Xylene	<0.01 mg/kg	TM116	<0.01	M	<0.01	M	<0.01	M	<0.01	M	<0.01	M	<0.01	M
Styrene	<0.01 mg/kg	TM116	<0.01	M	<0.01	M	<0.01	M	<0.01	M	<0.01	M	<0.01	M
Bromoform	<0.01 mg/kg	TM116	<0.01	M	<0.01	M	<0.01	M	<0.01	M	<0.01	M	<0.01	M
Isopropylbenzene	<0.005 mg/kg	TM116	<0.005	M	<0.005	M	<0.005	M	<0.005	M	<0.005	M	<0.005	M
1,1,2,2-Tetrachloroethane	<0.01 mg/kg	TM116	<0.01	#	<0.01	#	<0.01	#	<0.01	#	<0.01	#	<0.01	#
1,2,3-Trichloropropane	<0.017 mg/kg	TM116	<0.017	M	<0.017	M	<0.017	M	<0.017	M	<0.017	M	<0.017	M
Bromobenzene	<0.01 mg/kg	TM116	<0.01	M	<0.01	M	<0.01	M	<0.01	M	<0.01	M	<0.01	M
Propylbenzene	<0.011 mg/kg	TM116	<0.011	M	<0.011	M	<0.011	M	<0.011	M	<0.011	M	<0.011	M
2-Chlorotoluene	<0.009 mg/kg	TM116	<0.009	M	<0.009	M	<0.009	M	<0.009	M	<0.009	M	<0.009	M
1,3,5-Trimethylbenzene	<0.008 mg/kg	TM116	<0.008	#	<0.008	#	<0.008	#	<0.008	#	<0.008	#	<0.008	#
4-Chlorotoluene	<0.012 mg/kg	TM116	<0.012	M	<0.012	M	<0.012	M	<0.012	M	<0.012	M	<0.012	M
tert-Butylbenzene	<0.012 mg/kg	TM116	<0.012	#	<0.012	#	<0.012	#	<0.012	#	<0.012	#	<0.012	#
1,2,4-Trimethylbenzene	<0.009 mg/kg	TM116	<0.009	#	<0.009	#	<0.009	#	<0.009	#	<0.009	#	<0.009	#
sec-Butylbenzene	<0.01 mg/kg	TM116	<0.01	M	<0.01	M	<0.01	M	<0.01	M	<0.01	M	<0.01	M
4-Isopropyltoluene	<0.011 mg/kg	TM116	<0.011	M	<0.011	M	<0.011	M	<0.011	M	<0.011	M	<0.011	M
1,3-Dichlorobenzene	<0.006 mg/kg	TM116	0.015	M	<0.006	M	<0.006	M	<0.006	M	0.0283	M	<0.006	M
1,4-Dichlorobenzene	<0.005 mg/kg	TM116	<0.005	M	<0.005	M	<0.005	M	<0.005	M	<0.005	M	<0.005	M
n-Butylbenzene	<0.01 mg/kg	TM116	<0.01	M	<0.01	M	<0.01	M	<0.01	M	<0.01	M	<0.01	M
1,2-Dichlorobenzene	<0.012 mg/kg	TM116	0.0628	M	0.0513	M	<0.012	M	3.97	M	0.105	M	<0.012	M
1,2-Dibromo-3-chloropropane	<0.014 mg/kg	TM116	<0.014	M	<0.014	M	<0.014	M	<0.014	M	<0.014	M	<0.014	M
Tert-amyl methyl ether	<0.015 mg/kg	TM116	<0.015		<0.015		<0.015		<0.015		<0.015		<0.015	
1,2,4-Trichlorobenzene	<0.006 mg/kg	TM116	<0.006	#	<0.006	#	<0.006	#	<0.006	#	<0.006	#	<0.006	#
Hexachlorobutadiene	<0.012 mg/kg	TM116	<0.012		<0.012		<0.012		<0.012		<0.012		<0.012	
Naphthalene	<0.013 mg/kg	TM116	<0.013	M	0.0233	M	<0.013	M	<0.013	M	<0.013	M	<0.013	M
1,2,3-Trichlorobenzene	<0.006 mg/kg	TM116	<0.006	M	<0.006	M	<0.006	M	<0.006	M	<0.006	M	<0.006	M
VOC TIC	-	TM116	No TIC's identified		No TIC's identified		No TIC's identified		See Attached		See Attached		See Attached	

Validated

ALcontrol Laboratories Analytical Services

SDG 101115-88
 Job: H_ENTEC_NWC-18
 Client Reference: 29060
 Location: Contract Chemicals

Customer: Entec UK Ltd
 Attention: Jim Eardley
 Order No.: 231202
 Report No: 104951

Results Legend			Customer Sample Ref.	HDP 2 / Leach	HDP 4	HDP 4	HDP 5	HDP 5	
#	ISO17025 accredited.		Depth (m)	0.10	0.10	0.70	0.10	0.50	
M	mCERTS accredited.		Sample Type	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	
aq	Aqueous / filtered sample.		Date Sampled	15/11/2010	15/11/2010	15/11/2010	15/11/2010	15/11/2010	
dis.filt	Dissolved / filtered sample.		Date Received	15/11/2010	15/11/2010	15/11/2010	15/11/2010	15/11/2010	
tot.unfilt	Total / unfiltered sample.		SDG Ref	101115-88	101115-88	101115-88	101115-88	101115-88	
+	Subcontracted test.		Lab Sample No.(s)	2405930	2405994	2406012	2406029	2406044	
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.		AGS Reference						
Component	LOD/Units	Method							
Moisture	%	PM114		16					
Moisture content ratio	%	PM114		19.1					
Dry matter content ratio	%	PM114		84					
Fraction Organic Carbon (FOC)	<0.002 -	TM132					0.0114	0.0135	
pH	1 pH Units	TM133			7.82	8.36	8.26	8.2	
					M	M	M	M	
Chromium, Hexavalent	<0.6 mg/kg	TM151			<0.6	<0.6	<0.6	<0.6	
					#	#	#	#	
Chromium, Trivalent	<0.9 mg/kg	TM181			22	18	54.9	24	
Arsenic	<0.6 mg/kg	TM181			7.1	6.07	4.84	7.27	
					M	M	M	M	
Cadmium	<0.02 mg/kg	TM181			<0.02	0.252	0.372	<0.02	
					M	M	M	M	
Chromium	<0.9 mg/kg	TM181			22	18	54.9	24	
					M	M	M	M	
Copper	<1.4 mg/kg	TM181			17.9	11.1	26.7	20.6	
					M	M	M	M	
Lead	<0.7 mg/kg	TM181			15.2	16.2	13.9	18.2	
					M	M	M	M	
Mercury	<0.14 mg/kg	TM181			<0.14	0.593	0.63	<0.14	
					M	M	M	M	
Nickel	<0.2 mg/kg	TM181			20.9	15	100	19.1	
					M	M	M	M	
Selenium	<1 mg/kg	TM181			<1	<1	<1	<1	
					#	#	#	#	
Zinc	<1.9 mg/kg	TM181			64.8	33.2	84.3	235	
					M	M	M	M	
Water Soluble Sulphate as SO4 2:1 Extract	<0.008 g/l	TM243			0.0639	0.0309	<0.008	<0.008	
					M	M	M	M	

SDG	101115-88
Job:	H_ENTEC_NWC-18
Client Reference:	29060
Location:	Contract Chemicals

Customer: Entec UK Ltd
Attention: Jim Eardley
Order No.: 231202
Report No: 104951

Alcohols/Acetates MS (S)

Results Legend		Customer Sample Ref.	HDP 4	HDP 4	HDP 5	HDP 5		
#	ISO17025 accredited. mCERTS accredited.							
M	Aqueous / settled sample.	Depth (m)	0.10	0.70	0.10	0.50		
mg	Dissolved / filtered sample.	Sample Type	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid		
dis. filter	Total / unfiltered sample.	Date Sampled	15/11/2010	15/11/2010	15/11/2010	15/11/2010		
tot unfiltered	subcontracted test.	Date Received	15/11/2010	15/11/2010	15/11/2010	15/11/2010		
*	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.	SDG Ref	101115-88	101115-88	101115-88	101115-88		
**		Lab Sample No.(s)	2405994	2406012	2406029	2406044		
		AGS Reference						
Component	LOD/Units	Method						
Methanol	<0.1 mg/kg	TM155	<0.1	<0.1	<0.1	0.327		
Ethanol	<0.1 mg/kg	TM155	<0.1	<0.1	<0.1	<0.1		
iso-Propanol	<0.1 mg/kg	TM155	<0.1	<0.1	<0.1	<0.1		
n-Propanol	<0.1 mg/kg	TM155	<0.1	<0.1	<0.1	<0.1		
n-Butanol	<0.1 mg/kg	TM155	<0.1	<0.1	<0.1	<0.1		
n-Pentanol	<0.1 mg/kg	TM155	<0.1	<0.1	<0.1	<0.1		
n-Hexanol	<0.1 mg/kg	TM155	<0.1	<0.1	<0.1	<0.1		
n-Heptanol	<0.1 mg/kg	TM155	<0.1	<0.1	<0.1	<0.1		
Methyl acetate	<0.1 mg/kg	TM155	<0.1	<0.1	<0.1	<0.1		
Ethyl acetate	<0.1 mg/kg	TM155	<0.1	<0.1	<0.1	<0.1		
iso-Propyl acetate	<0.1 mg/kg	TM155	<0.1	<0.1	<0.1	<0.1		
n-Propyl acetate	<0.1 mg/kg	TM155	<0.1	<0.1	<0.1	<0.1		
n-Butyl acetate	<0.1 mg/kg	TM155	<0.1	<0.1	<0.1	<0.1		

Validated

ALcontrol Laboratories Analytical Services

SDG 101115-88
 Job: H_ENTEC_NWC-18
 Client Reference: 29060
 Location: Contract Chemicals

Customer: Entec UK Ltd
 Attention: Jim Eardley
 Order No.: 231202
 Report No: 104951

Semi Volatile Organic Compounds

Results Legend		Customer Sample Ref.	HDP 4		HDP 5			
#	ISO17025 accredited.		0.10	0.70	0.10	0.50		
M	mCERTS accredited.	Depth (m) Sample Type Date Sampled Date Received SDG Ref Lab Sample No.(s) AGS Reference	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid		
eq	Aqueous / filtered sample.		15/11/2010	15/11/2010	15/11/2010	15/11/2010		
dis. filt	Dissolved / filtered sample.		15/11/2010	15/11/2010	15/11/2010	15/11/2010		
tot unfilt	Total / unfiltered sample.		101115-88	101115-88	101115-88	101115-88		
*	subcontracted test.		2405994	2406012	2406029	2406044		
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.							
Component	LOD/Units	Method						
Phenol	<0.1 mg/kg	TM157	<0.1	<0.1	<0.1	<0.1		
Pentachlorophenol	<0.1 mg/kg	TM157	<0.1	<0.1	<0.1	<0.1		
n-Nitroso-n-dipropylamine	<0.1 mg/kg	TM157	<0.1	<0.1	<0.1	<0.1		
Nitrobenzene	<0.1 mg/kg	TM157	<0.1	<0.1	<0.1	<0.1		
Isophorone	<0.1 mg/kg	TM157	<0.1	<0.1	<0.1	<0.1		
Hexachloroethane	<0.1 mg/kg	TM157	<0.1	<0.1	<0.1	<0.1		
Hexachlorocyclopentadiene	<0.1 mg/kg	TM157	<0.1	<0.2	<0.2	<0.1		
Hexachlorobutadiene	<0.1 mg/kg	TM157	<0.1	<0.1	<0.1	<0.1		
Hexachlorobenzene	<0.1 mg/kg	TM157	<0.1	<0.1	<0.1	<0.1		
n-Dioctyl phthalate	<0.1 mg/kg	TM157	<0.1	<0.1	<0.1	<0.1		
Dimethyl phthalate	<0.1 mg/kg	TM157	<0.1	<0.1	<0.1	<0.1		
Diethyl phthalate	<0.1 mg/kg	TM157	<0.1	<0.1	<0.1	<0.1		
n-Dibutyl phthalate	<0.1 mg/kg	TM157	<0.1	<0.1	<0.1	<0.1		
Dibenzofuran	<0.1 mg/kg	TM157	<0.1	<0.1	<0.1	<0.1		
Carbazole	<0.1 mg/kg	TM157	<0.1	<0.1	<0.1	<0.1		
Butylbenzyl phthalate	<0.1 mg/kg	TM157	<0.1	<0.1	<0.1	<0.1		
bis(2-Ethylhexyl) phthalate	<0.1 mg/kg	TM157	<0.1	<0.1	<0.1	<0.1		
bis(2-Chloroethoxy)methane	<0.1 mg/kg	TM157	<0.1	<0.1	<0.1	<0.1		
bis(2-Chloroethyl)ether	<0.1 mg/kg	TM157	<0.1	<0.1	<0.1	<0.1		
Azobenzene	<0.1 mg/kg	TM157	<0.1	<0.1	<0.1	<0.1		
4-Nitrophenol	<0.1 mg/kg	TM157	<0.1	<0.1	<0.1	<0.1		
4-Nitroaniline	<0.1 mg/kg	TM157	<0.1	<0.1	<0.1	<0.1		
4-Methylphenol	<0.1 mg/kg	TM157	<0.1	<0.1	<0.1	<0.1		
4-Chlorophenylphenylether	<0.1 mg/kg	TM157	<0.1	<0.1	<0.1	<0.1		
4-Chloroaniline	<0.1 mg/kg	TM157	<0.1	<0.1	<0.1	<0.1		
4-Chloro-3-methylphenol	<0.1 mg/kg	TM157	<0.1	<0.1	<0.1	<0.1		
4-Bromophenylphenylether	<0.1 mg/kg	TM157	<0.1	<0.1	<0.1	<0.1		
3-Nitroaniline	<0.1 mg/kg	TM157	<0.1	<0.1	<0.1	<0.1		
2-Nitrophenol	<0.1 mg/kg	TM157	<0.1	<0.1	<0.1	<0.1		
2-Nitroaniline	<0.1 mg/kg	TM157	<0.1	<0.1	<0.1	<0.1		
2-Methylphenol	<0.1 mg/kg	TM157	<0.1	<0.1	<0.1	<0.1		
1,2,4-Trichlorobenzene	<0.1 mg/kg	TM157	<0.1	<0.1	<0.1	<0.1		
2-Chlorophenol	<0.1 mg/kg	TM157	<0.1	<0.1	<0.1	<0.1		
2,6-Dinitrotoluene	<0.1 mg/kg	TM157	<0.1	<0.1	<0.1	<0.1		
2,4-Dinitrotoluene	<0.1 mg/kg	TM157	<0.1	<0.1	<0.1	<0.1		
2,4-Dimethylphenol	<0.1 mg/kg	TM157	<0.1	<0.1	<0.1	<0.1		
2,4-Dichlorophenol	<0.1 mg/kg	TM157	<0.1	<0.1	<0.1	<0.1		
2,4,6-Trichlorophenol	<0.1 mg/kg	TM157	<0.1	<0.1	<0.1	<0.1		
2,4,5-Trichlorophenol	<0.1 mg/kg	TM157	<0.1	<0.1	<0.1	<0.1		

