



**Defence
Infrastructure
Organisation**

Future Defence Storage and Redistribution Programme,
Redevelopment of MOD Bicester
C Site: Land Quality Assessments -
Phase 1 and Phase 2

BIC/OPA/DOC/22

September 2011

Defence Estates

Site A and Site C, DSDC Bicester

Phase Two Land Quality Assessment
Report

23 September 2010

Prepared by Entec UK Limited for the
Ministry of Defence under commission
FTS3/PTSELM/46



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Delivering Estate Solutions to Defence Needs

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Land Quality Statement for Site A and Site C, DSDC Bicester

Introduction and Terms of Reference

The Ministry of Defence (MOD) required an assessment of land quality of Site A and Site C, DSDC Bicester, Oxfordshire ('the site'). The purpose of the assessment is to provide land quality information on the site and assess possible health and environmental risks that any contamination may present to the site and its users in its current use and for potential future users. Entec UK Ltd (Entec) was commissioned by Defence Estates (DE) to undertake a Phase Two Land Quality Assessment (LQA) of the site on 28 June 2010.

Site Location and Description

The site is located approximately 4.5 km south-east of Bicester town centre, Oxfordshire. Site A is located 0.5 km north-west of Piddington village at National Grid Reference (NGR) 463300, 217750 with access (via a secured gated entrance) from the B4011. Site C is located to the immediate north-west of Upper Arncott village at NGR 460700, 217500 and is accessed through a manned security point located on a road junction off Ploughley Road.

The site consists of two distinct and separate areas of the larger DSDC Bicester with Site A to the east and Site C to the west of Arncott Hill. Site A is roughly triangular (pointing to the east) with a smaller triangle taken out of the base on the western side and covers a total area of approximately 13 ha with a generally level topography. Site C is rectangular orientated in a northeast to southwest direction. A strip of land connecting Site C and DSDC Bicester Site D is also included as part of Site C. Site C covers a total area of approximately 24 ha and slopes downwards from the east side of the site to the west. Both sites lie at an elevation of between 65 and 75 m AOD.

Site History

As of June 1943 Site A and Site C were part of what was called 'COD (Central Ordnance Depot) Bicester'. Arncott A Site (as it was called) was indicated to be a 'Signals and Wireless Sub-Depot' whereas Arncott Site C was an 'MT Sub-Depot'. The site was used for the processing of return stores from the Second World War and for stores issue in 1949 for the Korean War. The entire DSDC Bicester site was redesignated as a Base Ordnance Depot (BOD) in the 1950. By 1961 the whole site had been reorganised, with technical stores and Motor Transport (MT) units to other depots including BOD Donnington in Shropshire. BOD Bicester was established as the main UK depot for military clothing and general stores. By 1992, the whole site became known as the Defence Storage and Distribution Centre, Bicester.

Environmental Setting and Site Sensitivity

The site (Site A and Site C) is mainly underlain by an Unproductive Strata (Non Aquifer, Oxford Clay Formation) which would be considered to present a low sensitivity with a moderate sensitivity assessed for the Secondary (Minor) Aquifer (Alluvium) situated in the north part of Site A. The site is not within a SPZ.

*Groundwater Sensitivity: Moderate / Low***Hydrology**

The River Ray traverses the extreme north of the Site C and is of a generally poor water quality. There is potential for the River Ray to be affected by direct run-off and discharges from the site. However, the site itself is large and as such the sensitivity will decrease with respect to distance for the identified surface water receptors.

*Surface Water Sensitivity: Moderate***Ecology**

A SSSI is located close to the strip of land connecting Site C to other areas of DSDC Bicester. Both A Site and Site C have a record of one ESA being located on-site with a third record being positioned approximately 130 m west of Site C. Both sites are surrounded predominantly by agricultural land which forms the ESA, namely the Upper Thames Tributaries ESA. However, both sites are large and as such the sensitivity will decrease with respect to distance for the identified ecological receptors with Site C being the most sensitive due to the proximity of the SSSI.

*Ecological Sensitivity: Moderate***Potential Site Contamination**

Following the Entec Phase One LQA assessment of historical and current activities, there are several potentially contaminative activities which have been identified both on and off site.

On site sources relate to former and current areas of fuel storage and handling, including POL stores and points (fuel tanks and refuelling areas), along with the former burning grounds, landfilling and Made Ground, railway infrastructure and the site-wide railway network, fire service building and contaminants associated with former (demolished buildings) and current building fabric (ACM). The location of and significance (given the nature of the geology) is such that no off site sources have been considered within the risk assessment.

Most of the above identified sources are generally likely to be limited in their extent, with the exception of the site-wide railway network.

Site Works

To target the above identified sources of contamination, a detailed programme of site appraisal and intrusive investigation was undertaken. This included a radiological survey of targeted parts of the site along with boreholes, trial pits and hand dug pits.

Contamination Findings*Site A: North-western Boundary*

- Soils – No exceedences of GAC with regards to human health were recorded; and
- Waters - Exceedences of the WQT screening criteria for zinc, sulphate and ammonium were observed in groundwater samples from the site. Exceedences of ammonium were also recorded in surface waters. Organics elevated above the MDL, but for which no applicable WQT exist were present (notably TPH), however, it is considered that the concentrations observed are unlikely to be significant.

Site C: All Areas

- Soils – Only one sample exceeded any of the prescribed GAC with regard to human health, which comprised TPC09 (0.20 m), which recorded a concentration of lead at 4,080 mg/kg. Sulphate was elevated and exceeded BRE guideline concentration levels where consideration of the use of special specification concrete would be necessary for in-ground structures in both the C32 Burning Ground and C61 POL Area. However, it should be noted that sulphate concentrations will be elevated in this area anyway (as evidenced by gypsum crystals). Occasional pieces of cement-bonded asbestos sheeting were also observed however no fibres were identified during laboratory testing; and
- Waters - Exceedences for vinyl chloride, cis 1,2-dichloroethene, trichloroethene and benzo(a)pyrene were identified within BHC03 and WSC04 (both located in the C33 FFO Tank Area) with exceedences of (DWS) for several PAHs (including benzo(a)pyrene) in surface waters (SWC01 and SWC05 both on the second round) and WSC08 (C61 POL Point). Marginal exceedences of WQT for selenium (DWS) and ammonium (EQS) are considered to be localised and unlikely to be indicative of significant contamination, especially considering the absence of similar impact in nearby surface waters.

Radiological Survey

- At Site A there were no recorded readings significantly in excess of the natural background levels;
- A hand-held scintillation detector (Ludlum model 2241-3) was used to survey arisings excavated from the trial pits and hand dug pits during the intrusive ground works around the C32 burning ground area;
- Three small areas of elevated radiological readings were identified (using the RadSurvey equipment), two located near the north west corner of building C32 and one near to the emergency water supply tank to the north of building C32. One of the areas was a 'point source' and the other two were more diffuse areas. Maximum count readings at the three points ranged from 754 cps to 1,062 cps;
- Further intrusive investigation in the C32 burning ground area identified maximum arisings rates (using a Ludlum model 2241-3) in counts per second (cps) ranged between 425 cps and 1,000 cps. These levels are not considered to represent a significant radiological risk or a matter for regulatory concern within the areas surveyed.

Gas Monitoring

- Calculated Gas Screening Values (GSV) using the methodology of the Modified Wilson and Card classification detailed in CIRIA C665, indicate that all of the installations are characterised as Situation 1 which relates to a very low risk (negligible gas regime identified).

Environmental Risk Assessment

- The risks to current site users from contamination with all of the areas investigated are generally assessed as **low** although a **moderate/low** classification was given for

the C33 Landfill Area due to the exceedance of the GAC with respect to lead and the potential presence of landfill gas within the C33 Landfill Area and C32 Burning Grounds. A **moderate/low** risk is also associated for future commercial/industrial site users with respect to the radiological contamination identified in the former burning grounds and landfill;

- Overall risks to construction workers from the contamination identified in all of the zones investigated have however been assessed as **low** or **moderate/low** based on the general absence of contaminants found. A **moderate** risk has been applied in the C33 Landfill Area discussed above with respect to lead;
- There was no consistent linkage between soil contamination and the minor groundwater exceedances. Therefore, risks to groundwater from contamination present within the zones investigated have been assessed as **negligible** due to the concentrations of contamination identified;
- The risks to surface water from the contamination identified in the zones investigated have therefore been assessed as **low**, with the exception of the site A TPH which is assessed as **moderate/low**;
- No significant ecological receptors have been identified in the site vicinity. Therefore, the risks to ecological receptors have been identified as **negligible**, due mainly to the likelihood that the sensitivity will decrease with respect to distance from the identified contamination to this receptor;
- The eastern and northern parts of Site A and the western side of Site C border land that is used for agricultural (arable) purposes, which could potentially be impacted by localised contamination impacting these areas. However, the potential contamination areas of concern investigated as part of this LQA are generally located away from these areas and impact is unlikely. The risks to agricultural receptors have been identified as **negligible**;
- There may be potential risks to current and future in-ground concrete structures via direct contact with ground contamination (in particular sulphate). However, given the 'mild' potential consequence of the relevant pollutant linkages, the risks to buildings and buried services are assessed as **negligible**.

Overall Land Quality and Suitability for Current and Future Use

The future use of the site is likely to be similar to its present use and the timeframe for disposal by DE is currently not certain. Based on the results of this risk-based targeted investigation, the site is considered suitable for current use and for redevelopment to a commercial/industrial end use.

However, laboratory analysis of soil samples indicated the presence of organic and inorganic contaminants in particular hydrocarbons in the location of the C33 FFO Tank Area, and trace concentrations of chlorinated solvents. The majority of the site was not found to have exceedances of relevant industrial/commercial assessment criteria, with the exception of lead in the C33 Landfill Area. Only isolated and minor exceedances of prescribed WQT were recorded in surface and groundwaters. In general, the contaminants encountered at the observed levels are not likely to be significant.

Widespread occurrences of sulphate are at concentrations which suggest that the use of higher specification concrete should be considered for future in-ground concrete structures. The radiological levels detected are not considered to represent a significant radiological risk or a matter for regulatory concern.

However, due to the limited nature and extent of the intrusive investigation and the potential for residual contamination to be present in and around existing (and in most cases still operational) infrastructure, it is possible that additional investigation will be required as part of the development process. Such investigation will be dependant upon the development design. Ground gas/ vapours may also need to be considered if new developments are built on areas of localised hydrocarbon contamination but will again be dependant upon the development design.

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Glossary of Terms

ACM	-	Asbestos Containing Material
AOD	-	Above Ordnance Datum
AONB	-	Area of Outstanding Natural Beauty
AST	-	Above ground Storage Tanks
BFI	-	Bulk Fuel Installation
bgl	-	below ground level
BGS	-	British Geological Survey
BOD	-	Base Ordnance Depot
BRE	-	Building Research Establishment (up to 1997)
BTEX	-	Benzene, Toluene, Ethyl Benzene and Xylene
CLEA	-	Contaminated Land Exposure Assessment
COD	-	Central Ordnance Depot
DE	-	Defence Estates
Dstl	-	Defence Science and Technology Laboratory
Dstl ESD-		Dstl Environmental Service Department
DEFRA-		Department for Food and Rural Affairs
DSDC	-	Defence Storage and Distribution Centre
EA	-	Environment Agency
EOTA	-	Explosive Ordnance Threat Assessment
EPA	-	Environmental Protection Act 1990
EPH	-	Extractable petroleum hydrocarbons
ESA	-	Environmentally Sensitive Areas
FFO	-	Furnace Fuel Oil
GAC	-	Generic Assessment Criteria
GIS	-	Geographical Information System
GPS	-	Global Positioning System
GQA	-	General Quality Assessment (Surface Water)
GQRA	-	Generic Quantitative Risk Assessment

HPA	-	Health Protection Survey
LA	-	Local Authority
LQA	-	Land Quality Assessment
MOD	-	Ministry of Defence
MT	-	Motor Transport
NGR	-	National Grid Reference
NNR	-	National Nature Reserves
NRPB	-	National Radiological Protection Board
NGR	-	National Grid Reference
OS	-	Ordnance Survey
OWI	-	Oil Water Interceptor
PAH	-	Polycyclic Aromatic Hydrocarbons
POL	-	Petrol, Oil and Lubricants
Part 2A	-	Part 2A of the Environmental Protection Act (1990)
PCB	-	Polychlorinated Biphenyls
PPE	-	Personal Protective Equipment
RPC	-	Regional Prime Contractor
QRA	-	Quantitative Risk Assessment
SAC	-	Special Areas of Conservation
SEAT	-	Site Estate Authority Team
SPA	-	Special Protected Areas
SPZ	-	Source Protection Zone (groundwater)
SSSI	-	Site of Special Scientific Interest
SVOC	-	Semi-Volatile Organic Compounds
TPH	-	Total Petroleum Hydrocarbons
TPHCWG		Total Petroleum Hydrocarbons Criteria Working Group
UST	-	Underground Storage Tank
VOC	-	Volatile Organic Compounds
UXO	-	Unexploded Ordnance
WWII	-	The Second World War

1. Introduction

1.1 Terms of Reference

Entec UK Ltd (Entec) was commissioned by Defence Estates (DE) to undertake a Phase Two Land Quality Assessment (LQA) of Site A and Site C, Defence Storage and Distribution Centre (DSDC) Bicester, Oxfordshire ('the site') on 28 June 2010. This commission was carried out under the interim contracting arrangement and FATS/3 framework between Entec and Defence Estates.

The purpose of the assessment is to provide information on the site as well as any health and environmental risks that any potential contamination may present to existing site users and in changing the use of the land.

1.1.1 Aims and Methodology

It is understood that the LQA is required to support continued military (i.e. commercial/industrial) use of the site with the potential for some redevelopment of existing facilities and potential new builds, although there is no confirmed development plan. This investigation is designed to provide sufficient information to allow an initial estimate of the magnitude of potential issues.

The information obtained allows the site conceptual model to be refined and the environmental risk assessment to be reappraised based on the findings of this Phase Two investigation. This information is used to refine future potential management options and to identify where further investigation is required, if necessary.

To achieve this, the following methodology was adopted:

- Review of the (May 2010) Entec Phase One LQA including risk appraisal;
- Obtaining and reviewing buried service plans;
- Undertaking a buried service clearance exercise, including identification of site drainage routes and fuel infrastructure;
- Non-intrusive investigation, consisting of radiological survey of targeted areas of the site to assess the potential presence of detectable radiological residues;
- Targeted intrusive investigation, consisting of progression of cable percussive and window sampler boreholes, excavation of machine dug trial pits and hand dug pits;
- Gas and groundwater monitoring of installed boreholes;
- Surface water monitoring of the site-wide drainage ditch network; and
- Interpretation and reporting of analytical laboratory data.

The findings of this study are based on the information made available to Entec by MOD

personnel at the time, together with information obtained from the intrusive investigation.

1.1.2 Future Site Use

It is understood that the LQA is required to support either continued military (i.e. commercial/industrial) use of the site or disposal of the site for continued use in its current form with the potential for some redevelopment of existing facilities and potential new builds, although there is no confirmed development plan. For the purposes of the risk assessment, this report considers continued use of the site for commercial/industrial purposes.

1.2 Site Location

The site is located approximately 4.5 km south-east of Bicester town centre, Oxfordshire. Site A is located 0.5 km north-west of Piddington village at National Grid Reference (NGR) 463300, 217750 with access (via a secured gated entrance) from the B4011. Site C is located to the immediate north-west of Upper Arncott village at NGR 460700, 217500 and is accessed through a manned security point located on a road junction off Ploughley Road. The location of the site is shown in Figure 1.

1.3 Site Information

1.3.1 General

The site consists of two distinct and separate areas of the larger DSDC Bicester with Site A to the east and Site C to the west of Arncott Hill. Site A is roughly triangular (pointing to the east) with a smaller triangle taken out of the 'base' on the western side. Site A covers a total area of approximately 13 ha and its topography is generally level. Site C is rectangular orientated in a northeast to southwest direction. A strip of land connecting Site C and DSDC Bicester Site D is also included as part of Site C. Site C covers a total area of approximately 24 ha and slopes downwards from the east side of the site to the west. Both sites lie at an elevation of between 65 and 75 m AOD. Site layout plans are included as Figures 2a and 2b.

1.3.2 Site History

A detailed site history has been presented in the previous Phase One LQA. This is summarised below.

As of June 1943 Site A and Site C were part of what was called 'COD (Central Ordnance Depot) Bicester'. Arncott Site A (as it was called) was indicated to be a 'Signals and Wireless Sub-Depot' whereas Arncott Site C was an 'MT Sub-Depot'. The site was used for the processing of return stores from the Second World War and for stores issue in 1949 for the Korean War. The entire DSDC Bicester site was redesignated as a Base Ordnance Depot (BOD) in the 1950. By 1961 the whole site had been reorganised, with technical stores and Motor Transport (MT) units to other depots including BOD Donnington in Shropshire. BOD Bicester was established as the main UK depot for military clothing and general stores. By 1992, the whole site became known as the Defence Storage and Distribution Centre, Bicester.

1.3.3 Land Use

The site is understood to be a storage and distribution hub for a variety of military equipment, including clothes, rations, tents, packaging materials as well as general stores. According to available information (refer to Section 1.3.9 of this report), it is understood that the site has never been used to store explosive ordnance.

There is an extensive private railway network across the site which is connected to the national rail network via a spur off the Oxford-Bletchley main line. Rail traffic has to pass through Site D and Site E in order to join the spur that connects to the Oxford-Bletchley main line.

1.3.4 Site Buildings and Activities

With reference to Figure 2a and 2b, Table 1.1 summarises the buildings/activities within each area of the site.

Table 1.1 Site Buildings and Activities

Building No.	Description and Activities
Site A	
A1	Large, brick built storage building. Unable to access. Building annex used for Mechanical Handling Equipment (MHE)
A3	Large, brick built storage building used for dark storage. Unable to access. Not inhabited.
A4	Large, brick built storage building used for dark storage. Unable to access. Not inhabited.
A5	Large, brick built storage building used for dark storage. Unable to access. Not inhabited.
A6	Demolished. Hardstanding remains.
A7	Defence fire service building.
Building adjacent to A7	A small structure marked 'Oil and Lubricant Store'
A9	Small brick building used as a guardhouse.
A10	A roofed open-framed structure used for storage of boxes and equipment protective casings.
A31	6 No. Romney Sheds (Bolero style). Generally used for storage of boxes and equipment protective casings.
A33	6 No. Romney Sheds (Bolero style). Generally used for storage of boxes and equipment protective casings.
A35	Small shed sized building. Activity not known.
A81	1 No. Romney Sheds (Bolero style) used for storage of aircraft equipment protective casings and boxes.
A85	Small, asbestos roofed brick building adjacent to weighbridge.
Site C	
C1	Large brick built storage building for dry storage of tyres and other rubber based stores. 3 No. Air Raid Shelters (ARS) to south, 6 No. ARS to east and 3 No. ARS to north west of main building.

Table 1.1 (continued) Site Buildings and Activities

Building No.	Description and Activities
C2	An income generation building leased by Multi-Part Defence Ltd. Building provides storage of spare parts (generally small items such as nuts/bolts) for mechanical handling equipment (MHE) such as excavators and fork lifts.
C3	Large brick built storage building for dry storage of tentage and electrical utilities for tentage. Store contains a radiation store for gun sights.
C4	Large brick built storage building for dry storage of clothing, body armour, boots and component parts. Historically, was used by Thames Valley Police (TVP) and previously used to store ration packs.
C5	An income generation building leased by Barrus Ltd, leased from MoD. Large brick built storage warehouse for storage of mowers, trailers, marine outboards, engine blocks. Historically (prior to present lease), the building stored coffins and scrim/camouflage nets.
C6A (formerly C32)	Large brick built storage building for canoes, canoe trailers and textile repair. Management of facility is via C3/C32. Field hospital gear/sewage pumps. Ski gear, generators, and tent heating systems. Historically it was thought to have stored hazardous materials requiring vents in the roof.
C6B	Empty.
C6N (formerly C33)	Large brick built storage building storing tentage and small amounts of detergent, generators and new fridges. Some stored for reconditioning. Large number of refrigeration units and ablution units (Isofreight type) stored on hardstanding to north of the building.
C7	A more modern/modernised brick built income generation building leased by Thames Valley Police. Occupant s did not allow access but indicated that building housed mainly clothing and paper.
C8	Modern storage warehouse leased for income generation to KBR. Building used for the storage of tentage and tented accommodation together with the tent utilities (power /refrigeration units. Staff believed the building used to be a former chemical store of some kind.
C8A	C8A comprises 3 bays for the handling and storage of chemicals.
C8B	A boiler house fed from a 21,000 litre tank. Fuel tanker point accessible with tank located within.
C9	Large brick built storage building for dry storage. Storage contents not known.
C10	Small/medium building used as a stationary store and accounts storage.
C11	Small building, empty and not inhabited.
C12	Small/medium building used as vehicle maintenance workshop by Thames Valley Police (income generation)
C14	Nissen hut indicated as former cleaners' store (contractors). No entry allowed due to asbestos within the building.
C16	Large, modernised Head Quarters (HQ) office building comprising open plan office and meeting rooms.
C16A	Store building adjacent to C16. Was indicated to also store fuel 3/50 FFO.
C21	Pumphouse and adjacent to Emergency Water Supply (EWS) tank.
C22	A small building adjoined to C23. Wood/Carpenters workshop for construction of coffin frames/pallets. Historically it was a REME training workshop.
C23	A small building adjoined to C22. Printers/graphics workshop.
C24	A medium sized building used as workshops for maintenance of loan pools equipment e.g. climbing gear, cookers, skis, heaters.

Table 1.1 (continued) Site Buildings and Activities

Building No.	Description and Activities
Site C	
C30	Comprises 6 No. Romney Sheds (Bolero style) buildings. Locked and unable to access on the day. Some (if not all) are still used. Some noted to store chemical agents. The remainder (where views into the building were possible) generally held inert items including empty storage cages.
C30A	Small building no longer used. Empty.
C31	Comprises 6 No. Romney Sheds (Bolero style) buildings. Locked and unable to access on the day. Some (if not all) are still used.
C32 (formerly C6)	Large brick built building for the storage of Loan pool equipment. Stock includes compasses (locked and signed), tables/chairs/tentage/heaters, equipment for watersports /climbing /skiing/camping, ski clothing, fire extinguishers/heaters.
C32A	Medium sized annex to C32 used as MoD Police offices.
C33	Test houses for engines, gearbox/transmission systems, antennae and suspension units. Repairs to tracks Challenger & Warrior Hardstanding store to east side. Cooling towers cool water from hydraulic testing of gearboxes located externally to south west.
C33A	Large, workshop annex to C33.
C49	Bolero Hut. No entry due to asbestos.
C52	Small, income generation building leased to ALC. Building comprises office accommodation only.
C60	Medium to large, former MT section building for site. Used infrequently.
C61	Petrol, Oil, Lubricant dispensers. Current Petrol, Oil, Lubricant (POL) point for the site.
C85	Small, brick built former rest room. No longer used due to asbestos.

1.3.5 Evidence of Former Structures, Fill Material and/or Disturbed Ground

Evidence of several former structures, fill material and/or disturbed ground was noted during the Phase One LQA site walkover, and, with reference to historic maps and plans is summarised in Table 1.2.

Table 1.2 Site Former Structures, Fill Material and/or Disturbed Ground

Building No.	Description
Site A	
Former location of Building A6	10 m x 10 m tiled, concrete floor
Between former buildings of A6 and A7	Roughly circular area of gravel (possibly used by vehicles) with infilled/Made Ground central area.

Table 1.2 (continued) Site Former Structures, Fill Material and/or Disturbed Ground

Building No.	Description
Site C	
North-east of C2	A thin strip of land was observed to have been raised in this area by several metres (2-5 m). Surface cover is smooth comprises mainly of grass.
North of C5	A large, roughly rectangular area of land was observed to have been raised in this area by several metres (3-6 m). Surface cover comprises mainly of grass with a flat plateau.
North-east of C7	The land was observed to have been raised in this area by several metres (3-6 m). Surface cover is smooth comprises mainly of grass.
South-west of C8	A small, roughly rectangular area of land was observed to have been raised in this area by several metres (2-5 m). Surface cover comprises mainly of grass.
Area to north of C32 Burning Ground	A large , roughly rectangular area of land was observed to have been raised in this area by up to 1 m.

1.3.6 Site Boundaries

Land uses surrounding the site are summarised in the tables (Table 1.3 and Table 1.4) below:

Table 1.3 Site A Boundaries and Adjacent Land Uses

Boundary	Adjacent Land Use	Nearby Land Use
North	Agricultural	Agricultural
East	Agricultural	Predominantly agricultural with some residential
South	Widnell Lane (minor road)	Predominantly agricultural with Piddington Training Area (military)
West	B4011 (minor road)	DSDC Bicester G Site and G Site Sports Ground (military)

Table 1.4 Site C Boundaries and Adjacent Land Uses

Boundary	Adjacent Land Use	Nearby Land Use
North	Lower Arncott village and Ploughley Road (minor road)	Predominantly agricultural with some residential
East	DSDC Bicester H Site, Upper Arncott village, agricultural land.	Predominantly residential with some military and agricultural
South	Agricultural	Predominantly agricultural with M40 motorway
West	Agricultural	Predominantly agricultural with some residential

1.3.7 Tenant, Lodgers and Enclaves

A number of buildings at Site C are leased to businesses and individuals for a variety of uses and is generally referred to as an 'income generation use' by DSDC. On the basis of the walkover and information collected anecdotally during the walkover, these areas/buildings include Thames Valley Police (Buildings C7 and C12), Multipart (Building C2), Barrus (Building C5), KBR (Building C8) and the Defence Support Group (DSG) (Buildings C33 and C33A).

1.3.8 Buried Services

Information on buried services on and in the vicinity of the site was obtained via site records held by the following:

- The Site Estate Authority Team (SEAT);
- The MOD site estate management contractor (PriDE) via SEAT; and
- The MOD site water service (Project Aquatrine) contractor, Kelda Water Services (Kelda).

Buried service plans were obtained as part of the intrusive works. Water mains, surface and foul drainage, electricity mains, mains gas and telecommunications plans were made available to Entec.

1.3.9 Ordnance

As part of the Phase One LQA, an Explosive Ordnance Threat Assessment (EOTA) was commissioned. The EOTA concluded as follows:

- DSDC Bicester has been a military depot for over 65 years. No evidence could be found to indicate that the purpose of the depot was ever for the storage of explosive ordnance. Nevertheless, as with all historic military facilities, there is always a residual risk of explosive ordnance contamination;
- During the war years, the facility would have been defended, and weaponry in the

form of small arms and land service ammunition would have been stored and available for use. Furthermore, as a result of the military association with the area, it is likely that the land on and around the depot would have been utilised for ground training exercises historically;

- The ‘house-keeping’ of WWII facilities is known to have often been poor with unwanted and unused items of explosive ordnance frequently buried, burnt, lost or otherwise discarded within a facility perimeter. Given the available history of the site, the likelihood of this having occurred within the perimeter of DSDC Bicester is not considered high, but cannot be entirely discounted. It should be noted that several search and clear operations have been undertaken at several locations on the site by 33 Engineer Regiment (EOD) in the post-war period. Although nothing was found, the requirement for and completion of such operations at the cost of the MoD indicates that there was a credible perceived threat/possibility of explosive ordnance contamination being present. It should also be noted that only small sections of DSDC Bicester have been subject to such searches, those searches only providing 12.5% clearance;
- Research indicates that bombing density over the Bicester area was low. Very few references could be found to raids over the region despite there being a number of high profile RAF targets present. Air Raid Precaution (ARP) records for COD Bicester could not be located (reports of bombing on military land were generally made by military personnel and kept separate from civilian records). It has therefore not been possible to confirm that the facility was not attacked. However, work on the construction of the depot did not commence until after the main period of bombing in this part of the UK; and
- The depot employed thousands of people and for the latter part of WWII at least, would have been manned twenty-four hours a day. It is considered very unlikely that evidence of unexploded ordnance would have been overlooked across the site subsequent to construction work beginning in June 1941. Prior to this date, the site comprised open, agricultural land on which it is conceivable that unexploded bombs could have been overlooked had they been dropped. However, given the low bombing density in this part of the county and lack of viable targets within the site area in 1940/early 1941, the likelihood of unexploded bombs having been dropped is considered minimal.

BACTEC recommended a number of risk mitigation measures to support intrusive investigation, including:

- Explosive Ordnance Safety and Awareness Briefings to all personnel conducting intrusive works; and
- The Provision of Unexploded Ordnance Site Safety Instructions.

These measures were adopted by Entec through provision and presentation of the Construction Phase Health & Safety Plan (Entec ref: 26999Q066i1).

1.3.10 Dstl Radiological Assessment

As part of the Phase One LQA, a desk study was commissioned through the Dstl Environmental Services Department (Dstl ESD). Dstl ESD conducted a search of records relating to any

radiological contamination issues at the whole DSDC Bicester site.

Dstl ESD records show that a very large number of items of standard military equipment containing radioactive material have been stored at the DSDC Bicester site from at least 1994 to the present day; the site being a major distribution centre for the main storage facility at DSDC Donnington. These include various pieces of instrumentation and check sources containing the following radionuclides: tritium (H-3), nickel-63 (Ni-63), thorium-232 (Th-232), strontium-90 (Sr-90) chlorine-36 (Cl-36) and cobalt-57 (Co-57). In addition, an instrumentation dial from a Canberra (jet aircraft) cockpit containing radium-226 (Ra-226) has been stored on site since at least 1999.

The desk study concluded that the likelihood of contamination being present on other parts DSDC Bicester is deemed to be **moderate**. In particular, if any additional burning grounds, disposal areas or workshops are identified on the site, these should be subject to a radiological survey.

It should be noted that this Phase Two LQA included radiological survey of areas of the site suspected as having the potential for contamination by radiological materials.

1.4 Environmental Setting and Site Sensitivity

A full description of the site environmental setting is presented within the Phase One LQA. This is briefly summarised below, with reference to the assessed site sensitivity.

1.4.1 Geology and Hydrogeology

The anticipated geological sequence consists of alluvium deposits (clay, silt, sand and gravel) over the northern part of Site A and over the strip of land connecting Site C and D directly overlying solid geology consisting of the Stewartby Member (mudstone) and Peterborough Member (mudstone) of the Oxford Clay Formation. The Kellaways Clay Member and Kellaways Sand Members of the Kellaways Formation outcrop in the north of the strip of land connecting Site C and D Site.

The northern half of Site A is underlain by a Secondary (Minor) Aquifer (comprising soils of Low Leaching Potential). This is considered to be the Alluvium. The land in the southern half of Site A is underlain by Unproductive Strata (Non-Aquifer - Negligibly Permeable).

The majority of Site C is underlain by Unproductive Strata (Negligibly Permeable). The strip of land connecting D Site and Site C is also underlain in places by a Secondary Aquifer (including soils of both High and Low Leaching Potential).

As the site is mainly underlain by an Unproductive Strata (Oxford Clay Formation) which would be considered to present a low sensitivity with a moderate sensitivity assessed for the Secondary (Minor) Aquifer (Alluvium) situated in the north part of Site A. The site is not within a SPZ.

Groundwater Sensitivity: Moderate/Low
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1.4.2 Surface Water

The River Ray traverses the extreme north of the Site C and is of a generally poor water quality.

There is potential for the River Ray to be affected by direct run-off and discharges from the site. However, the site itself is large and as such the sensitivity will decrease with respect to distance for the identified surface water receptors.

Surface Water Sensitivity: Moderate
--

1.4.3 Ecology

A Site of Special Scientific Interest (SSSI) is located close to the strip of land connecting Site C to other areas of DSDC Bicester. Both Site A and Site C have a record of one Environmentally Sensitive Area (ESA) being located on-site with a third record being positioned approximately 130 m west of Site C. Both sites are surrounded predominantly by agricultural land which forms the ESA, namely the Upper Thames Tributaries ESA. However, both sites are large and as such the sensitivity will decrease with respect to distance for the identified ecological receptors with Site C being the most sensitive due to the proximity of the SSSI.

Ecological Sensitivity: Moderate

1.5 Previous Entec Phase One LQA Assessment

Several investigations, clearances and Phase One and Phase Two LQAs have historically been performed at the site and are reported within Section 1.8 of the Entec Report Reference: 26999RR030i2. The summary of potential sources of contamination identified within the Entec Phase One LQA is presented below.

1.5.1 Summary of Potential On-site Sources of Contamination

Following the assessment of historical and current activities, there were several potentially contaminative activities which were identified on the site, namely:

Historical On-Site Issues

- A13 Vehicle Filling Area;
- POL Facility to south west of building C3;
- C19 and C19A Vehicle Filling Area;
- Former Demolished Buildings A6, C8 and C26 (A13 is a former demolished building but is not included within this source area due to its operation as a filling station);
- Building C33 Landfill;
- A33 Former Burning Ground Area (including former incinerator); and
- C32 Burning Ground.

Current and Recent On-site Operations

- Railway Lines and Associated Infrastructure;
- POL Point (namely C61 - fuel tanks and dispensing pumps);

- C33 Fuel Storage and Engine Test Facility;
- Site C Heating Oil Storage Tanks (Buildings C1, C2, C3, C4/C11, C5, C6A, C6N, C7, C8, C9, C16, C16A, C32 and C33);
- A7 Defence Fire Service Building;
- Oil Water Interceptors;
- Disturbed Ground around buildings C2, C5, C33, C7, C8 and C32 Burning Ground;
- ACM around building structures and in spoil from former buildings (including ARS); and
- Radiation Sources in areas around C32 burning ground, C33 landfill and A33 burning ground.

The locations of the above listed potential sources are shown on Figure 3a and 3b.

1.5.2 Summary of Potential Off-Site Sources of Contamination

Following the assessment of historical and current activities, no potentially contaminative activities have been identified off-site, that are considered within the risk assessment.

2. Sources of Information

2.1.1 General and Other Information Sources

Information for this study has been gained from previous investigation reports and general mapping sources as summarised below.

Public Domain and Non-MOD Sources

- General mapping/plans: recent and historical;
- BGS Digital Geological mapping;
- Hydrogeology mapping and Groundwater Vulnerability mapping;
- emapsite™ GroundSure data search (GeoInsight and EnviroInsight reports);
- Local Authority (Cherwell District Council) environmental data search;
- English Heritage (National Monuments Record) Aerial Photographs;
- *The Bicester Military Railway and the Army's Central Railway Workshops* by E.R. Lawton & Major M.W. Sackett, Oxford Publishing Company, 1992 ISBN 0-86093-467-4-5;
- Archaeology and Cultural Heritage References; and
- Multi-Agency Geographic Information for the Countryside (MAGIC) website www.magic.gov.uk.

Specialist Data Searches:

- A search of records relating to any radiological contamination issues was requested from Dstl ESD as part of the site Phase One LQA; and
- An Explosive Ordnance Threat Assessment (EOTA) was commissioned through BACTEC as part of the Phase One LQA.

MOD Information Sources

- Plans provided by Defence Estates;
- Estate Development Plan (v1.1, 15 August 2008) provided by Defence Estates;
- Phase One and Phase Two LQA Reports undertaken by Aspinwall & Company (1998 and 2001);
- Draft Phase One LQA Report undertaken by DE&S ESG (February 2010);
- Anecdotal information from Estates Management Personnel; and
- OS Tiles provided by DE Geographical Information Unit.

Site Visit by Entec on 9 July 2010

- Observations, notes and documents reviewed; and
- Visual assessment of the site and surrounding area.

Initial Non-Intrusive Site Surveys commissioned by Entec

- Service clearance exercise undertaken by on 9 and 12 July 2010; and
- Radiological walkover survey of the waste disposal areas/burning grounds near buildings A33, C32 and C33 undertaken between 8 and 16 July 2010.

Main Intrusive Site Investigation Works and Monitoring

- Undertaken by Entec between 12 July and 19 August 2010.

3. Assessment Approach

3.1 Introduction

The potential health and environmental risks associated with contaminants at the site have been assessed using a risk based framework established to support the implementation of the contaminated land regime in the UK.

The contaminated land regime is based on the 'suitable for use' approach to the assessment and remediation of contaminated land, which recognises that the risks presented by contamination vary according to the use of the land and other circumstances. In accordance with the DE LQA Directive, the assessment considers continued current use of the site.

3.2 Definition of Contaminated Land

The contaminated land regime is set out within Part 2A of the Environmental Protection Act (EPA), 1990. It was introduced in England in April 2000 by the Contaminated Land (England) Regulations 2000, 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 01/2006¹.

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. According to the Act, as amended by the Water Act 2003, contaminated land is defined as:

"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 that land:

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

Central to the regulatory system is a rigorous procedure of risk assessment which is used to determine the existence of 'contaminated land' according to the definition. Under the risk assessment procedure, for such harm to the non-aquatic environment or pollution of controlled waters to be possible, there must be a 'significant pollutant linkage'.

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

¹ Department for Environment Food and Rural Affairs. Environmental Protection Act 1990: Part 2A Contaminated Land. Defra Circular 01/2006. September 2006.

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.

3.3 Assessment Framework – Chemical Contaminants

There is a range of technical approaches to risk assessment of chemical contaminants, all of which broadly fit within a tiered approach. The tiered approach to assessing risks from land contamination is set out in the Defra and Environment Agency publication "Model Procedures for the Management of Land Contamination" CLR11.

Entec's approach to undertaking risk assessments is based on a tiered framework in accordance with CLR11, as outlined in Table 3.1.

Table 3.1 Tiered Framework

Tier 1: Preliminary Risk Assessment	<ul style="list-style-type: none"> • Development of a conceptual model. • Preliminary Risk Assessment examining potential contaminants, pathways and receptors to identify the potential 'pollutant linkages'. • Identification of further risk assessment requirements.
Tier 2: Generic Quantitative Risk Assessment (GQRA)	<ul style="list-style-type: none"> • Screening of analytical results against generic assessment criteria (GAC) for soils and groundwater including Soil Guideline Values, Environmental Quality Standards, etc., to identify issues that require more detailed consideration. • Identification of further risk assessment or risk management requirements.
Tier 3: Detailed Quantitative Risk Assessment (DQRA)	<ul style="list-style-type: none"> • Refinement of site conceptual model which may require the collection of additional data. • Application of detailed quantitative risk assessment procedures in accordance with CLR Guidance to further assess potential pollutant linkages. <ul style="list-style-type: none"> – With respect to human receptors this may involve assessment of site specific exposure scenarios taking into account toxicological properties of substances to derive site specific assessment criteria (SSAC). – With respect to controlled water receptors this may involve simple analytical calculations of groundwater and/or surface water flow and contaminant attenuation to derive remedial target concentrations. • To undertake the assessment proprietary software such as RISC4, RBCA or RAM may be used. • Identification of further risk assessment or risk management requirements.

The conceptual model is developed at the preliminary risk assessment tier and reviewed and refined during subsequent risk assessment tiers. The conceptual model represents the characteristics of this site and indicates the possible relations between **contaminants**, **pathways** and **receptors**, where:

- A **contaminant** is a substance which is present in, on, or under the land and has the

potential to cause harm;

- A **receptor** is something which could be adversely affected by the contaminant, including human beings; and
- A **pathway** is a route or means by which a receptor could be exposed to, or affected by, a contaminant.

For a potential risk to exist with respect to a site, all three of the above elements must be present, and linked together so that a contaminant has been identified, a receptor is located on the site and there is an exposure pathway that links the contaminant to the receptor. The term **pollutant linkage** is thus used to describe a particular combination of contaminant-pathway-receptor relationship.

In general, the application of increased tiers of risk assessment should result in less conservative assessment criteria which in turn should reduce the need for costly remediation action.

This report presents a **Tier 2 Generic Quantitative Risk Assessment** in accordance with the DE Contaminated Land Management LQA Management Guide (PG01/07).

In accordance with DE Phase Two LQA Directive, the potential environmental risks associated with the following land uses have been evaluated:

- Continued current land use (i.e. commercial/ industrial use).

3.4 Assessment Framework – Radioactive Contaminants

3.4.1 Background

Since August 2006, Part 2A has been extended to include radioactive contamination (Defra Circular 01/2006, superseding 02/2000). Local Authorities now have a duty to identify sites that are potentially contaminated with radioactive material by virtue of past operational activities. Former military sites that were operational during the first half of the 20th century are likely to be considered as possible candidates for inspection under Part 2A, because of the historic use of radioactive materials on these sites.

This extension of Part 2A applies only in respect to harm to human health, and not in respect of other receptors or pollution of controlled waters. Under Part 2A, land is determined as contaminated land by virtue of radioactivity if 'harm' is being caused, or there is a significant possibility of 'harm' being caused to existing site users, by ionising radiation.

The criteria for harm are based on 'intervention' scenarios; i.e. situations in which site users are currently being exposed, and the decision must be made whether an 'intervention' (i.e. remedial action) is necessary to reduce exposure levels. Lower dose thresholds apply for 'practices', which generally refer to consented radioactive discharges but also include redevelopment projects that result in a different exposure scenario, i.e. a change of land use. The dose received can be related to the activity concentration of contaminated soil using software published by Defra (CLR15). Radioactive soil guideline values (RSGVs) can be established for different exposure scenarios using this software.

4. Initial Conceptual Site Model and Preliminary Risk Assessment

4.1 Introduction

The findings of the previous Entec Phase One LQA form the basis of the initial conceptual model and risk assessment. The subsequent Phase Two intrusive ground investigation was designed on the basis of this initial conceptual model. The data obtained from the investigation have been used to refine and update this conceptual model. The updated conceptual model for the site is presented in Section 7.4.

4.2 Initial Conceptual Site Model

The following sections summarise the initial conceptual model, consisting of the preliminary identified sources, pathways and receptors relevant to the site.

The potential sources of contamination are summarised previously within Section 1.5.

4.2.1 Receptors and Pathways

Potential receptors and pathways from identified sources to receptors are detailed in Table 4.1.

Table 4.1 Receptors and Pathways

Receptor	Pathway
Site Visitors/Users (Commercial/Industrial)	Dermal contact, direct contact, ingestion, inhalation
Construction and Maintenance Workers	Dermal contact, direct contact, ingestion, inhalation
Future Site Users (Commercial/Industrial)	Dermal contact, direct contact, ingestion, inhalation
Neighbouring Site Users	Dermal contact, direct contact, ingestion, inhalation
Groundwater (Secondary Aquifer and Unproductive Strata)	Leaching from soils, transport in groundwater, groundwater contamination
Surface Water (site drainage ditches, unnamed on-site ponds, River Ray, brook to east of Site A)	Leaching from soils, transport in groundwater, groundwater contamination, run-off
Ecological Receptors	Uptake, direct contact
Agricultural Receptors	Uptake, direct contact
Buildings and Buried Services (current and future)	Degradation (chemical attack), direct contact, vapour migration, explosion

4.3 Preliminary Risk Assessment Findings

The environmental risk assessment undertaken as part of the Phase One LQA comprised an analysis of potential pollutant linkages (contaminant-pathway-receptor) on the site. The risk assessment is presented in full in the Phase One LQA report.

The potential risks were evaluated using the following criteria:

- i) Potential consequence of pollutant linkage;
- ii) Likelihood of pollutant linkage; and
- iii) Risk classification.

The 'Risk Classification' is an overall assessment of the potential risk, which considers the likely effect on a given receptor, taking account the potential consequence of the pollutant linkage and the likelihood. The definition of the risk classifications is outlined in Table 4.2.

Table 4.2 Definition of Risk Classification

Potential Significance	
Very High Risk	Severe harm to a receptor may already be occurring OR a high likelihood that severe harm will arise to a receptor, unless immediate remedial works/mitigation measures are undertaken.
High Risk	Harm is likely to arise to a receptor, and is likely to be severe, unless appropriate remedial actions/mitigation measures are undertaken. Remedial works may be required in the short term, but likely to be required over the long term.
Moderate Risk	Possible that harm could arise to a receptor, but low likelihood that such harm would be severe. Harm is likely to be medium. Some remedial works may be required in the long term.
Low Risk	Possible that harm could arise to a receptor. Such harm would at worst normally be mild.
Negligible	Low likelihood that harm could arise to a receptor. Such harm unlikely to be any worse than mild.

The following summarises the findings of the risk assessment undertaken in the Phase One LQA. The implications of continued commercial/industrial end use have been briefly considered.

4.3.1 Current Site Users

Site A and Site C are part of DSDC Bicester which is currently an operational facility which is fenced and guarded. Access to both sites is restricted to MOD staff, cleared income generation employees and visitors. The majority of the site is suitable for use by the current users. Review of previous LQA reports, updated information and site walkover have highlighted the history and the nature of activities undertaken at the site, several potential areas that could act as contaminant sources have been identified. The risks identified for these sources are assessed to be **moderate/low**.

4.3.2 Construction and Maintenance Workers

A pollutant linkage is created during redevelopment activities as extensive ground disturbance

or entry into confined spaces may take place. However, exposures may be controlled by working methods and suitable personal protective equipment (PPE). The exposure pathways include dermal contact, ingestion and inhalation.

It is assumed that ground work would be the subject of a site specific health and safety assessment and appropriate measures would be taken for any redevelopment work at the site. The risks to ground workers during redevelopment are therefore considered to be **moderate** on the basis of both potential contamination and intrusive investigation results. The incorporation of appropriate Health and Safety protocols can reduce these risks to **low**.

The risks during demolition or intrusive work could be greater than this, depending on the potential extent and condition of localised radiological contamination, asbestos and work close to fuel leaks.

4.3.3 Future Site Users (Commercial and Industrial)

The risk to future site commercial/industrial end users considers the probable placement of hard surfaces and the consequential reduced contact with soil, which would reduce/negate potential pathways for contaminant migration to identified, less sensitive receptors. The exposure frequency and duration to contaminants from outdoor air is also reduced for commercial/industrial workers. The risks presented to future commercial/ industrial end users have generally been assessed as **moderate/low** and are covered by the range **moderate** to **moderate/low**. **Moderate** risks are located in the former burning grounds and landfilled areas around close to buildings C32, C33 and A33 where radiological contamination is potentially present and areas of bulk fuel storage.

4.3.4 Neighbouring Site Users

Site A and Site C are bounded in the main by agricultural areas with some residential properties adjacent to the eastern side of Site C. Whilst there is some proven and potential contaminants present on site, a number of factors including the location, localised and limited volume of identified potential contamination, surface cover and underlying geology results means that it is considered less likely to migrate from the site. Consequently, the risks assessed for this receptor are all **moderate/low**.

4.3.5 Groundwater

The majority of both Site A and Site C overlies unproductive strata with a small strip of land in Site C and approximately 50% of Site A sited upon a Secondary Aquifer, overlain by soil which is assessed to be of classification Low Leaching Potential. Consequently, risks are assessed to be in the range **moderate/low** to **negligible** risk for contaminant migration and impact to groundwater.

4.3.6 Surface Water (Drainage Ditches, Unnamed Onsite Ponds, River Ray and Brook to the East of Site A)

Precipitation from roofs and hardstanding areas drains to a network of surface water drainage ditches that drain the low-lying, poorly draining parts of the site. The closest major surface water feature to the site is the River Ray that passes through a thin strip of Site C. Two ponds are located to the north of Site C and brook follows the eastern most boundary of Site A. Based on the nature of the drainage and outfalls present at the site, the risks to surface water have been

assessed as generally **moderate** to **negligible** risks, with the highest risk associated with the former burning grounds and landfills close to buildings C32, C33 and A33 and the fuel storage facilities adjacent to buildings C61 and C33.

4.3.7 Ecological Systems

On the basis of the surface cover on the depot sites, the geology and distance to potential receptor areas from the potential sources of contamination the assessed risks are considered to be in the range **low** to **negligible**.

4.3.8 Agriculture (Arable and Livestock)

Site A and Site C are bounded in the main by agricultural land. The land is used for the grazing of livestock and arable (observed generally not to be crops for human consumption). Given the surface cover on the depot sites, the geology and distance of these receptor areas from the potential sources of contamination the assessed risks are considered to be in the range **low** to **negligible**.

4.3.9 Buildings and Buried Services

Risks to buildings and buried services may occur via direct contact or vapour migration from contaminants in soils. The potential presence of fuel contamination at the site generally gives rise to a **moderate/low** risk with risks for all sources assessed in the range of **moderate/low** to **negligible**.

4.4 Summary of Potential Contamination

The findings of the previous Phase One LQA and the further desk study information obtained as part of the Phase One LQA assessment were used to inform the scope of the Phase Two LQA. The full list of sources of potential contamination is presented within Section 1.5.

The principal health and environmental risks identified based on the initial conceptual model are summarised in the bulleted list below. The list includes all potential sources which were assessed as giving rise to a risk of **moderate** or higher. Where the only risk of greater than moderate for a source related to Humans (Construction and Maintenance Workers), these sources have not been investigated, as risks to this receptor may be mitigated by appropriate working methods and personal protective equipment (PPE). The sources that were identified for further investigation are as follows:

- Area close to building A33 used as a burning ground;
- Former burning grounds/waste disposal areas close to buildings C32 and C33 Landfill Area; and
- Current and former fuel storage areas, including building C60 Petrol, Oil, Lubricant (POL) Point (C61) and building C33 FFO Tank Area.

Surface water sampling to investigate the extensive surface water drainage system across Sites A and C was also performed to give a general indication of the surface water and land quality. Three additional boreholes were drilled at Site A in order to fulfil a request for basic investigation of the Secondary Aquifer by the Environment Agency.

5. Site Investigation

5.1 Objectives

The Phase Two investigation was commissioned by DE based on the findings of the previous Phase One LQA. The investigation design was based on targeted characterisation of the potential contamination sources summarised in Section **Error! Reference source not found.** of this report.

The objectives were satisfied by both non-intrusive and intrusive investigation along with sampling to obtain representative samples of soil, surface water and groundwater to characterise potential contaminants within targeted areas and to assess the associated risks to human health and the environment.

5.2 Scope of Works

The scope of works comprised some initial surface surveys, to inform and direct the subsequent intrusive works in the targeted areas. An outline of the works undertaken and their general order is summarised in Table 5.1.

Table 5.1 Outline of Works Undertaken

	Stage	Description
1	Confirmation of target areas	The general location and extent of identified target areas outlined by Entec based on the aerial extent identified in the previous Phase One LQA.
2	Radiological walkover survey	Walkover survey of targeted areas of the site with a radiation scintillation probe to review any detectable surface radiation. The survey data was used to manage potential health and safety issues, and to locate investigation positions to field anomalies.
3	Specify ground investigation locations	On the basis of the Phase One LQA data and the radiological survey data, the investigation scope and locations were identified in the target areas; each located to investigate identified anomalies/buried objects/provide general ground coverage.
4	Locate positions in the field	Exploratory locations in the field were located either by reference to existing buildings / structure or using a Global Positioning System (GPS) unit.
5	Service clearance	Copies of available service utility plans were obtained from the Regional Prime Contractor (PriDE/Interserve) prior to undertaking the works. Prior to any excavation, the May Gurney engineer undertook service scanning and clearance of each location. Due to the absence of complete service plans, a specialist service clearance engineer (SVS Ltd) was utilised to clear services in all investigation areas of the site prior to the commencement of intrusive works.
6a	Intrusive site works	Up to three ground investigation teams were present on site progressing a combination of boreholes, trial pits and window samples.

Table 5.1 (continued) Outline of Works Undertaken

	Stage	Description
6b	Radiological screening	Field scanning of exploratory locations and arising soils for elevated radiation readings was undertaken on areas identified as having a potential for containing buried radiological residues.
7	Laboratory analysis	Soil, groundwater and surface water samples were submitted for analysis for chemical contaminants.

5.2.1 Variations to Original Scope

Some variation to the original scope of works was undertaken, as a result of consultation with the Local Authority (LA) and the Environment Agency (EA) on the proposed scope of the intrusive investigation works and conditions encountered/identified in the field. These are outlined below:

Site A: Investigation of the North Western Boundary Area

The north western area of Site, north east of building A33 was identified as a former burning ground. The potential for contamination from site activities to have impacted on the ground in this area was intended to be investigated by the collection of surface water samples from the drainage ditches travelling across the site. Following a review of the site investigation scope by the LA and the EA, the EA requested that intrusive investigation works should be undertaken within the northern area of Site A to assess the potential for contamination in the underlying ground and shallow groundwater and for potential migration of contamination into the surrounding agricultural land.

Site A: Investigation of the Former A33 Burning Ground

An area of woodland close to A33 was found to be too dense to achieve sufficient Global Positioning System (GPS) signal. Surveying of this area was conducted using a Ludlum 2" detector.

Site C: C61 POL Area

The scope of the investigation of the POL area was originally intended to be a combination of three window samples and two cable percussion boreholes encircling the underground storage tanks (USTs) associated with the POL fuel filling point. The fuel filling point is still in active use and at the time of the investigation concern was raised by the C61 POL site manager about access restrictions to this area during the drilling of the cable percussion boreholes. Due to the nature of the ground conditions encountered in this area in the excavation of the window sample holes, it was deemed that the boreholes could be replaced with window samples and the required excavation depths still achieved. Replacing the borehole with window samples would allow the terrier window sample rig to be mobilised and removed from the area at short notice if large vehicles required access to the filling point. As such boreholes BHC01 and BHC02 were replaced with window samples WSC08 and WSC07 respectively.

Site C: C33 Landfill

The extent and nature of the landfill material in this area of the site was due to be investigated

with the excavation of six trial pits across the landfill area. An initial walkover of this area of the site identified that the western area of the landfill was very overgrown with vegetation and a large volume of concrete railway sleepers has been deposited. Due to these restrictions to the access of the western area the scope of the investigation was reduced to target the accessible central and eastern areas. A total of four trial pits were excavated.

Site C: Investigation of C32 Burning Ground

On discovery of elevated radioactivity readings around the C32 burning ground, the walkover RadSurvey was extended to comprise all grassed areas surrounding building C32.

5.3 Non Intrusive Surveys

A radiological surface survey was undertaken ahead of the main intrusive works in a number of areas across Sites A and C where information from the Phase One LQA identified the potential for radiological contamination to be present. The non-intrusive surveys were undertaken to review the potential presence of detectable radiological residues at the near surface. These are detailed below.

5.3.1 Radiological Walkover Survey

The radiological walkover survey (RadSurvey) covered three separate areas of land across Sites A and C. The survey area on Site A targeted an area close to Building A33 that was historically used as a burning ground. The surveying of land at Site C targeted land adjacent to the Building C32 burning ground and land to the rear of Building C33 which was historically used as a waste disposal landfill area. Radiological surveying was undertaken based on a 100% coverage survey of approximately 3 hectares of the site by Entec staff using RadSurvey equipment.

RadSurvey 3" Probe

The RadSurvey instrument is a 3" x 3" sodium iodide probe coupled with a Trimble GPS receiver and datalogger. Radioactivity measurements in 'counts per second' (cps) and GPS coordinates are recorded simultaneously every second. The instrument was operated in 'hand held' mode.

A 100% walkover survey was conducted across the targeted areas of the site. Each area was surveyed in 2 m strips with the probe detectors held approximately 100 mm above the ground surface. The surveyor walked at speeds of no more than 1 m/s and given that readings are taken every second, a measurement of radioactivity is recorded at one metre intervals on the ground. The RadSurvey instrument also has a spectrographic capability for identification of contaminating radioisotopes.

Ludlum 2" Probe

The Ludlum 2241 digital ratemeter and 44-10 sodium iodide 2"x 2" probe is a hand-held instrument providing measurements of radioactivity in cps where GPS satellite signals were obscured. In areas surveyed using the Ludlum probe, the locations of measurements above background levels were recorded manually.

Both instruments are calibrated to respond to radium-226 (the suspected contaminant) as shown in Table 5.2. The radiological monitoring instruments used have valid Health Protection Agency

calibration certificates. Radium-226 contaminated soil in the range >0.37 Bq/g to <4.9 Bq/g is currently exempt from the provisions of the Radioactive Substances Act 1993 (RSA93) and the Environmental Permitting Regulations 2010 (EPR10) by virtue of its compliance with ‘The Radioactive Substances (Phosphatic Substances Rare Earths etc.) Exemption Order 1962’. This is currently referred to as “Exempt” material with material above 4.9 Bq/g regarded as Low Level Radioactive Waste (LLW). As part of the Environmental Permitting Regulations (EPR) programme which included incorporation of Radioactive Substances Regulation, the Exemption Orders which exempt activities meeting specified criteria from the need to hold a permit under RSA93 and EPR10 are being reviewed. Consideration will be given once the review has been completed as to whether a new schedule or schedules may be inserted into the EPRs, especially in relation to any revised exemptions. The main risks emanating from the review of the Exemption Orders is expected to originate from the possibility that, unlike the current circumstances, future exemption limits could be radionuclide-specific. The potential impacts could include changes in waste volumes (and the corresponding cost for disposal) together with additional complexities to record keeping and monitoring.

Table 5.2 Summary of Radiological Instrument Calibration Factors and Indicative Count Rates

Instrument	Calibration Factor (cps / Bqg ⁻¹)	Uncontaminated Background Count Rates (cps)	Indicative Probe Measurements for Exempt Waste Threshold: 0.37 Bq/g (cps)	Indicative Probe Measurements for Low Level Waste Threshold: 4.9 Bq/g (cps)
RadSurvey Probe	1000	400	770	5300
Ludlum 2"	500	200	385	2650

Note: Calibration factor and count rates are for radium-226

Natural background radioactivity is ubiquitous, and needs to be considered separately from ‘contaminating’ radioactivity arising from human actions. At the site, the average background measurement was 400 cps using the RadSurvey probe and 200 cps using the Ludlum 2" probe. The field results of the survey are presented in Section 7.3.6. The survey areas are shown on Figure 4a and 4b.

Survey Area Restrictions

Tarmac and concrete hardstanding will attenuate radioactivity present in the ground beneath and may itself also contain relatively high concentrations of naturally occurring radioactive material (NORM). For these reasons, monitoring of hard surfaced areas is unlikely to yield a reliable indication of the presence or absence of radioactive contamination. Therefore, the radiological survey focused on the unsurfaced areas of the site.

5.4 Intrusive Site Investigation

The intrusive ground works were carried out over a two week period from 12 to 23 July 2010. Entec designed and supervised the intrusive works. May Gurney was appointed as the subcontractor to undertake the intrusive ground investigation works.

The investigation undertaken was a risk based assessment of selected sources of potential contamination in areas of Site A and Site C, as highlighted in the Phase One LQA and Section 4.4, as posing a **moderate** (or higher) risk to identified receptors. The following areas of greatest concern were targeted:

- A33 Burning Ground (RadSurvey only);
- C61 POL;
- C33 FFO Tank Area;
- C33 Landfill;
- C32 Burning Area; and
- Selected surface water sampling across Sites A and C.

At the request of the Environment Agency, three windowless sampler boreholes were installed on the north-western boundary of Site A to target potential migration of contaminants within groundwater.

Entec and May Gurney engineers supervised the fieldwork, logged ground conditions in all exploratory locations and obtained environmental samples as required. The target areas of concern outlined in the table below are identified on Figure 3a and 3b along with the locations of all exploratory locations. The excavation logs are presented in Annex A.

Table 5.3 provides details of the intrusive investigation locations.

Table 5.3 Intrusive Investigation Locations

Area/ Building	Objective	Contaminants of Concern	Exploratory Locations	SI Specification
Site A: North western area	Investigate former A33 burning ground area and potential impact to shallow Secondary Aquifer on north western boundary of site	Hydrocarbons	WSA01	Hand-pit to max 1.2m
		Metals and other inorganics	WSA02	Hand-pit to max 1.2m
		Solvents	WSA03	Hand-pit to max 1.2m
Site C: C61 POL Area	Investigate potential leaks or spills from existing fuel storage tanks and/or associated pipework	Hydrocarbons	WSC01	Hand-pit to max 1.2m
		Metals and other inorganics	WSC02	Hand-pit to max 1.2m
		Solvents	WSC03	Hand-pit to max 1.2m
			WSC07	Hand-pit to max 1.2m
			WSC08	Hand pit to max 1.2m
Site C: C32 Burning Ground	Investigate the nature of known Made Ground material deposited in this area	Hydrocarbons	TPC01	Trial pit to max 4.5 m
		Metals and other inorganics	TPC02	Trial pit to max 4.5 m
		Solvents	TPC03	Trial pit to max 4.5 m
			TPC04	Trial pit to max 4.5 m
		Asbestos	TPC05	Trial pit to max 4.5 m
			TPC06	Trial pit to max 4.5 m
Site C: C33 FFO Tank Area	Investigate potential leaks or spills from existing fuel storage tanks and/or associated pipework	Hydrocarbons	WSC04	Hand-pit to max 1.2m
		Metals and other inorganics	WSC05	Hand-pit to max 1.2m
		Solvents	WSC06	Hand-pit to max 1.2m
			BHC03	Max 10m borehole with well pipe
Site C: C33 Landfill	Investigate the nature of known Made Ground material deposited in this area	Hydrocarbons	BHC05	Max 10m borehole with well pipe
		Hydrocarbons	TPC07	Trial pit to max 4.5 m
		Metals and other inorganics	TPC08	Trial pit to max 4.5 m
		Solvents	TPC09	Trial pit to max 4.5 m
		Asbestos	TPC10	Trial pit to max 4.5 m

BH – Cable Percussion Borehole; HP – Hand-Pit; TP – Trial Pit; WS – Window Sampler borehole

*Exploratory position progressed in reaction to conditions encountered in the field

5.5 Chemical Sampling and Analysis

5.5.1 Soil Sampling

Soil samples were collected from excavations at changes in strata and/or 1m depth intervals or less where appropriate.

For much of the site, the potential for contamination was likely to be attributable to surface residues from previous activities or buried materials / Made Ground. Consequently, for most exploratory locations, a shallow sample was taken, typically from between 0.10 to 0.50 m bgl. Additional deeper samples were also taken to review the contamination profile with depth, particularly where any significant depth of Made Ground or infill material was identified.

Soil samples were taken using either a stainless steel trowel, which was cleaned between each use to avoid cross contamination, or by hand with a change of gloves between sampling. The samples were placed directly into containers provided by the laboratory.

5.5.2 Soil Analysis

Soil samples were scheduled and subsequently analysed in the laboratory for some or all of the following determinands depending on historical use and visual and olfactory observations:

- Metals: arsenic, barium, boron, cadmium, chromium, hexavalent chromium, copper, lead, mercury, nickel, selenium and zinc;
- Organics: Total Petroleum Hydrocarbons Criteria Working Group (TPH-CWG), extractable petroleum hydrocarbons (EPH) or Total Petroleum Hydrocarbons (TPH) screen, polycyclic aromatic hydrocarbons (PAH), polychlorinated biphenyls (PCBs) benzene, toluene, ethylbenzene and xylene (BTEX) and semi-volatile and volatile organic compounds (SVOC) and (VOC); and
- Asbestos and other soil parameters including pH, ammoniacal nitrogen, soluble sulphate and soil organic matter.

Where hydrocarbons were identified as a target potential contaminant of concern in the Entec Phase One LQA, selected samples of soil and groundwater were analysed using the TPH-CWG approach which divides the petroleum mixtures into fractions using the Equivalent Carbon (EC) number convention. EC numbers are used to normalise petroleum constituents by reference to their boiling point and the boiling point of equivalent n-alkanes where the number of carbon atoms is known. This allows EC numbers to be determined for constituents where only the boiling point is known. This convention is described fully in the TPH-CWG documents (*TPH-CWG 1997*).

In addition to dividing the petroleum mixtures by EC number, the TPH-CWG method also considers aliphatic and aromatic hydrocarbon fractions separately due to their differing behaviour in the environment and variation in toxicity. Thus, for the purposes of laboratory analysis and risk assessment, the TPH-CWG recommend that petroleum mixtures are considered in fourteen fractions which includes aliphatic and aromatic compounds with equivalent carbon numbers of up to 35. The UK approach considers a further three fractions to take account of aliphatic and aromatic compounds with equivalent carbon numbers of up to 70, although given the contaminants likely to be encountered during this investigation (petrol and diesels), samples were submitted for speciated analysis of aromatic/ aliphatic TPH-CWG bands

with equivalent carbon numbers of up to 35.

5.5.3 Groundwater Analysis

Groundwater was sampled on two occasions (04/08/10 and 18/08/10) and subsequently analysed in the laboratory for some or all of the following determinands depending on historical use and visual and olfactory observations:

- Metals: arsenic, boron, cadmium, calcium, chromium, copper, lead, mercury, selenium and zinc;
- Organics: TPH-CWG or EPH, PAHs, BTEX, VOCs, SVOCs; and
- Chloride, sulphate, ammonia as NH_4 and pH.

5.5.4 Surface Water Analysis

Surface water was sampled on three occasions (21/07/10, 29/07/10 and 04/08/10) and subsequently analysed in the laboratory for some or all of the following determinands depending on historical use and visual and olfactory observations:

- Metals: arsenic, boron, cadmium, calcium, chromium, copper, lead, mercury, selenium and zinc;
- Organics: TPH-CWG or EPH, PAHs, BTEX, VOCs, SVOCs; and
- Chloride, sulphate, ammonia as NH_4 and pH.

5.6 Gas and Vapour Screening

Headspace monitoring was undertaken on soil samples using a PID to inform sample scheduling. The PID instrument was calibrated at the beginning of each day using isobutylene (100 ppm with 10.2eV lamp, span 9.8). Headspace results are presented in Section 6.3.