SDG	101115-88
Job:	H_ENTEC_NWC-18
Client Reference:	29060
Location:	Contract Chemicals

Customer: Entec UK Ltd
Attention: Jim Eardley
Order No.: 231202
Report No: 104951

Semi Volatile Organic Compounds

#	M	Sq.	Diss. Filtr.	Total Unfilt.	*	**
Results Legend						
ISO17025 accredited. mCERTE accredited. Aqueous / settled sample. Dissolved / filtered sample. Total / unfiltered sample. Subcontracted test. % recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.						
Customer Sample Ref.						
Depth (m)						
Sample Type						
Date Sampled						
Date Received						
SDG Ref						
Lab Sample No.(s)						
AGS Reference						
HDP 4						
HDP 4						
HDP 5						
HDP 5						
Component						
LOD/Units						
Method						
1,4-Dichlorobenzene <0.1 mg/kg TM157 <0.1 <0.1 <0.1 <0.1						
1,3-Dichlorobenzene <0.1 mg/kg TM157 <0.1 <0.1 <0.1 <0.1						
1,2-Dichlorobenzene <0.1 mg/kg TM157 <0.1 <0.1 <0.1 <0.1						
2-Chloronaphthalene <0.1 mg/kg TM157 <0.1 <0.1 <0.1 <0.1						
2-Methylnaphthalene <0.1 mg/kg TM157 <0.1 <0.1 <0.1 <0.1						
Acenaphthylene <0.1 mg/kg TM157 <0.1 <0.1 <0.1 <0.1						
Acenaphthene <0.1 mg/kg TM157 <0.1 <0.1 <0.1 <0.1						
Anthracene <0.1 mg/kg TM157 <0.1 <0.1 <0.1 <0.1						
Benzo(a)anthracene <0.1 mg/kg TM157 <0.1 <0.1 <0.1 <0.1						
Benzo(b)fluoranthene <0.1 mg/kg TM157 <0.1 <0.1 <0.1 <0.1						
Benzo(k)fluoranthene <0.1 mg/kg TM157 <0.1 <0.1 <0.1 <0.1						
Benzo(a)pyrene <0.1 mg/kg TM157 <0.1 <0.1 <0.1 <0.1						
Benzo(g,h,i)perylene <0.1 mg/kg TM157 <0.1 <0.1 <0.1 <0.1						
Chrysene <0.1 mg/kg TM157 <0.1 <0.1 <0.1 <0.1						
Fluoranthene <0.1 mg/kg TM157 <0.1 <0.1 <0.1 <0.1						
Fluorene <0.1 mg/kg TM157 <0.1 <0.1 <0.1 <0.1						
Indeno(1,2,3-cd)pyrene <0.1 mg/kg TM157 <0.1 <0.1 <0.1 <0.1						
Phenanthrene <0.1 mg/kg TM157 <0.1 <0.1 <0.1 <0.1						
Pyrene <0.1 mg/kg TM157 <0.1 <0.1 <0.1 <0.1						
Naphthalene <0.1 mg/kg TM157 <0.1 <0.1 <0.1 <0.1						
Dibenzo(a,h)anthracene <0.1 mg/kg TM157 <0.1 <0.1 <0.1 <0.1						
TIC report - TM157 See Attached See Attached See Attached See Attached						

Validated

ALcontrol Laboratories Analytical Services

SDG 101115-88
 Job: H_ENTEC_NWC-18
 Client Reference: 29060
 Location: Contract Chemicals

Customer: Entec UK Ltd
 Attention: Jim Eardley
 Order No.: 231202
 Report No: 104951

TPH CWG (S)

Results Legend		Customer Sample Ref.	HDP 4	HDP 4	HDP 5	HDP 5		
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Date Received SDG Ref Lab Sample No.(s) AGS Reference	0.10	0.70	0.10	0.50		
M	mCERTS accredited.		Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid		
eq	Aqueous / settled sample.		15/11/2010	15/11/2010	15/11/2010	15/11/2010		
dis. fil.	Dissolved / filtered sample.		15/11/2010	15/11/2010	15/11/2010	15/11/2010		
tot.unfil.	Total / unfiltered sample.		101115-88	101115-88	101115-88	101115-88		
*	subcontracted test.		2405994	2406012	2406029	2406044		
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.							
Component	LOD/Units	Method						
Aliphatics >C12-C16	<0.1 mg/kg	TM173	5.39	3.99	3.58	3.37		
Aliphatics >C16-C21	<0.1 mg/kg	TM173	2.76	1.41	1.46	2.86		
Aliphatics >C21-C35	<0.1 mg/kg	TM173	9.45	6.17	6.54	11.1		
Aliphatics >C35-C44	<0.1 mg/kg	TM173	<0.1	<0.1	0.644	<0.1		
Aromatics >EC12-EC16	<0.1 mg/kg	TM173	1.38	<0.1	<0.1	<0.1		
Aromatics >EC16-EC21	<0.1 mg/kg	TM173	9.6	<0.1	<0.1	<0.1		
Aromatics >EC21-EC35	<0.1 mg/kg	TM173	14.1	5.9	1.21	7.17		
Aromatics >EC35-EC44	<0.1 mg/kg	TM173	<0.1	<0.1	<0.1	2.45		
Aromatics >EC40-EC44	<0.1 mg/kg	TM173	<0.1	<0.1	<0.1	<0.1		
Total Aliphatics >C12-C44	<0.1 mg/kg	TM173	17.6	11.6	12.2	17.4		
Total Aromatics >EC12-EC44	<0.1 mg/kg	TM173	25.1	5.9	1.21	9.62		
Total Aliphatics >C5-35	<0.1 mg/kg	TM173	17.6	11.6	11.6	17.4		
Total Aromatics >C5-35	<0.1 mg/kg	TM173	25.1	5.91	1.21	7.17		
Total Aliphatics & Aromatics >C5-35	<0.1 mg/kg	TM173	42.7	17.5	12.8	24.5		
Total Aliphatics & Aromatics >C5-C44	<0.1 mg/kg	TM173	42.7	17.5	13.4	27		
GRO Surrogate % recovery**	%	TM089	114	113	161	112		
GRO >C5-C12	<0.044 mg/kg	TM089	<0.044	<0.044	<0.044	<0.044		
Methyl tertiary butyl ether (MTBE)	<0.005 mg/kg	TM089	<0.005	<0.005	<0.005	<0.005		
Benzene	<0.01 mg/kg	TM089	<0.01	<0.01	<0.01	<0.01		
Toluene	<0.002 mg/kg	TM089	<0.002	<0.002	<0.002	<0.002		
Ethylbenzene	<0.003 mg/kg	TM089	<0.003	<0.003	<0.003	<0.003		
m,p-Xylene	<0.006 mg/kg	TM089	<0.006	<0.006	<0.006	<0.006		
o-Xylene	<0.003 mg/kg	TM089	<0.003	<0.003	<0.003	<0.003		
Aliphatics >C5-C6	<0.01 mg/kg	TM089	<0.01	<0.01	<0.01	<0.01		
Aliphatics >C6-C8	<0.01 mg/kg	TM089	<0.01	<0.01	<0.01	<0.01		
Aliphatics >C8-C10	<0.01 mg/kg	TM089	<0.01	<0.01	<0.01	<0.01		
Aliphatics >C10-C12	<0.01 mg/kg	TM089	<0.01	<0.01	<0.01	<0.01		
Aromatics >EC5-EC7	<0.01 mg/kg	TM089	<0.01	<0.01	<0.01	<0.01		
Aromatics >EC7-EC8	<0.01 mg/kg	TM089	<0.01	<0.01	<0.01	<0.01		
Aromatics >EC8-EC10	<0.01 mg/kg	TM089	<0.01	<0.01	<0.01	<0.01		
Aromatics >EC10-EC12	<0.01 mg/kg	TM089	<0.01	<0.01	<0.01	<0.01		
m,p,o-Xylene	<0.01 mg/kg	TM089	<0.01	<0.01	<0.01	<0.01		
BTEX, Total	<0.01 mg/kg	TM089	<0.01	<0.01	<0.01	<0.01		

SDG 101115-88
 Job: H_ENTEC_NWC-18
 Client Reference: 29060
 Location: Contract Chemicals

Customer: Entec UK Ltd
 Attention: Jim Eardley
 Order No.: 231202
 Report No.: 104951

VOC MS (S)

Results Legend		Customer Sample Ref.	HDP 4		HDP 4		HDP 5		HDP 5	
#	M		0.10	0.70	0.10	0.50	0.10	0.50	0.10	0.50
ISO17025 accredited.			Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid
mCERTS accredited.			15/11/2010	15/11/2010	15/11/2010	15/11/2010	15/11/2010	15/11/2010	15/11/2010	15/11/2010
Aqueous / filtered sample.			15/11/2010	15/11/2010	15/11/2010	15/11/2010	15/11/2010	15/11/2010	15/11/2010	15/11/2010
Dissolved / filtered sample.			101115-88	101115-88	101115-88	101115-88	101115-88	101115-88	101115-88	101115-88
Total / unfiltered sample.			2405994	2406012	2406029	2406044	2406029	2406044	2406029	2406044
subcontracted test.										
% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.										
Component	LOD/Units	Method	HDP 4		HDP 4		HDP 5		HDP 5	
Dibromofluoromethane**	%	TM116	110		108		99.7		108	
Toluene-d8**	%	TM116	103		105		102		105	
4-Bromofluorobenzene**	%	TM116	109		96		114		99.9	
Dichlorodifluoromethane	<0.004 mg/kg	TM116	<0.004	M	<0.004	M	<0.004	M	<0.004	M
Chloromethane	<0.007 mg/kg	TM116	<0.007	#	<0.007	#	<0.007	#	<0.007	#
Vinyl Chloride	<0.01 mg/kg	TM116	<0.01	#	<0.01	#	<0.01	#	<0.01	#
Bromomethane	<0.013 mg/kg	TM116	<0.013	M	<0.013	M	<0.013	M	<0.013	M
Chloroethane	<0.014 mg/kg	TM116	<0.014	M	<0.014	M	<0.014	M	<0.014	M
Trichlorofluoromethane	<0.006 mg/kg	TM116	<0.006	M	<0.006	M	<0.006	M	<0.006	M
1,1-Dichloroethene	<0.01 mg/kg	TM116	<0.01	#	<0.01	#	<0.01	#	<0.01	#
Carbon Disulphide	<0.007 mg/kg	TM116	<0.007	M	<0.007	M	<0.007	M	<0.007	M
Dichloromethane	<0.01 mg/kg	TM116	<0.01	#	<0.01	#	<0.01	#	<0.01	#
Methyl Tertiary Butyl Ether	<0.011 mg/kg	TM116	<0.011	M	<0.011	M	<0.011	M	<0.011	M
trans-1,2-Dichloroethene	<0.011 mg/kg	TM116	<0.011	M	<0.011	M	<0.011	M	<0.011	M
1,1-Dichloroethane	<0.008 mg/kg	TM116	<0.008	M	<0.008	M	<0.008	M	<0.008	M
cis-1,2-Dichloroethene	<0.005 mg/kg	TM116	<0.005	M	<0.005	M	<0.005	M	<0.005	M
2,2-Dichloropropane	<0.012 mg/kg	TM116	<0.012	M	<0.012	M	<0.012	M	<0.012	M
Bromochloromethane	<0.014 mg/kg	TM116	<0.014	M	<0.014	M	<0.014	M	<0.014	M
Chloroform	<0.008 mg/kg	TM116	<0.008	M	<0.008	M	<0.008	M	<0.008	M
1,1,1-Trichloroethane	<0.007 mg/kg	TM116	<0.007	M	<0.007	M	<0.007	M	<0.007	M
1,1-Dichloropropene	<0.011 mg/kg	TM116	<0.011	M	<0.011	M	<0.011	M	<0.011	M
Carbontetrachloride	<0.014 mg/kg	TM116	<0.014	M	<0.014	M	<0.014	M	<0.014	M
1,2-Dichloroethane	<0.005 mg/kg	TM116	<0.005	M	<0.005	M	<0.005	M	<0.005	M
Benzene	<0.009 mg/kg	TM116	0.0103	M	<0.009	M	<0.009	M	<0.009	M
Trichloroethene	<0.009 mg/kg	TM116	<0.009	M	<0.009	M	<0.009	M	<0.009	M
1,2-Dichloropropane	<0.012 mg/kg	TM116	<0.012	M	<0.012	M	<0.012	M	<0.012	M
Dibromomethane	<0.009 mg/kg	TM116	<0.009	M	<0.009	M	<0.009	M	<0.009	M
Bromodichloromethane	<0.007 mg/kg	TM116	<0.007	M	<0.007	M	<0.007	M	<0.007	M
cis-1,3-Dichloropropene	<0.014 mg/kg	TM116	<0.014	M	<0.014	M	<0.014	M	<0.014	M
Toluene	<0.005 mg/kg	TM116	0.0106	M	<0.005	M	<0.005	M	<0.005	M
trans-1,3-Dichloropropene	<0.014 mg/kg	TM116	<0.014	M	<0.014	M	<0.014	M	<0.014	M
1,1,2-Trichloroethane	<0.01 mg/kg	TM116	<0.01	M	<0.01	M	<0.01	M	<0.01	M
1,3-Dichloropropane	<0.007 mg/kg	TM116	<0.007	#	<0.007	#	<0.007	#	<0.007	#
Tetrachloroethene	<0.005 mg/kg	TM116	<0.005	M	<0.005	M	<0.005	M	<0.005	M
Dibromochloromethane	<0.013 mg/kg	TM116	<0.013	M	<0.013	M	<0.013	M	<0.013	M
1,2-Dibromoethane	<0.012 mg/kg	TM116	<0.012	M	<0.012	M	<0.012	M	<0.012	M
Chlorobenzene	<0.005 mg/kg	TM116	<0.005	M	<0.005	M	<0.005	M	<0.005	M
1,1,1,2-Tetrachloroethane	<0.01 mg/kg	TM116	<0.01	M	<0.01	M	<0.01	M	<0.01	M
Ethylbenzene	<0.004 mg/kg	TM116	<0.004	M	<0.004	M	<0.004	M	<0.004	M

Validated

ALcontrol Laboratories Analytical Services

SDG 101115-88
 Job: H_ENTEC_NWC-18
 Client Reference: 29060
 Location: Contract Chemicals

Customer: Entec UK Ltd
 Attention: Jim Eardley
 Order No.: 231202
 Report No: 104951

VOC MS (S)

Results Legend		Customer Sample Ref.	HDP 4		HDP 4		HDP 5		HDP 5	
#	ISO17025 accredited.		0.10	0.70	0.10	0.70	0.10	0.70	0.10	0.70
M	mCERTS accredited.	Depth (m)	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid
eq	Aqueous / settled sample.	Sample Type	15/11/2010	15/11/2010	15/11/2010	15/11/2010	15/11/2010	15/11/2010	15/11/2010	15/11/2010
dis filt	Dissolved / filtered sample.	Date Sampled	15/11/2010	15/11/2010	15/11/2010	15/11/2010	15/11/2010	15/11/2010	15/11/2010	15/11/2010
tot unfilt	Total / unfiltered sample.	Date Received	101115-88	101115-88	101115-88	101115-88	101115-88	101115-88	101115-88	101115-88
*	subcontracted test.	SDG Ref	2405994	2406012	2406029	2406044				
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.	Lab Sample No.(s)								
		AGS Reference								
Component	LOD/Units	Method	HDP 4		HDP 4		HDP 5		HDP 5	
p/m-Xylene	<0.014 mg/kg	TM116	<0.014	#	<0.014	#	<0.014	#	<0.014	#
o-Xylene	<0.01 mg/kg	TM116	<0.01	M	<0.01	M	<0.01	M	<0.01	M
Styrene	<0.01 mg/kg	TM116	<0.01	M	<0.01	M	<0.01	M	<0.01	M
Bromoform	<0.01 mg/kg	TM116	<0.01	M	<0.01	M	<0.01	M	<0.01	M
Isopropylbenzene	<0.005 mg/kg	TM116	<0.005	M	<0.005	M	<0.005	M	<0.005	M
1,1,2,2-Tetrachloroethane	<0.01 mg/kg	TM116	<0.01	#	<0.01	#	<0.01	#	<0.01	#
1,2,3-Trichloropropane	<0.017 mg/kg	TM116	<0.017	M	<0.017	M	<0.017	M	<0.017	M
Bromobenzene	<0.01 mg/kg	TM116	<0.01	M	<0.01	M	<0.01	M	<0.01	M
Propylbenzene	<0.011 mg/kg	TM116	<0.011	M	<0.011	M	<0.011	M	<0.011	M
2-Chlorotoluene	<0.009 mg/kg	TM116	<0.009	M	<0.009	M	<0.009	M	<0.009	M
1,3,5-Trimethylbenzene	<0.008 mg/kg	TM116	<0.008	#	<0.008	#	<0.008	#	<0.008	#
4-Chlorotoluene	<0.012 mg/kg	TM116	<0.012	M	<0.012	M	<0.012	M	<0.012	M
tert-Butylbenzene	<0.012 mg/kg	TM116	<0.012	#	<0.012	#	<0.012	#	<0.012	#
1,2,4-Trimethylbenzene	<0.009 mg/kg	TM116	<0.009	#	<0.009	#	<0.009	#	<0.009	#
sec-Butylbenzene	<0.01 mg/kg	TM116	<0.01	M	<0.01	M	<0.01	M	<0.01	M
4-Isopropyltoluene	<0.011 mg/kg	TM116	<0.011	M	<0.011	M	<0.011	M	<0.011	M
1,3-Dichlorobenzene	<0.006 mg/kg	TM116	<0.006	M	<0.006	M	<0.006	M	<0.006	M
1,4-Dichlorobenzene	<0.005 mg/kg	TM116	<0.005	M	<0.005	M	<0.005	M	<0.005	M
n-Butylbenzene	<0.01 mg/kg	TM116	<0.01	M	<0.01	M	<0.01	M	<0.01	M
1,2-Dichlorobenzene	<0.012 mg/kg	TM116	<0.012	M	<0.012	M	<0.012	M	<0.012	M
1,2-Dibromo-3-chloropropane	<0.014 mg/kg	TM116	<0.014	M	<0.014	M	<0.014	M	<0.014	M
Tert-amyl methyl ether	<0.015 mg/kg	TM116	<0.015		<0.015		<0.015		<0.015	
1,2,4-Trichlorobenzene	<0.006 mg/kg	TM116	<0.006	#	<0.006	#	<0.006	#	<0.006	#
Hexachlorobutadiene	<0.012 mg/kg	TM116	<0.012		<0.012		<0.012		<0.012	
Naphthalene	<0.013 mg/kg	TM116	<0.013	M	<0.013	M	<0.013	M	<0.013	M
1,2,3-Trichlorobenzene	<0.006 mg/kg	TM116	<0.006	M	<0.006	M	<0.006	M	<0.006	M
VOC TIC	-	TM116	See Attached		See Attached		No TIC's identified		No TIC's identified	

Validated

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ASSOCIATED AQC DATA**Anions by Kone (soil)**

Component	Method Code	QC 21	QC 24	QC 28
Chloride (soluble)	TM243	108.32 64.05 : 143.91	100.46 78.07 : 121.93	93.64 78.07 : 121.93
Water Soluble Sulphate as SO4 2:1 Extract	TM243	101.33 89.98 : 116.12	100.86 85.87 : 114.13	101.44 85.87 : 114.13

Anions by Kone (w)

Component	Method Code	QC 21
Chloride	TM184	97.30 92.01 : 104.18
Nitrite as NO2	TM184	100.10 92.92 : 105.47
Phosphate (Ortho as PO4)	TM184	105.08 95.51 : 106.92
Sulphate (soluble)	TM184	102.20 95.09 : 105.03
TON as NO3	TM184	99.25 93.27 : 107.89

Dissolved Metals by ICP-MS

Component	Method Code	QC 24
Aluminium	TM152	93.48 85.00 : 115.00
Antimony	TM152	91.03 85.00 : 115.00
Arsenic	TM152	95.19 85.00 : 115.00
Barium	TM152	95.73 85.00 : 115.00
Beryllium	TM152	96.03 85.00 : 115.00
Bismuth	TM152	94.52 85.00 : 115.00
Boron	TM152	95.68 85.00 : 115.00
Cadmium	TM152	93.48 85.00 : 115.00
Chromium	TM152	93.89 85.00 : 115.00
Cobalt	TM152	91.83 85.00 : 115.00
Copper	TM152	93.08 85.00 : 115.00
Lead	TM152	97.44 85.00 : 115.00
Lithium	TM152	99.64 85.00 : 115.00
Manganese	TM152	93.11 85.00 : 115.00

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		QC 24
Molybdenum	TM152	87.48 85.00 : 115.00
Nickel	TM152	92.05 85.00 : 115.00
Phosphorus	TM152	95.19 85.00 : 115.00
Selenium	TM152	96.12 85.00 : 115.00
Silver	TM152	94.61 85.00 : 115.00
Strontium	TM152	96.87 85.00 : 115.00
Tellurium	TM152	96.65 85.00 : 115.00
Thallium	TM152	96.85 85.00 : 115.00
Tin	TM152	96.00 85.00 : 115.00
Titanium	TM152	96.16 85.00 : 115.00
Uranium	TM152	98.89 85.00 : 115.00
Vanadium	TM152	96.77 85.00 : 115.00
Zinc	TM152	95.85 85.00 : 115.00

EPH CWG (Aliphatic) Aqueous GC (W)

Component	Method Code	QC 26
Total Aliphatics >C12-C35	TM174	87.42 77.43 : 102.04

EPH CWG (Aliphatic) GC (S)

Component	Method Code	QC 28	QC 27	QC 26	QC 24
Total Aliphatics >C12-C35	TM173	82.55 60.21 : 118.96	83.16 55.20 : 114.58	79.10 69.20 : 106.61	86.47 69.20 : 106.61

EPH CWG (Aromatic) Aqueous GC (W)

Component	Method Code	QC 20
Total Aromatics >EC12-EC35	TM174	87.61 70.83 : 112.31

EPH CWG (Aromatic) GC (S)

Validated

ALcontrol Laboratories Analytical Services

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Component	Method Code	QC 28	QC 27	QC 26	QC 24
Total Aromatics >EC12-EC35	TM173	105.43 63.33 : 135.33	110.81 54.00 : 123.00	103.68 66.16 : 121.82	106.00 66.16 : 121.82

Hexavalent Chromium (s)

Component	Method Code	QC 21	QC 21	QC 27
Hexavalent Chromium	TM151	100.20 92.03 : 118.13	102.00 92.03 : 118.13	99.60 92.03 : 118.13

Hexavalent Chromium (w)

Component	Method Code	QC 29
Hexavalent Chromium	TM241	97.80 92.14 : 111.57

Mercury Dissolved

Component	Method Code	QC 20
Mercury Dissolved (CVAF)	TM183	91.60 79.41 : 116.68

Metals by iCap-OES (Soil)

Component	Method Code	QC 24	QC 27	QC 27	QC 20
Aluminium	TM181	102.56 90.12 : 126.07	113.27 90.12 : 126.07	109.96 90.12 : 126.07	112.50 94.29 : 126.83
Antimony	TM181	115.91 63.92 : 138.56	120.02 63.92 : 138.56	119.20 63.92 : 138.56	119.20 94.61 : 132.06
Arsenic	TM181	101.29 77.96 : 122.04	109.56 77.96 : 122.04	107.67 77.96 : 122.04	106.03 93.69 : 117.92
Barium	TM181	96.83 90.49 : 117.24	98.87 90.49 : 117.24	106.41 90.49 : 117.24	104.16 92.15 : 121.48
Beryllium	TM181	108.17 81.31 : 128.52	115.15 81.31 : 128.52	112.95 81.31 : 128.52	112.49 101.04 : 118.96
Boron	TM181	101.61 68.78 : 139.11	120.68 68.78 : 139.11	109.76 68.78 : 139.11	115.67 71.45 : 144.21
Cadmium	TM181	113.27 77.70 : 122.81	114.29 77.70 : 122.81	114.69 77.70 : 122.81	108.78 99.69 : 120.31
Chromium	TM181	95.52 82.90 : 117.10	103.29 82.90 : 117.10	100.57 82.90 : 117.10	102.15 86.66 : 111.67
Cobalt	TM181	104.26 78.26 : 121.74	108.35 78.26 : 121.74	105.68 78.26 : 121.74	107.82 91.65 : 115.98
Copper	TM181	94.90 86.52 : 113.48	98.98 86.52 : 113.48	99.00 86.52 : 113.48	100.49 90.86 : 109.48
Iron	TM181	100.96 92.49 : 115.39	105.13 92.49 : 115.39	105.40 92.49 : 115.39	107.21 93.15 : 116.30
Lead	TM181	101.94 81.22 : 118.78	103.72 81.22 : 118.78	95.73 81.22 : 118.78	101.89 81.17 : 121.35

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		QC 24	QC 27	QC 27	QC 20
Manganese	TM181	92.68 88.05 : 106.67	96.45 88.05 : 106.67	96.75 88.05 : 106.67	98.10 88.94 : 103.43
Mercury	TM181	114.41 86.66 : 128.64	115.47 86.66 : 128.64	115.11 86.66 : 128.64	115.47 96.85 : 124.11
Molybdenum	TM181	112.19 71.12 : 128.88	120.94 71.12 : 128.88	115.00 71.12 : 128.88	117.50 89.51 : 130.51
Nickel	TM181	99.85 81.27 : 118.73	104.96 81.27 : 118.73	104.96 81.27 : 118.73	105.11 83.34 : 114.35
Phosphorus	TM181	96.29 84.04 : 115.96	99.58 84.04 : 115.96	101.22 84.04 : 115.96	101.37 91.19 : 109.84
Selenium	TM181	108.37 72.61 : 127.39	114.92 72.61 : 127.39	113.71 72.61 : 127.39	116.13 100.15 : 123.30
Strontium	TM181	97.44 80.21 : 119.79	104.05 80.21 : 119.79	100.48 80.21 : 119.79	102.46 89.82 : 110.49
Thallium	TM181	104.00 73.04 : 126.96	107.39 73.04 : 126.96	104.89 73.04 : 126.96	105.41 78.98 : 119.09
Tin	TM181	113.63 71.55 : 128.45	117.75 71.55 : 128.45	115.16 71.55 : 128.45	120.54 103.84 : 124.11
Titanium	TM181	87.38 78.26 : 121.74	98.58 78.26 : 121.74	94.89 78.26 : 121.74	99.58 78.57 : 125.05
Vanadium	TM181	97.54 82.03 : 117.97	104.37 82.03 : 117.97	100.66 82.03 : 117.97	103.28 91.61 : 110.18
Zinc	TM181	93.75 83.18 : 100.43	97.11 83.18 : 100.43	94.00 83.18 : 100.43	98.14 83.65 : 103.15

pH

Component	Method Code	QC 26	QC 20	QC 20	QC 27
pH	TM133	101.00 99.26 : 101.75	100.88 99.26 : 101.75	100.88 99.26 : 101.75	100.50 99.26 : 101.75

pH Value

Component	Method Code	QC 27
pH	TM256	99.43 90.96 : 108.19

Semi Volatile Organic Compounds

Component	Method Code	QC 29	QC 27	QC 22
4-Bromophenylphenylether (Soil)	TM157	88.75 74.30 : 113.57	80.29 61.72 : 116.07	104.50 74.30 : 113.57
Benzo(a)anthracene (Soil)	TM157	84.49 70.77 : 125.72	78.66 60.41 : 125.98	98.35 70.77 : 125.72
Hexachlorobutadiene (Soil)	TM157	89.68 78.65 : 110.23	83.50 66.69 : 115.46	105.43 78.65 : 110.23
Naphthalene (Soil)	TM157	87.38 78.64 : 113.48	82.50 66.96 : 117.88	101.25 78.64 : 113.48
Nitrobenzene (Soil)	TM157	90.12 76.14 : 111.47	85.43 67.54 : 113.96	105.11 76.14 : 111.47
Phenol (Soil)	TM157	87.02 76.77 : 113.80	78.75 28.59 : 134.35	99.63 76.77 : 113.80

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SVOC MS (W) - Aqueous

Component	Method Code	QC 24
4-Bromophenylphenylether	TM176	81.71 74.07 : 108.33
Benzo(a)anthracene	TM176	78.61 64.51 : 105.49
Benzo(a)pyrene	TM176	70.51 53.03 : 98.81
Butylbenzyl phthalate	TM176	83.54 63.86 : 115.28
Hexachlorobutadiene	TM176	64.20 45.86 : 100.88
Naphthalene	TM176	80.23 75.05 : 106.07
Nitrobenzene	TM176	75.96 69.60 : 106.80
Phenol	TM176	52.64 45.42 : 71.52

Total Organic Carbon

Component	Method Code	QC 27	QC 28
Total Organic Carbon	TM132	99.29 88.75 : 104.70	93.09 88.75 : 104.70

VOC MS (S)

Component	Method Code	QC 20	QC 23
1,1,1,2-tetrachloroethane	TM116	104.02 67.13 : 142.65	101.15 67.13 : 142.65
1,1,1-Trichloroethane	TM116	101.98 65.91 : 140.05	94.29 65.91 : 140.05
1,1,2-Trichloroethane	TM116	112.67 74.80 : 158.96	110.71 74.80 : 158.96
1,1-Dichloroethane	TM116	101.52 69.50 : 147.71	96.57 69.50 : 147.71
1,2-Dichloroethane	TM116	109.51 72.54 : 154.14	100.39 72.54 : 154.14
1,4-Dichlorobenzene	TM116	109.55 71.88 : 152.75	98.33 71.88 : 152.75
2-Chlorotoluene	TM116	132.53 85.48 : 181.65	118.17 85.48 : 181.65
4-Chlorotoluene	TM116	126.84 83.61 : 177.68	117.47 83.61 : 177.68
Benzene	TM116	104.01 68.68 : 145.95	99.25 68.68 : 145.95
Carbon Disulphide	TM116	87.34 62.91 : 133.68	80.04 62.91 : 133.68
Carbon tetrachloride	TM116	105.28 72.85 : 154.80	96.52 72.85 : 154.80
Chlorobenzene	TM116	108.89 68.63 : 145.84	100.09 68.63 : 145.84
Chloroform	TM116	105.83 69.66 : 148.03	96.62 69.66 : 148.03