5.7 Standpipe Monitoring

An infra-red gas detector (GA2000 analox) was used on all six occasions (21/07/10, 23/07/10, 29/07/10, 04/08/10, 13/08/10 and 18/08/10) to monitor levels of methane, carbon dioxide and oxygen from completed standpipes on six occasions following completion of the site works. In addition to the gas detector, a PID (photo ionisation detector) was also used to qualitatively measure the concentration of VOCs. Measurements were also taken of the resting groundwater depth and the depth to the base of each installation. The monitoring data is included in Section 6.6.

5.8 Quality Assurance and Control

The following section summarises the overall quality assurance and control applied during the intrusive investigation undertaken at the site. As demonstrated below, a quality chain exists from Entec through the various sub-contractors employed to complete the intrusive

investigation and analytical work.

Entec operates a quality system registered under BS EN ISO 9001 (Certificate Registration No FS34171). Entec only employs contractors and other key suppliers from its 'approved supplier list', which is managed under Entec's Quality System. Subcontractors are managed following guidance under Entec's Quality System Procedure 'Management of Site Works Contractors'.

The works were supervised on a full time basis by Entec. During the fieldwork the following procedures were followed to ensure the accuracy of the sampling and minimise cross contamination:

- i) Samples were only handled using clean latex or nitrile rubber gloves;
- ii) Soil samples were collected in a manner to minimise disturbance; and
- iii) Samples were maintained at a low temperature and conveyed to the testing laboratory at the earliest opportunity.

Samples were sent to ALcontrol Laboratories (ALcontrol), a specialist subcontractor to Entec. ALcontrol is an MCERTS and UKAS accredited laboratory. All samples were sent by courier accompanied by full Chain of Custody documentation and unique identifiable labels. Samples on site were stored in cool boxes with refrigerant blocks and were located out of direct sunlight. Samples were couriered on a same day basis.

5.9 Health and Safety

5.9.1 CDM Regulations

Entec undertook the role of CDM Designer, however the construction works were not anticipated to be > 30 days in duration, nor > 500 person days and therefore not considered 'notifiable' in accordance with the Construction (Design and Management) Regulations 2007. CDM Coordinator and Principal Contractor roles were not required.

5.9.2 Health and Safety Planning

Given the potential risks to the health and safety of site workers, a detailed Health and Safety (H&S) risk assessment and review was undertaken. The findings of this review were presented within a detailed H&S Plan prepared by Entec (Entec ref: 26999Q066i1, dated July 2010) in advance of the site investigation works and sent to all contractors and DE.

Work instructions were compiled and presented to Entec site personnel and toolbox talks provided to all site personnel to ensure that the objectives, potential risks, and works protocol was communicated and fully understood.

The final Health and Safety file arising from this project will comprise this Phase Two LQA Report.

6. Ground Conditions

6.1 Strata Encountered

In general, the geological sequence encountered across the site can be summarised in Table 6.1.

Table 6.1 Geological Sequence Encountered During Investigation

Strata Constituents	Typical Thickness	Typical Depth	
		Top	Base
Topsoil (where present), typically comprising of stiff brown sandy slightly gravely clay with rootlets and occasional brick and ash.	0.10 m to 0.30 m	0.00 m bgl	0.30 m bgl
Made Ground (where present) varied in nature across the site areas and in relation to the areas targeted.	0.40 to 1.50 m	0.00 m bgl	1.50 m bgl
In general Made Ground encountered consisted of sand and gravel layers with some clay. A small amount of ash material was encountered in the C61 POL Area and C33 Landfill Area. The landfill area also contained a large amount of inert waste materials. Abundant ash and clinker was encountered in the Made Ground within the C33 FFO Tank Area and localised areas of the C32 Landfill Area.			
Firm brown orange mottled and / or grey orange mottled sandy slightly gravely clay with occasional sand and fine gypsum crystal bands.	1.10 m to 2.15 m	0.20 m bgl	2.10 m bgl
Firm brown sandy clay with highly weathered yellow chalk and/or organic laminations and gypsum crystal bands.	1.40 m to 1.80 m	1.30 m bgl	3.10 m bgl
Stiff green-grey clay with occasional gypsum crystals.	0.70 m to 1.20 m	1.30 m bgl	2.50 m bgl
Stiff grey laminated clay with shell fragments.	Unknown	2.20 m bgl	Unproven

Exploratory excavation logs are presented as Annex A to this report. Ground conditions in each of the target areas are outlined in detail below:

6.1.1 Site A: North-western Boundary Area

A total of three window samples were progressed in this area as shown on Figure 3a. The encountered conditions are summarised below:

Topsoil

Topsoil was encountered in all of the locations and comprised stiff brown slightly sandy slightly silty clay with sandstone gravel. The topsoil was a thickness of 0.30 m at each of the exploratory hole locations.

General Made Ground

No Made Ground was encountered in the exploratory hole locations across Site A.

Natural Ground

Natural Ground was encountered in all three exploratory locations and was consistent across the area.

This generally comprised a series of clay layers with a sand gravel band at approximately 1.00 m and 1.30 m bgl. The upper clay layer comprised firm brown orange / grey mottled sandy clay typically from 0.30 m to a maximum depth of 1.60 m bgl. The sand and gravel layer was generally encountered at the base or within this layer. A further layer of firm brown grey laminated clay with organic laminations was found underlying the clay from approximately 1.00 to 3.00 m bgl. A layer of stiff grey slightly sandy laminated clay with occasional shell fossils was encountered from approximately 3.00 m bgl extending to the base of the window sample hole in all three locations.

6.1.2 Site C: C61 POL Area

A total of five window samples were progressed in this area as shown on Figure 3b. The encountered conditions are summarised below:

Topsoil

Topsoil was encountered in approximately half of the locations. The topsoil was generally stiff light brown gravely clay with small amounts of ash and brick and was a thickness of 0.20 m in thickness.

General Made Ground

Made Ground was encountered in all exploratory hole locations to a varying degree. Typically the Made Ground was present in the top 0.50 m of the exploratory holes and comprised either tarmacadam, concrete and dolomite fill, in the hardstanding areas investigated, or stiff brown sandy slightly gravely clay with brick, and occasional suspected asbestos containing material (ACM) and ash. Made Ground within WSC02 extended to a depth of 0.80 m bgl but contained only inert brick material.

Natural Ground

Made Ground material in all exploratory hole locations was underlain by a series of clay layers. Generally these clay layers were consistent throughout the investigation area. In WSC02 and WSC08 a firm grey blue sandy clay layer was encountered underlying the Made Ground material. This layer was particular to these two exploratory hole locations and extended from approximately 0.40 to 1.40 m bgl. Made Ground in the other investigation locations was typically underlain by a layer of firm grey orange mottled slightly sandy slightly gravely clay with gypsum crystals, coal and chalk gravel. A further layer of firm brown grey laminated clay with chalk veins and fine gypsum crystals was found underlying the clay which was in turn underlain by a layer of stiff brown grey slightly sandy laminated clay with frequent shell fossils. This base clay layer was typically encountered from 3.00 to 4.00 m bgl and extended to the termination point of each exploratory hole.

6.1.3 Site C: C32 Burning Ground

A total of six trial pits were progressed in this area as shown on Figure 3b. The area is known to contain Made Ground materials from the previous activities in this area of the site. The encountered conditions are summarised below:

Topsoil

No topsoil was encountered in this area of the site.

Made Ground

Due to the nature of this area of the site the Made Ground material varied between the exploratory hole locations. Generally the Made Ground consisted of layers of sand, gravel of clay and largely contained inert materials (concrete, brick, plastic and limestone). Exceptions to this were identified in TPC01 where slag material was encountered in the Made Ground layer from 0.00 to 0.30 m bgl, TPC04 where a layer of black silty fine to coarse sand with metal fragments was encountered between 0.80 m and 1.00 m bgl and TPC05 where a layer of black silty gravely fine to coarse sand with abundant ash was encountered between 0.15 and 0.30 m bgl. The Made Ground layers in this area of the site extended to a maximum depth of 1.50 m bgl.

Natural Ground

Made Ground was underlain by layers of clay material in all areas of the burning ground. The clay layers typically comprised stiff green-grey clay with occasional fine roots and a slight organic odour. This layer was underlain by stiff mottled grey and yellow-grey clay. From approximately 2.00 m bgl the clay typically became stiff brown grey lay with fossil shell debris.

6.1.4 Site C: C33 FFO

A total of two cable percussion boreholes and three window samples were progressed in this area as shown on Figure 3b. The encountered conditions are summarised below.

Topsoil

A thin layer (0.10 m) of topsoil was encountered in BHC03 located on a grassed area. The topsoil consisted brown slightly sandy clay with rootlets. All other exploratory hole locations were located on areas of disturbed ground.

Made Ground

Made Ground was encountered in all of the exploratory holes in this area extending to a maximum depth of 1.20 m bgl. The Made Ground typically consisted of black ashy sand and clay with concrete and limestone cobbles, clinker and slag. Excavations of window samples WSC05 and WSC06 were terminated due to large concrete obstructions at 0.65 m bgl and 0.80 m bgl respectively.

Natural Ground

Deeper strata comprised layers of clay. A soft green-grey-brown slightly sandy clay with black staining and strong hydrocarbon odour was observed underlying the Made Ground in BHC03 from 0.65 to 1.70 m bgl. Occasional staining was also encountered in the underlying firm brown grey clay layer with coarse sand bands which extended to 2.30 m bgl. No staining was encountered in the underlying firm brown laminated clay from 2.30 to 3.00 m bgl of the stiff

grey blue laminated clay extending to the base of the hole at 7.00 m bgl.

Black staining and a slight hydrocarbon odour was noted in the firm brown grey mottled sandy clay underlying the Made Ground in BHC05 from 1.20 to 2.00 m bgl. This clay layer was underlain by clay bands typical to that encountered within BHC03 with firm brown grey laminated clay from 2.00 to 3.50 m bgl and stiff grey laminated clay with shells from 3.50 m bgl to the base of the hole at 5.00 m bgl. No staining was noted within the clay from these two layers.

Made Ground material in WSC04 extended to 0.60 m bgl. This material was underlain by a series of clay and sand / gravel bands to 2.20 m bgl. These bands were underlain by firm grey brown laminated clay with weathered chalk bands and becoming stiffer with depth. No evidence of contamination was observed in the natural materials underlying the Made Ground at this location.

6.1.5 Site C: C33 Landfill

A total of four trial pits were progressed in the eastern area of the former C33 landfill, as shown on Figure 3b. The encountered conditions are summarised below:

General Made Ground

Made Ground was encountered in each of the trial pit locations across this area of the site. The Made Ground varied in thickness from 0.45 to 0.90 m bgl and typically consisted of brown silty gravely fine to coarse sand and clay. A large variety of waste materials were contained within the Made Ground including brick, concrete, wood, limestone, metal, plastic, pottery, glass, clinker and occasional suspected ACM. Abundant ash was also identified in TPC09. Organic and hydrocarbon odours were also noted in TPC07 and TPC08 respectively.

Natural Ground

Clay layers were encountered underlying the Made Ground in all areas of the investigation. Stiff mottled grey-green clay was typically present underlying the Made Ground materials. No evidence of staining or contamination was noted in this layer with the exception of TPC10 where a possible hydrocarbon odour was noted from 1.40 m bgl. The clay typically became stiff brown grey clay from approximately 2.00 m bgl to the based of the excavations at 3.20 to 3.30 m bgl.

6.2 Visual and Olfactory Evidence of Contamination

No evidence of contamination was identified in the investigation undertaken across Site A. In the majority of areas across Site C evidence of man-made disturbance and the presence of Made Ground have identified the potential for contamination to be present. However no evidence of gross contamination was noted in the investigation areas. The most notable evidence of contamination was observed in the C33 POL. Visual and olfactory evidence of contamination for Site C is presented within Figure 5.

In summary, the following key areas of potential contamination were identified in the field:

- Site C: C61 POL. A thin layer (0.40 m bgl) of Made Ground material was identified in this area. A small quantity of ash and possible ACM was identified within the Made Ground. No evidence of hydrocarbon staining or leakage from the

fuel tanks in this investigation area was noted in the underlying natural ground materials;

- Site C: C32 Burning Ground. Made Ground in this area generally comprised sand, gravel and clay layers. Little evidence of contamination was observed in this area with largely inert materials contained within the Made Ground. Exceptions to this were a presence of a small quantity of slag material in a thin layer of Made Ground in TPC01 (0.00 - 0.30 m bgl) and thin layers of black sand and ash materials in TPC04 and TPC05 at depths of 0.80 to 1.00 m bgl and 0.15 to 0.30 m bgl respectively. Slight organic odours were noted in the underlying natural materials but no visual signs of contamination were noted;
- Site C: C33 FFO Tank Area. Black ashy sand with occasional clinker was encountered in the Made Ground in all locations throughout the area, with the exception of WSC06. The Made Ground in this area was present to a maximum depth of 1.20 m bgl. A hydrocarbon odour and black staining was also noted in the underlying clay layers in BHC03 and BHC05 to a maximum depth of 2.00 m bgl. No further evidence of contamination was noted in the natural strata below this depth or underlying the Made Ground in WSC04;
- Site C: C33 Landfill Area. Made Ground in the landfill was mainly brown silty gravely fine to coarse sand and clay with a large variety of waste materials including brick, concrete, wood, limestone, metal, plastic, pottery, glass, clinker and occasional suspected ACM. Ash material was also identified within the Made Ground in TPC09. Organic and hydrocarbon odours were also noted in TPC07 and TPC08 respectively.

6.3 In-Situ Vapour Monitoring

Soil samples were screened for volatile organic compounds (VOCs) using a photo-ionisation detector (PID). It should be noted that measuring VOCs using a PID is only a qualitative screen; it is not uncommon for a PID to produce erroneous results so a degree of caution should be made in not to over-interpret results. A summary of headspace PID results is presented in Table 6.2.

Table 6.2 Summary of Headspace Analysis Results above Detection Limit

Exploratory Hole	Depth (m bgl)	VOC (ppm) Peak	VOC (ppm) Steady
BHC03	1.00	166	48.3
BHC03	2.00	9	40.8
TPC10	1.00	6.4	2.5
TPC10	1.60	240	240
TPC10	2.20	450	450

Note: Only headspace results exceeding 0.1 ppm are presented.

When the results of the headspace monitoring are compared to the results of the soil laboratory analysis, it is notable that concentrations of VOCs and semi-volatile organic compounds (SVOCs), along with lighter (<C10) fraction hydrocarbons were identified. Assessment of these findings is detailed in Section 7.3 below.

6.4 Radiological Monitoring

A hand-held scintillation detector (Ludlum model 2241-3) was used to survey arisings excavated from the trial pits and window samples and hand dug pit during the intrusive ground works in Site A, the C32 Burning Ground and the C33 Landfill. Arisings rates in counts per second (cps) in the trial pits and window samples ranged between 90 cps and 200 cps across the site. These levels are not considered to represent a significant radiological risk or a matter for regulatory concern within the areas surveyed.

6.5 Groundwater

Groundwater was sampled on two occasions and dipped on six occasions between 21 July 2010 and 18 August 2010. A summary of groundwater depth monitoring data is provided within Table 6.3.

Table 6.3 Groundwater Monitoring Summary

	21/07/10	21/07/10	23/07/10	23/07/10	29/07/10	29/07/10	04/08/10	04/08/10	13/08/10	13/08/10	18/08/10	18/08/10
Borehole	m bgl	m AOD	m bgl	m AOD	m bgl	m AOD	m bgl	m AOD	m bgl	m AOD	m bgl	m AOD
WSA01	ND	ND	Dry	Dry	3.83	59.73	3.06	60.50	2.18	61.38	1.82	61.74
WSA02	ND	ND	1.28	62.79	1.31	62.76	1.31	62.76	1.31	62.76	1.33	62.74
WSA03	ND	ND	4.17	60.44	1.75	62.86	1.62	62.99	1.46	63.15	1.43	63.18
BHC03	1.09	63.32	1.1	63.31	1.15	63.26	1.14	63.27	1.05	63.36	1.02	63.39
BHC05	2.82	61.97	2.76	62.03	2.7	62.09	2.6	62.19	2.03	62.76	1.88	62.91
WSC02	2.23	59.47	1.81	59.89	1.2	60.50	0.83	60.87	0.99	60.71	0.99	60.71
WSC03	1.62	60.17	1.3	60.49	1.2	60.59	1.14	60.65	1.17	60.62	1.13	60.66
WSC04	0.88	63.36	0.88	63.36	0.94	63.30	0.92	63.32	0.83	63.41	0.8	63.44
WSC05	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
WSC07	0.37	61.56	0.43	61.50	0.47	61.46	0.46	61.47	0.5	61.43	0.46	61.47
WSC08	0.69	61.38	0.83	61.24	0.62	61.45	0.53	61.54	0.62	61.45	0.64	61.43

ND – Not drilled at this time therefore no data available

Groundwater samples were taken from WSA01, WSA03, WSC04, WSC08 and BHC03 between 4 and 13 August 2010. A follow up groundwater monitoring round was carried out on WSC04 and WSC08 on 18 August 2010. Monitoring records are presented within Annex B.

Visual or olfactory evidence of contamination encountered within groundwater samples is presented on Table 6.4.

Table 6.4 Groundwater Visual & Olfactory Evidence of Contamination

Location	Visual or olfactory evidence of contamination
BHC03	Very slight hydrocarbon odour
WSC07	Water foamy

6.6 Gas and Vapour Monitoring

Gas and vapour monitoring was undertaken following drilling works on six occasions between 21 July 2010 and 18 August 2010. All of the boreholes and window samples installed (three on Site A and 8 on Site C) during the site investigation were monitored for the following:

- VOCs;
- Borehole flow rate;
- Methane;
- Carbon dioxide;
- Oxygen; and
- Atmospheric Pressure.

The VOC results of greater than 1.0 ppm are presented in Table 6.5. The results represent the peak levels recorded at each monitoring installation. The atmospheric pressure recorded during the monitoring rounds varied between 995 and 1012 millibars (mb). The monitoring rounds on the 21 July, 29 July and 13 August 2010 were undertaken during periods of generally falling atmospheric pressure. The full monitoring results and the Gas Screening Values (GSV) are provided as Annex B to this report. Further commentary on ground gas is provided in Section 7.3.

Table 6.5 Vapour Monitoring Summary

Location	Date	VOC (ppm)	Location	Date	VOC (ppm)	Location	Date	VOC (ppm)
WSA01	21/07/2010	-	WSA02	21/07/2010	-	WSA03	21/07/2010	-
WSA01	23/07/2010	0.0	WSA02	23/07/2010	0.0	WSA03	23/07/2010	0.0
WSA01	29/07/2010	0.0	WSA02	29/07/2010	0.0	WSA03	29/07/2010	0.0
WSA01	04/08/2010	2.2	WSA02	04/08/2010	11.5	WSA03	04/08/2010	4.6
WSA01	13/08/2010	0.3	WSA02	13/08/2010	1.2	WSA03	13/08/2010	0.6
WSA01	18/08/2010	0.3	WSA02	18/08/2010	0.5	WSA03	18/08/2010	1.1
BHC03	21/07/2010	60.3	WSC03	21/07/2010	0.6	WSC07	21/07/2010	0.0
BHC03	23/07/2010	61.2	WSC03	23/07/2010	0.0	WSC07	23/07/2010	0.0
BHC03	29/07/2010	75.3	WSC03	29/07/2010	0.0	WSC07	29/07/2010	0.0
BHC03	04/08/2010	17.4	WSC03	04/08/2010	4.2	WSC07	04/08/2010	4.4
BHC03	13/08/2010	18.0	WSC03	13/08/2010	1.6	WSC07	13/08/2010	2.8
BHC03	18/08/2010	9.4	WSC03	18/08/2010	0.0	WSC07	18/08/2010	0.8
BHC05	21/07/2010	12.3	WSC04	21/07/2010	20.1	WSC08	21/07/2010	0.0
BHC05	23/07/2010	0.0	WSC04	23/07/2010	2.6	WSC08	23/07/2010	0.0
BHC05	29/07/2010	0.0	WSC04	29/07/2010	0.0	WSC08	29/07/2010	0.0
BHC05	04/08/2010	9.4	WSC04	04/08/2010	17.1	WSC08	04/08/2010	7.8
BHC05	13/08/2010	3.5	WSC04	13/08/2010	7.7	WSC08	13/08/2010	1.0
BHC05	18/08/2010	1.2	WSC04	18/08/2010	3.9	WSC08	18/08/2010	0.5
WSC02	21/07/2010	0.0	WSC05	21/07/2010	0.0			
WSC02	23/07/2010	0.0	WSC05	23/07/2010	0.0			
WSC02	29/07/2010	0.0	WSC05	29/07/2010	0.0			
WSC02	04/08/2010	2.2	WSC05	04/08/2010	8.1			
WSC02	13/08/2010	3.4	WSC05	13/08/2010	0.3			
WSC02	18/08/2010	0.0	WSC05	18/08/2010	0.0			

6.7 Summary of Ground Conditions

General Ground Conditions

In summary, general ground conditions comprised Made Ground (where present) and/or topsoil, overlying several clay layers believed to be part of the Oxford Clay Formations.

Clay layers encountered across the site were highly consistent with firm brown orange mottled and brown grey mottled clay layers with occasional sand and gravel bands of fine gypsum

crystals encountered at shallow depth. These layers were underlain by a firm brown laminated clay layer typically with highly weathered yellow chalk veins and fine gypsum crystals. The underlying clay layer in all areas of the site was stiff grey laminated clay with shell fragments and occasional gypsum crystals.

Made Ground and Evidence of Contamination

No Made Ground or evidence of contamination was noted within Site A. Variable Made Ground is present within almost all of the areas investigated across Site C. A thin layer of Made Ground was identified in the C61 POL area which contained small quantities of ash and possible ACM. Little evidence of contamination was present within the Made Ground in the C32 burning ground with only a small amount of slag and ash noted in TPC01, TPC04 and TPC05. The strongest signs of potential contamination across the site were identified in the C33 FFO Tank Area where black stained sand and ash Made Ground was encountered. Some hydrocarbon staining of the underlying clay was also noted to a depth of 2.00 m bgl. A wide variety of waste materials was identified within the C33 Landfill Area but not evidence of gross contamination was noted. Ash and possible ACM was identified within the Made Ground in TPC09 and organic and hydrocarbon odours were also noted in TPC07 and TPC08 respectively.

7. Generic Quantitative Risk Assessment

7.1 Assessment Guidelines

As part of a Tier 2 risk assessment, chemical analysis data for soils and groundwater are compared with generic assessment criteria (GAC), for determinands where values are available, in order to identify contaminants of concern and determine whether further assessment of risks is required. The assessment criteria used depends upon the source media (soil, groundwater or other measure) and the receptor under consideration.

7.1.1 Human Health Guidelines

In order to provide an assessment of risks to humans presented by any contaminants identified within the surface soils and vapours at the site a human health Generic Quantitative Risk Assessment (GQRA) has been undertaken. The GQRA involves comparing contaminant concentrations observed at the site with appropriate GAC. As noted above, a GQRA forms Tier 2 of the tiered approach to assessing risks from land contamination as set out in the Defra and Environment Agency publication "Model Procedures for the Management of Land Contamination" (*Defra/EA 2004a*) CLR11.

To perform a GQRA, contaminant concentrations in soil have been compared with relevant GAC. These GAC consist of:

- EA/Defra Soil Guideline Values (SGVs);
- Entec-derived GAC;
- 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, 2009c). 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:

- Residential with consumption of home-grown produce;
- Allotments; and
- Commercial (formerly commercial/ industrial).

For the purposes of this assessment, GAC have been selected based on commercial (also described as 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.

Soil Organic Matter (SOM) was analysed as part of the site investigation. Data reviewed for each of the four sites in Site C and the single area assessed within Site A, have utilised GAC bands relative to the % SOM recorded within that particular data set. A variety of SOM was observed from between 1.42% and 11.3%. As such bands relative to SOM of 1%, 3% and 6% have been utilised where appropriate.

In summary, the GQRA has been undertaken using the following assessment criteria, in order of availability:

- Defra/EA SGVs (2009);
- Entec derived GAC for 1% Soil Organic Matter based on SGVs for a commercial/industrial land use (BTEX only);
- CIEH/LQM GAC for 1% Soil Organic Matter for a commercial/industrial land use;
- EIC/AGS/CL:AIRE GAC for 1% Soil Organic Matter for a commercial/ industrial land use; and
- Previously published CLEA SGV for a commercial/industrial land use (lead only).

Contaminants within Gas

The gas monitoring data has been assessed using CIRIA document C665 '*Assessing risks posed by hazardous ground gases to buildings*'. This method uses both gas concentrations and borehole flow rates to define a Gas Screening Value and Characteristic Situation.

Contaminants within Groundwater

Volatile compounds present within groundwater may potentially present a risk to site users via volatilisation of vapours from groundwater and subsequent inhalation. Therefore, any potentially volatile contaminants noted as being present within groundwater at elevated concentrations, i.e. above MDL, have been considered as presenting a potential risk to human health and have been considered further.

7.1.2 Controlled Waters Guidelines

There are currently no published UK guideline values for soils derived to be protective of controlled waters. However, identified contaminant concentrations in groundwater, leachate or surface water have been assessed using the following Water Quality Targets (WQTs).

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. These values have been used for assessment of groundwater. Where an EQS value does not exist the appropriate Drinking Water Standard (DWS) value has been used.

Some EQS values are dependent on water hardness. Given that the water hardness measured in water samples from the site is generally in between of 150-250 mgCaCO₃/l, the appropriately banded EQS values for hardness have been used, where applicable.

The absence of an applicable EQS or DWS for TPH is covered by Section 7.1.3 below.

Drinking Water Standards

UK DWS are set out in the Water Quality (Water Supply) Regulations, 2000. These values have been used for assessment of groundwater where an EQS value does not exist.

Where there are no applicable EQS or DWS, the MDL has been used for comment.

7.1.3 Absence of Guidelines

The site investigation employed a targeted approach and scheduled analysis of determinands based on the contaminants likely to be associated with each particular source area. 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.

TPH no longer has an EQS or drinking water standard following the replacement of the Private Water Supply Regulations 1991 with the Private Water Supply Regulations 2009, which came into force in January 2010. In the absence of any threshold value with a statutory basis it is more appropriate to evaluate the risk on the basis of marker and indicative compounds, such as BTEX compounds and PAHs.

7.1.4 Radiological Assessment Guidelines

The extension of Part 2A to include radioactivity applies only in respect to harm of human health, and not in respect of other receptors or pollution of controlled waters.

The criteria for harm are when long-term exposure gives rise to doses that exceed one or more of the following:

- An effective dose of 3 millisieverts per annum (mSv/a);

- An equivalent dose to the lens of the eye of 15 mSv/a; or
- An equivalent dose to the skin of 50 mSv/a.

These doses are based on so-called ‘intervention’ scenarios; i.e. situations in which site users are currently being exposed, and the decision must be made whether an ‘intervention’ (i.e. remedial action) is necessary to reduce exposure levels. Lower dose thresholds apply for ‘practices’, which generally refer to consented radioactive discharges but also include redevelopment projects that result in a different exposure scenario, i.e. a change of land use.

The results of the radiological survey undertaken on this site can offer more certainty as to whether or not it is likely to be considered by the local authority in respect of Part 2A inspection, and ultimately the likelihood of it being determined as radioactively contaminated land. However, the final decision rests with the local authority.

- In the case of DSDC Bicester, where radium-226 is expected to be the predominant contaminating isotope, the Radioactive Soil Guideline Value (RSGV) applicable to commercial use, and therefore the most appropriate for current use, would be 5 Bq/g, assuming a uniform distribution of radioactivity. For comparison, the RSGV for radium-226 applicable to the most sensitive end-use scenario (residential with gardens) would be 1 Bq/g;
- If a change of use were proposed, the planning regime would take precedence over Part 2A and RSGVs would not apply. The introduction of new exposure pathways would require risk assessment, and if remediation were deemed necessary the clean-up threshold provided by the Health Protection Agency would be applied. For the purposes of this report, the end use for the majority of the site (similar commercial/industrial use) identified in the Defence Estate Phase Two LQA Directive has been assessed. Furthermore, the radiological contamination has been assessed under EPR10 and the remaining relevant provisions of RSA 93 with respect to ‘practices’ situations.

Radioactively Contaminated Land Exposure Assessment (RCLEA) Model

The Radioactively Contaminated Land Exposure Assessment (RCLEA) model is Defra’s recommended approach for the assessment of a site under the Part 2A regime for managing contaminated land. It complements the Contaminated Land Exposure Assessment (CLEA) approach for assessing non-radioactive contamination and is designed to support decision making under the extended regime. The methodology is based on a set of mathematical models and data that calculate radiation doses from radionuclides in soil. These have been implemented as a software application in Microsoft Excel®, published by Defra as CLR 15, which is accompanied by a summary methodology (CLR 13) and a detailed technical report (CLR 14).

Using measured concentrations of radionuclides, RCLEA calculates potential doses for comparison with regulatory criteria. It can also be used to calculate ‘Guideline Values’ in terms of radionuclide concentrations if reliable measurements are not yet available. In addition to specifying radionuclides present (and concentrations, if known), initial generic calculations provide the user with four basic options to select from:

- Reference land uses (consistent with CLEA), including residential (with or without home-grown vegetables), allotments and commercial/ industrial use;
- Building type (timber framed or brick);

- Age (adult, infant or child); and
- Sex (male or female).

The RCLEA model is based on a probability of significant harm arising from ionising radiation, in relation to dose rate thresholds measured in millisieverts per year. The lowest threshold for 'intervention' embodied in the model is an effective dose rate of 3 mSv/a. An intervention is defined as an activity intended to reduce the exposure of an individual who is at risk from existing radioactivity. It is assumed that no remedial action would be justified if the effective dose rate were lower than this. Lower dose limits (lower by a factor of 10) are applicable to 'practices', e.g. radioactive discharges. Remediation of a site prior to a change of use would be classed as a 'practice'.

Dose rate is related to activity concentration but is dependent on a number of contingent factors such as the distribution of sources in the ground. RCLEA assumes a homogeneous source over a depth of 1 m and a surface spread of at least 10 m. RCLEA is not intended to apply to sites containing discrete point sources, but can be adapted to 'patchy' contamination by application of an averaging factor.

RCLEA can be used to generate generic guideline values for individual radionuclides. CLR 13 includes a table of generic guideline values, which for radium-226, are as follows:

- For residential land-use scenarios - 1 Bq/g; and
- For commercial or industrial land-use scenarios - 5 Bq/g.

On the majority of former MOD sites, radium-226 is the sole contaminating isotope. It is noted that the activity of its stable decay products are included in the guideline values.

It is important to note that when a change of use is implemented via the planning regime, the assessment of contamination from radioactivity is based upon the waste categorisation levels presented within the remaining provisions of RSA93 and the Radioactive Substances Regulations of EPR10. The levels of activity at which contamination falls under regulatory control are lower under this legislation compared to the levels of intervention (which are risk-based) under Part2A of the EPA (N.B it is intended that the planning legislation will move to a risk-based approach in the future).

Health Protection Agency Recommendation

- The Health Protection Agency recommends a maximum annual dose to members of the general public of 300 μ Sv. For sites contaminated with radium-226, this is equivalent to a maximum activity concentration of 0.34 Bq/g in soils. This is the most stringent activity concentration and has therefore been used to assess radioactive materials at the site.

Waste Disposal of Radioactive Waste

The primary legislative instrument regulating the disposal of radioactively contaminated waste are the Radioactive Substances Regulations of EPR10 and the remaining provisions of RSA93. The disposal criteria for radium-226 contaminated soils based on RSA93 are shown in Table 7.1.

Table 7.1 Ra-226 Disposal Criteria

Activity Concentration	Description	Classification
<0.37 Bq/g	Under 'The Radioactive Substances Act 1993' such material is not regarded as radioactive for the purposes of statutory control and is considered to pose no risk. This material can be left in situ.	Free Release
>0.37 <4.9 Bq/g	Contaminated soil in this range is exempt from the controls in 'The Radioactive Substances Act 1993' by virtue of its compliance with 'The Radioactive Substances (Phosphatic Substances Rare Earths etc) Exemption Order 1962'. Such material is generally disposed of to landfill under normal duty of care arrangements. (Note: whilst some volume averaging may be acceptable in this category disposal of discrete sources would generally have to be isolated and removed)*.	'Exempt Waste'
>4.9 Bq/g	Material above this concentration is regarded as Low Level Radioactive Waste (LLW). Some landfills are currently going through the permit process in order that they can accept solid low and very low level radioactive waste. The average activity (specific) concentration of waste to be disposed to permitted landfill is likely to be limited to a total of 200Bq/g for all radionuclides with half lives greater than 3 months. Higher activity waste would be dispatched to Low Level Waste Repository (LLWR) at Drigg in Cumbria for disposal under a permit issued by the Environment Agency. The upper activity concentrations for such disposals is 4,000 Bq/g for alpha activity and 12,000 Bq/g for beta/gamma activity. For radium and daughters in equilibrium this would equate to a radium 226 concentration of 2,000 Bq/g.	LLW

* Exemption Orders which exempt activities meeting specified criteria from the need to hold a permit under RSA93 and EPR10 are being reviewed. The review may result in future exemption limit being radionuclide-specific. The potential impacts could include changes in waste volumes and additional complexities to record keeping and monitoring.

For a 3"x 3" probe, a reading of 1,000 cps (above background levels) equates to an average activity concentration of 1 Bq/g. An activity concentration of 0.37 Bq/g (Exempt waste threshold) therefore equates to a RadSurvey probe reading of 370 cps above background levels. An activity concentration of 4.9 Bq/g (LLW threshold) therefore equates to a RadSurvey probe reading of 4,900 cps above background levels. Table 7.2 provides the RadSurvey instrument calibration data.

Table 7.2 RadSurvey Calibration Data

Classification	Average Site Background Level (cps)	Equivalent RadSurvey Probe Reading Above Background Levels for Classification	Total Probe Reading for Classification (Equivalent+Background)
Exempt Waste	400	370	770
LLW	400	4,900	5,300

For a 2"x 2" probe, a reading of 500 cps (above background levels) equates to an average activity concentration of 1 Bq/g. An activity concentration of 0.37 Bq/g (Exempt waste threshold) therefore equates to a Ludlum 2" probe reading of 185 cps above background levels. An activity concentration of 4.9 Bq/g (LLW threshold) therefore equates to a Ludlum 2" probe

reading of 2,450 cps above background levels. Table 7.3 provides the Ludlum 2" instrument calibration data.

Table 7.3 Ludlum 2" Calibration Data

Classification	Average Site Background Level (cps)	Equivalent Ludlum 2" Probe Reading Above Background Levels for Classification	Total Probe Reading for Classification (Equivalent+Background)
Exempt Waste	200	185	385
LLW	200	2,450	2,650

In accordance with the Radioactive Substances Regulations of EPR10 and the remaining provisions of RSA93, the results of the radiological investigation have been considered against a threshold guidance level of 0.37 Bq/g radium-226 for exempt waste and 4.9 Bq/g radium-226 for Low Level Waste.

7.1.5 Entec's Approach to Risk Assessment from Radioactivity

Entec's approach to assessing risks to human health from radioactive contamination is as follows:

RCLEA and Part 2A

To assess the risks to current site users in the context of EPA Part 2A, using the RCLEA model and the generic guideline values for radium-226 provided in CLR 13, as follows:

- For commercial or industrial land-use scenario - 5 Bq/g;
- For residential land-use scenarios - 1 Bq/g.

This will allow an assessment of whether the land could potentially be regarded as 'radioactively contaminated land' (under Part 2A), in the current use and circumstances of the land.

It should be noted that continued commercial/industrial use has been assumed for the purpose of this assessment (where appropriate application of this guidance is required).

Dose Exposure Scenarios

Current Site Users

To further assess the risks to current site users by considering a number of viable exposure scenarios relevant to the current use of the site, the dose rate that site users could conceivably receive (under each of the scenarios considered) compared with the Health Protection Agency recommended maximum annual dose of 300 μ Sv.

Future Site Users

To assess the risks to future site users (residential and commercial) considering the following:

- A threshold level of 0.34 Bq/g radium-226 in soils, derived for a residential end

use, being the activity concentration equivalent to the Health Protection Agency recommended maximum dose to members of the general public of 300 $\mu\text{Sv}/\text{annum}$.

Radioactive Substances Regulations of EPR10 and the remaining provisions of RSA93

The statutory requirement for the control of radioactive material under these regulations is assessed, where the threshold for radium-contaminated material to be considered radioactive is 0.37 Bq/g above background. This legislative tool is used to regulate the accumulation and disposal of radioactive material but would also be used to regulate any change of use.

7.2 Definition of Zones

7.2.1 Zones and Averaging Areas (Chemical Analysis)

The CLR guidance promotes the concept of considering a site in terms of zones and averaging areas, when assessing site investigation data. In the first instance, the site should be zoned into areas of similar historical activity and material type. The objective of this is to divide the site and its materials into data sets with similar physical and contamination characteristics that can be represented by a single representative concentration. When assessing the data, consideration must also be given to the areas to which a receptor may be exposed, termed an averaging area. Averaging areas are determined based on current or proposed land use.

7.2.2 Assessment Zones

The discussion of the site investigation at both Sites A and C has focussed on areas of similar land use as follows:

- Site A: North-western Boundary Area;
- Site C Zone 1: C61 POL Area;
- Site C: Zone 2: C32 Burning Ground;
- Site C: Zone 3: C33 FFO; and
- Site C: Zone 4: C33 Landfill.

7.2.3 Statistical Assessment

The site investigation works undertaken provided a relatively targeted dataset for all of the zones set out in Table 7.4 below. Therefore, a full statistical assessment of the data set has not been undertaken.

A summary of the zones and associated sampling is presented in Table 7.4.

Table 7.4 Assessment Zones

Zone Number	Description	Number of Samples		
		Soil	Groundwater	Surface Water
Site A				
1	North Western Boundary	4x natural	2 location x 1 round	1 location x 3 rounds
Site C				
1	C61 POL Point	2x Made Ground natural	6x 1 location x 2 rounds	1 location x 3 rounds
2	C32 Burning Ground	7x Made Ground natural	1x -	3 location x 3 rounds
3	C33 FFO Tank Area	5x Made Ground natural	5x 2 location x 2 rounds	1 location x 3 rounds
4	C33 Landfill Area	3x Made Ground natural	3x -	-

7.3 Comparison with Generic Assessment Criteria

Observed soil concentrations have been compared to the GAC discussed above for industrial / commercial end use, based on the current and likely future use of the investigated areas of the site. The comparison is presented below. Laboratory results for all areas have been compared with relevant screening criteria. The comparisons are provided within the screening spreadsheets presented within Annex C. The laboratory certificates for the analysis is presented as Annex D. All soil/ leachate/ water exceedences of the GAC used are shown on Figures 6a and 6b.

The results of the comparison of the site investigation data have been used to refine the conceptual model which is set out in Section 7.4. The risks associated with each of the pollutant linkages identified in the previous Phase One LQA reports have been assessed, updated and presented in Section 7.5.

7.3.1 Site A: North western Boundary Area

Three window sample locations were included in order to assess the underlying ground and water conditions in the north western area of the site which was anticipated (from the geological mapping) to consist of alluvium deposits (clay, silt, sand and gravel) over the northern part of Site A which represents a Secondary Aquifer. These boreholes were not located to target the A33 burning ground. The associated RadSurvey of the A33 burning ground and the surface water sampling proposed for SWA02, SWA04 and SWA05 were designed to investigate this target area. Surface water samples SWA01 and SWA03 were taken to investigate and give a general indication of the condition of land adjacent to the surface water ditches.

Soils Analysis

A total of four soil samples were taken from natural strata (as Made Ground deposits were negligible) in the north western boundary area of the site. All samples were analysed for metals, ammoniacal nitrogen and sulphate. Selected samples were submitted for PAHs and banded TPH.

Metal and Inorganic Contaminants

Although the majority of metals were marginally elevated above the MDL, none were in excess of their respective GAC.

Organic Contaminants

All PAHs (analysed in WSA01 1.00-1.30 m), were below limits of detection. One of the two samples analysed for TPH was marginally elevated above limits of detection for carbon band >C21 – C40, with a concentration of 19.7 mg/kg, although this was well below the most conservative GAC (for >C21-40 aliphatic) of 45,000 mg/kg.

Ground Gas and Vapours

Gas and vapour monitoring of the three installations present in this area (WSA01, WSA02 and WSA03) was carried out on five occasions. Carbon dioxide was recorded marginally above limits of detection in the majority of locations with concentrations up to 0.9% v/v. Methane was recorded at below limits of detection on all monitoring rounds. Oxygen levels were generally indicative of normal atmospheric conditions of between 19.5% v/v to 20.5% v/v. Flow levels were all recorded at 0.0 l/h.

All monitoring rounds were undertaken in low pressure (<1013 mb) atmospheric conditions.

Calculated Gas Screening Values (GSV) using the methodology of the Modified Wilson and Card classification detailed in CIRIA C665, indicate that all of the installations are characterised as Situation 1 which relates to a very low risk (negligible gas regime identified).

Groundwater Analysis

Groundwater was sampled from two of the three of the boreholes in this area (WSA01 and WSA03).

Metal and Inorganic Contaminants

Water was analysed for metals and inorganic determinands. Both locations recorded concentrations of sulphate and zinc up to 1,730 mg/l and 0.441 mg/l respectively, which were

around an order of magnitude greater than their EQS screening criteria. WSA01 also recorded a concentration levels for ammoniacal nitrogen of 1.12 mg/l, which was marginally elevated above the EQS of 0.5 mg/l.

Organic Contaminants

No samples were scheduled for analysis of organic contaminants in any of the samples obtained.

Surface Water Analysis

Surface water samples were collected from the same location (SWA01) on three separate occasions.

Metal and Inorganic Contaminants

All samples were analysed for metals and inorganics. There were no exceedences of the WQTs used for metals in the samples obtained from this zone. Ammonical nitrogen was found to exceed the conservative DWS WQT of 0.5 mg/l at concentrations of 2.16 mg/l and 0.753 mg/l on the first and third rounds respectively.

Organic Contaminants

The latter two rounds were also analysed for BTEX compounds and TPH as both a GRO (C12 or lighter) and EPH (>C10-C40) type analysis. Heavier end TPH contamination was observed in all surface sampling rounds to be elevated above limits of detection with a maximum concentration of 4.44 mg/l (total) EPH in the third round. In the absence of an applicable EQS or DWS marker compounds for fuels (such as BTEX) or compounds indicative of a particular fraction (naphthalene for aromatic >EC10-EC12), may be used for comment. Comparison to naphthalene EQS is highly conservative as this would assume that the total show for aliphatic and aromatic fractions is firstly all aromatic and secondly that all of that fraction is accounted for by naphthalene which is unlikely. As such it is noted that there are no BTEX compounds present above the MDL and concentrations of TPH band C10-12 are only marginally elevated above the EQS for naphthalene.

7.3.2 Site C: C61 POL Point

Soils Analysis

A total of eight soil samples were taken from five windowless sampler locations, comprising two samples from Made Ground deposits and six from natural strata. All samples were analysed for metals, ammoniacal nitrogen and sulphate. Selected samples were submitted for VOCs, PAHs and banded TPH.

Metal and Inorganic Contaminants

Although the majority of metals were marginally elevated above the MDL, none were in excess of their respective GAC. No asbestos fibres were found.

Screening of sulphate against Building Research Establishment (BRE) limits for concrete indicated that samples, taken from all locations (with the exception of WSC07) may require further consideration with concentrations up to 2.39 g/l. The widespread occurrence of sulphate at these concentrations within the natural strata however is likely to be indicative of a natural occurrence rather than contaminative impact from site use.

Organic Contaminants

TPH was elevated above limits of detection in the majority of the four samples analysed, with the bulk of the compounds present being >C12. None exceeded their respective GAC.

The one sample analysed for VOCs (WSC03 – 2.40-2.60 m), recorded trichloroethene (TCE) at a concentration of 4.14 mg/kg along with associated daughter breakdown product cis 1,2-dichloroethene (DCE) at a concentration of 0.0954 mg/kg. Carbon disulphide was also recorded above limits of detection with a concentration of 0.0283 mg/kg. All were below their respective GAC.

Ground Gas and Vapours

Gas and vapour monitoring of four installations present in this area was carried out on six occasions. Carbon dioxide was recorded marginally above limits of detection in the majority of locations with concentrations up to 3.3% v/v (WSC02). Methane was recorded at below limits of detection on all monitoring rounds. Oxygen levels were generally indicative of normal atmospheric conditions of between 16.8% v/v (WSC08) to 20.8% v/v. Flow levels were all recorded at 0.0 l/h.

All monitoring rounds were undertaken in atmospheric pressures of between 995 mb and 1012 mb i.e. generally low atmospheric pressure conditions <1013 mb. At least two of the rounds were taken during falling pressure conditions.

Calculated Gas Screening Values (GSV) using the methodology of the Modified Wilson and Card classification detailed in CIRIA C665, indicate that all of the installations are characterised as Situation 1 which relates to a very low risk (negligible gas regime identified).

Groundwater Analysis

One groundwater sample was obtained from the zone (WSC08). The sample was analysed for the suite of analysis detailed above including VOCs and SVOCs (WSC08).

Metal and Inorganic Contaminants

The majority of determinands were recorded below the MDL and respective WQTs. Ammoniacal nitrogen was marginally elevated above the DWS of 0.5 mg/l with a concentration of 1.56 mg/l in the first round and 1.66 mg/l in the second monitoring round. Sulphate was also marginally in excess of the EQS, set at 400 mg/l with a concentration of 1,410 mg/l in the first round and 1660 mg/l in the second monitoring round, although it should be noted that the sulphate is likely to be naturally occurring. Chloride was also identified in the water sample from the second monitoring round at a concentration level of 367 mg/l.

Organic Contaminants

The samples taken from WSC08 were scheduled for PAH analysis on both monitoring rounds. Positive identification of PAHs was reported for the water sample taken during the first monitoring round only. Results identified that fluoranthene, phenanthrene, chrysene, pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, benzo(g,h,i)perylene and indeno(1,2,3-cd)pyrene were all present at concentrations slightly above their DWSs of 0.1 µg/l and 0.01 µg/l for benzo(a)pyrene. The highest concentration was 1.0 µg/l for fluoranthene. The concentration levels for PAHs in the sample from the second monitoring round were generally below their respective MDLs.

Surface Water Analysis

One surface water sample was obtained from the zone (SWC08).

Metal and Inorganic Contaminants

All the metal and inorganic determinands tested were recorded at concentration levels below either the MDL or respective EQS.

Organic Contaminants

Extractable Petroleum Hydrocarbon analysis was scheduled for all three monitoring rounds for the one sample location in the zone (SWC08). Hydrocarbon contamination was observed in results from the first and third rounds to be slightly elevated above limits of detection with a maximum concentration of 0.137 mg/l (total) EPH. Comparison to naphthalene EQS of 0.01 mg/l shows that the concentrations of TPH band C10-12 are below the MDL of 0.01 mg/l.

7.3.3 Site C: C32 Burning Ground

Soils Analysis

A total of eight soil samples were taken from six trial pit locations, comprising seven samples from Made Ground deposits and one from natural strata. All samples were analysed for metals, ammoniacal nitrogen and sulphate. Selected samples were submitted for PAHs and banded TPH.

Metal and Inorganic Contaminants

Although the majority of metals were marginally elevated above the MDL, none were in excess of their respective GAC.

No asbestos fibres were found.

Organic Contaminants

TPH was elevated above limits of detection in the three of the four samples analysed, with the bulk of the compounds present being >C16. None exceeded their respective GAC. Similarly no PAHs were recorded in excess of GAC.

Ground Gas and Vapours

No boreholes were drilled in this zone and so no installations for gas sampling are present to enable monitoring. Therefore there is no analysis to report.

Groundwater Analysis

No boreholes were drilled in this zone and so no installations for water sampling are present to enable monitoring. As such there is no groundwater analysis to report for this zone.

Surface Water Analysis

Surface water samples were collected from three locations (SWC02, SWC04 and SWC05) situated adjacent and downstream from the C32 Burning Ground Area. Each location was sampled on three separate occasions.

Metal and Inorganic Contaminants

All samples were analysed for metals, sulphate, chloride, alkalinity, pH, ammoniacal nitrogen. No determinands were found in excess of their respective EQS, with the majority recorded at concentrations below their MDLs.

Organic Contaminants

Extractable Petroleum Hydrocarbon analysis was scheduled for the first monitoring round for each sample location. Hydrocarbon contamination was observed in results from SWC02 and SWC04 to be elevated above limits of detection with a maximum concentration of 0.096 mg/l (total) EPH. Comparison to naphthalene EQS of 0.01 mg/l shows that the concentrations of TPH band C10-12 are only marginally elevated above the EQS for naphthalene at 0.0145 mg/l.

The second and third round of water samples from SWC05 were also scheduled for PAH analysis. Results identified that fluoranthene, chrysene, pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, benzo(g,h,i)perylene and indeno(1,2,3-cd)pyrene were all present at concentrations slightly above their DWSs of 0.1 µg/l and 0.01 µg/l for benzo(a)pyrene. Analysis results from the third monitoring round were all below laboratory MDLs.

7.3.4 Site C: C33 FFO Tank Area

Soils Analysis

A total of ten soil samples were taken from three windowless sampler locations and three boreholes. Sampling comprised five samples from Made Ground deposits and five from natural strata. All samples were analysed for metals, ammoniacal nitrogen and sulphate. Selected samples were submitted for VOCs, PAHs and banded TPH.

Metal and Inorganic Contaminants

Although the majority of metals were marginally elevated above the MDL, none were in excess of their respective GAC.

No asbestos fibres were found.

Screening of sulphate against BRE limits for concrete, suggests that two of the five Made Ground samples (WSC05 and BHC05) would exceed guideline levels.

Organic Contaminants

Heavier end TPH compounds (>C12) and PAHs were recorded above limits of detection where analysed although none were in excess of their respective GAC.

Of the three samples analysed for VOCs Made Ground deposits from WSC05 (0.40-0.60 m) and natural strata from BHC03 (1.00 m bgl) and BHC05 (2.00 m bgl) recorded trichloroethene (TCE) at a concentration of up to 0.307 mg/kg. TCE daughter product cis 1,2-dichloroethene (DCE) was recorded in up to 0.107 mg/kg in the same samples from WSC05 and BHC03. Other occurrences of carbon disulphide, butylbenzene isomers, propylbenzene, 1,2,4-trimethylbenzene and BTEX compounds were also recorded in BHC03, although all were below their respective GAC.

Ground Gas and Vapours

Gas and vapour monitoring of four installations present in this area was carried out on six occasions. Carbon dioxide was recorded marginally above limits of detection in the majority of locations with concentrations up to 1.6% v/v (BHC03). Methane was recorded at below limits of detection on all monitoring rounds. Oxygen levels were generally indicative of normal atmospheric conditions of between 17.2% v/v (BHC03) to 20.7% v/v. Flow levels were all recorded at 0.0 l/h.

All monitoring rounds were undertaken in atmospheric pressures of between 996 mb and 1012 mb i.e. generally low atmospheric pressure conditions <1013 mb. At least two of the rounds were taken during falling pressure conditions.

Calculated Gas Screening Values (GSV) using the methodology of the Modified Wilson and Card classification detailed in CIRIA C665, indicate that all of the installations are characterised as Situation 1 which relates to a very low risk (negligible gas regime identified).

Groundwater Analysis

Two groundwater samples were obtained from BHC03 and WSC04. Due to the history and nature of the area both samples were analysed for the suite of analysis detailed above including VOCs and SVOCs.

Metal and Inorganic Contaminants

The majority of determinands were recorded below the MDL and respective EQS, with the following exception. One marginal exceedance for selenium of the conservative DWS (applied in the absence of an EQS), with a concentration of 0.013 mg/l was identified within window sample WSC04.

Organic Contaminants

Extractable Petroleum Hydrocarbon analysis was scheduled for the first monitoring rounds for the one sample location in the zone (WSC04). Hydrocarbon contamination was observed to be slightly elevated above the MDL with a maximum concentration of 0.242 mg/l (total) EPH. Comparison to naphthalene EQS of 0.01 mg/l shows that the concentrations of TPH band C10-12 are below the MDL of 0.01 mg/l.

Total aliphatics >C5-C35 for borehole location BHC03 were recorded at 0.134 mg/l (total) with the results for total aromatics >C6-C35 below the MDL of 0.01 mg/l. All speciated EPH-CWG bands were also below the MDL of 0.01 mg/l.

The sample analysed for VOCs in the first groundwater monitoring round from BHC03 recorded vinyl chloride, methyl tertiary butyl ether (MTBE), trans-1,2-dichloroethene, cis-1,2-dichloroethene and trichloroethene above their MDL. Vinyl chloride (0.028 mg/l) and cis 1,2-DCE (0.523 mg/l) were identified at concentration levels above their respective DWS and WHO quality standard concentrations of 0.0005 mg/l and 0.05 mg/l. No other VOCs were detected above their MDLs. These results would suggest that spillages of both TCE and unleaded fuel (MTBE) have occurred in the past.

The water sample taken from WSC04 on the second monitoring round was scheduled for VOC analysis. The results, like borehole BHC03 recorded vinyl chloride, methyl tertiary butyl ether (MTBE), trans-1,2-dichloroethene, cis-1,2-dichloroethene, 1,1-dichloroethene and trichloroethene above their MDL. Analysis showed that the concentration levels for Vinyl

chloride (0.126 mg/l), cis 1,2- DCE (2.36 mg/l) and trichloroethene (0.682 mg/l) were identified at concentration levels above their respective DWS, WHO and EQS quality standard concentrations of 0.0005 mg/l, 0.05 mg/l and 0.01 mg/l.

The sample taken from BHC03 was also scheduled for PAH analysis. Results identified that benzo(a)pyrene was present at a concentration level (0.014 µg/l) slightly above the DWS of 0.010 µg/l.

Surface Water Analysis

Surface water samples were collected from the same location (SWC01) on three separate occasions.

Metal and Inorganic Contaminants

No determinands were found in excess of their respective EQS, with the majority recorded at concentrations below their MDLs.

Organic Contaminants

Extractable Petroleum Hydrocarbon analysis was scheduled for the first and second monitoring rounds. Hydrocarbon contamination was observed in the second round to be slightly elevated above the MDL with a maximum concentration of 0.278 mg/l (total) EPH. Comparison to naphthalene EQS of 0.0100 mg/l shows that the concentrations of TPH band C10-12 are only marginally elevated above the EQS for naphthalene at 0.0113 mg/l. Speciated results from the second round identify that the TPH comprises aromatic compounds.

The second and third round of water samples from SWC01 were also scheduled for SVOCs, VOCs and PAH analysis. Results only identified PAHs above their respective MDLs. The PAHs included fluoranthene, phenanthrene, chrysene, pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, benzo(g,h,i)perylene and indeno(1,2,3-cd)pyrene were all present at concentrations slightly above their DWSs of 0.1 µg/l and 0.01 µg/l for benzo(a)pyrene. Analysis results from the third monitoring round were all below laboratory MDLs.

7.3.5 Site C: C33 Landfill Area

Soils Analysis

A total of six soil samples were taken from four trial pit locations comprising three samples from Made Ground deposits and three from natural strata. All samples were analysed for metals, ammoniacal nitrogen and sulphate. Selected samples were submitted for VOCs, PAHs and banded TPH.

Metal and Inorganic Contaminants

The majority of metals were marginally elevated above the MDL. All, with the exception of lead (TPC09 – 0.20 mg/l) recorded at a concentration of 4,080 mg/kg, were below their respective GAC. Metal fragments were noted within the material excavated from TPC09. The sampling aimed to take a representative sample from the material and would have avoided the inclusion of larger fragments a metal. However, the presence and processing of smaller metal fragments that may have been present following crushing and drying of the 1 gramme sample cannot be discounted by the laboratory.

Suspected cement-bonded asbestos sheeting was observed in the Made Ground of trial pits TPC09 and TPC10. In the samples sent for laboratory analysis from the Made Ground, no asbestos fibres were identified. The conclusion from this is that it is likely that asbestos is present in the form of cement-bonded sheeting but that any asbestos fibres resulting from the degradation or fracture of the asbestos were not present in the sample collected.

Organic Contaminants

As with other samples from Site C heavier end TPH compounds (>C12) and PAHs were recorded above limits of detection where analysed although none were in excess of their respective GAC.

The one sample analysed for VOCs in the natural strata of TPC10 (1.60 m bgl) recorded TCE at a concentration of 2.54 mg/kg, tetrachloroethene (PCE) at 0.159 mg/kg, DCE at 0.0723 mg/kg and a number of benzene isomers above method detection limits. None exceeded their respective GAC.

Ground Gas and Vapours

No boreholes were drilled in this zone and so no installations for gas sampling are present to enable monitoring. Therefore there is no analysis to report.

Surface Water and Groundwater Analysis

No boreholes were drilled in this zone and so no installations for water sampling are present to enable monitoring. Additionally, the adjacent surface water ditches were found to be dry during monitoring visits. As such there is no water analysis to report for this zone.

7.3.6 Radiological Survey Results

Site A

The radiological walkover survey of the site was undertaken by Entec between 12 and 20 July 2010. The majority of the survey was successfully completed using RadSurvey equipment. Where GPS coverage was impeded due to woodland Ludlum 2" equipment was used.

The recorded data were downloaded on a daily basis and plotted to show the daily coverage, allowing any omissions to be rectified during the survey period and preliminary findings to be reported.

The total area of survey coverage (based on actual recorded data) is shown on Figure 4a with the total surveyed area estimated at 1.7 ha. Of which 1.4 ha was surveyed using RadSurvey equipment and 0.3 ha surveyed using Ludlum 2" equipment.

At Site A there were no recorded readings significantly in excess of the natural background levels.

Site C

The radiological walkover survey of the site was undertaken by Entec between 12 and 20 July 2010. The survey was successfully completed, using RadSurvey equipment with GPS coverage being available throughout.

The recorded data were downloaded on a daily basis and plotted to show the daily coverage,

allowing any omissions to be rectified during the survey period and preliminary findings to be reported. Where elevated readings were identified, areas were locally re-surveyed to confirm the findings.

The total area of survey coverage (based on actual recorded data) is shown on Figure 5b with the total surveyed area estimated at 1 ha.

The vast majority of the areas investigated displayed surface radioactivity readings at natural background activity levels of around 400 cps. Three small areas of elevated radiological readings were identified, two located near the north west corner of building C32 and one near to the emergency water supply tank to the north of building C32. One of the areas was a 'point source' and the other two were more diffuse areas. Maximum count readings at the three points ranged from 754 cps to 1,062 cps. Two of the elevated areas are indicative of exempt waste. The remaining area falls just below the exempt waste threshold for the attained surface readings.

Data Presentation

The data has been graphically represented using Geographical Information System (GIS) software. The grid co-ordinates are overlaid onto the site base plan and each data point is colour coded according to the recorded probe measurement.

Probe readings ranging from background radioactivity levels to maximum probe reading encountered are colour coded in suitable increments to enable identification of variations in radioactivity. The output is used to assist in identification of any areas surveyed which merit further investigation.

Figures 4a (Site A) and 4b (Site C) show the coverage of the non-intrusive radiological walkover survey and Figures 7a and 7b show the results of the radiological walkover survey. Figures 8a and 8b show the distribution of indicative exempt waste and LLW identified during the surveys. Areas of indicative exempt waste were defined by RadSurvey probe readings in the range 771-5,300 cps. Areas of indicative LLW are defined by RadSurvey probe readings above 5,300 cps. Table 7.5 summarises probe readings in each of the point source locations.

Table 7.5 Radiological Survey: Probe Readings in Point Source Locations

Point Source	Maximum Probe Reading (cps)*	Location (Easting, Northing Grid Reference)	Comment	Indicative Ra-226 Activity Concentration (Bq/g)**	Indicative Waste Classification
C1	865	460437, 217349	Diffuse area approximately 3 m x 1 m in grass to west of building C32	0.47	Exempt Waste
C2	1,062	460371, 217196	Point source located in grass under tree to west of building C32	0.66	Exempt Waste
C3	754	460364, 217193	Diffuse area 13 m x 3 m near emergency water supply tank. Brick work of a culverted drainage ditch visible at points	0.35	Free Release

Table 7.5 (continued) Radiological Survey: Probe Readings in Point Source Locations

Notes:

* Maximum Recorded Value; cps = counts per second

** Calculated as [observed reading (cps) - background activity (cps)]/1000. Threshold = 0.37 Bq/g for Ra-226 to be classified as radioactive material (under Radioactive Substances Act 1993).

Background = 400 cps

7.3.7 Radiological Intrusive Investigation

Based on the results of the radiological survey, two of the three areas (C1 and C2) of elevated activity were targeted for either machine or hand excavated exploratory holes. Point C3 was not investigated further as a brick culvert could be seen to be present; this brickwork is the most likely source of the elevated readings.

The purpose of the exploratory holes was to assess the source of the elevated readings, the nature of the radioactive contamination present and identify whether it could be attributable to a specific type of source. The findings of the radiological intrusive investigation are summarised in Table 7.6. Exploratory hole logs covering radiological intrusive investigation are included within Annex A (TPC06) and Annex E (HDPCR01).

Table 7.6 Intrusive Radiological Summary

Point Source	Exploratory Hole reference	Maximum Probe Reading (cps) [#]	Source of Elevated Count	Indicative Ra-226 Activity Concentration (Bq/g) ^{**}	Indicative Waste Classification
C1	TPC06	425	Layer of granite cobbles	Not applicable – source of elevated counts is of natural origin	Free Release
C2	HDPCR01	1,000	Localised layer of ashy material between 0.2 and 0.3 m bgl	1.6	Exempt Waste

Notes:

[#] Intrusive investigation count readings are taken using Ludlum 2" detector^{**} Calculated as [observed reading (cps) - background activity (cps)]/500. Threshold = 0.37 Bq/g for Ra-226 to be classified as radioactive material (under Radioactive Substances Act 1993).

Background = 200 cps

7.4 Conceptual Model

The conceptual model developed during the previous Phase One LQA has been refined to account for the results of this Phase Two Site Investigation. Figure 9 illustrates the revised conceptual model.

7.4.1 Summary of Ground Conditions

In summary, general ground conditions comprised Made Ground (where present) and/or topsoil,

overlying several clay layers believed to be part of the Oxford Clay Formations.

Groundwater at the site was encountered in all locations installed within the clay deposits present across both sites.

7.4.2 Summary of Contaminants

The following areas of potential contamination were investigated, and the presence of the listed contamination groups was confirmed. The following sections focus on contaminants that exceeded relevant GAC or WQT only.

Site A: North-western Boundary

- Soils – No exceedences of GAC with regards to human health were recorded; and
- Waters - Exceedences of the WQT screening criteria for zinc, sulphate and ammonium were observed in groundwater samples from the site. Exceedences of ammonium were also recorded in surface waters. Organics elevated above the MDL, but for which no applicable WQT exist were present (notably TPH), however, it is considered that the concentrations observed are unlikely to be significant.

Site C: All Areas

- Soils – Only one sample exceeded any of the prescribed GAC with regard to human health, which comprised TPC09 (0.20 m), which recorded a concentration of lead at 4,080 mg/kg. Sulphate was elevated and exceeded BRE guideline concentration levels where consideration of the use of special specification concrete would be necessary for in-ground structures in both the C32 Burning Ground and C61 POL Area. However, it should be noted that sulphate concentrations will be elevated in this area anyway (as evidenced by gypsum crystals). Occasional pieces of cement-bonded asbestos sheeting were also observed however no fibres were identified during laboratory testing; and
- Waters - Exceedences for vinyl chloride, cis 1,2-dichloroethene, trichloroethene and benzo(a)pyrene were identified within BHC03 and WSC04 (both located in the C33 FFO Tank Area) with exceedences of (DWS) for several PAHs (including benzo(a)pyrene) in surface waters (SWC01 and SWC05 both on the second round) and WSC08 (C61 POL Point). Marginal exceedences of WQT for selenium (DWS) and ammonium (EQS) are considered to be localised and unlikely to be indicative of significant contamination, especially considering the absence of similar impact in nearby surface waters.

Summary of Radiological Survey

At Site A there were no recorded readings significantly in excess of the natural background levels.

A hand-held scintillation detector (Ludlum model 2241-3) was used to survey arisings excavated from the trial pits and hand dug pits during the intrusive ground works around the C32 burning ground area.

Three small areas of elevated radiological readings were identified (using the RadSurvey

equipment), two located near the north west corner of building C32 and one near to the emergency water supply tank to the north of building C32. One of the areas was a 'point source' and the other two were more diffuse areas. Maximum count readings at the three points ranged from 754 cps to 1,062 cps.

Further intrusive investigation in the C32 burning ground area identified maximum arisings rates (using a Ludlum model 2241-3) in counts per second (cps) ranged between 425 cps and 1,000 cps. These levels are not considered to represent a significant radiological risk or a matter for regulatory concern within the areas surveyed.

7.4.3 Receptors and Pathways

The updated receptors and pathways identified are included in Table 7.7.