Validated

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		QC 20	QC 23
Chloromethane	TM116	89.61 75.93 : 161.35	94.20 75.93 : 161.35
Cis-1,2-Dichloroethene	TM116	96.04 64.50 : 137.05	92.08 64.50 : 137.05
Dibromomethane	TM116	89.59 65.13 : 138.40	101.45 65.13 : 138.40
Dichloromethane	TM116	100.42 70.67 : 150.15	96.01 70.67 : 150.15
Ethylbenzene	TM116	105.69 66.97 : 142.30	98.02 66.97 : 142.30
Hexachlorobutadiene	TM116	152.06 57.99 : 152.88	83.93 57.99 : 152.88
Isopropylbenzene	TM116	96.17 58.08 : 123.43	84.99 58.08 : 123.43
Naphthalene	TM116	110.27 74.41 : 158.12	106.41 74.41 : 158.12
o-Xylene	TM116	99.87 64.13 : 136.27	96.57 64.13 : 136.27
p/m-Xylene	TM116	107.81 66.95 : 142.28	98.13 66.95 : 142.28
Sec-Butylbenzene	TM116	109.34 65.24 : 138.64	76.39 65.24 : 138.64
Tetrachloroethene	TM116	112.02 71.55 : 152.05	109.07 71.55 : 152.05
Toluene	TM116	105.48 65.92 : 140.08	97.41 65.92 : 140.08
Trichloroethene	TM116	104.66 67.45 : 143.34	96.78 67.45 : 143.34
Trichlorofluoromethane	TM116	100.41 61.94 : 131.64	89.75 61.94 : 131.64
Vinyl Chloride	TM116	94.96 66.45 : 141.20	86.64 66.45 : 141.20

The above information details the reference name of the analytical quality control sample (AQC) that has been run with the samples contained in this report for the different methods of analysis.

The figure detailed is the percentage recovery result for the AQC.

The subscript numbers below are the percentage recovery lower control limit (LCL) and the upper control limit (UCL). The percentage recovery result for the AQC should be between these limits to be statistically in control.

CEN 10:1 STAGE BATCH TEST

WAC ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference

Mass Sample taken (kg) 0.107

Mass of dry sample (kg) 0.175

Particle Size <4mm >95%

Site Location

Moisture Content Ratio (%) 19.1

Dry Matter Content Ratio (%) 84.0

Contract Chemicals

Case

SDG 101115-88

Lab Sample Number(s) 2405930

Sampled Date 15-Nov-2010

Customer Sample Ref. HDP 2 / Leach

Depth (m) 0.10

Solid Waste Analysis

Result

Total Organic Carbon (%) -

Loss on Ignition (%) -

Sum of BTEX (mg/kg) -

Sum of 7 PCBs (mg/kg) -

Mineral Oil (mg/kg) -

PAH Sum of 17 (mg/kg) -

pH (pH Units) -

ANC to pH 6 (mol/kg) -

ANC to pH 4 (mol/kg) -

Eluate Analysis

C2

Concⁿ in 10:1 eluate (mg/l)

A2

10:1 concⁿ leached (mg/kg)Limit values for compliance leaching test
using BS EN 12457-3 at L/S 10 l/kg

Result

Limit of Detection

Result

Limit of Detection

Arsenic	0.0322	<0.00012	0.322	<0.0012	-	-	-
Barium	-	-	-	-	-	-	-
Cadmium	<0.0001	<0.0001	<0.001	<0.001	-	-	-
Chromium	0.00174	<0.00022	0.0174	<0.0022	-	-	-
Copper	0.00653	<0.00085	0.0653	<0.0085	-	-	-
Mercury Dissolved (CVAf)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Molybdenum	-	-	-	-	-	-	-
Nickel	0.00245	<0.00015	0.0245	<0.0015	-	-	-
Lead	0.0011	<0.00002	0.011	<0.0002	-	-	-
Antimony	-	-	-	-	-	-	-
Selenium	0.112	<0.00039	1.12	<0.0039	-	-	-
Zinc	0.00278	<0.00041	0.0278	<0.0041	-	-	-
Chloride	-	-	-	-	-	-	-
Fluoride	-	-	-	-	-	-	-
Sulphate (soluble)	41.6	<3	416	<30	-	-	-
Total Dissolved Solids	-	-	-	-	-	-	-
Total Monohydric Phenols (W)	-	-	-	-	-	-	-
Dissolved Organic Carbon	-	-	-	-	-	-	-

Leach Test Information

Date Prepared 16-Nov-2010

pH (pH Units) 8.08

Conductivity (µS/cm) 281.00

Temperature (°C) 19.90

Volume Leachant (Litres) 0.883

Volume of Eluate VE1 (Litres)

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable

Stated limits are for guidance only and ALcontrol cannot be held responsible for any discrepancies with current legislation

Mccerts Certification does not apply to leachates

26/11/2010 15:08:40

WAC ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference

Mass Sample taken (kg) 0.107
 Mass of dry sample (kg) 0.175
 Particle Size <4mm >95%

Site Location

Moisture Content Ratio (%)
 Dry Matter Content Ratio (%)

Contract Chemicals

19.1
 84.0

Case

SDG 101115-88
 Lab Sample Number(s) 2405930
 Sampled Date 15-Nov-2010
 Customer Sample Ref. HDP 2 / Leach
 Depth (m) 0.10

Solid Waste Analysis

Result

Total Organic Carbon (%)
 Loss on Ignition (%)
 Sum of BTEX (mg/kg)
 Sum of 7 PCBs (mg/kg)
 Mineral Oil (mg/kg)
 PAH Sum of 17 (mg/kg)
 pH (pH Units)
 ANC to pH 6 (mol/kg)
 ANC to pH 4 (mol/kg)

Eluate Analysis

C₂Concⁿ in 10:1 eluate (mg/l)A₂10:1 concⁿ leached (mg/kg)Limit values for compliance leaching test
using BS EN 12457-3 at L/S 10 l/kg

	Result	Limit of Detection	Result	Limit of Detection	
1,1,1,2-Tetrachloroethane	<0.0013	<0.0013	<0.013	<0.013	-
1,1,1-Trichloroethane	<0.0013	<0.0013	<0.013	<0.013	-
1,1,2,2-Tetrachloroethane	<0.0052	<0.0052	<0.052	<0.052	-
1,1,2-Trichloroethane	<0.0022	<0.0022	<0.022	<0.022	-
1,1-Dichloroethane	<0.0012	<0.0012	<0.012	<0.012	-
1,1-Dichloroethene	<0.0012	<0.0012	<0.012	<0.012	-
1,1-Dichloropropene	<0.0013	<0.0013	<0.013	<0.013	-
1,2,3-Trichlorobenzene	<0.0031	<0.0031	<0.031	<0.031	-
1,2,3-Trichloropropane	<0.0078	<0.0078	<0.078	<0.078	-
1,2,4-Trichlorobenzene	<0.0023	<0.0023	<0.023	<0.023	-
1,2,4-Trimethylbenzene	<0.0017	<0.0017	<0.017	<0.017	-
1,2-Dibromo-3-Chloropropane	<0.0098	<0.0098	<0.098	<0.098	-
1,2-Dibromoethane	<0.0023	<0.0023	<0.023	<0.023	-
1,2-Dichlorobenzene	0.0694	<0.0037	0.694	<0.037	-
1,2-Dichloroethane	<0.0033	<0.0033	<0.033	<0.033	-
1,2-Dichloropropane	<0.003	<0.003	<0.03	<0.03	-
1,3,5-Trichlorobenzene	<0.01	<0.01	<0.1	<0.1	-
1,3,5-Trimethylbenzene	<0.0018	<0.0018	<0.018	<0.018	-
1,3-Dichlorobenzene	<0.0022	<0.0022	<0.022	<0.022	-
1,3-Dichloropropane	<0.0022	<0.0022	<0.022	<0.022	-
1,4-Dichlorobenzene	<0.0027	<0.0027	<0.027	<0.027	-
2,2-Dichloropropane	<0.0038	<0.0038	<0.038	<0.038	-
2,4,5-Trichlorophenol	<0.001	<0.001	<0.01	<0.01	-
2,4,6-Trichlorophenol	<0.001	<0.001	<0.01	<0.01	-
2,4-Dichlorophenol	<0.001	<0.001	<0.01	<0.01	-
2,4-Dimethylphenol	<0.001	<0.001	<0.01	<0.01	-
2,4-Dinitrotoluene	<0.001	<0.001	<0.01	<0.01	-
2,6-Dinitrotoluene	<0.001	<0.001	<0.01	<0.01	-
2-Butanone	<0.1	<0.1	<1	<1	-

Leach Test Information

Date Prepared 16-Nov-2010
 pH (pH Units) 8.08
 Conductivity (µS/cm) 281.00
 Temperature (°C) 19.90
 Volume Leachant (Litres) 0.883
 Volume of Eluate VE1 (Litres)

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 26/11/2010 15:08:40

CEN 10:1 STAGE BATCH TEST

WAC ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference

Mass Sample taken (kg) 0.107

Mass of dry sample (kg) 0.175

Particle Size <4mm >95%

Site Location

Moisture Content Ratio (%)

Dry Matter Content Ratio (%)

Contract Chemicals

19.1

84.0

Case

SDG 101115-88

Lab Sample Number(s) 2405930

Sampled Date 15-Nov-2010

Customer Sample Ref. HDP 2 / Leach

Depth (m) 0.10

Solid Waste Analysis

Result

Total Organic Carbon (%)

Loss on Ignition (%)

Sum of BTEX (mg/kg)

Sum of 7 PCBs (mg/kg)

Mineral Oil (mg/kg)

PAH Sum of 17 (mg/kg)

pH (pH Units)

ANC to pH 6 (mol/kg)

ANC to pH 4 (mol/kg)

Eluate Analysis

C₂Concⁿ in 10:1 eluate (mg/l)A₂10:1 concⁿ leached (mg/kg)Limit values for compliance leaching test
using BS EN 12457-3 at L/S 10 l/kg

	Result	Limit of Detection	Result	Limit of Detection	
2-Chloronaphthalene	<0.001	<0.001	<0.01	<0.01	-
2-Chlorophenol	<0.001	<0.001	<0.01	<0.01	-
2-Chlorotoluene	<0.0019	<0.0019	<0.019	<0.019	-
2-Methylnaphthalene	<0.001	<0.001	<0.01	<0.01	-
2-Methylphenol	<0.001	<0.001	<0.01	<0.01	-
2-Nitroaniline	<0.001	<0.001	<0.01	<0.01	-
2-Nitrophenol	<0.001	<0.001	<0.01	<0.01	-
3-Nitroaniline	<0.001	<0.001	<0.01	<0.01	-
4-Bromofluorobenzene	-	<0	-	<0	-
4-Bromophenylphenylether	<0.001	<0.001	<0.01	<0.01	-
4-Chloro-3-methylphenol	<0.001	<0.001	<0.01	<0.01	-
4-Chloroaniline	<0.001	<0.001	<0.01	<0.01	-
4-Chlorophenylphenylether	<0.001	<0.001	<0.01	<0.01	-
4-Chlorotoluene	<0.0019	<0.0019	<0.019	<0.019	-
4-Isopropyltoluene	<0.0026	<0.0026	<0.026	<0.026	-
4-Methylphenol	<0.001	<0.001	<0.01	<0.01	-
4-Nitroaniline	<0.001	<0.001	<0.01	<0.01	-
4-Nitrophenol	<0.001	<0.001	<0.01	<0.01	-
Acenaphthene	<0.001	<0.001	<0.01	<0.01	-
Acenaphthylene	<0.001	<0.001	<0.01	<0.01	-
Acetone	<0.1	<0.1	<1	<1	-
Aliphatics >C10-C12	0.051	<0.01	0.51	<0.1	-
Aliphatics >C12-C16	<0.01	<0.01	<0.1	<0.1	-
Aliphatics >C16-C21	<0.01	<0.01	<0.1	<0.1	-
Aliphatics >C21-C35	<0.01	<0.01	<0.1	<0.1	-
Aliphatics >C6-C8	0.047	<0.01	0.47	<0.1	-
Aliphatics >C8-C10	0.013	<0.01	0.13	<0.1	-
Aliphatics C5-C6	<0.01	<0.01	<0.1	<0.1	-
Anthracene	<0.001	<0.001	<0.01	<0.01	-

Leach Test Information

Date Prepared	16-Nov-2010
pH (pH Units)	8.08
Conductivity (µS/cm)	281.00
Temperature (°C)	19.90
Volume Leachant (Litres)	0.883
Volume of Eluate VE1 (Litres)	

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CEN 10:1 STAGE BATCH TEST

WAC ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		Site Location	Contract Chemicals
Mass Sample taken (kg)	0.107	Moisture Content Ratio (%)	19.1
Mass of dry sample (kg)	0.175	Dry Matter Content Ratio (%)	84.0
Particle Size <4mm	>95%		

Case			
SDG	101115-88		
Lab Sample Number(s)	2405930		
Sampled Date	15-Nov-2010		
Customer Sample Ref.	HDP 2 / Leach		
Depth (m)	0.10		
Solid Waste Analysis	Result		
Total Organic Carbon (%)	-	-	-
Loss on Ignition (%)	-	-	-
Sum of BTEX (mg/kg)	-	-	-
Sum of 7 PCBs (mg/kg)	-	-	-
Mineral Oil (mg/kg)	-	-	-
PAH Sum of 17 (mg/kg)	-	-	-
pH (pH Units)	-	-	-
ANC to pH 6 (mol/kg)	-	-	-
ANC to pH 4 (mol/kg)	-	-	-