Table 7.7 Updated Receptors and Pathways

Receptor	Pathway
Site Visitors/Users (Commercial/Industrial)	Dermal contact, direct contact, ingestion, inhalation
Construction and Maintenance Workers	Dermal contact, direct contact, ingestion, inhalation
Future Site Users (Commercial/Industrial)	Dermal contact, direct contact, ingestion, inhalation
Neighbouring Site Users	Dermal contact, direct contact, ingestion, inhalation
Groundwater (Secondary Aquifer and Unproductive Strata)	Leaching from soils, transport in groundwater, groundwater contamination
Surface Water (site drainage ditches, unnamed on-site ponds, River Ray, brook to east of Site A)	Leaching from soils, transport in groundwater, groundwater contamination, run-off
Ecological Receptors	Uptake, direct contact
Agricultural Receptors	Uptake, direct contact
Buildings and Buried Services (current and future)	Degradation (chemical attack), direct contact, vapour migration, explosion

7.5 Risk Assessment

The generic quantitative risk assessment and refined conceptual model have identified a number of potential pollutant linkages (contaminant-pathway-receptor) on the site which are tabulated in Annex F. Each linkage is qualitatively assessed by the following criteria:

- i) Potential consequence of pollutant linkage;
- ii) Likelihood of pollutant linkage; and
- iii) Risk classification.

'Potential Consequence of Pollutant Linkage' gives an indication of the sensitivity of a given receptor to a particular source or contaminant of concern under consideration. It is a worst case classification and is based on full exposure via the particular linkage being examined.

‘Likelihood of Pollutant Linkage’ is an assessment of the probability of the selected contaminant and receptor being linked by the identified pathway. This assessment is ranked based on site-specific conditions.

The ‘Risk Classification’ column is an overall assessment of the actual risk, which considers the likely effect on a given receptor, taking account of both of the previous rankings. The risk assessment criteria and Consequence Matrix are included as Table 7.8 and Table 7.9.

Table 7.8 Risk Assessment Criteria

Classification of Consequence	
Severe	<ul style="list-style-type: none"> - Acute risks to human health - Short term risk of pollution of sensitive water resource (e.g. major spillage into controlled waters) - Impact on controlled waters e.g. large scale pollution or very high levels of contamination - Catastrophic damage to buildings or property (e.g. explosion causing building collapse) - Ecological system effects – irreversible adverse changes to a protected location. Immediate risks
Medium	<ul style="list-style-type: none"> - Chronic risks to human health. - Pollution of sensitive water resources (e.g. leaching of contaminants into controlled waters). - Ecological system effects – substantial adverse changes to a protected location. - Significant damage to buildings, structures and services (e.g. damage rendering a building unsafe to occupy, such as foundation damage).
Mild	<ul style="list-style-type: none"> - Non-permanent health effects to human health. - Pollution of non-sensitive water resources (e.g. pollution of non-classified groundwater). - Damage to buildings, structures and services (e.g. damage rendering a building unsafe to occupy, such as foundation damage). - Substantial damage to non-sensitive environments (unprotected ecosystems e.g. crops).
Minor/Negligible	<ul style="list-style-type: none"> - Non-permanent health effects to human health (easily prevented by appropriate use of PPE). - Minor pollution to non-sensitive water resources. - Minor damage to non-sensitive environments (unprotected ecosystems e.g. crops). - Easily repairable effects of damage to buildings, structures, services or the environment (e.g. discoloration of concrete, loss of plants in a landscaping scheme).
Classification of Probability	
High Likelihood	An event is very likely to occur in the short term, and is almost inevitable over the long term OR there is evidence at the receptor of harm or pollution.
Likely	It is probable than an event will occur. It is not inevitable, but possible in the short term and likely over the long term.
Low Likelihood	Circumstances are possible under which an event could occur. It is by no means certain that even over a longer period such an event would take place, and less likely in the short term.
Unlikely	It is improbable that an event would occur even in the very long term.

Table 7.9 Consequence Matrix

Consequence	Probability			
	High Likelihood	Likely	Low Likelihood	Unlikely
Severe	Very High Risk	High Risk	Moderate Risk	Moderate/Low Risk
Medium	High Risk	Moderate Risk	Moderate/Low Risk	Low Risk
Mild	Moderate Risk	Moderate/Low Risk	Low Risk	Negligible
Minor/ Negligible	Moderate/Low Risk	Low Risk	Negligible	Negligible

The basis of the assessment is detailed in Annex F and the outcome with respect to each receptor is discussed below. It should be noted that the assessment below is based on the areas targeted as part of the risk based Phase Two investigation only. A number of areas, not highlighted as a priority, have not been investigated further (see Annex F), and as such the risk rating for these remain as previously assessed in the Phase One LQA.

7.5.1 Current / Future Site Users (Commercial/ Industrial)

The risks to current site users from contamination with all of the areas investigated are generally assessed as **low** although a **moderate/low** classification was given for the C33 landfill area due to the exceedance of the GAC with respect to lead and the potential presence of landfill gas within the landfill and burning grounds. A **moderate/low** risk is also associated for future commercial/industrial site users with respect to the radiological contamination identified in the former burning grounds and landfill.

It should be noted that this investigation targeted moderate and above risk linkage onlys and assessment cannot be made of the areas of the site not targeted as part of this investigation. The evidence of impact on both soils and groundwater, particularly within the main operations area targeted at Site C, increases the likelihood of further contamination being present within these areas.

7.5.2 Construction and Maintenance Workers

Increased potential for exposure is created during maintenance or redevelopment activities, as extensive ground disturbance or entry into confined spaces may take place. Risks to site workers may arise as a result of exposure to contaminants through direct contact, ingestion or inhalation exposure pathways. Overall risks to construction workers from the contamination identified in all of the zones investigated have however been assessed as **low** or **moderate/low** based on the general absence of contaminants found. A **moderate** risk has been applied in the C33 landfill discussed above with respect to lead. However, exposure times are likely to be short and exposure can be controlled by design considerations, environmental management during construction and suitable personal protective equipment. The risk to this receptor will be mitigated through use of appropriate PPE and control measures.

7.5.3 Groundwater

The majority of both Site A and Site C overlies unproductive strata with a small strip of land in

Site C and approximately 50% of Site A sited upon a Secondary Aquifer, overlain by soil which is assessed to be of classification Low Leaching Potential. Groundwater flows are likely to be towards the surface water features noted throughout the site. Exceedances of the WQT used can be summarised as follows:

- Site A (WSA01 and WSA03). Water was analysed for metals and inorganic determinands. Both locations recorded concentrations of sulphate and zinc up to 1,730 mg/l and 0.441 mg/l respectively, which were around an order of magnitude greater than their EQS screening criteria. WSA1 also recorded a concentration ammoniacal nitrogen of 1.12 mg/l, which was marginally elevated above the EQS of 0.5 mg/l;
- Site C: WSC04 (FFO) – One marginal exceedance of the conservative DWS (applied in the absence of an EQS), with a concentration of 0.013 mg/l; and
- Site C: WSC08 (POL) – Ammoniacal nitrogen marginally elevated above the EQS of 0.5 mg/l with a concentration of 1.56 mg/l. Sulphate was also marginally in excess of the EQS, set at 400 mg/l with a concentration of 1,410 mg/l.
- However, there was no consistent linkage between soil contamination and the minor groundwater exceedances. Therefore, risks to groundwater from contamination present within the zones investigated have been assessed as **negligible** due to the concentrations of contamination identified.

7.5.4 Surface Water

Precipitation from roofs and hardstanding areas drains to a network of surface water drainage ditches that drain the low-lying, poorly draining parts of the site. The closest major surface water feature to the site is the River Ray that passes through a thin strip of Site C. Two ponds are located to the north of Site C and brook follows the eastern most boundary of Site A.

Assessment of surface waters against EQS demonstrated little if any impact above prescribed EQS, with only marginal exceedences of ammonium in Site A. Concentrations of TPH, recorded as above the MDL do not have an applicable screening criteria, but may be indicative of site derived contamination entering the water feature.

The risks to surface water from the contamination identified in the zones investigated have therefore been assessed as **low**, with the exception of the site A TPH which is assessed as **moderate/low**.

7.5.5 Ecological Receptors

No significant ecological receptors have been identified in the site vicinity. Therefore, the risks to ecological receptors have been identified as **negligible**, due mainly to the likelihood that the sensitivity will decrease with respect to distance from the identified contamination to this receptor.

7.5.6 Agricultural Receptors

The eastern and northern parts of the site are used in part for agricultural (arable) uses, which could potentially be impacted by localised contamination impacting these areas. However, the potential contamination areas of concern investigated as part of this LQA are generally located

away from these areas. The risks to agricultural receptors have been identified as **negligible**.

7.5.7 Buildings and Buried Services

There may be potential risks to current and future in-ground concrete structures via direct contact with ground contamination (in particular sulphate). Elevated concentrations, which may suggest potential BRE specification DS-2 and DS-3 concrete would be required were recorded in Site A as well as the FFO and POL areas. However, given the 'mild' potential consequence of the relevant pollutant linkages, the risks to buildings and buried services are assessed as **negligible**.

8. Overall Land Quality and Suitability for Continued Use

8.1 Site Sensitivity

Sites A and C cover areas of around 13 ha and 24 ha respectively. The sites have underlying geological sequences that consist of alluvium deposits (clay, silt, sand and gravel) over the northern part of Site A and over the strip of land connecting Site C and Site D directly overlying solid geology consisting of the Stewartby Member (mudstone) and Peterborough Member (mudstone) of the Oxford Clay Formation.

The northern half of Site A is underlain by a Secondary Aquifer (comprising soils of Low Leaching Potential). This is considered to be the Alluvium. The land in the southern half of Site A is underlain by Unproductive Strata (Negligibly Permeable).

The majority of Site C is underlain by Unproductive Strata (Negligibly Permeable). The strip of land connecting Site D and Site C is also underlain in places by a Secondary Aquifer (including soils of both High and Low Leaching Potential).

As the site is mainly underlain by an Unproductive Strata (Oxford Clay Formation), groundwater sensitivity is assessed as generally **low**, with a **moderate** sensitivity assessed for the Secondary Aquifer (Alluvium) situated in the north part of Site A.

The River Ray traverses the extreme north of the Site C and is of a generally poor water quality. There is potential for the River Ray to be affected by direct run-off and discharges from the site. However, the site itself is large and as such the sensitivity will decrease with respect to distance for the identified surface water receptors. Surface water sensitivity has been assessed as **moderate**.

A Site of Special Scientific Interest (SSSI) is located close to the strip of land connecting Site C to other areas of DSDC Bicester. Both Site A and Site C have a record of one Environmentally Sensitive Area (ESA) being located on-site with a third record being positioned approximately 130 m west of Site C. Both sites are surrounded predominantly by agricultural land which forms the ESA, namely the Upper Thames Tributaries ESA. However, both sites are large and as such the sensitivity will decrease with respect to distance for the identified ecological receptors with Site C being the most sensitive due to the proximity of the SSSI. Ecological sensitivity has been assessed as **moderate**.

8.2 Overall Land Quality

The findings of the Entec Phase One LQA were used to inform the scope of this Phase Two LQA. Based on this information, a number of areas of potentially significant contamination risk were prioritised for further investigation. Assessment of the site was based on the current or future potential commercial/industrial site use.

Laboratory analysis of soil samples indicated the presence of organic and inorganic

contaminants in particular hydrocarbons in the location of the C33 FFO, and trace concentrations of chlorinated solvents. However, the majority of the site was not found to have exceedances of relevant industrial/commercial assessment criteria. The one exception to this comprised one occurrence of lead in the C33 Landfill. This isolated exceedance at the observed concentration is not likely to present a significant risk to current or future site users.

Only isolated and minor exceedances of prescribed WQT were recorded in surface and groundwaters. Levels of TPH (for which there is no applicable screening criteria), were marginally elevated above limits of detection in surface waters from Site A, possibly indicating some effect from site derived contamination. Again, the contaminants at the levels observed are not considered likely to be significant. As such, it is not considered likely that the site poses a significant risk to controlled waters.

Widespread occurrences of sulphate are at concentrations which (in line with the BRE guidelines) suggest that the use of higher specification concrete should be considered for future in-ground concrete structures;

Monitoring of soil gas recorded no concentrations or flows which are of concern.

No recorded readings significantly in excess of the natural background levels were identified at Site A. Three small areas of elevated radiological readings were identified (using the RadSurvey equipment) at Site C with maximum count readings at the three points ranged from 754 cps to 1,062 cps. The levels detected are not considered to represent a significant radiological risk or a matter for regulatory concern.

8.3 Environmental Risks

The risks to current statutory receptors including site users, controlled waters and ecological receptors have been assessed in selected areas of the C61 POL, C33 FFO Tank Area, C32 Burning Ground and C33 landfill. Potential risks, relating to migration of contaminants within groundwater, have also been assessed, by request of the Environment Agency, on the north-western boundary of Site A. A summary of the assessment is as follows:

- The risks to current site users from contamination with all of the areas investigated are generally assessed as **low** although a **moderate/low** classification was given for the C33 landfill area due to the exceedance of the GAC with respect to lead and the potential presence of landfill gas within the landfill and burning grounds. A **moderate/low** risk is also associated for future commercial/industrial site users with respect to the radiological contamination identified in the former burning grounds and landfill;
- Overall risks to construction workers from the contamination identified in all of the zones investigated have however been assessed as **low** or **moderate/low** based on the general absence of contaminants found. A **moderate** risk has been applied in the C33 landfill discussed above with respect to lead. However, exposure times are likely to be short and exposure can be controlled by design considerations, environmental management during construction and suitable personal protective equipment. The risk to this receptor will be mitigated through use of appropriate PPE and control measures;
- There was no consistent linkage between soil contamination and the minor

groundwater exceedances. Therefore, risks to groundwater from contamination present within the zones investigated have been assessed as **negligible** due to the concentrations of contamination identified;

- The risks to surface water from the contamination identified in the zones investigated have therefore been assessed as **low**, with the exception of the site A TPH which is assessed as **moderate/low**;
- No significant ecological receptors have been identified in the site vicinity. Therefore, the risks to ecological receptors have been identified as **negligible**, due mainly to the likelihood that the sensitivity will decrease with respect to distance from the identified contamination to this receptor;
- The eastern and northern parts of the site are used in part for agricultural (arable) uses, which could potentially be impacted by localised contamination impacting these areas. However, the potential contamination areas of concern investigated as part of this LQA are generally located away from these areas. The risks to agricultural receptors have been identified as **negligible**;
- There may be potential risks to current and future in-ground concrete structures via direct contact with ground contamination (in particular sulphate). Elevated concentrations, which may suggest potential BRE specification DS-2 and DS-3 concrete would be required were recorded in Site A as well as the FFO and POL areas. However, given the 'mild' potential consequence of the relevant pollutant linkages, the risks to buildings and buried services are assessed as **negligible**.

8.4 Suitability of the Site for Continued Use

Based on findings of this risk-based Phase Two LQA, which targeted areas of potential contamination identified from the Entec Phase One LQA, the areas of the site investigated are considered suitable for continued current use, without the need for significant mitigation or remedial measures to protect the current site users.

Although little ACM was identified within the Phase Two investigation, some of the existing buildings contain suspected ACMs as part of external building fabric which could degrade and fall onto the adjacent ground. Continued suitability for use is dependent on the management of ACM and the effectiveness of the actions will impact this status.

8.5 Suitability of the Site for Future Development and Commercial/Industrial Use

The future use of the site is likely to be similar to its present use and the timeframe for disposal by DE is currently not certain. Based on the results of this risk-based, targeted investigation, the site is considered to be suitable for redevelopment to a commercial/ industrial end use.

However, due to the limited nature and extent of the intrusive investigation and the potential for residual contamination to be present in and around existing (and in most cases still operational) infrastructure, it is possible that additional investigation will be required as part of the development process. Such investigation will be dependant upon the development design.

Ground gas/ vapours may also need to be considered if new developments are built on areas of localised hydrocarbon contamination but will again be dependant upon the development design.

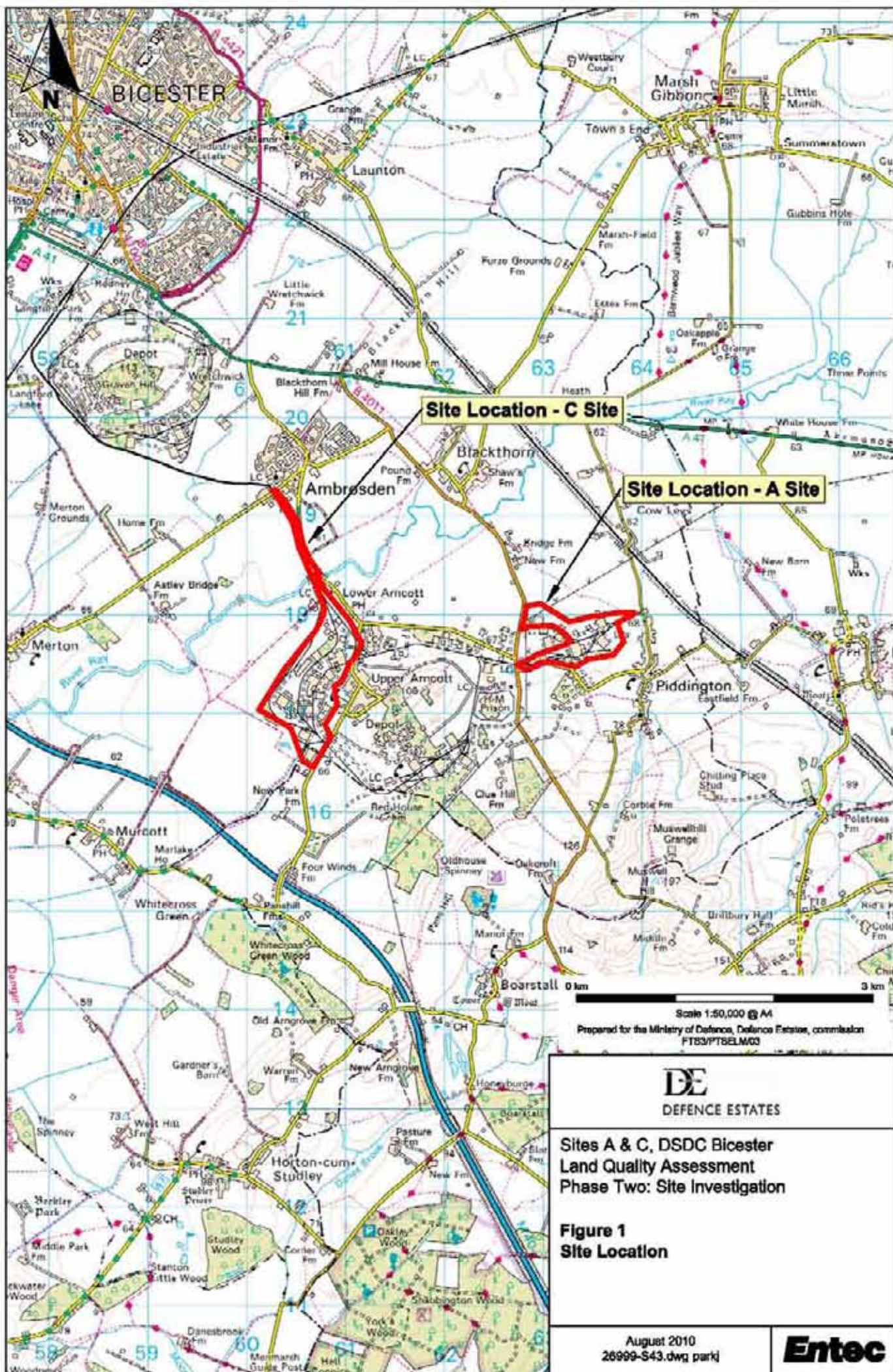
The one exceedance of lead in the C33 Landfill Area may require consideration in any future development of the site in the C33 Landfill Area. It is usual for commercial/industrial developments to comprise significant areas of hardstanding (effectively entailing a cover systems in the area) and this is likely to be sufficient to negate the risk from the non-volatile contaminant.

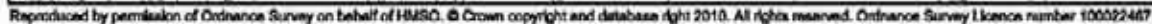
Development may involve the removal of the subsurface fuel storage tanks and pipework and remediation may be required following the removal of these tanks if the soils and waters are found to have been impacted by any contamination. Development may also require the removal or alteration of building/ tank foundations, building fabric, underground pipework and underground voids, which will have a cost implication. It is considered likely that construction/ redevelopment workers will come into direct contact with areas of potential contamination and all workers should be made aware of potential risks that exist at the site and take suitable measure to avoid or mitigate potential risk. Appropriate personal protective equipment (PPE) should be used and good working practices adhered to during any future redevelopment work at the site.

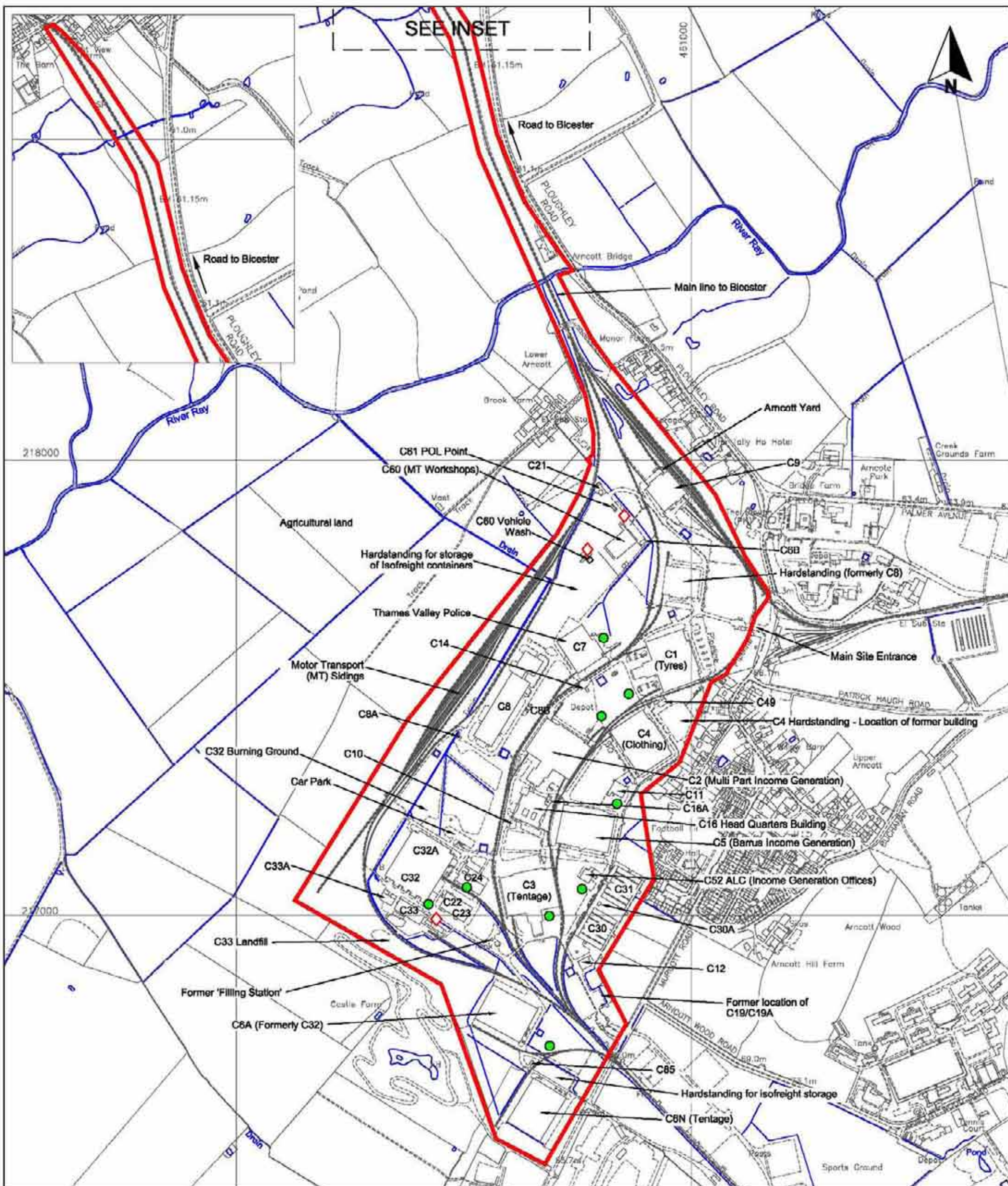
Development of the land is also likely to involve the removal of buildings present on site, some of which potentially contain asbestos within the building fabric. Disposal of all asbestos containing material would need to be carried out by a specialist contractor.

Figures

Figure 1	Site Location Plan;
Figure 2a & b	Site Layout Plan (Site A and Site C);
Figure 3a & b	Exploratory Hole Location Plan & On-site Sources of Potential Contamination (Site A and Site C);
Figure 4a & b	Radiological Survey Coverage (Site A and Site C);
Figure 5	Visual and Olfactory Evidence of Contamination (Site C Only);
Figure 6a and 6b	Soils Exceeding Human Health Industrial/Commercial Assessment Criteria and Ground/Surface Waters Exceeding WQT (Site A&Site C);
Figure 7a & b	Radiological Survey Activity Levels (Site A and Site C);
Figure 8a & b	Radiological Survey Indicative Exempt and Low Level Waste (Site A and Site C); and
Figure 9	Conceptual Site Model.







Key

- Site boundary
- Electrical substation
- Interceptor

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Sites A & C, DSDC Bicester
Land Quality Assessment
Phase Two: Site Investigation

Figure 2b
Site Layout - Site C

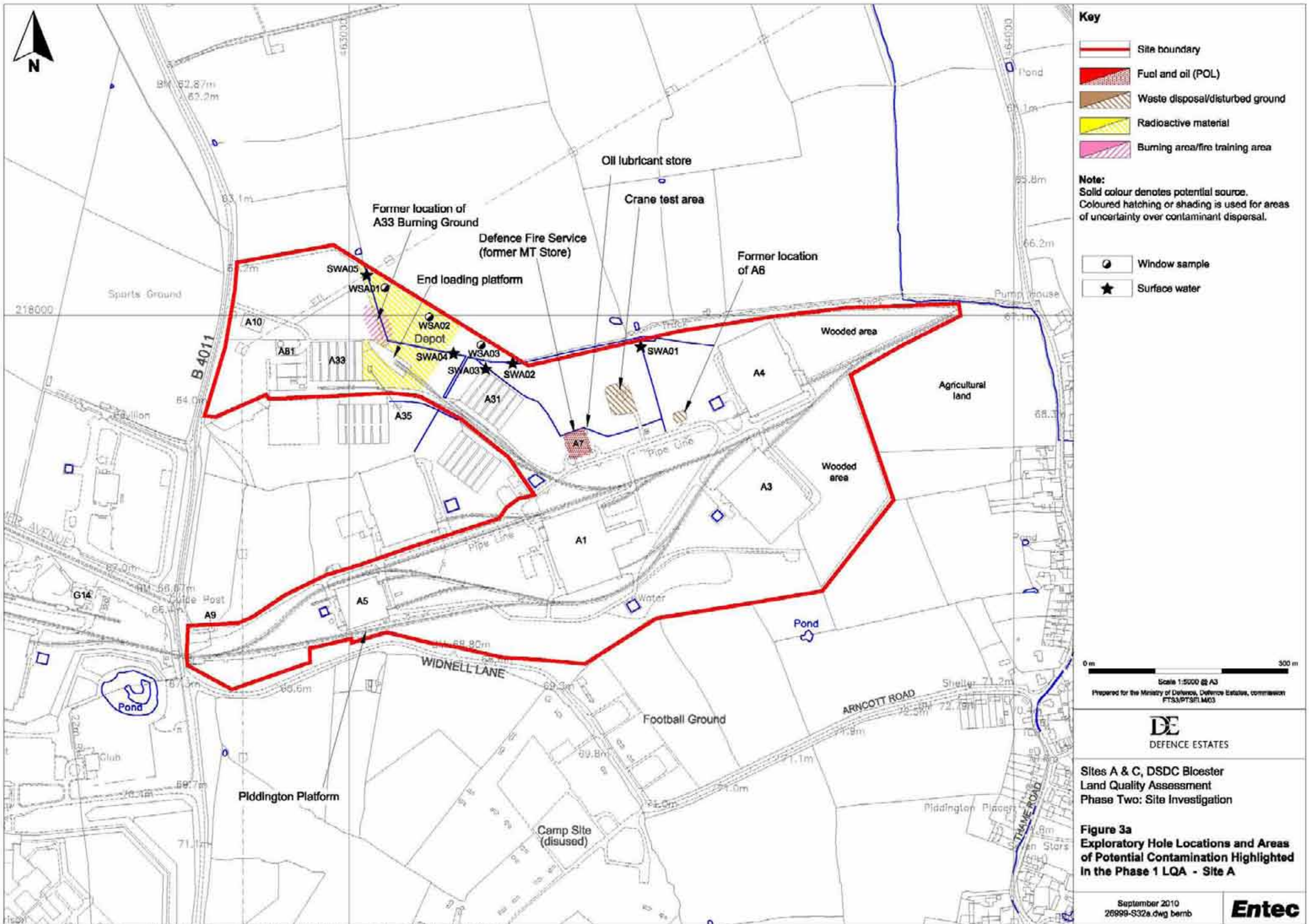
0 m 400 m

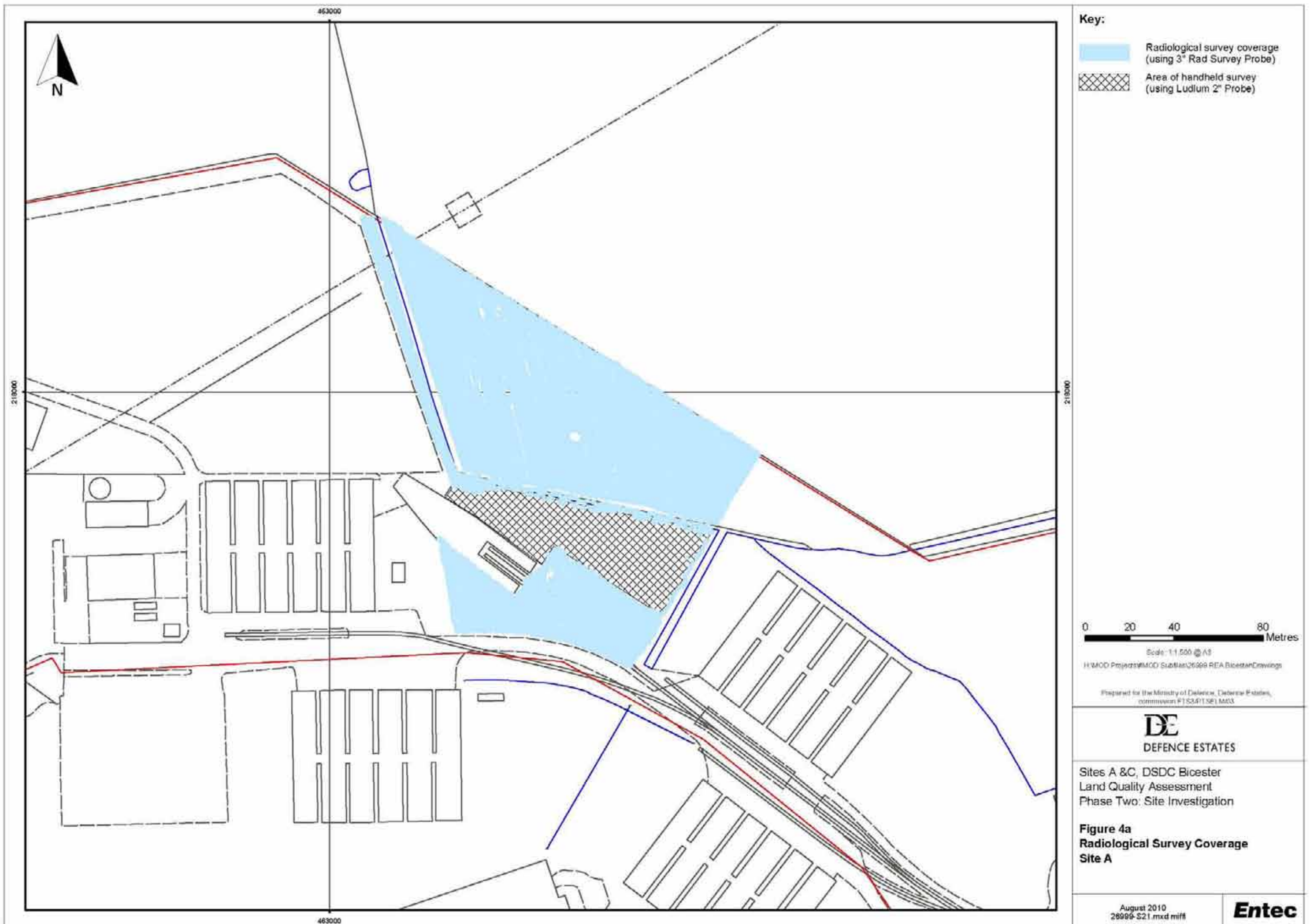
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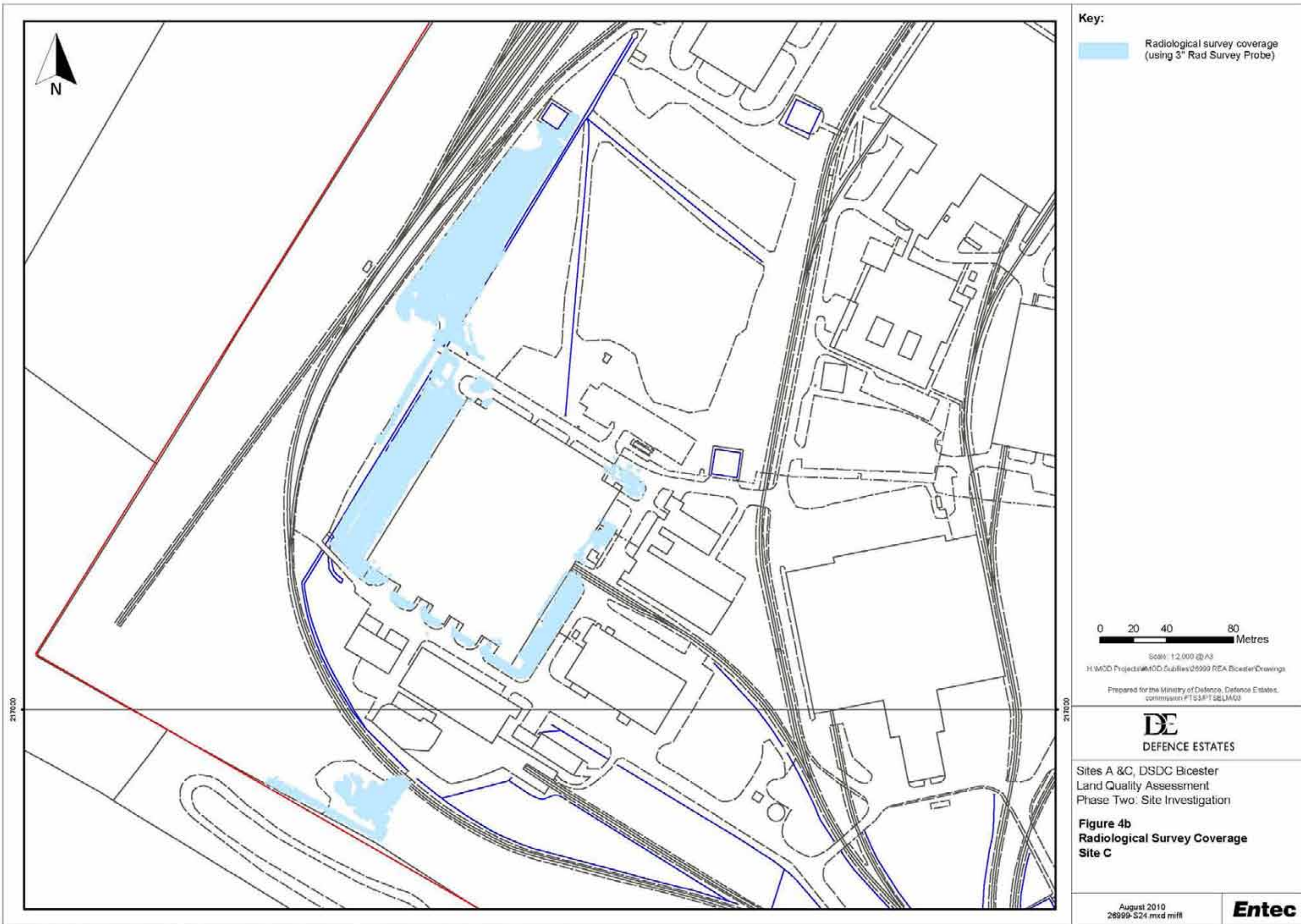
Prepared for the Ministry of Defence, Defence Estates, commission
FT82/PT8ELM/03