Eluate Analysis	C2 Conc ⁿ in 10:1 eluate (mg/l)		A2 10:1 conc ⁿ leached (mg/kg)		Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg
	Result	Limit of Detection	Result	Limit of Detection	
Aromatics >C7-C8	<0.01	<0.01	<0.1	<0.1	-
Aromatics >EC10-EC12	0.034	<0.01	0.34	<0.1	-
Aromatics >EC12-EC16	<0.01	<0.01	<0.1	<0.1	-
Aromatics >EC16-EC21	0.013	<0.01	0.13	<0.1	-
Aromatics >EC21-EC35	<0.01	<0.01	<0.1	<0.1	-
Aromatics >EC8-EC10	<0.01	<0.01	<0.1	<0.1	-
Aromatics C6-C7	<0.01	<0.01	<0.1	<0.1	-
Azobenzene	<0.001	<0.001	<0.01	<0.01	-
Benzene	<0.0013	<0.0013	<0.013	<0.013	-
Benzene by GC	<0.007	<0.007	<0.07	<0.07	-
Benzo(a)anthracene	<0.001	<0.001	<0.01	<0.01	-
Benzo(a)pyrene	<0.001	<0.001	<0.01	<0.01	-
Benzo(b)fluoranthene	<0.001	<0.001	<0.01	<0.01	-
Benzo(ghi)perylene	<0.001	<0.001	<0.01	<0.01	-
Benzo(k)fluoranthene	<0.001	<0.001	<0.01	<0.01	-
Bis(2-chloroethoxy)methane	<0.001	<0.001	<0.01	<0.01	-
Bis(2-chloroethyl)ether	<0.001	<0.001	<0.01	<0.01	-
Bis(2-ethylhexyl) phthalate	<0.002	<0.002	<0.02	<0.02	-
Bromobenzene	<0.002	<0.002	<0.02	<0.02	-
Bromochloromethane	<0.0019	<0.0019	<0.019	<0.019	-
Bromodichloromethane	<0.0009	<0.0009	<0.009	<0.009	-
Bromoform	<0.003	<0.003	<0.03	<0.03	-
Bromomethane	<0.002	<0.002	<0.02	<0.02	-
Butylbenzyl phthalate	<0.001	<0.001	<0.01	<0.01	-
Carbazole	<0.001	<0.001	<0.01	<0.01	-
Carbon Disulphide	<0.0013	<0.0013	<0.013	<0.013	-
Carbontetrachloride	<0.0014	<0.0014	<0.014	<0.014	-
Chlorobenzene	<0.0035	<0.0035	<0.035	<0.035	-
Chloroethane	<0.0025	<0.0025	<0.025	<0.025	-

Leach Test Information

Date Prepared	16-Nov-2010
pH (pH Units)	8.08
Conductivity (µS/cm)	281.00
Temperature (°C)	19.90
Volume Leachant (Litres)	0.883
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WAC ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference

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Site Location

Moisture Content Ratio (%)

Dry Matter Content Ratio (%)

Contract Chemicals

19.1

84.0

Case

SDG 101115-88

Lab Sample Number(s) 2405930

Sampled Date 15-Nov-2010

Customer Sample Ref. HDP 2 / Leach

Depth (m) 0.10

Solid Waste Analysis

Result

Total Organic Carbon (%)

Loss on Ignition (%)

Sum of BTEX (mg/kg)

Sum of 7 PCBs (mg/kg)

Mineral Oil (mg/kg)

PAH Sum of 17 (mg/kg)

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ANC to pH 6 (mol/kg)

ANC to pH 4 (mol/kg)

Eluate Analysis

C₂Concⁿ in 10:1 eluate (mg/l)A₂10:1 concⁿ leached (mg/kg)Limit values for compliance leaching test
using BS EN 12457-3 at L/S 10 l/kg

	Result	Limit of Detection	Result	Limit of Detection	
Chloroform	<0.0018	<0.0018	<0.018	<0.018	-
Chloromethane	<0.009	<0.009	<0.09	<0.09	-
Chromium III	<0.03	<0.03	<0.3	<0.3	-
Chrysene	<0.001	<0.001	<0.01	<0.01	-
Cis-1,2-Dichloroethene	<0.0023	<0.0023	<0.023	<0.023	-
Cis-1,3-Dichloropropene	<0.0019	<0.0019	<0.019	<0.019	-
Dibenzo(a,h)anthracene	<0.001	<0.001	<0.01	<0.01	-
Dibenzofuran	<0.001	<0.001	<0.01	<0.01	-
Dibromochloromethane	<0.0017	<0.0017	<0.017	<0.017	-
Dibromofluoromethane	-	<0	-	<0	-
Dibromomethane	<0.0027	<0.0027	<0.027	<0.027	-
Dichlorodifluoromethane	<0.007	<0.007	<0.07	<0.07	-
Dichloromethane	<0.0037	<0.0037	<0.037	<0.037	-
Diethyl phthalate	<0.001	<0.001	<0.01	<0.01	-
Dimethyl phthalate	<0.001	<0.001	<0.01	<0.01	-
Di-n-butyl phthalate	<0.001	<0.001	<0.01	<0.01	-
Di-n-Octyl phthalate	<0.005	<0.005	<0.05	<0.05	-
Ethanol	<0.1	<0.1	<1	<1	-
Ethyl Acetate	<0.1	<0.1	<1	<1	-
Ethylbenzene	<0.0025	<0.0025	<0.025	<0.025	-
Ethylbenzene by GC	<0.005	<0.005	<0.05	<0.05	-
Fluoranthene	<0.001	<0.001	<0.01	<0.01	-
Fluorene	<0.001	<0.001	<0.01	<0.01	-
GRO TOT (C5-C12)	0.161	<0.05	1.61	<0.5	-
Hexachlorobenzene	<0.001	<0.001	<0.01	<0.01	-
Hexachlorobutadiene	<0.001	<0.001	<0.01	<0.01	-
Hexachlorocyclopentadiene	<0.001	<0.001	<0.01	<0.01	-
Hexachloroethane	<0.001	<0.001	<0.01	<0.01	-
Hexavalent Chromium	<0.03	<0.03	<0.3	<0.3	-

Leach Test Information

Date Prepared 16-Nov-2010

pH (pH Units) 8.08

Conductivity (µS/cm) 281.00

Temperature (°C) 19.90

Volume Leachant (Litres) 0.883

Volume of Eluate VE1 (Litres)

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Case	
SDG	101115-88
Lab Sample Number(s)	2405930
Sampled Date	15-Nov-2010
Customer Sample Ref.	HDP 2 / Leach
Depth (m)	0.10

Solid Waste Analysis	Result			
Total Organic Carbon (%)	-	-	-	-
Loss on Ignition (%)	-	-	-	-
Sum of BTEX (mg/kg)	-	-	-	-
Sum of 7 PCBs (mg/kg)	-	-	-	-
Mineral Oil (mg/kg)	-	-	-	-
PAH Sum of 17 (mg/kg)	-	-	-	-
pH (pH Units)	-	-	-	-
ANC to pH 6 (mol/kg)	-	-	-	-
ANC to pH 4 (mol/kg)	-	-	-	-

Eluate Analysis	C2 Concⁿ in 10:1 eluate (mg/l)		A2 10:1 concⁿ leached (mg/kg)		Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg
	Result	Limit of Detection	Result	Limit of Detection	
Indeno (1,2,3-cd) Pyrene	<0.001	<0.001	<0.01	<0.01	- - -
iso-Butanol	<0.1	<0.1	<1	<1	- - -
Isophorone	<0.001	<0.001	<0.01	<0.01	- - -
iso-Propanol	<0.1	<0.1	<1	<1	- - -
iso-Propyl Acetate	<0.1	<0.1	<1	<1	- - -
Isopropylbenzene	<0.0014	<0.0014	<0.014	<0.014	- - -
m & p Xylene by GC	<0.008	<0.008	<0.08	<0.08	- - -
Methanol	<0.1	<0.1	<1	<1	- - -
Methyl Acetate	<0.1	<0.1	<1	<1	- - -
Methyl-isoButyl-Ketone	<0.1	<0.1	<1	<1	- - -
MTBE GC-FID	<0.003	<0.003	<0.03	<0.03	- - -
Naphthalene	<0.001	<0.001	<0.01	<0.01	- - -
n-Butanol	<0.1	<0.1	<1	<1	- - -
n-Butyl Acetate	<0.1	<0.1	<1	<1	- - -
n-Butylbenzene	<0.002	<0.002	<0.02	<0.02	- - -
n-Heptanol	<0.1	<0.1	<1	<1	- - -
n-Hexanol	<0.1	<0.1	<1	<1	- - -
Nitrobenzene	0.00209	<0.001	0.0209	<0.01	- - -
N-nitrosodi-n-propylamine	<0.001	<0.001	<0.01	<0.01	- - -
n-Pentanol	<0.1	<0.1	<1	<1	- - -
n-Propanol	<0.1	<0.1	<1	<1	- - -
n-Propyl Acetate	<0.1	<0.1	<1	<1	- - -
o Xylene by GC	<0.003	<0.003	<0.03	<0.03	- - -
o-Xylene	<0.0017	<0.0017	<0.017	<0.017	- - -
p/m-Xylene	<0.0025	<0.0025	<0.025	<0.025	- - -
Pentachlorophenol	<0.001	<0.001	<0.01	<0.01	- - -
pH	7.9	<0.001	79	<0.01	- - -
Phenanthrene	<0.001	<0.001	<0.01	<0.01	- - -
Phenol	<0.001	<0.001	<0.01	<0.01	- - -

Leach Test Information

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Dry Matter Content Ratio (%) 84.0

Contract Chemicals

Case

SDG 101115-88

Lab Sample Number(s) 2405930

Sampled Date 15-Nov-2010

Customer Sample Ref. HDP 2 / Leach

Depth (m) 0.10

Solid Waste Analysis

Result

Total Organic Carbon (%) -

Loss on Ignition (%) -

Sum of BTEX (mg/kg) -

Sum of 7 PCBs (mg/kg) -

Mineral Oil (mg/kg) -

PAH Sum of 17 (mg/kg) -

pH (pH Units) -

ANC to pH 6 (mol/kg) -

ANC to pH 4 (mol/kg) -

Eluate Analysis

C₂

Concⁿ in 10:1 eluate (mg/l)

A₂

10:1 concⁿ leached (mg/kg)

Limit values for compliance leaching test
using BS EN 12457-3 at L/S 10 l/kg

	Result	Limit of Detection	Result	Limit of Detection	
Propylbenzene	<0.0026	<0.0026	<0.026	<0.026	-
Pyrene	<0.001	<0.001	<0.01	<0.01	-
sec-Butanol	<0.1	<0.1	<1	<1	-
Sec-Butylbenzene	<0.0017	<0.0017	<0.017	<0.017	-
Styrene	<0.0012	<0.0012	<0.012	<0.012	-
Sum m&p and o Xylene by GC	<0.01	<0.01	<0.1	<0.1	-
Sum of BTEX by GC	<0.01	<0.01	<0.1	<0.1	-
Surrogate Recovery	-	<0	-	<0	-
SVOC TIC	-	<0	-	<0	-
Tert-amyl methyl ether	<0.001	<0.001	<0.01	<0.01	-
tert-Butyl Alcohol	<0.01	<0.01	<0.1	<0.1	-
Tert-butyl methyl ether	<0.0016	<0.0016	<0.016	<0.016	-
Tert-Butylbenzene	<0.002	<0.002	<0.02	<0.02	-
Tetrachloroethene	<0.0015	<0.0015	<0.015	<0.015	-
Tetrahydrofuran	<0.1	<0.1	<1	<1	-
Toluene	<0.0014	<0.0014	<0.014	<0.014	-
Toluene by GC	<0.004	<0.004	<0.04	<0.04	-
Toluene-d8	-	<0	-	<0	-
Total Aliphatics >C12-C35	<0.01	<0.01	<0.1	<0.1	-
Total Aromatics >EC12-EC35	0.013	<0.01	0.13	<0.1	-
TPH (Total Aliphatics + Total Aromatics) >C5-C35	0.175	<0.01	1.75	<0.1	-
Trans-1,2-Dichloroethene	<0.0019	<0.0019	<0.019	<0.019	-
Trans-1,3-Dichloropropene	<0.0035	<0.0035	<0.035	<0.035	-
Trichloroethene	<0.0025	<0.0025	<0.025	<0.025	-
Trichlorofluoromethane	<0.0013	<0.0013	<0.013	<0.013	-
Vinyl Chloride	<0.0012	<0.0012	<0.012	<0.012	-
VOC TIC	-	<0	-	<0	-

Leach Test Information

Date Prepared	16-Nov-2010
pH (pH Units)	8.08
Conductivity (µS/cm)	281.00
Temperature (°C)	19.90
Volume Leachant (Litres)	0.883
Volume of Eluate VE1 (Litres)	

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and ALcontrol cannot be held responsible for any discrepancies with current legislation
Merts Certification does not apply to leachates

26/11/2010 15:08:40

Table of Results - Appendix

SDG Number : 101115-88

Client : H_ENTEC_NWC

Client Ref : 29060

REPORT KEY

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

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

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

Method No	Reference	Description	Wet/Dry Sample ¹	Surrogate Corrected
PM001		Preparation of Samples for Metals Analysis		
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material		
PM114		Leaching Procedure for CEN Two Stage Batch Test 2:1/8:1 Cumulative		
PM115		Leaching Procedure for CEN One Stage Leach Test 2:1 & 10:1 1 Step		
PM115		Leaching Procedure for CEN One Stage Leach Test 2:1 & 10:1 1 Step		
TM061	Method for the Determination of EPH, Massachusetts Dept of EP, 1998	Determination of Extractable Petroleum Hydrocarbons by GC-FID (C10-C40)		
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		
TM151	Method 3500D, AWWA/APHA, 20th Ed., 1999	Determination of Hexavalent Chromium using Kone analyser		
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS		
TM155	In - house Method	Determination of Alcohols and Acetates by Headspace GC-FID		
TM157	HP 6890 Gas Chromatograph (GC) system and HP 5973 Mass Selective Detector (MSD).	Determination of SVOC in Soils by GC-MS extracted by sonication in DCM/Acetone		
TM173	Analysis of Petroleum Hydrocarbons in Environmental Media - Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GC-FID		
TM174	Analysis of Petroleum Hydrocarbons in Environmental Media - Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Waters by GC-FID		
TM176	EPA 8270D Semi-Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)	Determination of SVOCs in Water by GCMS		
TM181	US EPA Method 6010B	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES		
TM183	BS EN 23506:2002, (BS 6068-2.74:2002) ISBN 0 580 36924 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		
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers		
TM208	Modified: US EPA Method 8260b & 624	Determination of Volatile Organic Compounds by Headspace / GC-MS in Waters		
TM232	USEPA Method No. 8260b 'Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC-MS)'	Determination of Volatile Alcohols, Acetates and Ketones in Waters by Headspace GC-MS		
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		
TM243				
TM245	By GC-FID	Determination of GRO by Headspace in waters		
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		

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

SVOC Tentatively Identified Compounds

SDG - 101115-88
Client - H_ENTEC_NWC
Sample Number - 2410557 / HDP 3[0.10]-SOIL
Sample Type [Units] - Soil - µg/kg
Date Acquired - 17/11/10
Date Reported - 19/11/10
Analyst - I. Povilonyte

[illegible]

TIC RESULTS ARE REPORTED ON AN AS RECEIVED BASIS AND ARE NOT MOISTURE CORRECTED
MAY INCLUDE PREVIOUSLY QUANTIFIED RESULTS

SVOC Tentatively Identified Compounds

SDG - 101115-88
Client - H_ENTEC_NWC
Sample Number - 2410607 / HDP 3[0.60]-SOIL
Sample Type [Units] - Soil - µg/kg
Date Acquired - 17/11/10
Date Reported - 19/11/10
Analyst - I. Povilyonyte