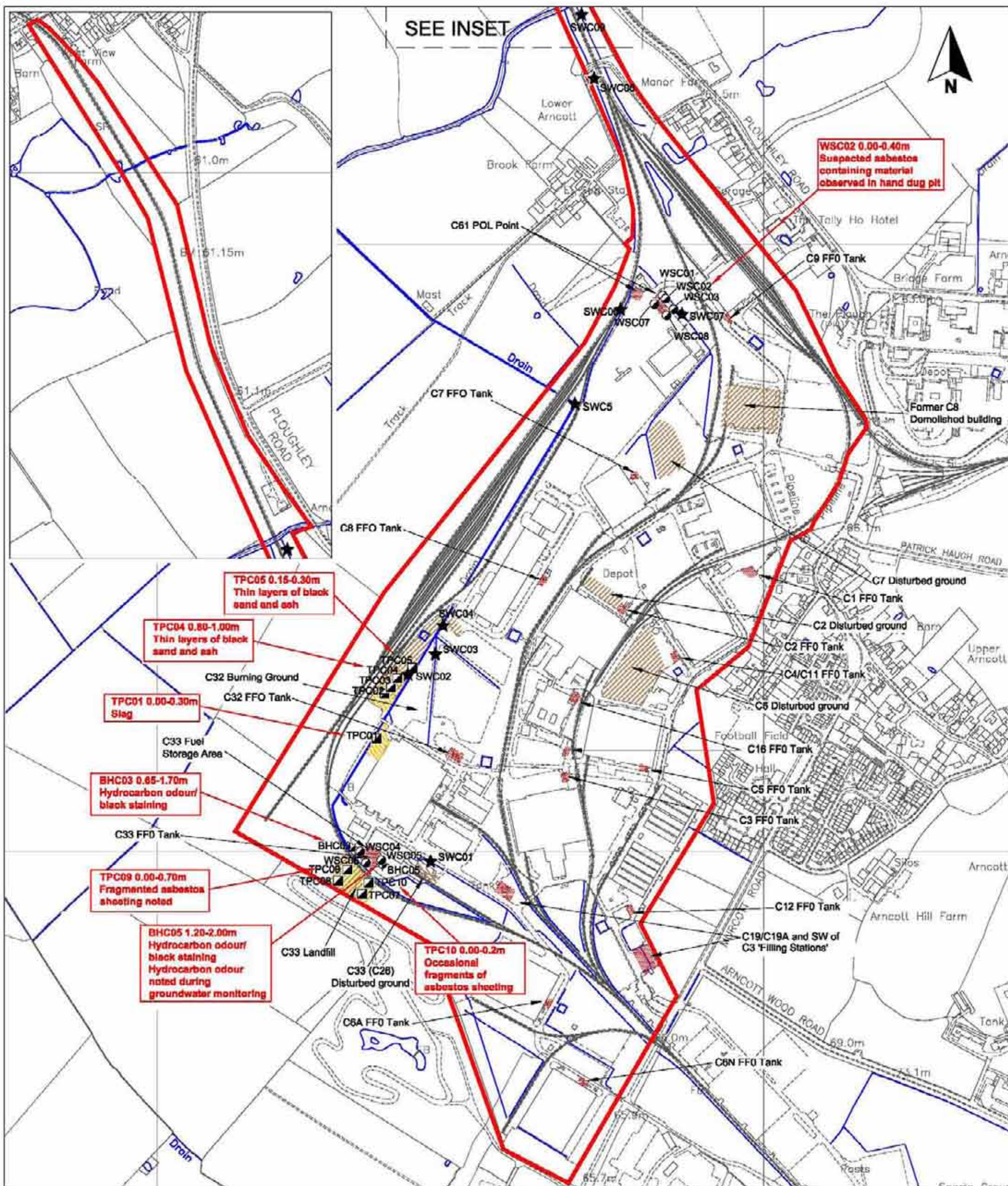
August 2010
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Entec









Key

- | | | | |
|--|---------------------------------|--|---------------|
| | Site boundary | | Trial pit |
| | Fuel and oil (POL) | | Borehole |
| | Waste disposal/disturbed ground | | Window sample |
| | Radioactive material | | Surface water |
| | Burning area/fire training area | | |

0 m 300 m

Scale 1:5000 @ A3
Prepared for the Ministry of Defence, Defence Estates, commission
PT83/PT88/LM/03

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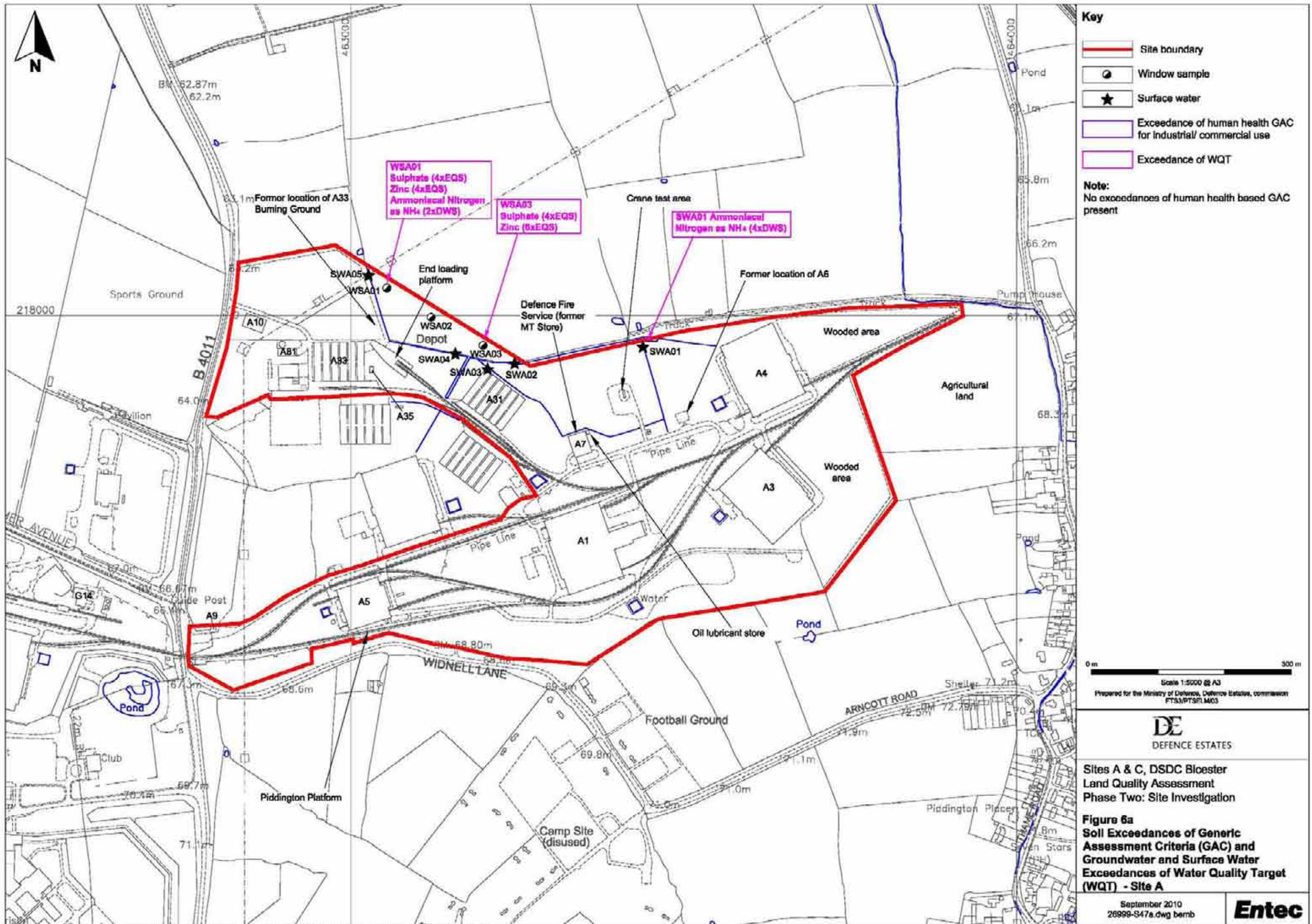
DEFENCE ESTATES

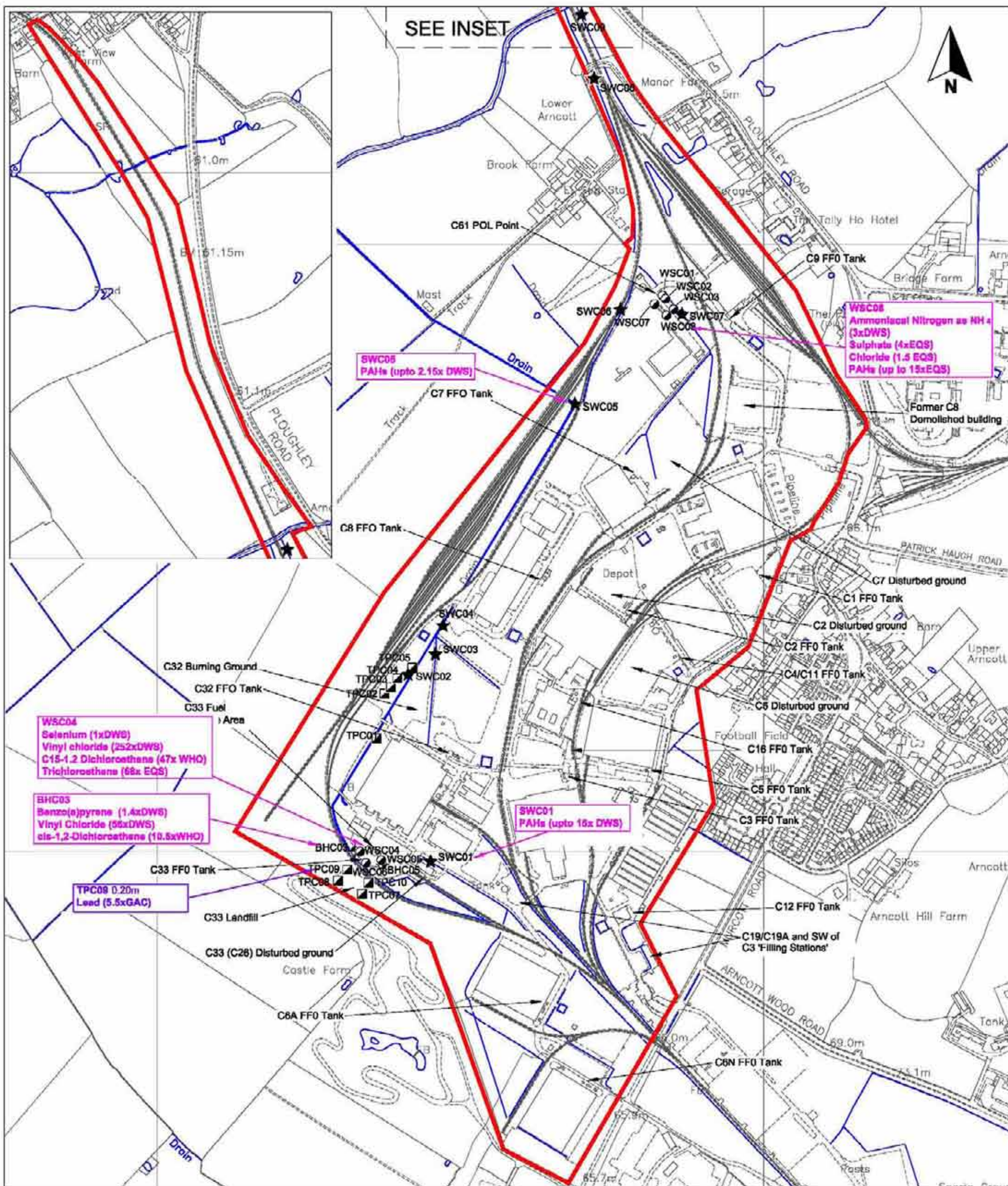
Sites A & C, DSDC Bicester
Land Quality Assessment
Phase Two: Site Investigation

Figure 5
Visual and Olfactory Evidence -
Site C

September 2010
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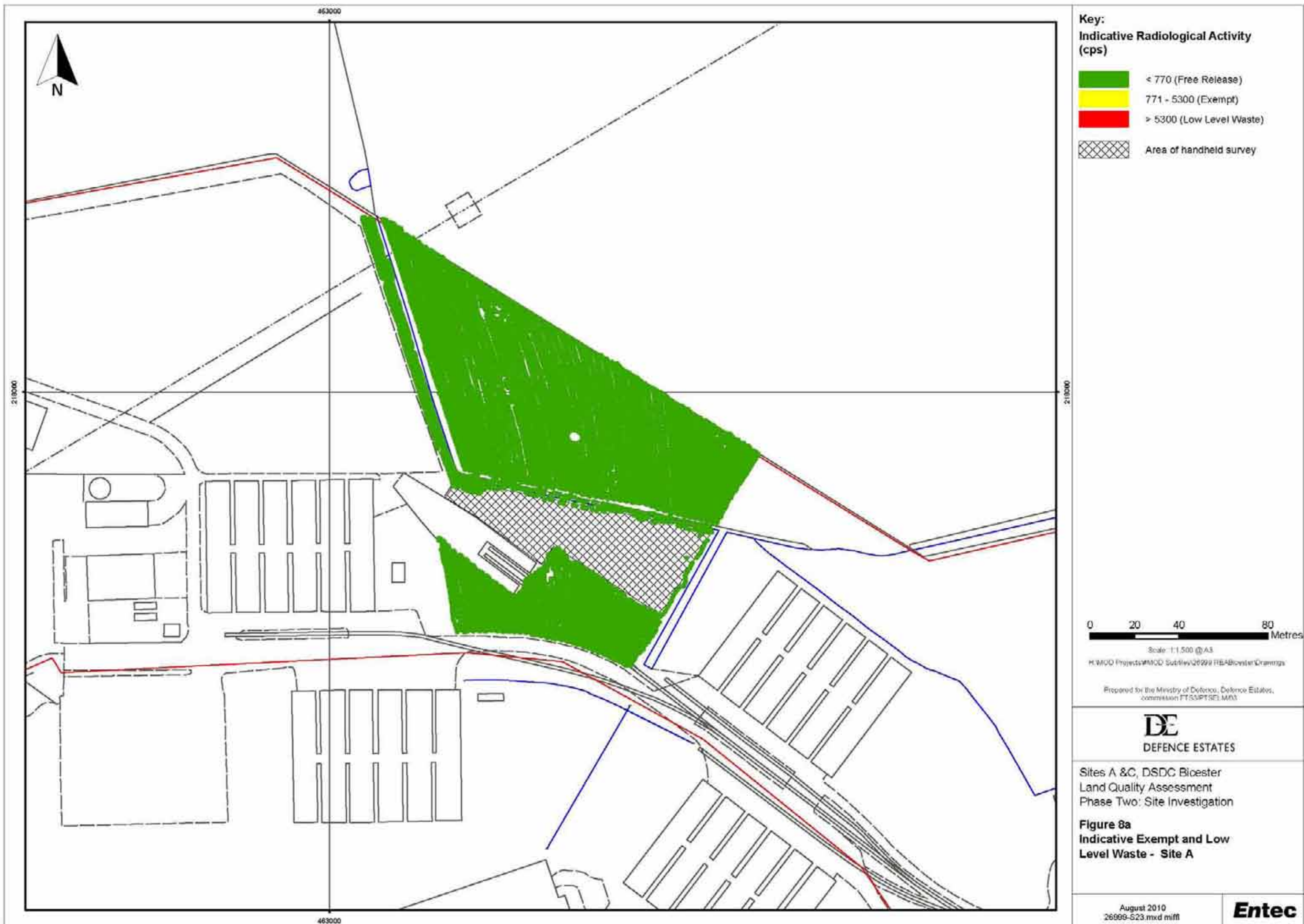
Entec

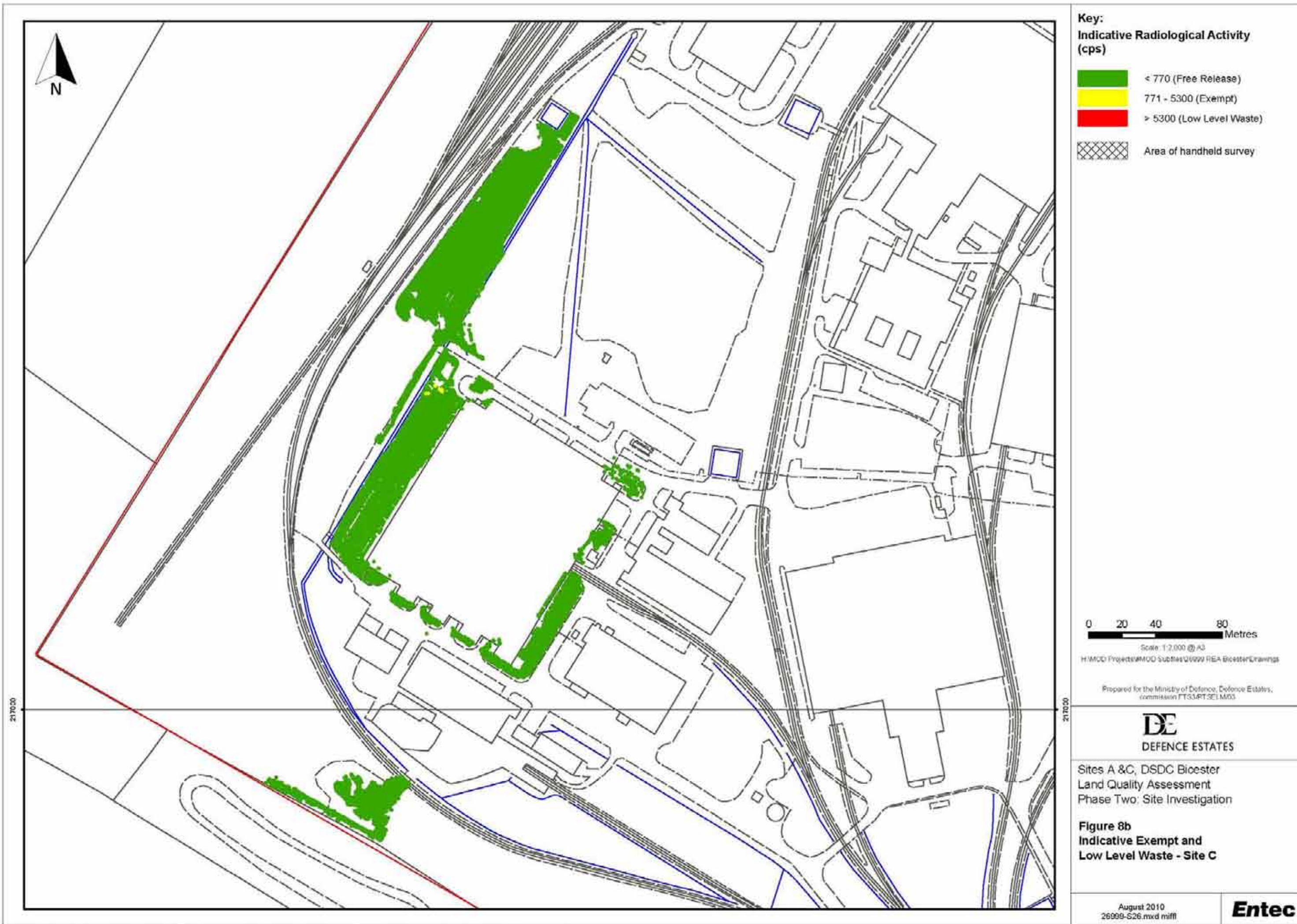


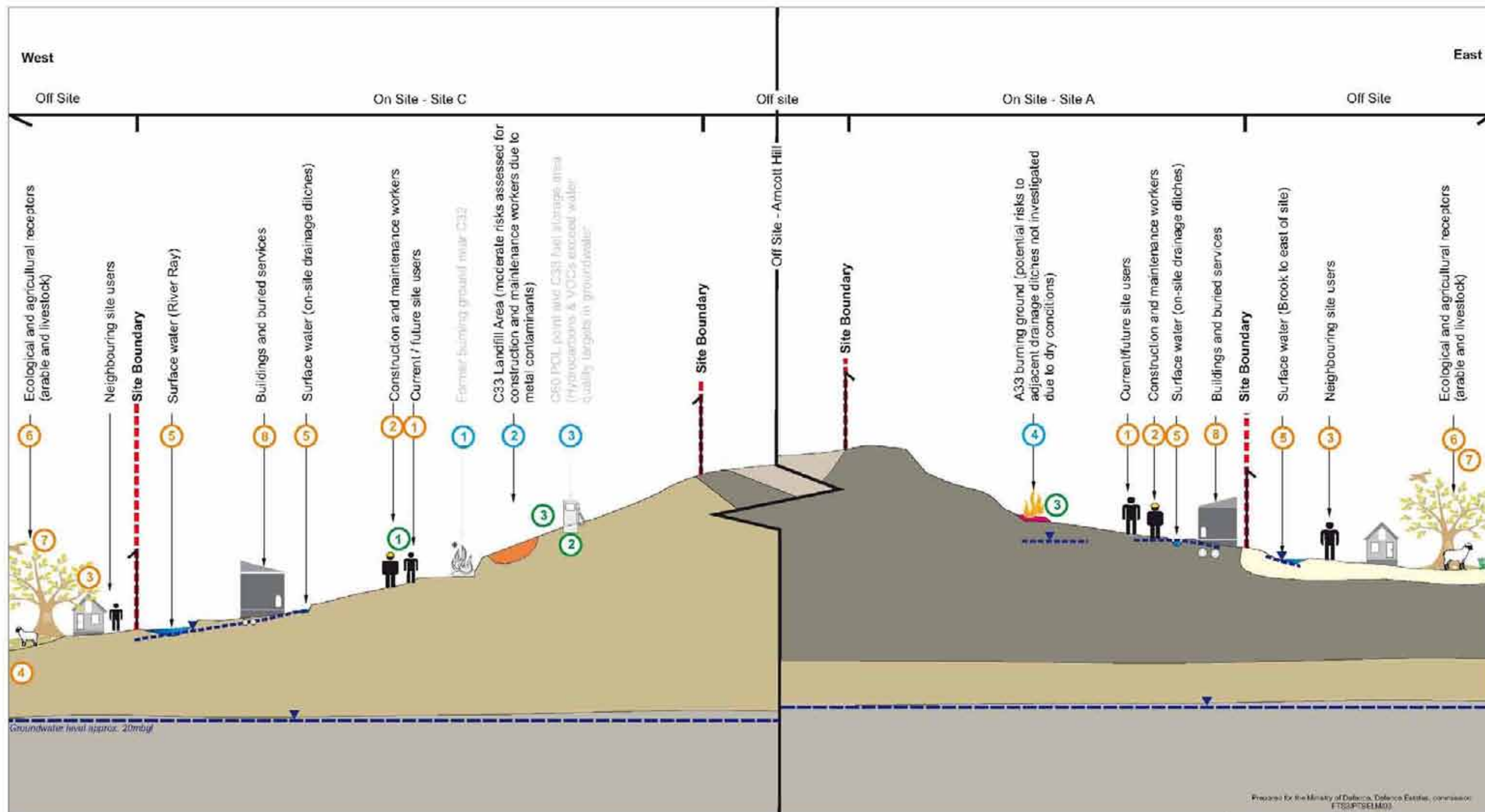












Prepared for the Ministry of Defence, Defence Estates, commission FT33PTSELM03

Key

- Alluvium
- Upper Oxford Clay
- Middle Oxford Clay
- Lower Oxford Clay
- Kellaway Sand member
- Drain
- Fuel/oil storage
- Tipping

- Groundwater level
- Perched groundwater level
- Surface water
- Site boundary

Potential Sources

- 1 Former burning ground near Building C32
- 2 C33 landfill area
- 3 C60 POL point and C33 FFO tank area
- 4 A33 Burning ground area

Receptors

- 1 Current/ future site users/visitors
- 2 Construction and maintenance workers
- 3 Neighbouring site users
- 4 Groundwater
- 5 Surface water
- 6 Ecological receptors
- 7 Agricultural receptors
- 8 Buildings and buried services

Pathways

- 1 Dermal contact, direct contact, ingestion, inhalation
- 2 Leaching, transport, groundwater contamination
- 3 Leaching, transport, groundwater contamination, runoff
- 4 Uptake, direct contact
- 5 Degradation, direct contact, vapour migration, explosion

Note:

Of the potential sources investigated in the Phase 2 LQA the following are unlikely to comprise a significant source:

- C61 POL
- C32 Burning ground

C33 Landfill may comprise a risk to future commercial/industrial user if direct contact with soils was a viable linkage.

All other pollutant linkages remain as shown.

Notes: Omitted out source areas have following the Phase Two LQA been assessed to represent moderate/low risks (or lower). As these source areas are still operational they are considered within the conceptual model. Source areas that were assessed to be moderate/low (or lower) at Phase One LQA stage have been omitted from this figure.

DE
DEFENCE ESTATES

Sites A & C, DSDC Bicester
Land Quality Assessment
Phase Two: Site Investigation



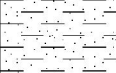
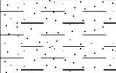
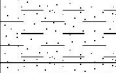

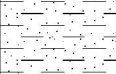
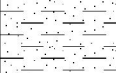
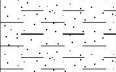


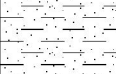

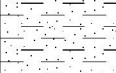
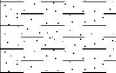

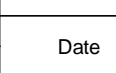

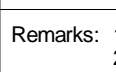


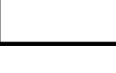

Figure 9
Conceptual Model

September 2010
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Annex A

Intrusive Logs

 <div> May Gurney Limited Geotechnical - Site Investigation Ayton Road, Wymondham, NR18 0RH Tel: 01953 609856 Fax: 01953 609819 Web: www.maygurney.co.uk </div>			<h2>Window Sample Record</h2>			<h2>WSA01</h2> <p>Sheet 1 of 1</p>		
Project: Bicester								
Project ID: SI1622 Contractors ID:			Client: Entec UK Limited Engineer: James Ridehalgh			Ground Level: 63.561mAOD Coordinates: 463054.59E 218041.59N		
Description	Legend	Depth (m)	O.D. Level (m)	Sample Test		Remarks and Test Results	PID (ppm)	Installations
				Type	Depth (m)			
TOPSOIL: Stiff brown slightly sandy slightly gravelly CLAY. Gravel is subangular fine consisting of sandstone.		0.30	63.26					
Firm orange-brown-grey mottled sandy CLAY.				CS01	0.50-0.70		0.00	
...From 1.00m to 1.30mbgl becoming soft and very sandy.				CS02	1.00-1.30		0.00	
		1.30	62.26	C1	1.20-2.00			
Firm brown-grey slightly sandy laminated CLAY with brown organic laminations.				C2	2.00-3.00			
				C3	3.00-4.00			
		3.10	60.46					
Stiff grey slightly sandy laminated CLAY.				C4	4.00-5.00			
								
								
								
								
								
								
								
								
								
								
								
								
								
								
Window Sample Complete at 5.00 m		5.00	58.56					
Water Level Observations								
Drive Records			Date	Water Strike (m)	Standing Time (Mins)	Standing Level (m)	Casing Depth (m)	Depth Sealed (m)
Diameter (mm)	To (m)	Recovery (%)						
102	2.00			No Groundwater Encountered				
96	3.00							
76	4.00							
66	5.00							
Client: Entec UK Limited Engineer: James Ridehalgh Date: 21/07/2010 Plant: Terrier Drilled By: M. Earl Logged By: JSR Checked By: P. Lewin			Remarks: 1. Starter pit dug from GL to 1.20mbgl. 2. Installation details: 32mm HDPE Standpipe installed from GL to 5.00mbgl. Plain pipe from GL to 0.50mbgl and a slotted pipe from 0.50m to 5.00mbgl. Hole backfilled with bentonite from GL to 0.50mbgl and gravel from 0.50m to 5.00mbgl. Hole finished with a flush cover and gas tap.					
Print Date: 22/09/2010								

Window Sample Record

WSA02
Sheet 1 of 1

Project: Bicester

Project ID: SI1622

Contractors ID:


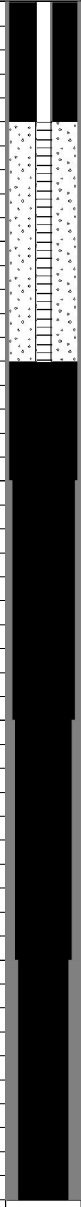

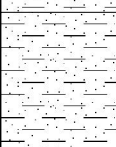
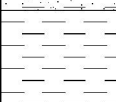
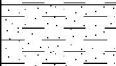
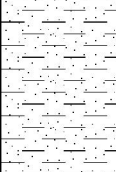

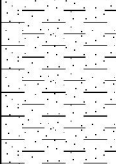
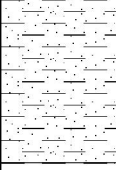
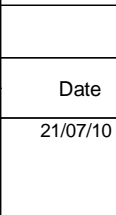
Client: Entec UK Limited

Engineer: James Ridehalgh

Ground Level: 64.071mAOD

Coordinates: 463121.19E

217997.57N

Description			Legend	Depth (m)	O.D. Level (m)	Sample Test		Remarks and Test Results	PID (ppm)	Installations
						Type	Depth (m)			
TOPSOIL: Stiff brown-orange mottled slightly sandy CLAY with frequent rootlets.				0.30	63.77	CS01	0.10-0.30	0.00		
Firm brown-orange mottled sandy CLAY.										
Firm brown-grey-orange mottled sandy CLAY.				1.00	63.07	C1 CS02	1.20-2.00 1.25-1.35	0.00		
...From 1.25m to 1.35mbgl sand band - slight water seepage.										
Firm grey-brown laminated CLAY.				1.60	62.47	C2	2.00-3.00			
...From 1.80m to 2.00mbgl fine chalk gravel and organic brown laminations.										
Firm dark brown slightly sandy laminated CLAY.				2.00	62.07	C3	3.00-4.00			
Stiff grey slightly sandy laminated CLAY.										
...From 3.50mbgl shell fossils.				3.00	61.07	C4	4.00-5.00			
Window Sample Complete at 5.00 m										
			Water Level Observations							
Drive Records			Date	Water Strike (m)	Standing Time (Mins)	Standing Level (m)	Casing Depth (m)	Depth Sealed (m)		
Diameter (mm)	To (m)	Recovery (%)								
116 102 86 76	0.00 2.00 3.00 4.00 5.00		21/07/10	1.25	-	-	-			
Client: Entec UK Limited Engineer: James Ridehalgh Date: 21/07/2010 Plant: Terrier Drilled By: M. Earl Logged By: JSR Checked By: P. Lewin			Remarks: 1. Starter pit dug from GL to 1.20mbgl. 2. Slight water seepage from 1.25m to 1.35mbgl. 3. Installation details: 32mm HDPE Standpipe installed from GL to 1.50mbgl. Plain pipe from GL to 0.50mbgl and a slotted pipe from 0.50m to 1.50mbgl. Hole backfilled with bentonite from GL to 0.50mbgl, gravel from 0.50m to 1.50mbgl and bentonite from 1.50m to 5.00mbgl. Hole finished with a flush cover and gas tap.							
Print Date: 22/09/2010										

Window Sample Record

WSA03
Sheet 1 of 1

Project: Bicester

Project ID: SI1622

Contractors ID:



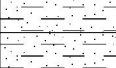
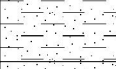




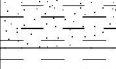

Client: Entec UK Limited

Engineer: James Ridehalgh

Ground Level: 64.607m AOD

Coordinates: 463199.13E

217955.41N

Description	Legend	Depth (m)	O.D. Level (m)	Sample Test		Remarks and Test Results	PID (ppm)	Installations
				Type	Depth (m)			
TOPSOIL: Stiff brown sandy CLAY with frequent rootlets.				CS01	0.10-0.30		0.00	
Firm brown sandy CLAY.		0.30	64.31					
Firm light brown-grey-orange mottled sandy CLAY.		0.70	63.91					
...From 1.00m to 1.05mbgl sand and shell band.		1.10	63.51	C1	1.20-2.00			
Firm grey-orange mottled sandy CLAY with highly weathered chalk veins.				C2	2.00-3.00			
		2.45	62.16	CS02	2.50-2.70		0.00	
Firm grey laminated CLAY with abundant fine gypsum crystals.				C3	3.00-4.00			
		3.60	61.01	C4	4.00-5.00			
Firm to stiff grey-brown laminated CLAY.								
		5.00	59.61					

Window Sample Complete at 5.00 m

Water Level Observations

Drive Records			Date	Water Strike (m)	Standing Time (Mins)	Standing Level (m)	Casing Depth (m)	Depth Sealed (m)
Diameter (mm)	To (m)	Recovery (%)						
102	2.00			No Groundwater Encountered				
86	3.00							
76	4.00							

Client: Entec UK Limited

Engineer: James Ridehalgh

Date: 21/07/2010



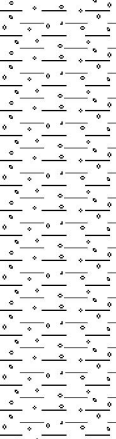

Plant: Terrier


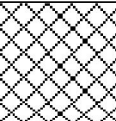
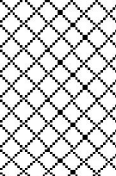



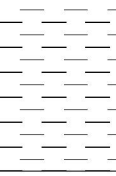
Drilled By: M. Earl


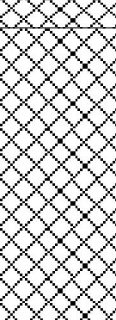
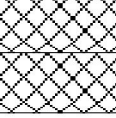
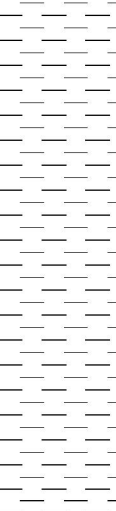
Logged By: JSR


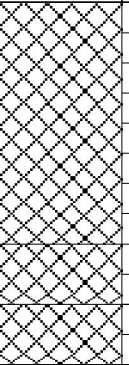
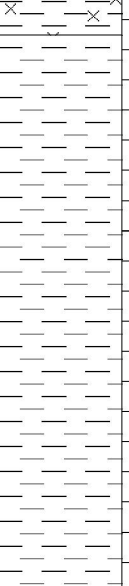
Checked By: P. Lewin


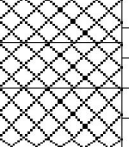
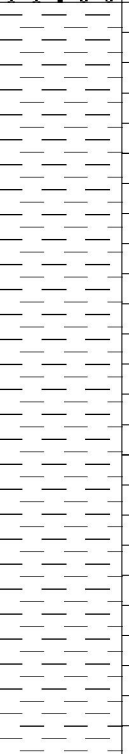
Remarks: 1. Starter pit dug from GL to 1.20mbgl.
2. Installation details: 32mm HDPE Standpipe installed from GL to 5.00mbgl. Plain pipe from GL to 0.50mbgl and a slotted pipe from 0.50m to 5.00mbgl. Hole backfilled with bentonite from GL to 0.50mbgl and gravel from 0.50m to 5.00mbgl. Hole finished with a flush cover and gas tap.

 <div> May Gurney Limited Geotechnical - Site Investigation Ayton Road, Wymondham NR18 0RH Tel: 01953 609856 Fax: 01953 609819 Web: www.maygurney.co.uk </div>	<h2 style="text-align: center;">Trial Pit Record</h2>				<h2 style="text-align: center;">TPC01</h2> <p style="text-align: center;">Sheet 1 of 1</p>								
Project ID: SI1622		Client: Entec UK Limited Engineer: John Tomalin				Ground Level: 64.008m AOD Coordinates: 460362.34E 217186.81N							
Orientation of Trial Pit:		Length: -		Width: -		Depth: 1.80		Sample / Test		Remarks and Test Results			
Description		Legend		Depth (m)		O.D. Level		Water		Type		Depth (m)	
MADE GROUND: Grey-brown silty gravelly fine to coarse sand. Gravel is angular fine to coarse limestone, concrete and slag.				0.30		63.71				ES1 0.20		0.00	
Stiff yellow-grey slightly gravelly CLAY. Gravel is angular fine to coarse limestone and sandstone. ...From 0.70mbgl occasional cream fine to coarse (sugary) sand sized calcareous concretions.				1.30		62.21				ES2 1.30		0.00	
End of Trial Pit at 1.80 m				1.80		62.21							
Client: Entec UK Limited Engineer: John Tomalin Contractor: May Gurney Geotechnical Date: 14/07/2010 Plant: JCB Logged By: J. Tomalin Checked By: P. Lewin		Water Level Observations											
		Date		Water Strike (m)		Standing Time (Mins)		Standing Level (m)					
				No Groundwater Encountered									
		Groundwater Remarks: No groundwater encountered throughout. Remarks: Hole backfilled with arisings. Hole Stability: Trial pit stable on completion.											

 <div> May Gurney Limited Geotechnical - Site Investigation Ayton Road, Wymondham NR18 0RH Tel: 01953 609856 Fax: 01953 609819 Web: www.maygurney.co.uk </div>	<h2 style="text-align: center;">Trial Pit Record</h2>				<h2 style="text-align: center;">TPC02</h2> <p style="text-align: center;">Sheet 1 of 1</p>						
Project ID: SI1622		Client: Entec UK Limited Engineer: John Tomalin				Ground Level: 64.721mAOD Coordinates: 460375.31E 217259.95N					
Orientation of Trial Pit:		Length: -		Width: -		Depth: 2.20		Sample / Test		Remarks and Test Results	
Description		Legend	Depth (m)	O.D. Level	Water	Type	Depth (m)	Test Results <small>PID (ppm)</small>			
MADE GROUND: Very stiff (hard) dessicated grey and yellow-grey slightly gravelly clay. Gravel is subangular to angular fine to coarse limestone.			0.40	64.32							
MADE GROUND: Very stiff mottled grey and yellow-brown clay.			0.70			ES1	0.70	0.00			
MADE GROUND: Dark grey silty gravelly fine and medium sand. Gravel is angular to subangular fine to coarse limestone and concrete.			1.00 1.05	63.72 63.67							
MADE GROUND: Yellow-brown silty fine to coarse SAND and angular fine to coarse limestone gravel.			1.30	63.42							
Stiff dark green-grey CLAY with occasional fine roots (old topsoil).			1.50	63.22		ES2	1.60	0.00			
Stiff slightly green-grey CLAY. ...From 1.80mbgl stiff mottled yellow-grey and brown with occasional fine to coarse (sugary) sand sized calcareous concretions.			2.20	62.52							
End of Trial Pit at 2.20 m											
Client: Entec UK Limited Engineer: John Tomalin Contractor: May Gurney Geotechnical Date: 14/07/2010 Plant: JCB Logged By: J. Tomalin Checked By: P. Lewin		Water Level Observations									
		Date		Water Strike (m)		Standing Time (Mins)		Standing Level (m)			
				No Groundwater Encountered							
		Groundwater Remarks: No groundwater encountered throughout. Remarks: Hole backfilled with arisings. Hole Stability: Trial pit stable during excavation and on completion.									

 <div> May Gurney Limited Geotechnical - Site Investigation Ayton Road, Wymondham NR18 0RH Tel: 01953 609856 Fax: 01953 609819 Web: www.maygurney.co.uk </div>	<h2 style="text-align: center;">Trial Pit Record</h2>				<h2 style="text-align: center;">TPC03</h2> <p style="text-align: center;">Sheet 1 of 1</p>						
Project ID: SI1622		Client: Entec UK Limited Engineer: John Tomalin				Ground Level: 64.827mAOD Coordinates: 460385.81E 217270.63N					
Orientation of Trial Pit:		Length: -		Width: -		Depth: 3.30		Sample / Test		Remarks and Test Results	
Description		Legend	Depth (m)	O.D. Level	Water	Type	Depth (m)	Test Results <small>PID (ppm)</small>			
MADE GROUND: Brown-grey silty fine and medium sand. MADE GROUND: Very stiff dessicated grey and brown-grey slightly gravelly clay. Gravel is angular fine to coarse limestone. ...From 0.60mbgl very stiff mottled grey with occasional yellow-grey clay. Occasional limestone gravel.			0.10	64.73		ES1	0.20	0.00			
MADE GROUND: Black silty gravelly fine to coarse sand. Gravel is angular fine to coarse limestone and concrete. MADE GROUND: Yellow-brown silty fine to coarse sand and angular fine to coarse limestone gravel.			1.10 1.30 1.50	63.73 63.53 63.33		ES2	1.20	0.00			
Stiff slightly green-grey CLAY with occasional fine roots. Slight organic odour. ...From 1.80mbgl stiff mottled grey and yellow-grey clay. ...From 2.30mbgl mottled grey and brown.			3.30	61.53		ES3	2.90	0.00			
End of Trial Pit at 3.30 m											
Client: Entec UK Limited Engineer: John Tomalin Contractor: May Gurney Geotechnical Date: 14/07/2010 Plant: JCB Logged By: J. Tomalin Checked By: P. Lewin		Water Level Observations									
		Date		Water Strike (m)		Standing Time (Mins)		Standing Level (m)			
				No Groundwater Encountered							
		Groundwater Remarks: No groundwater encountered. Remarks: Hole backfilled with arisings. Hole Stability: Trial pit stable throughout and on completion.									

 <div> May Gurney Limited Geotechnical - Site Investigation Ayton Road, Wymondham NR18 0RH Tel: 01953 609856 Fax: 01953 609819 Web: www.maygurney.co.uk </div>		<h2 style="text-align: center;">Trial Pit Record</h2>		<h2 style="text-align: center;">TPC04</h2> <p style="text-align: center;">Sheet 1 of 1</p>					
Project ID: SI1622		Project: Bicester							
Client: Entec UK Limited		Engineer: John Tomalin		Ground Level: 64.651mAOD Coordinates: 460396.26E 217285.57N					
Orientation of Trial Pit:		Length: - Width: - Depth: 3.20		Sample / Test					
Description		Legend	Depth (m)	O.D. Level	Water	Type	Depth (m)	Remarks and Test Results <small>PID (ppm)</small>	
MADE GROUND: Very stiff (dessicated) grey and brown-grey slightly gravelly clay. Gravel is angular fine to coarse limestone. Occasional brick.									
MADE GROUND: Black silty gravelly fine to coarse sand. Gravel is angular fine to coarse granite and concrete. Occasional fragments of metal.			0.80	63.85		ES1	0.50	0.00	
MADE GROUND: Dense yellow-brown silty very gravelly fine to coarse sand. Gravel is angular fine to coarse limestone.			1.00	63.65					
Dark grey-brown silty CLAY with occasional fine roots. Organic odour. (Old topsoil).			1.20	63.45					
Stiff slightly green-grey CLAY with occasional fine roots. Slight organic odour. ...From 1.50mbgl mottled grey and brown-grey occasional decayed roots.			1.35	63.30		ES2	1.50	0.00	
...From 2.10mbgl grey and brown occasional weak fine to coarse (sugary) sand sized calcareous concretions.									
End of Trial Pit at 3.20 m			3.20	61.45					
Client: Entec UK Limited Engineer: John Tomalin Contractor: May Gurney Geotechnical Date: 14/07/2010 Plant: JCB Logged By: J. Tomalin Checked By: P. Lewin		Water Level Observations							
		Date		Water Strike (m)		Standing Time (Mins)		Standing Level (m)	
				No Groundwater Encountered					
		Groundwater Remarks: No groundwater encountered throughout.							
		Remarks: Hole backfilled with arisings.							
		Hole Stability: Trial pit stable during excavation and on completion.							
		Print Date: 21/09/2010							

 <div> May Gurney Limited Geotechnical - Site Investigation Ayton Road, Wymondham NR18 0RH Tel: 01953 609856 Fax: 01953 609819 Web: www.maygurney.co.uk </div>		<h2 style="text-align: center;">Trial Pit Record</h2>		<h2 style="text-align: center;">TPC05</h2> <p style="text-align: center;">Sheet 1 of 1</p>									
Project ID: SI1622		Client: Entec UK Limited Engineer: John Tomalin		Ground Level: 64.090mAOD Coordinates: 460421.10E 217302.91N									
Orientation of Trial Pit:		Length: - Width: - Depth: 3.00		Sample / Test									
Description		Legend	Depth (m)	O.D. Level	Water								
MADE GROUND: Grey sandy slightly gravelly clay. Gravel is angular fine to coarse limestone.			0.15	63.94									
MADE GROUND: Black silty gravelly fine to coarse sand. Gravel is angular fine to coarse limestone. Abundant ash.			0.30	63.79									
MADE GROUND: Yellow-brown silty fine to coarse sand and angular fine to coarse limestone gravel and cobbles.			0.50	63.59									
Stiff grey-brown CLAY with occasional fine roots. ...From 0.90mbgl mottled grey and yellow-grey. ...From 1.40mbgl mottled grey and yellow-brown with occasional nodular fine gravel sized weak calcareous concretions. Occasional decayed roots in fissures. ...From 2.50mbgl bands of fossil shell debris.													
End of Trial Pit at 3.00 m			3.00	61.09									
Client: Entec UK Limited Engineer: John Tomalin Contractor: May Gurney Geotechnical Date: 14/07/2010 Plant: JCB Logged By: J. Tomalin Checked By: P. Lewin		<div> <div>Water Level Observations</div> <table border="1"> <tr> <th>Date</th> <th>Water Strike (m)</th> <th>Standing Time (Mins)</th> <th>Standing Level (m)</th> </tr> <tr> <td colspan="4">No Groundwater Encountered</td> </tr> </table> </div> <div> Groundwater Remarks: No groundwater encountered throughout. </div> <div> Remarks: Hole backfilled with arisings. </div> <div> Hole Stability: Trial pit stable during excavation and on completion. </div>				Date	Water Strike (m)	Standing Time (Mins)	Standing Level (m)	No Groundwater Encountered			
Date	Water Strike (m)	Standing Time (Mins)	Standing Level (m)										
No Groundwater Encountered													

Trial Pit Record

TPC06
Sheet 1 of 1

Project: Bicester

Project ID: SI1622

Client: Entec UK Limited
Engineer: John Tomalin

Ground Level:
Coordinates: -

Orientation of Trial Pit:

Length: - Width: - Depth: 3.30

Sample / Test

Remarks
and
Test Results

Description

Legend

Depth
(m)

O.D.
Level

Water

Type

Depth
(m)

PID
(ppm)

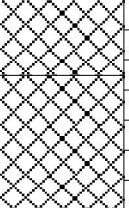
MADE GROUND: Grey-brown silty very gravelly fine to coarse sand. Gravel is angular fine and medium brick, granite, limestone and concrete with occasional plastic and metal.

MADE GROUND: Yellow-brown silty fine to coarse sand and angular fine to coarse limestone gravel and cobbles.

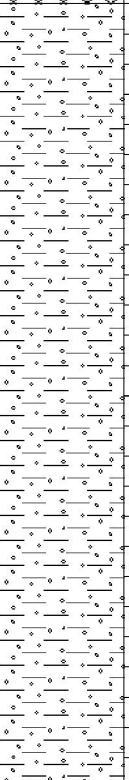
Stiff mottled brown and grey CLAY with occasional fine gravel sized weak calcareous nodules. Occasional decayed root matter on fissures.

...From 2.70mbgl stiff grey clay with occasional fossil shell debris and coarse sand sized gypsum.

End of Trial Pit at 3.30 m



0.25



0.70

ES1

0.10

0.00

ES2

1.00

0.00

3.30

Water Level Observations

Date

Water Strike (m)

Standing Time (Mins)

Standing Level (m)

No Groundwater Encountered

Groundwater Remarks: No groundwater encountered throughout.

Remarks: Hole backfilled with arisings.

Hole Stability: Trial pit stable during excavation and on completion.

Print Date: 21/09/2010


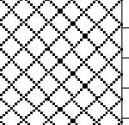
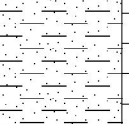
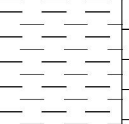
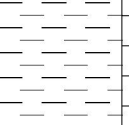
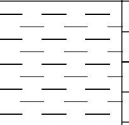
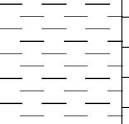
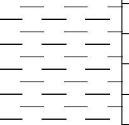
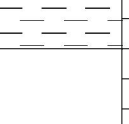
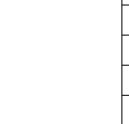

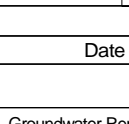
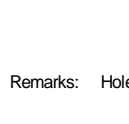
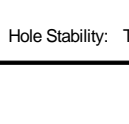

Client: Entec UK Limited
Engineer: John Tomalin
Contractor: May Gurney Geotechnical
Date: 15/07/2010
Plant: JCB


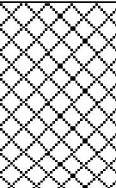
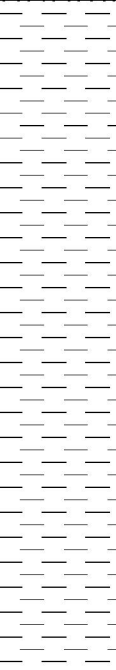
Logged By: J. Tomalin
Checked By: P. Lewin


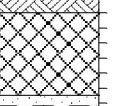




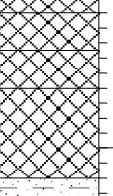
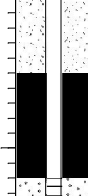
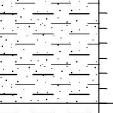
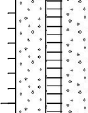
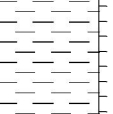
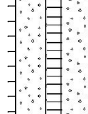
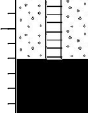
Sheet 1 of 1

Print Date: 21/09/2010

 <div> May Gurney Limited Geotechnical - Site Investigation Ayton Road, Wymondham NR18 0RH Tel: 01953 609856 Fax: 01953 609819 Web: www.maygurney.co.uk </div>		<h2 style="text-align: center;">Trial Pit Record</h2>			<h2 style="text-align: center;">TPC08</h2> <p style="text-align: center;">Sheet 1 of 1</p>		
		Project: Bicester					
Project ID: SI1622		Client: Entec UK Limited			Ground Level: -		
		Engineer: John Tomalin			Coordinates: -		
Orientation of Trial Pit:		Length: -		Width: -		Depth: 3.30	
Sample / Test		Remarks and Test Results					
Description		Legend		Depth (m)		O.D. Level	
						Water	
						Type	
						Depth (m)	
						PID (ppm)	
MADE GROUND: Dark brown silty gravelly fine to coarse sand. Gravel is angular fine to coarse brick, concrete, limestone and occasional metal, wood, plastic and tin cans. Possible hydrocarbon odour.				0.45		ES1 0.20 0.00	
Mottled black and grey sandy CLAY with occasional metal and wood. Possible hydrocarbon odour. Slight water seepage.				0.90		ES2 0.60 0.00	
Stiff mottled green-grey and grey CLAY.				1.80		ES3 1.60 0.00	
...From 1.10mbgl mottled grey and yellow-brown with pockets of sandy clay and clayey fine and medium sand.				3.30			
Stiff mottled grey and brown-grey CLAY. Occasional decayed root matter on fissures and occasional weak fine gravel sized calcareous nodules.							
...From 2.20mbgl occasional fossil shell debris.							
End of Trial Pit at 3.30 m							
							
							
							
							
							
							
							
Client: Entec UK Limited		Water Level Observations					
Engineer: John Tomalin		Date		Water Strike (m)		Standing Time (Mins)	
Contractor: May Gurney Geotechnical				No Groundwater Encountered		Standing Level (m)	
Date: 15/07/2010		Groundwater Remarks: No groundwater encountered throughout.					
Plant: JCB		Remarks: Hole backfilled with arisings.					
Logged By: J. Tomalin		Hole Stability: Trial pit stable during excavation and on completion.					
Checked By: P. Lewin		Print Date: 21/09/2010					

 <div> May Gurney Limited Geotechnical - Site Investigation Ayton Road, Wymondham NR18 0RH Tel: 01953 609856 Fax: 01953 609819 Web: www.maygurney.co.uk </div>	<h2 style="text-align: center;">Trial Pit Record</h2>				<h2 style="text-align: center;">TPC09</h2> <p style="text-align: center;">Sheet 1 of 1</p>						
Project ID: SI1622		Client: Entec UK Limited Engineer: Ed Gilligan				Ground Level: Coordinates: -					
Orientation of Trial Pit:		Length: -		Width: -		Depth: 3.20		Sample / Test		Remarks and Test Results	
Description		Legend	Depth (m)	O.D. Level	Water	Type	Depth (m)	Test Results <small>PID (ppm)</small>			
MADE GROUND: Dark brown silty very gravelly fine to coarse sand. Gravel is angular fine to coarse brick, limestone, concrete and occasional metal, wood, plastic, glass, pottery and fragmented asbestos sheeting. Abundant ash. ...From 0.50mbgl pockets of sawdust.			0.70			ES1	0.20	0.00			
Stiff mottled grey, yellow-brown and dark grey CLAY. ...From 1.00mbgl grey and yellow-brown. ...From 1.60mbgl pockets of yellow-brown clayey fine to coarse sand. ...From 2.10mbgl stiff mottled grey and brown-grey clay. Occasional fine gravel sized weak calcareous nodules. Local bands of fossil shell debris. Decayed root matter on fissures.			3.20			ES2	1.20	0.00			
End of Trial Pit at 3.20 m											
Client: Entec UK Limited Engineer: Ed Gilligan Contractor: May Gurney Geotechnical Date: 15/07/2010 Plant: JCB Logged By: J. Tomalin Checked By: P. Lewin		Water Level Observations									
		Date		Water Strike (m)		Standing Time (Mins)		Standing Level (m)			
				No Groundwater Encountered							
		Groundwater Remarks: No groundwater encountered. Remarks: Hole backfilled with arisings. Hole Stability: Trial pit stable during excavation and on completion.									

 <div> May Gurney Limited Geotechnical - Site Investigation Ayton Road, Wymondham, NR18 0RH Tel: 01953 609856 Fax: 01953 609819 Web: www.maygurney.co.uk </div>		Borehole Record					BHC03		Sheet 1 of 1								
Project ID: SI1622		Client : Entec UK Limited					Ground Level: 64.411mAOD										
		Engineer : Simon Howard					Coordinates: 460326.69E 217000.96N										
Description		Legend	Depth (m)	O.D. Level (m)	Sample Test		SPT/CPT		Remarks and Test Results		Installations						
					Type	Depth (m)	Casing Depth (m)	Water Depth (m)	SPT/HV/PP (Recovery)	PID (ppm)							
TOPSOIL: Grass over brown slightly clayey slightly sandy with rootlets.			0.10	64.31													
MADE GROUND: Grey gravelly coarse sand with cobble to boulder (up to 280mm) size fragments of concrete and clinker / ash. (Moist).			0.65	63.76	CS01	0.50-0.65				0.00							
Soft green-grey-brown slightly sandy CLAY with black staining. Strong hydrocarbon odour.					CS02	1.00				166.00							
Firm brown-grey CLAY with medium coarse sand bands and occasional black staining.			1.70	62.71	CS03	2.00				9.00							
Firm brown laminated CLAY, no staining.			2.30	62.11	CS04	2.50				0.00							
Stiff grey-blue laminated CLAY with shells.			3.00	61.41													
...From 6.20mbgl weak mudstone bands.																	
Borehole Complete at 7.00 m			7.00	57.41													
Water Level Observations																	
Hole Diameter Detail			Chiseling Details			Date		Water Strike (m)		Standing Time (mins)		Standing Level (m)		Casing Depth (m)		Depth Sealed (m)	
Diameter (mm)	Depth (m)	Casing Depth (m)	From (m)	To (m)	Time (hours)												
						15/07/10		2.30		-		-		-			
Client: Entec UK Limited Engineer: Simon Howard Contractor: May Gurney Geotechnical Dates: 15/07/2010 Plant: Dando Drilled By: T. York Logged By: S. Howard Checked By: P. Lewin						Remarks: 1. Starter pit dug from GL to 1.20mbgl. 2. 10 litres of water added between 4.50m and 7.00mbgl. 3. Water seepage from 2.30mbgl. 4. Installation details: 50mm HDPE Standpipe installed from GL to 3.00mbgl. Plain pipe from GL to 1.00mbgl and slotted pipe from 1.00m to 3.00mbgl. Hole backfilled with concrete from GL to 0.50mbgl, bentonite from 0.50m to 1.00mbgl, gravel from 1.00m to 3.00mbgl, bentonite from 3.00m to 4.00mbgl and arisings from 4.00m to 7.00mbgl. Hole finished with a flush cover and gas tap.											

 <div> May Gurney Limited Geotechnical - Site Investigation Ayton Road, Wymondham, NR18 0RH Tel: 01953 609856 Fax: 01953 609819 Web: www.maygurney.co.uk </div>		Borehole Record					BHC05		Sheet 1 of 1		
Project ID: SI1622		Client : Entec UK Limited					Ground Level: 64.786m AOD				
		Engineer : Simon Howard					Coordinates: 460371.90E 216979.10N				
Description	Legend	Depth (m)	O.D. Level (m)	Sample Test		SPT/CPT		Remarks and Test Results		Installations	
				Type	Depth (m)	Casing Depth (m)	Water Depth (m)	SPT/HV/PP (Recovery)	PID (ppm)		
MADE GROUND: Rounded to subrounded coarse gravel.		0.10	64.69								
MADE GROUND: Reinforced concrete.		0.35	64.44								
MADE GROUND: Soft light brown reworked clay with rare brick rubble.		0.60	64.19								
MADE GROUND: Black ashy fill with light cobbles (possible limestone), clinker and slag. Slight hydrocarbon odour.		1.20	63.59	CS01	1.00			0.00			
Firm brown-grey mottled sandy CLAY with black staining. Hydrocarbon odour.		2.00	62.79	CS02	2.00			0.00			
Firm brown-grey laminated CLAY.											
				CS03	3.00			0.00			
Stiff grey laminated CLAY with shells.		3.50	61.29								
Borehole Complete at 5.00 m		5.00	59.79								
		Water Level Observations									
Hole Diameter Detail			Chiseling Details			Date	Water Strike (m)	Standing Time (mins)	Standing Level (m)	Casing Depth (m)	Depth Sealed (m)
Diameter (mm)	Depth (m)	Casing Depth (m)	From (m)	To (m)	Time (hours)						
							No Groundwater Encountered				
Client: Entec UK Limited Engineer: Simon Howard Contractor: May Gurney Geotechnical Dates: 15/07/2010 Plant: Dando Drilled By: T. York Logged By: S. Howard Checked By: P. Lewin				Remarks: 1. Starter pit dug from GL to 1.20mbgl. 2. Installation details: 50mm HDPE Standpipe installed from GL to 3.20mbgl. Plain pipe from GL to 1.20mbgl and a slotted pipe from 1.20m to 3.20mbgl. Hole backfilled with concrete from GL to 0.50mbgl, bentonite from 0.50m to 1.20mbgl, gravel from 1.20m to 3.20mbgl and bentonite from 3.20m to 5.00mbgl. Hole finished with a flush cover and gas tap.							

Window Sample Record

WSC01
Sheet 1 of 2

Project: Bicester

Project ID: SI1622

Contractors ID:







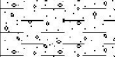
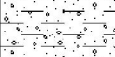

Client: Entec UK Limited

Engineer: James Ridehalgh

Ground Level: 61.653mAOD

Coordinates: 460834.38E

217916.50N

Description	Legend	Depth (m)	O.D. Level (m)	Sample Test		Remarks and Test Results	Installations
				Type	Depth (m)	PID (ppm)	
MADE GROUND (TOPSOIL): Stiff light brown sandy slightly gravelly clay with frequent rootlets. Gravel is angular to subangular fine consisting of chalk, ash and wood.		0.20	61.45	CS01	0.00-0.20	0.00	
Stiff to firm light brown-orange mottled sandy CLAY.		0.80	60.85				
Firm grey-orange mottled slightly sandy slightly gravelly CLAY. Gravel is angular to subangular fine consisting of gypsum crystals, coal and chalk.				C1	1.20-2.00		
...From 1.40mbgl weathered chalk laminations.				CS02	1.50-1.70	0.00	
				C2	2.00-3.00		
Firm dark brown CLAY with gypsum crystals.		2.10	59.55				
...From 3.00mbgl clay is laminated with shell fossils.				C3	3.00-4.00		
...From 4.00mbgl clay is less obviously laminated with fewer shell fossils present.				C4	4.00-5.00		
Continued next sheet				C5	5.00-6.00		

Water Level Observations

Drive Records

Diameter (mm)	To (m)	Recovery (%)	Date	Water Strike (m)	Standing Time (Mins)	Standing Level (m)	Casing Depth (m)	Depth Sealed (m)
102	2.00			No Groundwater Encountered				
96	3.00							
76	4.00							
66	5.00							
56	6.00							

Client: Entec UK Limited

Engineer: James Ridehalgh

Date: 15/07/2010

Plant: Terrier

Drilled By: M. Earl

Logged By: JSR

Checked By: P. Lewin

Remarks: 1. Starter pit dug from GL to 1.20mbgl.
2. Hole backfilled with arisings.