Tentative Compound Identification	Retention Time min	Concentration µg/kg
Benzenamine, methylenebis-dimethyl-	11.62	1565

TIC RESULTS ARE REPORTED ON AN AS RECEIVED BASIS AND ARE NOT MOISTURE CORRECTED
MAY INCLUDE PREVIOUSLY QUANTIFIED RESULTS

SVOC Tentatively Identified Compounds

SDG - 101115-88
Client - H_ENTEC_NWC
Sample Identity - 2410812/ HDP 1[0.10]-SOIL
Sample Type [Units] - Soil - µg/kg
Date Acquired - 17/11/10
Date Reported - 17/11/10
Analyst - R Maguire

[illegible]

TIC RESULTS ARE REPORTED ON AN AS RECEIVED BASIS AND ARE NOT MOISTURE CORRECTED
MAY INCLUDE PREVIOUSLY QUANTIFIED RESULT

SVOC Tentatively Identified Compounds

Tentative Compound Identification	Retention Time min	Concentration µg/kg
Methanone, diphenyl-	8.22	3203

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SVOC Tentatively Identified Compounds

SDG - 101115-88
Client - H_ENTEC_NWC
Sample Number - 2410886 / HDP 5[0.10]-SOIL
Sample Type [Units] - Soil - µg/kg
Date Acquired - 17/11/10
Date Reported - 19/11/10
Analyst - I. Povilyonite

[illegible]

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SVOC Tentatively Identified Compounds

SDG - 101115-88
Client - H_ENTEC_NWC
Sample Identity - 2410930/ HDP 2[0.10]-SOIL
Sample Type [Units] - Soil - µg/kg
Date Acquired - 17/11/10
Date Reported - 17/11/10
Analyst - R Maguire

Tentative Compound Identification	Retention Time min	Concentration µg/kg
No Compounds Detected		<1000

TIC RESULTS ARE REPORTED ON AN AS RECEIVED BASIS AND ARE NOT MOISTURE CORRECTED
MAY INCLUDE PREVIOUSLY QUANTIFIED RESULT

SVOC Tentatively Identified Compounds

SDG - 101115-88
Client - H_ENTEC_NWC
Sample Identity - 2411001/HDP 2[0.70]-SOIL
Sample Type [Units] - Soil - µg/kg
Date Acquired - 17/11/10
Date Reported - 17/11/10
Analyst - R Maguire

[illegible]

TIC RESULTS ARE REPORTED ON AN AS RECEIVED BASIS AND ARE NOT MOISTURE
CORRECTED
MAY INCLUDE PREVIOUSLY QUANTIFIED RESULT

SVOC Tentatively Identified Compounds

[illegible]

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Alcontrol Laboratories

SVOC Tentatively Identified Compounds

SDG - 101115-88
Client - H ENTEC NWC
Sample Identity - 2421127 / HDP 5[0.50]-SOIL
Sample Type [Units] - Soil - µg/kg
Date Acquired - 18/11/10
Date Reported - 19/11/10
Analyst - I. Povilonyte

Tentative Compound Identification	Retention Time min	Concentration µg/kg
Dimethylbenzene isomer	2.89	1631

TIC RESULTS ARE REPORTED ON AN AS RECEIVED BASIS AND ARE NOT MOISTURE
CORRECTED
MAY INCLUDE PREVIOUSLY QUANTIFIED RESULT

VOC Tentatively Identified Compounds

Job Number - 101115-88
Customer - Entec Ltd
Sample Identity - 2405953/ HDP 3[0.10]-SOIL
Sample Type [Units] - Soil - µg/kg
Date Acquired - 19/11/10
Date Reported - 22/11/10
Analyst - J. Wilson

Tentative Compound Identification	Retention Time min	Concentration µg/kg
Bromo methyl benzene isomer	4.36	416
Dimethyl undecane	4.45	174
Unknown	4.72	127

Please Note: the identification and semi-quantification of these tentatively identified compounds is outside the scope of the UKAS accreditation for this method

ALcontrol Laboratories**VOC Tentatively Identified Compounds**

Job Number - 101115-88
Customer - Entec Ltd
Sample Identity - 2406011/ HDP 4[0.70]-SOIL
Sample Type [Units] - Soil - µg/kg
Date Acquired - 19/11/10
Date Reported - 22/11/10
Analyst - J.Wilson

Tentative Compound Identification	Retention Time min	Concentration µg/kg
Bromo decane	5.141	107

TIC RESULTS ARE REPORTED ON AN AS RECEIVED BASIS AND ARE NOT MOISTURE CORRECTED
MAY INCLUDE PREVIOUSLY QUANTIFIED RESULTS

Please Note: the identification and semi-quantification of these tentatively identified compounds is outside the scope of the
UKAS accreditation for this method

VOC Tentatively Identified Compounds

Job Number - 101115-88
Customer - Entec Ltd
Sample Identity - 2405970/ HDP 3[0.60]-SOIL
Sample Type [Units] - Soil - µg/kg
Date Acquired - 19/11/10
Date Reported - 22/11/10
Analyst - J.Wilson

[illegible]

Please Note: the identification and semi-quantification of these tentatively identified compounds is outside the scope of the UKAS accreditation for this method

VOC Tentatively Identified Compounds

Job Number - 101115-88
Customer - Entec UK Ltd
Sample Identity - 2405933 HDP 2[0.70]-SOIL
Sample Type [Units] - Soil - µg/kg
Date Acquired - 20/11/10
Date Reported - 22/11/10
Analyst - A G Prijs

Tentative Compound Identification	Retention Time min	Concentration µg/kg
C4 - C12 Aliphatic Hydrocarbons	1.88 - 5.16	3902
C7 - C12 Aromatic Hydrocarbons	4.14 - 4.77	1150

Please Note: the identification and semi-quantification of these tentatively identified compounds is outside the scope of the UKAS accreditation for this method

APPENDIX

APPENDIX

1. Results are expressed on a dry weight basis (dried at 35°C) for all soil analyses except for the following:
NRA Leach tests, flash point, ammonium as NH_4 by the BRE method, VOC TICS, SVOC TICS, TOF-MS SCAN/SEARCH and TOF-MS 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 both soil jars, tubs and volatile jars. All waters and vials will be discarded 10 days after the analysis is completed (e-mailed). All material removed during an asbestos containing material screen and analysed for the presence of asbestos 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. ALcontrol Laboratories 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 screened in house for the presence of large asbestos containing material fragments/pieces. If no asbestos containing material is found this will be reported as 'no asbestos containing material detected'. If asbestos containing material is detected it will be removed and analysed by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If asbestos containing material is present no further analysis will be undertaken. At no point is the fibre content of the soil sample determined.
7. If no separate volatile sample is supplied by the client, the integrity of the data may be compromised if the laboratory is required to create a sub-sample from the bulk sample – similarly, if a headspace or sediment is present in the volatile sample. This will be flagged up as an invalid VOC on the test schedule or recorded on the log sheet.
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. A table containing the date of analysis for each parameter is not routinely included with the report, but is available upon request.
12. Results relate only to the items tested
13. Surrogate recoveries – Most of our organic methods include surrogates, the recovery of which is monitored and reported.
For EPH, MO, PAH, GRO and VOCs on soils the result is not surrogate corrected, but a percentage recovery is quoted. Acceptable limits for most organic methods are 70 – 130 %.
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 14).
17. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.
18. Our MCERTS accreditation for PAHs by GCMS applies to all product types apart from Kerosene, where naphthalene only is not accredited.
19. 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 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.
21. For all leachate preparations (NRA, DIN, TCLP, BSEN 12457-1, 2, 3) volatile loss may occur, as we do not employ zero headspace extraction.
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 C4 – C10 range, the total area of the chromatogram is integrated and expressed as $\mu\text{g/kg}$ or $\mu\text{g/l}$. 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.

LIQUID MATRICES EXTRACTION SUMMARY

ANALYSIS	EXTRACTION SOLVENT	EXTRACTION METHOD	ANALYSIS
PAH MS	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC MS
EPH	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC FID
EPH CWG	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC FID
MINERAL OIL	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC FID
PCB 7 CONGENERS	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC MS
PCB TOTAL	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC MS
SVOC	DCM	LIQUID/LIQUID SHAKE	GC MS
FREE SULPHUR	DCM	SOLID PHASE EXTRACTION	HPLC
PEST OCP/OPP	DCM	LIQUID/LIQUID SHAKE	GC MS
TRIAZINE HERBS	DCM	LIQUID/LIQUID SHAKE	GC MS
PHENOLS MS	DCM	SOLID PHASE EXTRACTION	GC MS
TPH by INFRA RED (IR)	TCE	LIQUID/LIQUID EXTRACTION	HPLC
MINERAL OIL by IR	TCE	LIQUID/LIQUID EXTRACTION	HPLC
GLYCOLS	NONE	DIRECT INJECTION	GC FID

SOLID MATRICES EXTRACTION SUMMARY

ANALYSIS	D/C OR WET	EXTRACTION SOLVENT	EXTRACTION METHOD	ANALYSIS
Solvent Extractable Matter	D&C	DCM	SOX THERM	GRAVIMETRIC
Cyclohexane Ext. Matter	D&C	CYCLOHEXANE	SOX THERM	GRAVIMETRIC
Thin Layer Chromatography	D&C	DCM	SOX THERM	IATROSCAN
Elemental Sulphur	D&C	DCM	SOX THERM	HPLC
Phenols by GCMS	WET	DCM	SOX THERM	GC-MS
Herbicides	D&C	HEXANE:ACETONE	SOX THERM	GC-MS
Pesticides	D&C	HEXANE:ACETONE	SOX THERM	GC-MS
EPH (DRO)	D&C	HEXANE:ACETONE	END OVER END	GC-FID
EPH (Min oil)	D&C	HEXANE:ACETONE	END OVER END	GC-FID
EPH (Cleaned up)	D&C	HEXANE:ACETONE	END OVER END	GC-FID
EPH CWG by GC	D&C	HEXANE:ACETONE	END OVER END	GC-FID
PCB tot / PCB con	D&C	HEXANE:ACETONE	END OVER END	GC-MS
Polyaromatic Hydrocarbons (MS)	WET	HEXANE:ACETONE	Microwave TM218.	GC-MS
C8-C40 (C6-C40)EZ Flash	WET	HEXANE:ACETONE	SHAKER	GC-EZ
Polyaromatic Hydrocarbons Rapid GC	WET	HEXANE:ACETONE	SHAKER	GC-EZ
Semi Volatile Organic Compounds	WET	DCM:ACETONE	SONICATE	GC-MS

Identification of Asbestos in Bulk Materials

The results for asbestos identification for soil samples are obtained from possible Asbestos Containing Material, removed during the 'Screening of soils for Asbestos Containing Materials', which have been examined to determine the presence of asbestos fibres using Alcontrol Laboratories (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

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 MDHS 100.

The identification of asbestos containing materials 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.

Asbestos Type

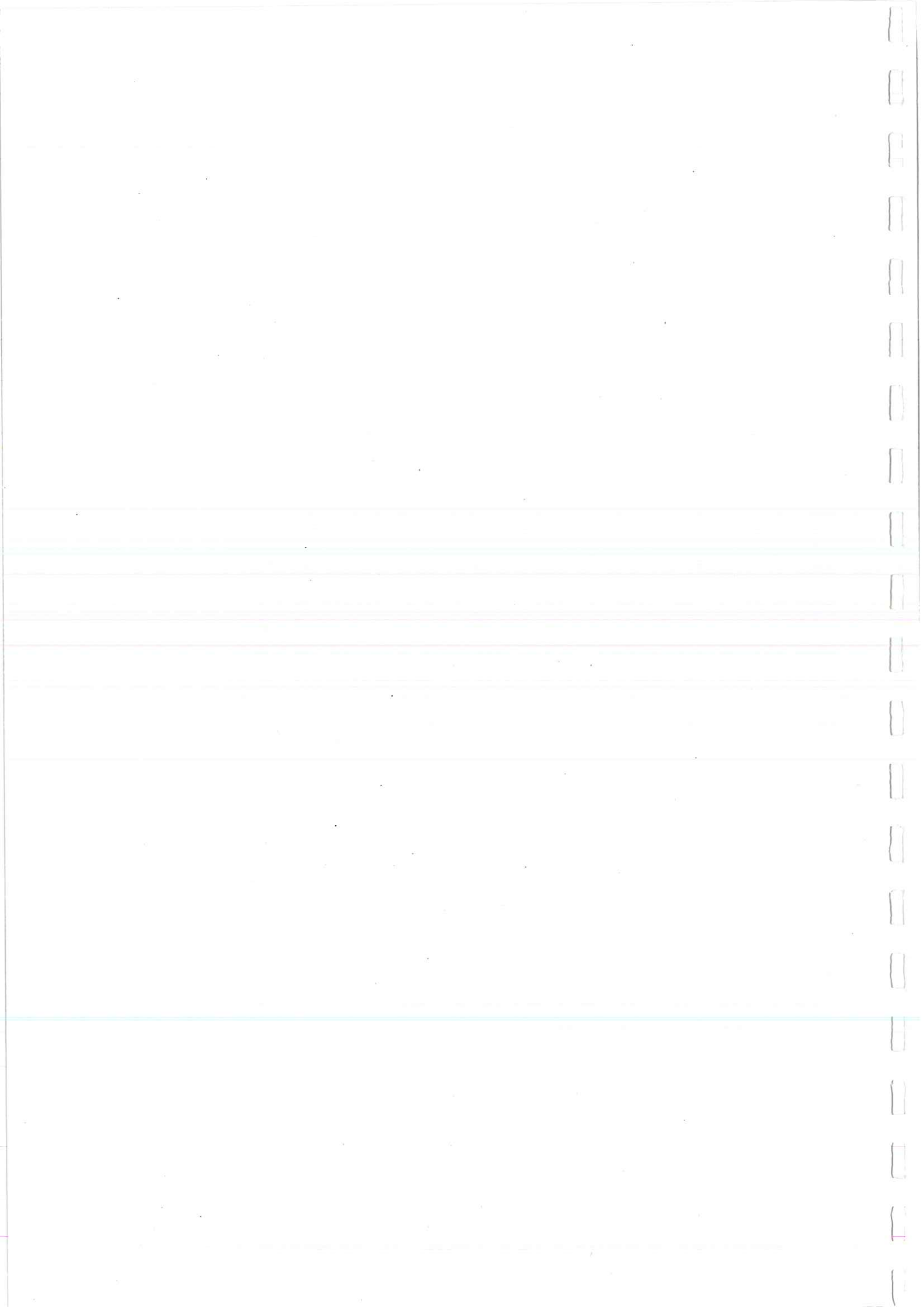
Common Name

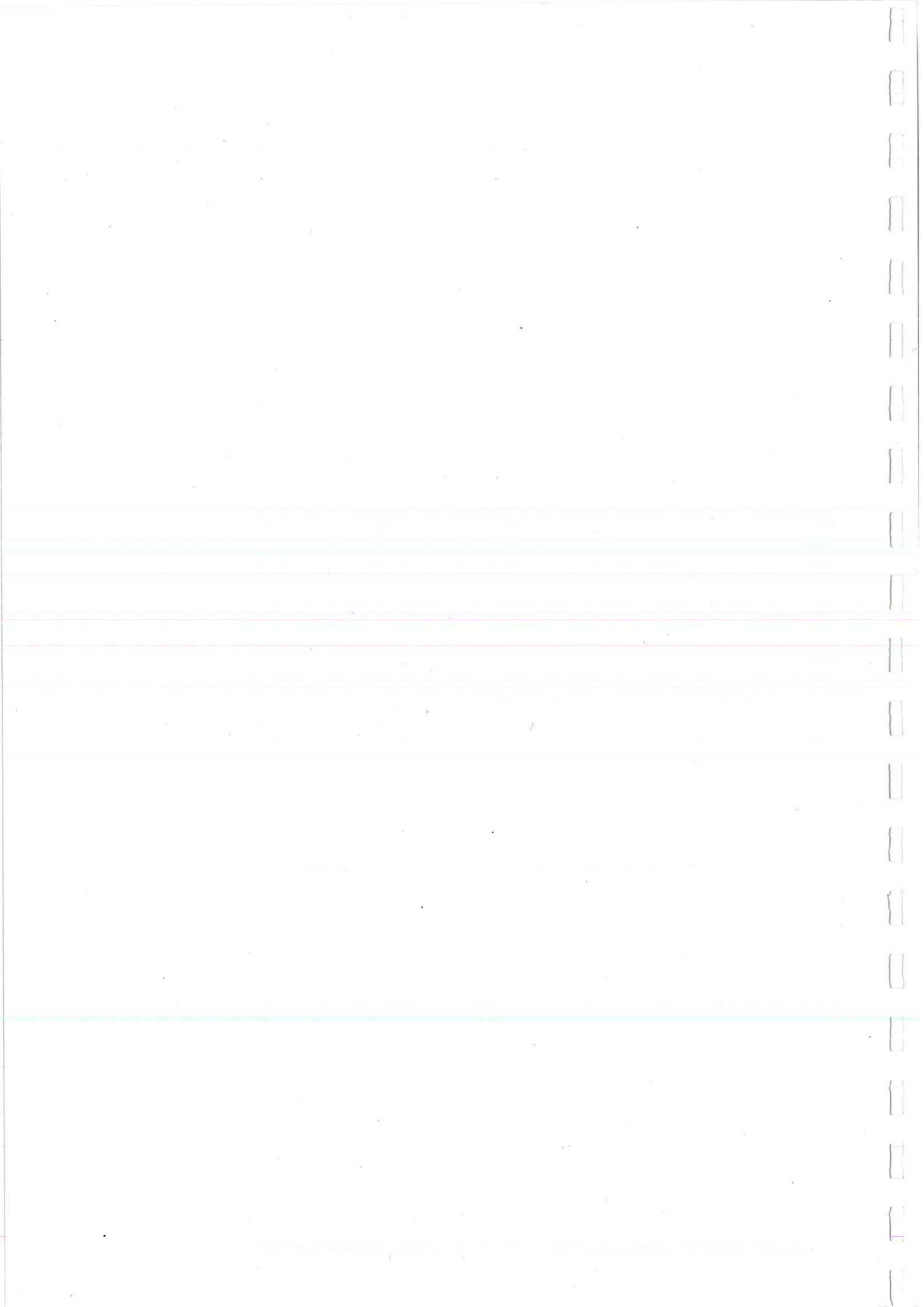
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

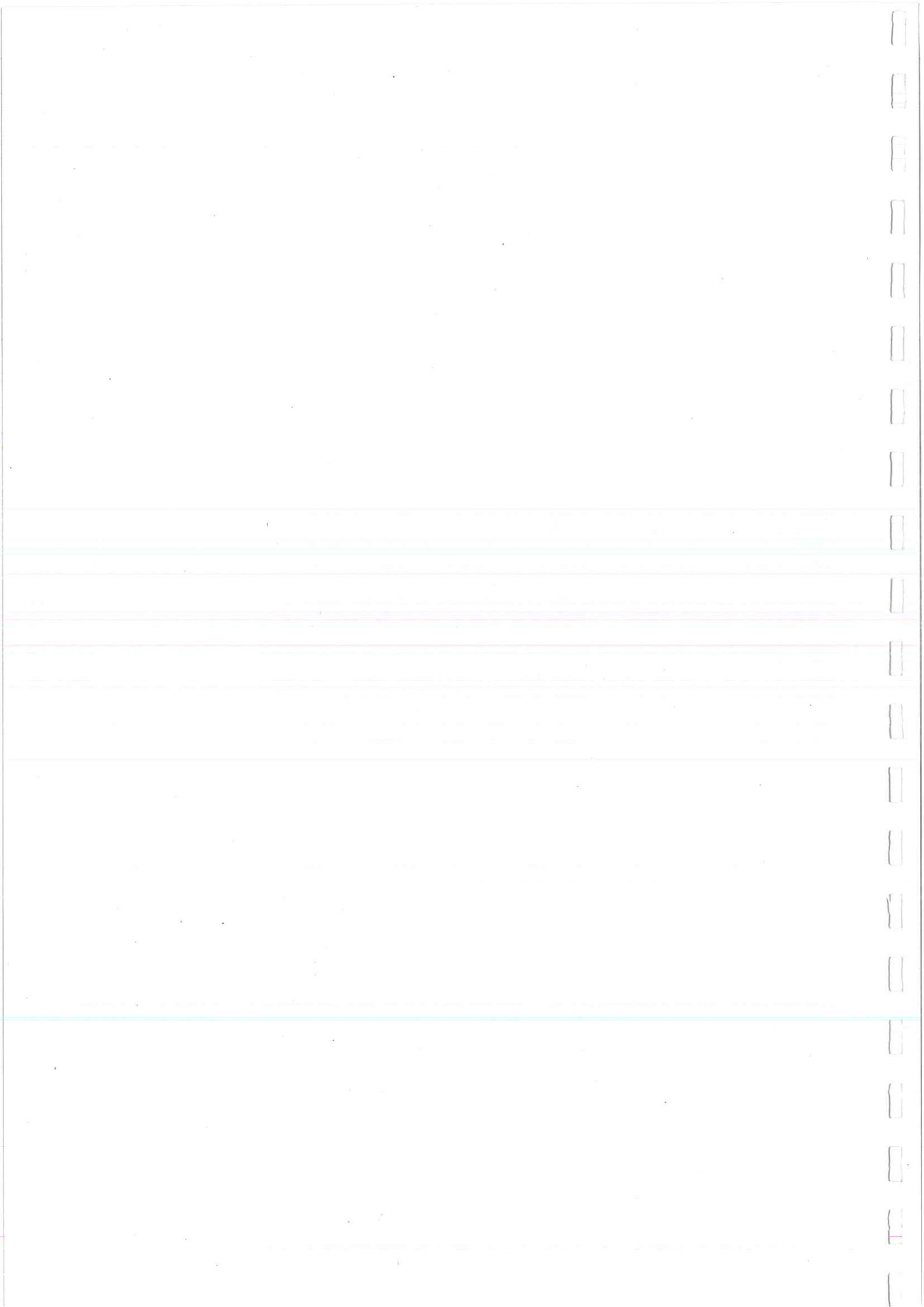
Appendix B

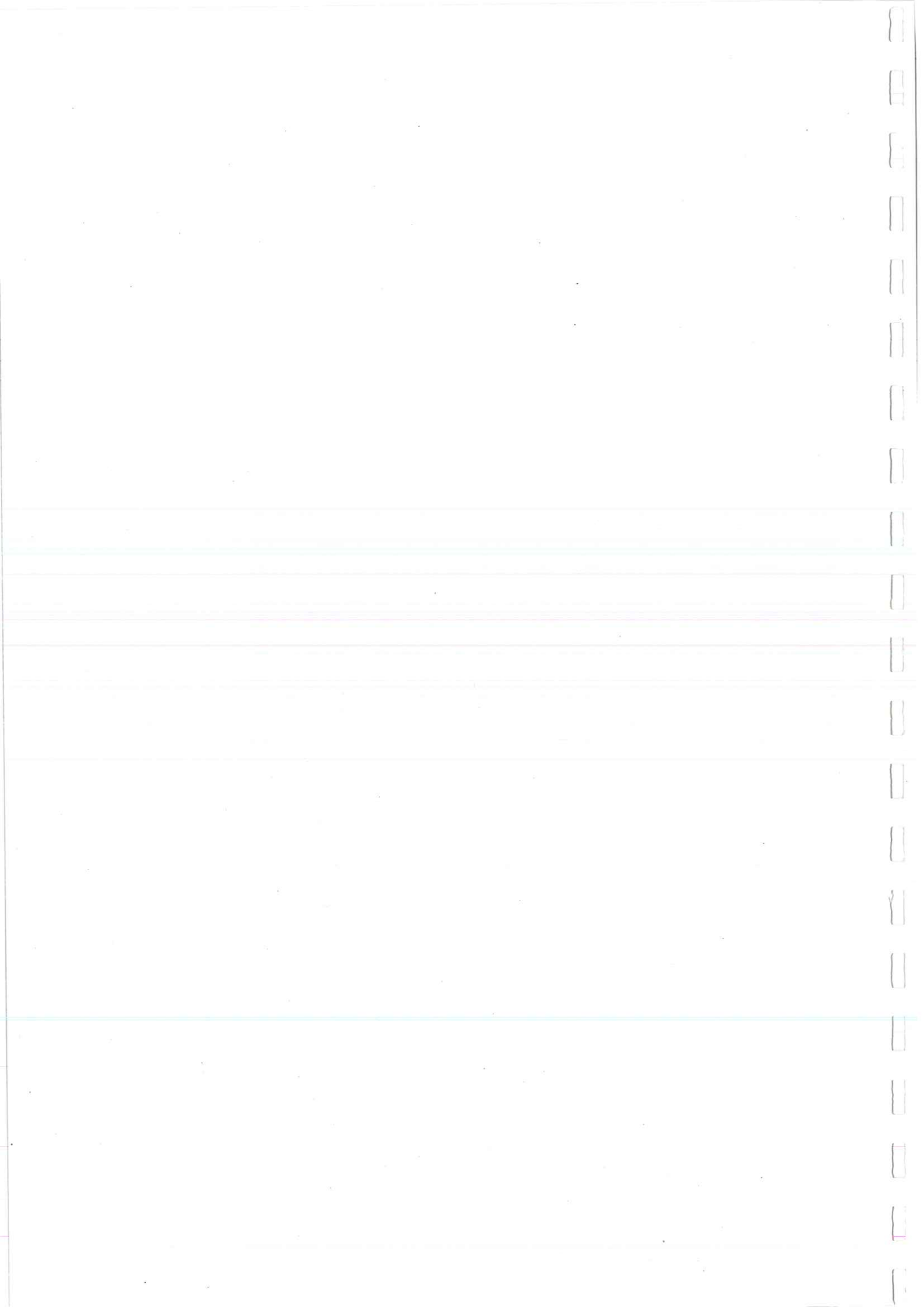
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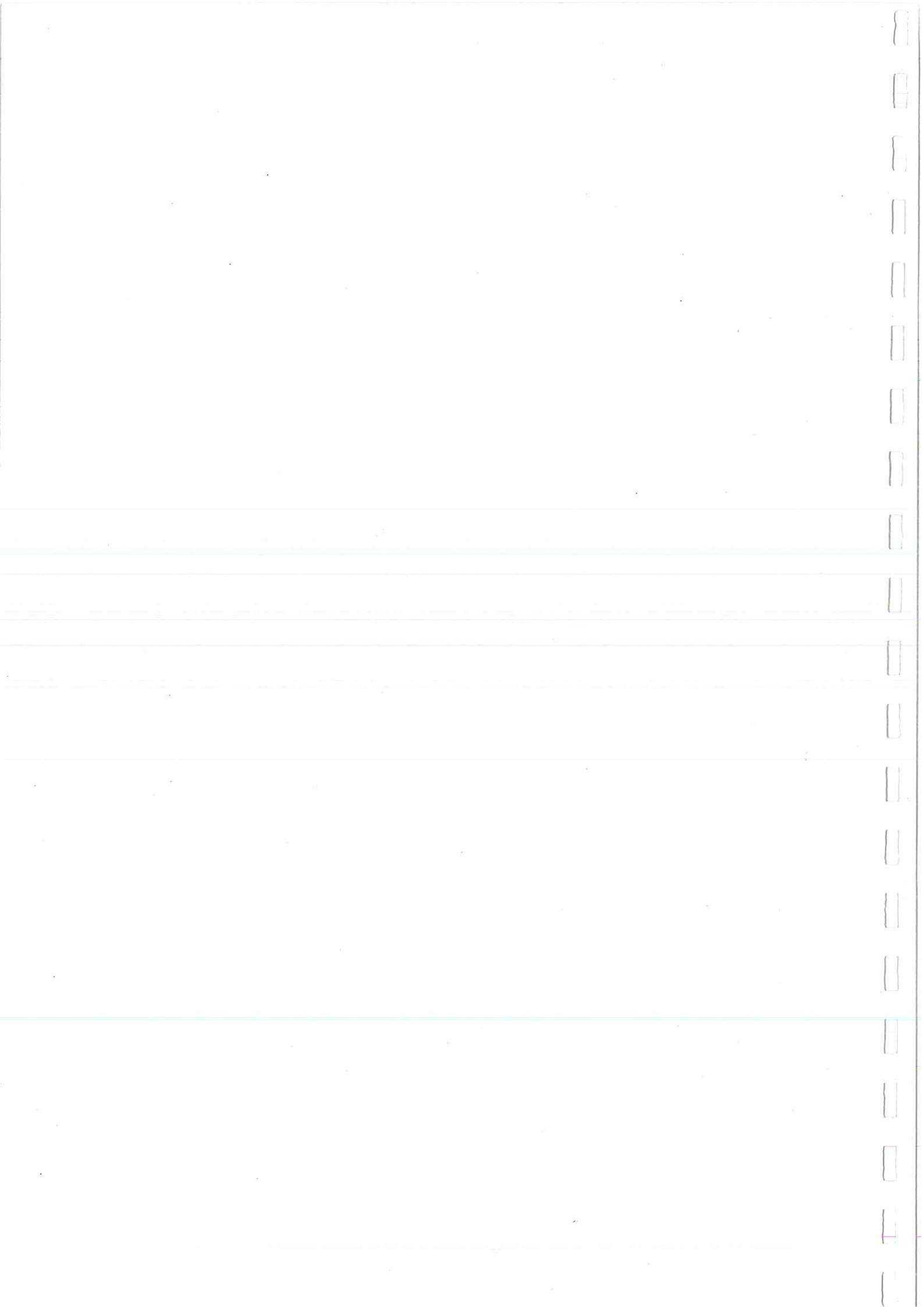
11 Pages

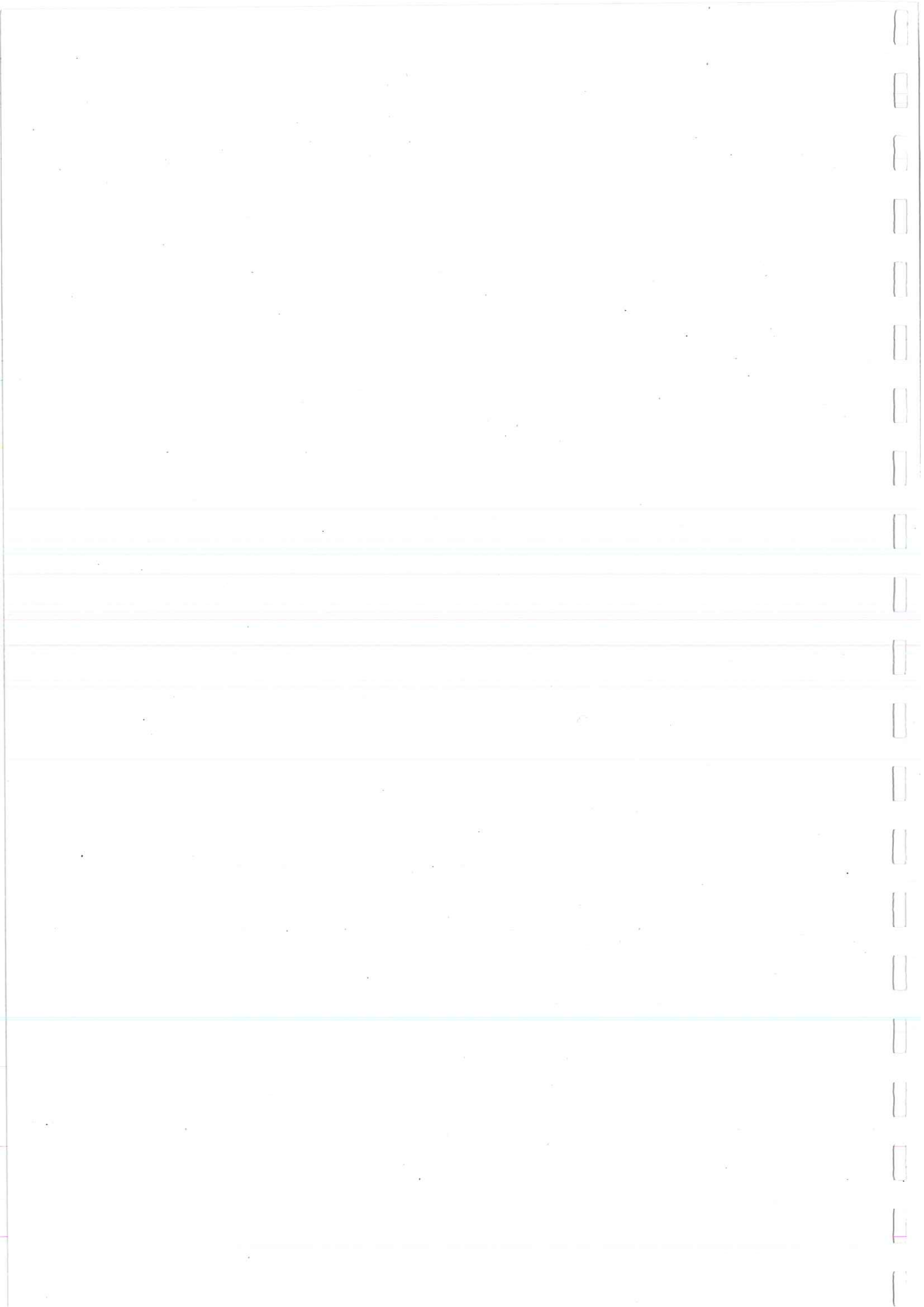


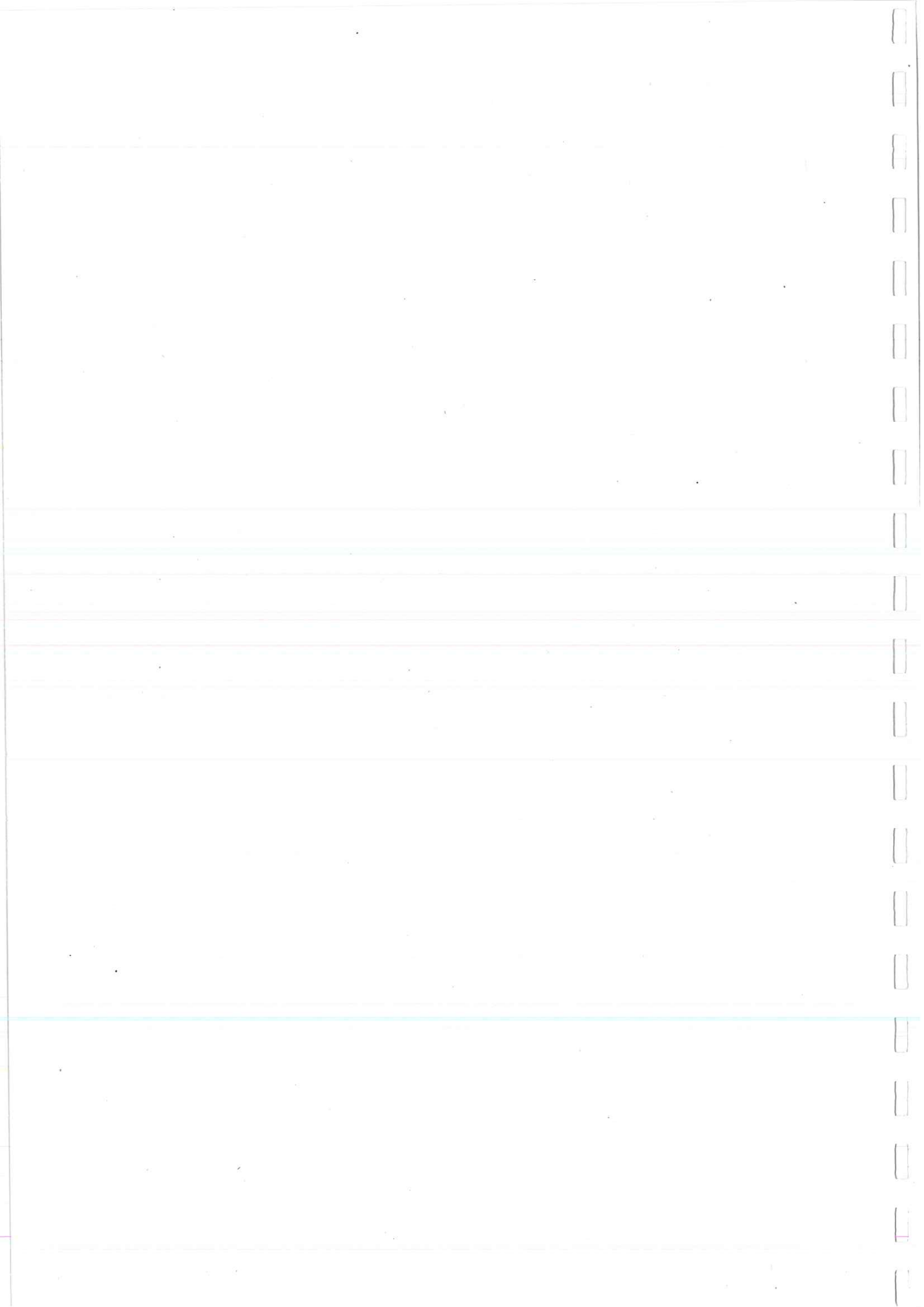


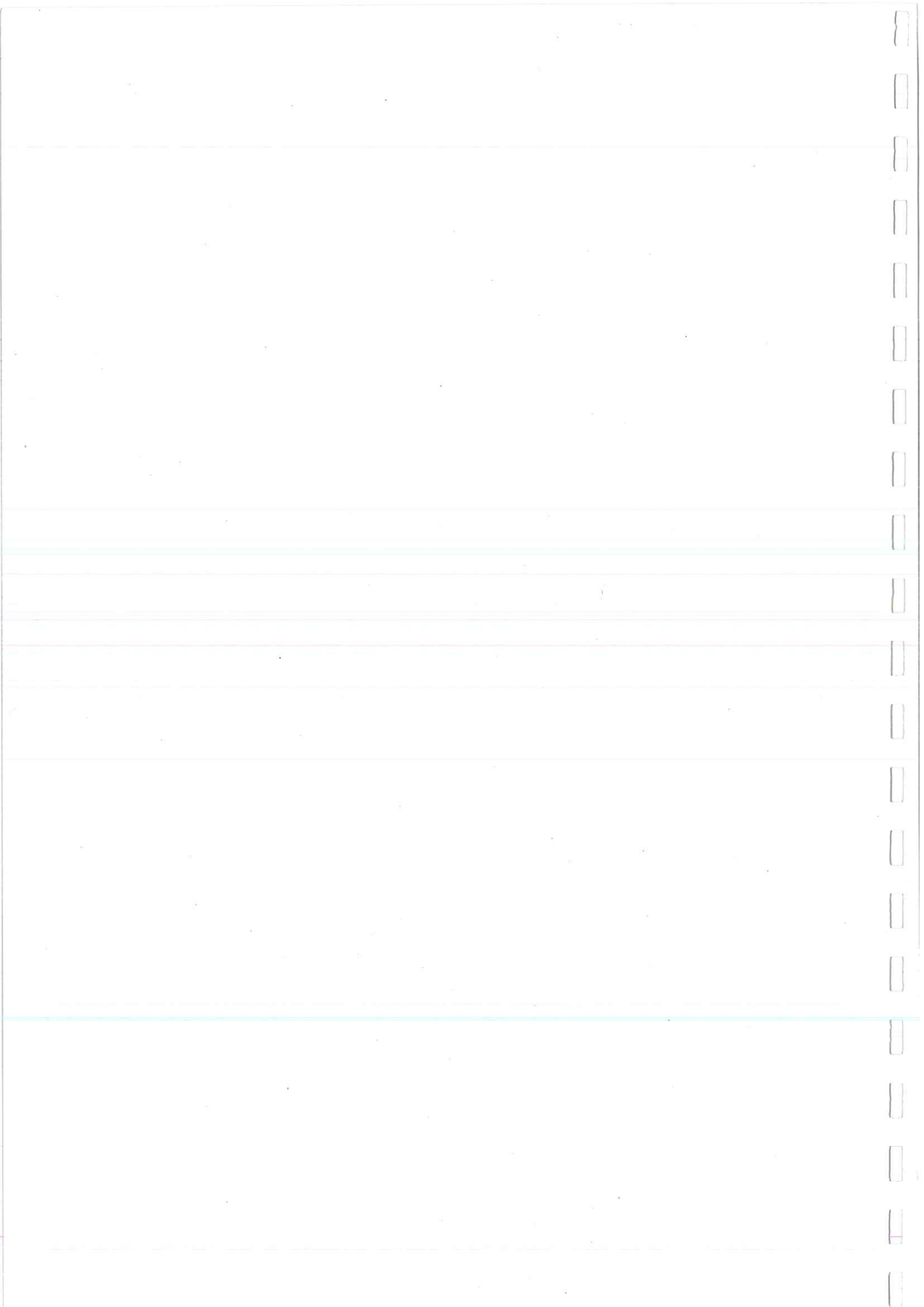


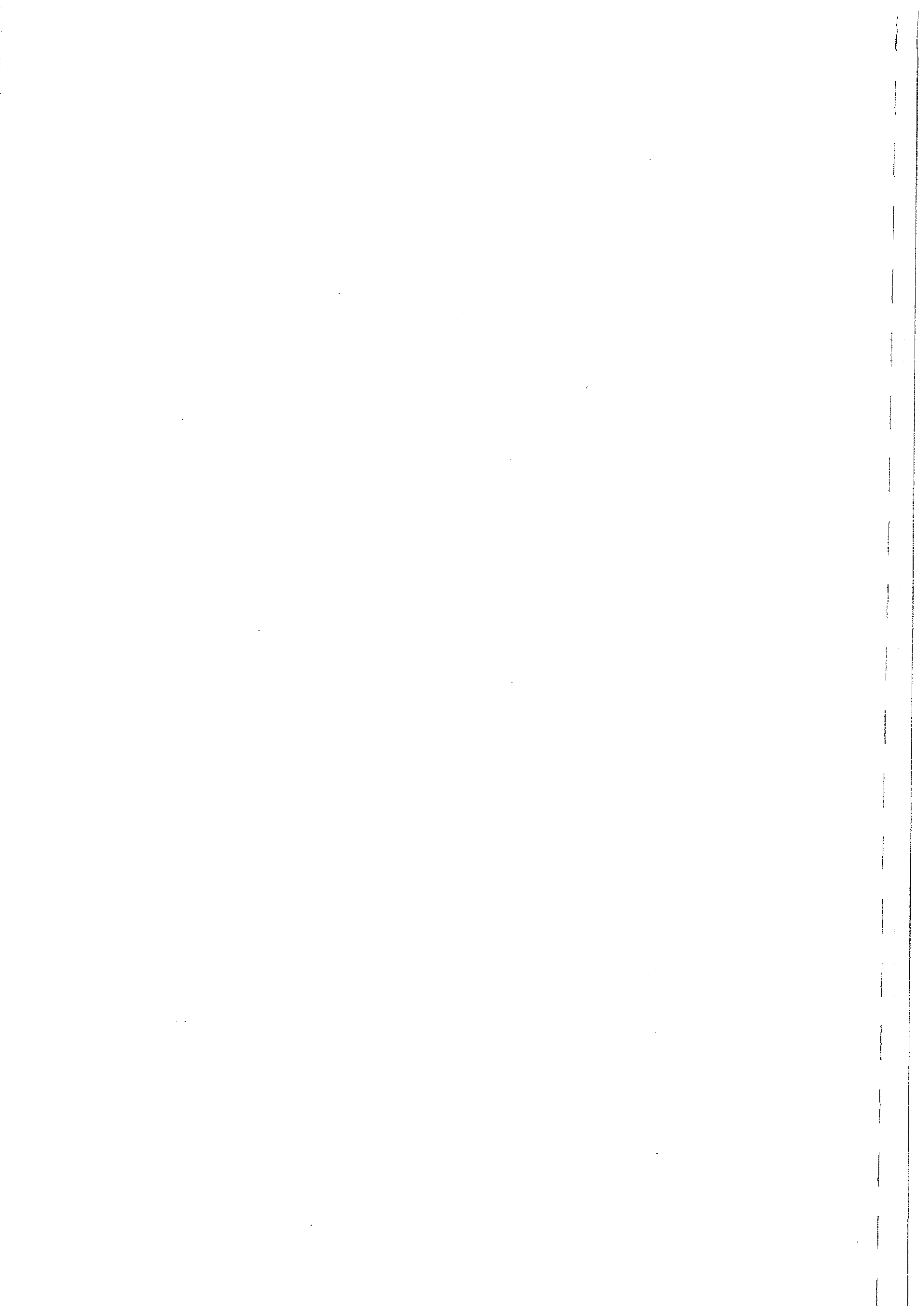












Appendix C

Exploratory Hole Location Plan

1 Page