Window Sample Record

WSC01
Sheet 2 of 2

Project: Bicester

Project ID: SI1622

Contractors ID:

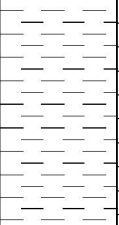
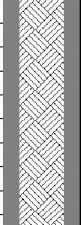
Client: Entec UK Limited

Engineer: James Ridehalgh

Ground Level: 61.653mAOD

Coordinates: 460834.38E

217916.50N

Description	Legend	Depth (m)	O.D. Level (m)	Sample Test		Remarks and Test Results <small>PID (ppm)</small>	Installations
				Type	Depth (m)		
Firm dark brown CLAY with gypsum crystals.				CS03	5.50-5.80	0.00	
Window Sample Complete at 6.00 m		6.00	55.65				

Water Level Observations

Drive Records

Diameter (mm)	To (m)	Recovery (%)	Date	Water Strike (m)	Standing Time (Mins)	Standing Level (m)	Casing Depth (m)	Depth Sealed (m)
102	2.00			No Groundwater Encountered				
86	3.00							
76	4.00							
66	5.00							
56	6.00							

Client: Entec UK Limited

Engineer: James Ridehalgh

Date: 15/07/2010

Plant: Terrier

Drilled By: M. Earl

Logged By: JSR

Checked By: P. Lewin

Remarks: 1. Starter pit dug from GL to 1.20mbgl.
2. Hole backfilled with arisings.

Window Sample Record

WSC02
Sheet 1 of 1

Project: Bicester

Project ID: SI1622

Contractors ID:

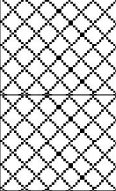
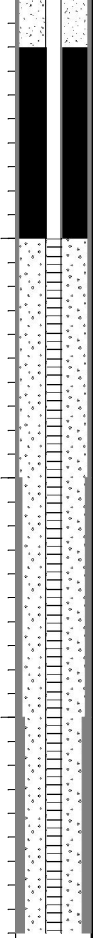
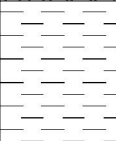
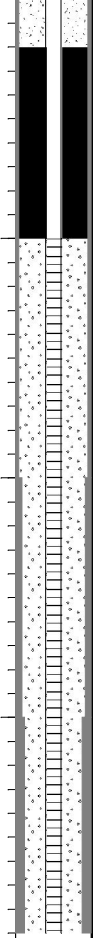
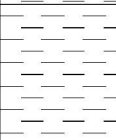
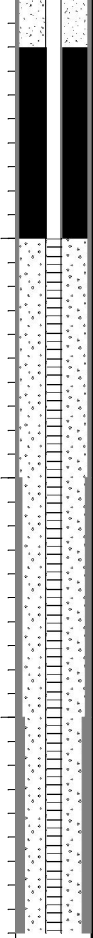
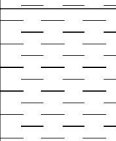
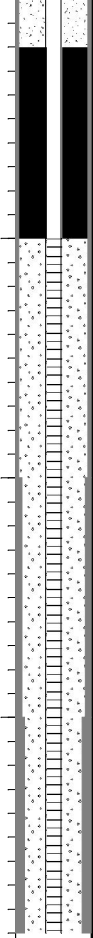
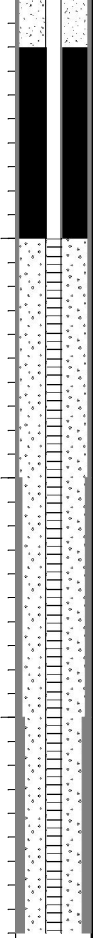
Client: Entec UK Limited

Engineer: James Ridehalgh

Ground Level: 61.696m AOD

Coordinates: 460839.29E

217911.24N

Description	Legend	Depth (m)	O.D. Level (m)	Sample Test		Remarks and Test Results	PID (ppm)	Installations
				Type	Depth (m)			
MADE GROUND: Brown sandy gravelly clay. Gravel is angular to subangular fine to coarse consisting of concrete, ACM, brick, chalk and wood.				CS01	0.20-0.40		0.00	
MADE GROUND: Firm brown and grey mottled sandy slightly gravelly clay. Gravel is fine consisting of brick with occasional rootlets.		0.40	61.30					
Soft blue-grey CLAY with brown mottling and relic organic material.		0.80	60.90	CS02	1.20-1.40		0.00	
Soft to firm brown CLAY with weathered chalk laminations and relic organic material. Chalk becomes more yellow and intermixed in clay.		1.40	60.30	C1	1.20-2.00			
Dark brown CLAY with gypsum crystals and rare relic roots.		2.00	59.70	C2	2.00-3.00			
...From 2.40mbgl no roots but small fossils visible.				CS03	2.40-2.70		0.00	
...From 3.00mbgl becoming grey-brown firm to stiff.				C3	3.00-3.90			
Stiff to hard light grey CLAY with abundant shell fossils.		3.90	57.80					
Window Sample Complete at 4.00 m		4.00	57.70					

Water Level Observations

Drive Records			Date	Water Strike (m)	Standing Time (Mins)	Standing Level (m)	Casing Depth (m)	Depth Sealed (m)
Diameter (mm)	To (m)	Recovery (%)						
102	2.00			No Groundwater Encountered				
86	3.00							
76	3.90							

Client: Entec UK Limited

Engineer: James Ridehalgh

Date: 16/07/2010

Plant: Terrier

Drilled By: M. Earl

Logged By: JSR

Checked By: P. Lewin

Remarks: 1. Starter pit dug from GL to 1.20mbgl.
2. Hole abandoned at 4.00mbgl and window sampling techniques unable to progress.
3. Installation details: 32mm HDPE Standpipe installed from GL to 4.00mbgl. Plain pipe from GL to 1.00mbgl and a slotted pipe from 1.00m to 4.00mbgl. Hole backfilled with concrete from GL to 0.20mbgl, bentonite from 0.20m to 1.00mbgl and gravel from 1.00m to 4.00mbgl. Hole finished with a flush cover and gas tap.

Window Sample Record

WSC03
Sheet 1 of 2

Project: Bicester

Project ID: SI1622

Contractors ID:


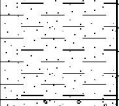
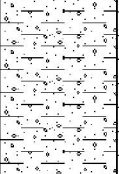
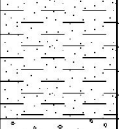

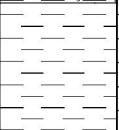
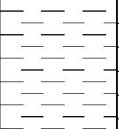
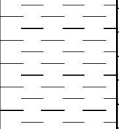
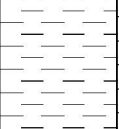
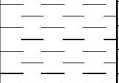
Client: Entec UK Limited

Engineer: James Ridehalgh

Ground Level: 61.785m AOD

Coordinates: 460852.51E

217894.16N

Description	Legend	Depth (m)	O.D. Level (m)	Sample Test		Remarks and Test Results	PID (ppm)	Installations
				Type	Depth (m)			
MADE GROUND (TOPSOIL): Stiff brown sandy slightly gravelly clay. Gravel is angular to subangular fine to medium consisting of brick and chalk.		0.20	61.59	CS01	0.00-0.20		0.00	
Firm to stiff light brown sandy CLAY with wood pieces and rootlets.		0.70	61.09					
Firm grey-brown-orange mottled slightly sandy slightly gravelly CLAY. Gravel is subangular fine weathered chalk.		1.20	60.29	C1	1.20-2.00			
Firm brown-grey slightly sandy CLAY with abundant rootlets.		1.50	60.29					
...From 1.50mbgl bands of highly weathered chalk.		2.00	59.79	C2	2.00-3.00			
...From 1.80m to 2.00mbgl abundant fine gypsum crystals.		2.45	59.34	CS02	2.40-2.60		0.00	
Firm dark brown slightly gravelly laminated CLAY. Gravel is subangular fine chalk.		3.00	58.79	CS03	3.00-3.20		0.00	
Firm brown laminated CLAY with orange-brown mottling and fine gypsum crystals.				C3	3.00-4.00			
...At 2.45mbgl 5mm band of black coal.				C4	4.00-5.00			
Stiff dark brown-grey laminated CLAY with frequent shell fossils.								
Continued next sheet				C5	5.00-6.00			

Water Level Observations

Drive Records

Diameter (mm)	To (m)	Recovery (%)	Date	Water Strike (m)	Standing Time (Mins)	Standing Level (m)	Casing Depth (m)	Depth Sealed (m)
102	2.00			No Groundwater Encountered				
96	3.00							
76	4.00							
66	5.00							
56	6.00							

Client: Entec UK Limited

Engineer: James Ridehalgh

Date: 16/07/2010

Plant: Terrier

Drilled By: M. Earl

Logged By: JSR

Checked By: P. Lewin

Remarks: 1. Starter pit dug from GL to 1.20mbgl.
2. Installation details: 32mm HDPE Standpipe installed from GL to 6.00mbgl. Plain pipe from GL to 1.00mbgl and a slotted pipe from GL to 1.00m to 6.00mbgl. Hole backfilled with bentonite from GL to 1.00mbgl and gravel from 1.00m to 6.00mbgl. Hole finished with a flush cover and gas tap.

Window Sample Record

WSC03
Sheet 2 of 2

Project: Bicester

Project ID: SI1622

Contractors ID:

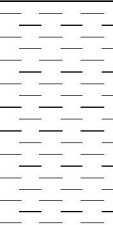
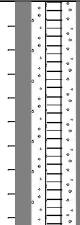
Client: Entec UK Limited

Engineer: James Ridehalgh

Ground Level: 61.785m AOD

Coordinates: 460852.51E

217894.16N

Description	Legend	Depth (m)	O.D. Level (m)	Sample Test		Remarks and Test Results <small>PID (ppm)</small>	Installations
				Type	Depth (m)		
Stiff dark brown-grey laminated CLAY with frequent shell fossils.							
Window Sample Complete at 6.00 m		6.00	55.79				

Water Level Observations

Drive Records			Date	Water Strike (m)	Standing Time (Mins)	Standing Level (m)	Casing Depth (m)	Depth Sealed (m)
Diameter (mm)	To (m)	Recovery (%)						
102	2.00			No Groundwater Encountered				
86	3.00							
76	4.00							
66	5.00							
56	6.00							

Client: Entec UK Limited

Engineer: James Ridehalgh

Date: 16/07/2010

Plant: Terrier

Drilled By: M. Earl

Logged By: JSR

Checked By: P. Lewin

Remarks: 1. Starter pit dug from GL to 1.20mbgl.
2. Installation details: 32mm HDPE Standpipe installed from GL to 6.00mbgl. Plain pipe from GL to 1.00mbgl and a slotted pipe from GL to 1.00m to 6.00mbgl. Hole backfilled with bentonite from GL to 1.00mbgl and gravel from 1.00m to 6.00mbgl. Hole finished with a flush cover and gas tap.

Window Sample Record

WSC04
Sheet 1 of 1

Project: Bicester

Project ID: SI1622

Contractors ID:

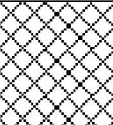

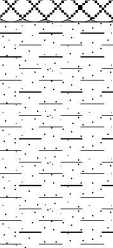


Client: Entec UK Limited

Engineer: James Ridehalgh

Ground Level: 64.244m AOD

Coordinates: 460335.75E

217000.38N

Description	Legend	Depth (m)	O.D. Level (m)	Sample Test		Remarks and Test Results	PID (ppm)	Installations
				Type	Depth (m)			
MADE GROUND: Soft brown-black sandy gravelly clay. Gravel is angular to subangular medium to coarse consisting of limestone, brick, ash and concrete.		0.60	63.64	CS01	0.40-0.60	0.00		
...From 0.50m to 0.60mbgl limestone cobbles with black staining.								
Firm brown-orange-grey mottled sandy CLAY.		1.60	62.64	C1	1.20-2.00			
...From 1.30mbgl becoming very sandy.								
Brown very sandy fine GRAVEL.		1.65	62.59	CS02 C2	2.00-2.20 2.00-3.00	0.00		
Firm grey-brown mottled CLAY.								
Orange SAND and GRAVEL.		2.00	62.24	C3	3.00-4.00			
Firm grey-brown laminated CLAY with abundant fine gypsum crystal and weathered chalk. Becoming stiffer with depth.		2.20	62.04					
Window Sample Complete at 4.00 m		4.00	60.24					

Water Level Observations

Drive Records			Date	Water Strike (m)	Standing Time (Mins)	Standing Level (m)	Casing Depth (m)	Depth Sealed (m)
Diameter (mm)	To (m)	Recovery (%)						
102 86 76	2.00 3.00 4.00		19/07/10	3.00	20	3.45	-	

Client: Entec UK Limited
Engineer: James Ridehalgh
Date: 19/07/2010
Plant: Terrier
Drilled By: M. Earl
Logged By: JSR
Checked By: P. Lewin

Remarks: 1. Starter pit dug from GL to 1.20mbgl.
2. Slight water seepage at 2.00mbgl.
3. Water level standing at 3.45mbgl.
4. Installation details: 32mm HDPE Standpipe installed from GL to 2.50mbgl. Plain pipe from GL to 0.50mbgl and a slotted pipe from 0.50m to 2.50mbgl. Hole backfilled with bentonite from GL to 0.50mbgl, gravel from 0.50m to 2.50mbgl and bentonite from 2.50m to 4.00mbgl. Hole finished with a flush cover and gas tap.

Window Sample Record

WSC05
Sheet 1 of 1

Project: Bicester

Project ID: SI1622

Contractors ID:

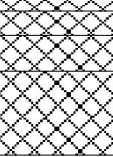
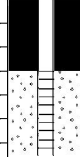
Client: Entec UK Limited

Engineer: James Ridehalgh

Ground Level: 64.817mAOD

Coordinates: 460370.61E

216986.52N

Description	Legend	Depth (m)	O.D. Level (m)	Sample Test		Remarks and Test Results	Installations
				Type	Depth (m)	PID (ppm)	
MADE GROUND: Felt cover layer.		0.05	64.77	CS01	0.40-0.60	0.00	
MADE GROUND: Ballast over brown sandy gravelly clay. Gravel is angular to subrounded medium to coarse consisting of brick, concrete, limestone and ash.		0.15	64.67				
MADE GROUND: Concrete boulder (Kerbstone).		0.30	64.52				
MADE GROUND: Ballast over brown sandy gravelly clay. Gravel is angular to subrounded medium to coarse consisting of brick, concrete, limestone and ash. Becoming black stained.		0.65	64.17				
Window Sample Complete at 0.65 m							

Water Level Observations

Drive Records			Date	Water Strike (m)	Standing Time (Mins)	Standing Level (m)	Casing Depth (m)	Depth Sealed (m)
Diameter (mm)	To (m)	Recovery (%)						
				No Groundwater Encountered				

Client: Entec UK Limited

Engineer: James Ridehalgh

Date: 20/07/2010

Plant: Terrier

Drilled By: M. Earl

Logged By: JSR

Checked By: P. Lewin

Remarks: 1. Starter pit dug from GL to 0.65mbgl.
2. Hole abandoned at 0.65mbgl as window sampling techniques unable to progress.
3. Installation details: 32mm HDPE Standpipe installed from GL to 0.65mbgl. Plain pipe from GL to 0.30mbgl and a slotted pipe from 0.30m to 0.65mbgl. Hole backfilled with bentonite from GL to 0.30mbgl and gravel from 0.30m to 0.65mbgl. Hole finished with a flush cover and gas tap.

Window Sample Record

WSC06
Sheet 1 of 1

Project: Bicester

Project ID: SI1622

Contractors ID:



Client: Entec UK Limited

Engineer: James Ridehalgh

Ground Level: 64.835m AOD

Coordinates: 460345.35E

216981.66N

Description	Legend	Depth (m)	O.D. Level (m)	Sample Test		Remarks and Test Results	Installations
				Type	Depth (m)		
MADE GROUND: Gravel ballast.		0.05	64.79	CS01	0.60-0.80	0.00	
MADE GROUND (Reworked Natural): Brown sandy gravelly clay with rootlets. Gravel is subangular to subrounded fine to medium consisting of chalk and chert.		0.30	64.54				
MADE GROUND: Brown sandy gravel. Gravel is angular to subrounded fine to coarse consisting of concrete, brick and chert. Occasional cobbles of concrete. ...From 0.50mbgl becoming blacker in colour. ...At 0.70mbgl concrete cobbles becoming more frequent.		0.80	64.04				
Window Sample Complete at 0.80 m							

Water Level Observations

Drive Records			Date	Water Strike (m)	Standing Time (Mins)	Standing Level (m)	Casing Depth (m)	Depth Sealed (m)
Diameter (mm)	To (m)	Recovery (%)						
				No Groundwater Encountered				

Client: Entec UK Limited

Engineer: James Ridehalgh

Date: 20/07/2010

Plant: Terrier

Drilled By: M. Earl

Logged By: JSR

Checked By: P. Lewin

Remarks: 1. Starter pit dug from GL to 0.80mbgl.
2. Hole abandoned at 0.80mbgl as window sampling techniques unable to progress.
3. Hole backfilled with arisings.

Window Sample Record

WSC07
Sheet 1 of 2

Project: Bicester

Project ID: SI1622

Contractors ID:








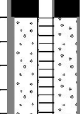

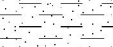
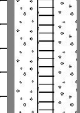


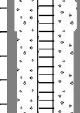
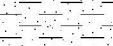
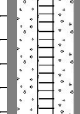
Client: Entec UK Limited

Engineer: James Ridehalgh

Ground Level: 61.929m AOD

Coordinates: 460820.97E

217902.61N

Description	Legend	Depth (m)	O.D. Level (m)	Sample Test		Remarks and Test Results	Installations
				Type	Depth (m)		
MADE GROUND: Tarmac.		0.05	61.88	C1 CS01	0.40-1.00 0.45-0.60	0.00	
MADE GROUND: Concrete.		0.15	61.78				
MADE GROUND: Limestone dolomite fill. ...From 0.30mbgl water ingress.		0.40	61.53	C2	1.00-2.00	0.00	
MADE GROUND: Gravel, consisting of angular to subangular medium to coarse tarmac, concrete, clay pipe and limestone.		0.45	61.48				
Firm grey-brown sandy CLAY with rootlets. ...From 1.00mbgl orange mottling and weathered chalk veins.		1.50	60.43	C3	2.00-3.00	0.00	
Firm brown slightly sandy CLAY with weathered chalk veins.							
Firm brown CLAY with bands of fine gypsum crystals.		2.40	59.53	CS02 C4	2.90-3.20 3.00-4.00	0.00	
Stiff grey laminated CLAY with frequent shell fossils.		3.20	58.73				
Continued next sheet				C5	4.00-5.00		
				C6	5.00-6.00		

Water Level Observations

Drive Records

Diameter (mm)	To (m)	Recovery (%)	Date	Water Strike (m)	Standing Time (Mins)	Standing Level (m)	Casing Depth (m)	Depth Sealed (m)
102	1.00		19/07/10	0.35	20	0.35	-	
86	2.00							
76	4.00							
66	5.00							
56	6.00							

Client: Entec UK Limited

Engineer: James Ridehalgh

Date: 19/07/2010

Plant: Terrier

Drilled By: M. Earl

Logged By: JSR

Checked By: P. Lewin

Remarks: 1. Starter pit dug from GL to 0.40mbgl.
2. Water ingress from 0.30mbgl.
3. Top 1.00m cased off to prevent water ingress into drilled hole.
4. Installation details: 32mm HDPE Standpipe installed from GL to 6.00mbgl. Plain pipe from GL to 1.00mbgl and a slotted pipe from 1.00m to 6.00mbgl. Hole backfilled with bentonite from GL to 1.00mbgl and gravel from 1.00m to 6.00mbgl. Hole finished with a flush cover and gas tap.

Window Sample Record

WSC07
Sheet 2 of 2

Project: Bicester

Project ID: SI1622

Contractors ID:

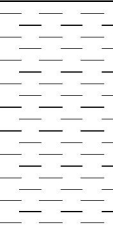
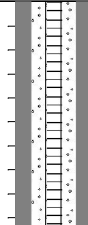
Client: Entec UK Limited

Engineer: James Ridehalgh

Ground Level: 61.929m AOD

Coordinates: 460820.97E

217902.61N

Description	Legend	Depth (m)	O.D. Level (m)	Sample Test		Remarks and Test Results	Installations
				Type	Depth (m)		
Stiff grey laminated CLAY with frequent shell fossils.							
Window Sample Complete at 6.00 m		6.00	55.93				

Water Level Observations

Drive Records			Date	Water Strike (m)	Standing Time (Mins)	Standing Level (m)	Casing Depth (m)	Depth Sealed (m)
Diameter (mm)	To (m)	Recovery (%)						
102	1.00		19/07/10	0.35	20	0.35	-	
86	2.00							
76	4.00							
66	5.00							
56	6.00							

Client: Entec UK Limited

Engineer: James Ridehalgh

Date: 19/07/2010

Plant: Terrier

Drilled By: M. Earl

Logged By: JSR

Checked By: P. Lewin

Remarks: 1. Starter pit dug from GL to 0.40mbgl.
2. Water ingress from 0.30mbgl.
3. Top 1.00m cased off to prevent water ingress into drilled hole.
4. Installation details: 32mm HDPE Standpipe installed from GL to 6.00mbgl. Plain pipe from GL to 1.00mbgl and a slotted pipe from 1.00m to 6.00mbgl. Hole backfilled with bentonite from GL to 1.00mbgl and gravel from 1.00m to 6.00mbgl. Hole finished with a flush cover and gas tap.

Window Sample Record

WSC08
Sheet 1 of 1

Project: Bicester

Project ID: SI1622

Contractors ID:



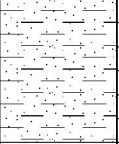
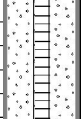
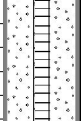
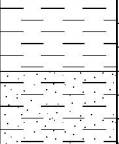
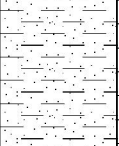
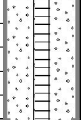
Client: Entec UK Limited

Engineer: James Ridehalgh

Ground Level: 62.071m AOD

Coordinates: 460840.76E

217883.85N

Description	Legend	Depth (m)	O.D. Level (m)	Sample Test		Remarks and Test Results	Installations
				Type	Depth (m)		
MADE GROUND: Tarmac.		0.05	62.02	CS01	0.40-0.70	0.00	
MADE GROUND: Concrete.		0.15	61.92				
MADE GROUND: Dolomite fill.		0.40	61.67				
Firm grey-blue sandy CLAY with fine coal gravel.		1.00	61.07	C1	1.20-2.00	0.00	
Firm brown-grey-orange mottled CLAY with highly weathered chalk bands.		1.80	60.27				
Firm brown laminated sandy CLAY with highly weathered chalk bands and abundant fine gypsum crystals.		3.30	58.77	C4	4.00-4.50	0.00	
...From 2.15m to 2.60mbgl soft.		2.30	60.27				
...From 3.10m to 3.30mbgl soft.		3.30	58.77				
Stiff to hard grey-brown laminated CLAY with shell fossil fragments.		4.50	57.57	C4	4.00-4.50	0.00	
Window Sample Complete at 4.50 m		4.50	57.57				

Water Level Observations

Drive Records			Date	Water Strike (m)	Standing Time (Mins)	Standing Level (m)	Casing Depth (m)	Depth Sealed (m)
Diameter (mm)	To (m)	Recovery (%)						
102	2.00			No Groundwater Encountered				
96	3.00							
76	4.00							
66	4.50							

Client: Entec UK Limited

Engineer: James Ridehalgh

Date: 20/07/2010

Plant: Terrier

Drilled By: M. Earl

Logged By: JSR

Checked By: P. Lewin

Remarks: 1. Starter pit dug from GL to 1.20mbgl.
2. Hole abandoned at 4.50mbgl as window sampling techniques unable to progress.
3. Installation details: 32mm HDPE Standpipe installed from GL to 4.50mbgl. Plain pipe from GL to 0.50mbgl and a slotted pipe from 0.50m to 4.50mbgl. Hole backfilled with bentonite from GL to 0.50mbgl and gravel from 0.50m to 4.50mbgl. Hole finished with a flush cover and gas tap.

Annex B

Gas and Water Monitoring Tables

CIRIA C665 Ground Gas Risk Assessment

Situation A - All Development Types Except Low Rise Housing With Gardens

Project Number:	26999	Site:	Bicester - Site A	Date:	As shown in row
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[illegible]

CIRIA C665 Ground Gas Risk Assessment

Situation A - All Development Types Except Low Rise Housing With Gardens

Project Number: 26999 Site: Bicester Date: As shown in row

Monitoring Point	Flow Rate	Atmospheric Pressure	Methane		Carbon Dioxide	Oxygen	Carbon Monoxide	Hydrogen Sulphide	Methane GSV	Carbon Dioxide GSV	Character-istic Situation	Additional Factors	Water level	Depth Of Well	Volume Of Gas In Well	Notes
	(l/hr)	(mb)	(% v/v)	(% LEL)	(%)	(%)	(ppm)	(ppm)	(l/hr)	(l/hr)			(m bgl)	(m)	(m ³)	
BHC03	0	997	0.2		0.5	18.4			0	0	1					21/07/2010
BHC03	0	1012	0.1		0.3	19.4			0	0	1					23/07/2010
BHC03	0	1008	0.1		1.1	18			0	0	1					29/07/2010
BHC03	0	996	0		1.6	17.2			0	0	1					04/08/2010
BHC03	0.2	1006	0		0	20.1			0	0	1					13/08/2010
BHC03	0	997	0		2	18.4			0	0	1					18/08/2010
WSC04	0	997	0		0.1	17.6			0	0	1					21/07/2010
WSC04	0	1012	0		0.1	18.4			0	0	1					23/07/2010
WSC04	0	1008	0		0.2	19.2			0	0	1					29/07/2010
WSC04	0	996	0		0.3	19.5			0	0	1					04/08/2010
WSC04	0	1006	0		0.1	19.6			0	0	1					13/08/2010
WSC04	0	997	0		0.4	19.3			0	0	1					18/08/2010
WSC05	0	997	0		0	20.3			0	0	1					21/07/2010
WSC05	0	1012	0		0	20.1			0	0	1					23/07/2010
WSC05	0	1008	0		0	20			0	0	1					29/07/2010
WSC05	0	996	0		0	20.2			0	0	1					04/08/2010
WSC05	0	1006	0		0.3	19.6			0	0	1					13/08/2010
WSC05	0	997	0		0	20.7			0	0	1					18/08/2010
BHC05	0	997	0		0	20			0	0	1					21/07/2010
BHC05	0	1012	0		0.1	19.7			0	0	1					23/07/2010
BHC05	0	1008	0		0.2	19.1			0	0	1					29/07/2010
BHC05	0	996	0		0.1	19.9			0	0	1					04/08/2010
BHC05	0	1006	0		0.3	19.2			0	0	1					13/08/2010
BHC05	0	997	0		0.5	19.3			0	0	1					18/08/2010
WSC07	0	997	0		0	20.3			0	0	1					21/07/2010
WSC07	0	1012	0		0	20.3			0	0	1					23/07/2010
WSC07	0	1008	0		0	20.4			0	0	1					29/07/2010
WSC07	0	995	0		0.3	19.9			0	0	1					04/08/2010
WSC07	0	1006	0		0	20.1			0	0	1					13/08/2010
WSC07	0	997	0		0	20.8			0	0	1					18/08/2010
WSC02	0	997	0		3.2	18.6			0	0	1					21/07/2010
WSC02	0	1012	0		3.3	18.7			0	0	1					23/07/2010
WSC02	0	1008	0		1.2	19.5			0	0	1					29/07/2010
WSC02	0	995	0		0.8	19.7			0	0	1					04/08/2010
WSC02	0	1006	0		0	20.2			0	0	1					13/08/2010
WSC02	0	997	0		0	20.8			0	0	1					18/08/2010
WSC03	0	997	0		2.1	19.4			0	0	1					21/07/2010
WSC03	-0.1	1012	0		1.2	19.5			0	0	1					23/07/2010
WSC03	0	1008	0		0.9	19.6			0	0	1					29/07/2010
WSC03	0	995	0		1	19.6			0	0	1					04/08/2010
WSC03	0	1006	0		1	19.4			0	0	1					13/08/2010
WSC03	0	997	0		1.1	20			0	0	1					18/08/2010

CIRIA C665 Ground Gas Risk Assessment

Situation A - All Development Types Except Low Rise Housing With Gardens

Project Number:	26999	Site:	Bicester - Site C - WSC08	Date:	As shown in row
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[illegible]

Water Monitoring Records

Site:	26999 Bicester, Oxfordshire
Data Description:	Monitoring Well Records - 1st Round 21/07/10
Completed By:	Nick Huyg
Checked By:	Steve Dooley

Groundwater Monitoring

Exploratory Hole	Date	Water Level	Depth	Water Column	Comments
		mbgl	mbgl	m	
BHC03	21/07/2010	1.09	2.97	1.88	
BHC05	21/07/2010	2.82	3.22	0.4	
WSC02	21/07/2010	2.23	3.76	1.53	
WSC03	21/07/2010	1.62	5.9	4.28	
WSC04	21/07/2010	0.88	2.64	1.76	
WSC05	21/07/2010	Dry	0.72	N/A	DRY
WSC07	21/07/2010	0.37	5.91	5.54	
WSC08	21/07/2010	0.69	4.56	3.87	

Observation of HC contamination

Surface Water Monitoring

		pH	Conductivity	Dissolved Oxygen	Dissolved Oxygen	Temperature	Comments
Exploratory Hole	Date		µS/cm	mg/l	%	°C	
SWA01	21/07/2010	6.86	530	3.2	33.8	18.5	
SWC01	21/07/2010	7.58	970	5.3	57.0	19.5	
SWC02	21/07/2010	7.6	905	4.1	41.4	17.0	
SWC04	21/07/2010	7.6	968	3.9	40.2	16.3	
SWC05	21/07/2010	7.83	734	8.5	93.3	19.1	
SWC08	21/07/2010	7.60	850	4.8	50.6	17.6	

Annex C

Screened Laboratory Data

Data Summary Statistics

Site:	DSDC Bicester - Site C	Project No:	26999
Data Description:	Groundwater and Surface water	SOM (%):	na
Land Use:	MOD Storage and Distribution	Completed By:	MIFFL
Receptor:	Controlled Waters	Checked By:	DOOLS

Assessment Criteria Key

e) EIC GAC (Res without Plant)

f) EIC GAC (Allotment)

g) EIC GAC (Commercial/Ind)

b) Entec GAC (Res with Plant)

i) Entec GAC (Res without Plant)

k) Entec GAC (Commercial/Ind

I) LQM CIEH GAC (Res with Plant)

m) LQM CIEH GAC (Res without Plant)

o) Dutch Intervention values

p) Dutch Target Values

17. **9** **10** **11** **12** **13** **14** **15** **16** **17** **18** **19** **20** **21** **22** **23** **24** **25** **26** **27** **28** **29** **30** **31** **32** **33** **34** **35** **36** **37** **38** **39** **40** **41** **42** **43** **44** **45** **46** **47** **48** **49** **50** **51** **52** **53** **54** **55** **56** **57** **58** **59** **60** **61** **62** **63** **64** **65** **66** **67** **68** **69** **70** **71** **72** **73** **74** **75** **76** **77** **78** **79** **80** **81** **82** **83** **84** **85** **86** **87** **88** **89** **90** **91** **92** **93** **94** **95** **96** **97** **98** **99** **100** **101** **102** **103** **104** **105** **106** **107** **108** **109** **110** **111** **112** **113** **114** **115** **116** **117** **118** **119** **120** **121** **122** **123** **124** **125** **126** **127** **128** **129** **130** **131** **132** **133** **134** **135** **136** **137** **138** **139** **140** **141** **142** **143** **144** **145** **146** **147** **148** **149** **150** **151** **152** **153** **154** **155** **156** **157** **158** **159** **160** **161** **162** **163** **164** **165** **166** **167** **168** **169** **170** **171** **172** **173** **174** **175** **176** **177** **178** **179** **180** **181** **182** **183** **184** **185** **186** **187** **188** **189** **190** **191** **192** **193** **194** **195** **196** **197** **198** **199** **200** **201** **202** **203** **204** **205** **206** **207** **208** **209** **210** **211** **212** **213** **214** **215** **216** **217** **218** **219** **220** **221** **222** **223** **224** **225** **226** **227** **228** **229** **230** **231** **232** **233** **234** **235** **236** **237** **238** **239** **240** **241** **242** **243** **244** **245** **246** **247** **248** **249** **250** **251** **252** **253** **254** **255** **256** **257** **258** **259** **260** **261** **262** **263** **264** **265** **266** **267** **268** **269** **270** **271** **272** **273** **274** **275** **276** **277** **278** **279** **280** **281** **282** **283** **284** **285** **286** **287** **288** **289** **290** **291** **292** **293** **294** **295** **296** **297** **298** **299** **300** **301** **302** **303** **304** **305** **306** **307** **308** **309** **310** **311** **312** **313** **314** **315** **316** **317** **318** **319** **320** **321** **322** **323** **324** **325** **326** **327** **328** **329** **330** **331** **332** **333** **334** **335** **336** **337** **338** **339** **340** **341** **342** **343** **344** **345** **346** **347** **348** **349** **350** **351** **352** **353** **354** **355** **356** **357** **358** **359** **360** **361** **362** **363** **364** **365** **366** **367** **368** **369** **370** **371** **372** **373** **374** **375** **376** **377** **378** **379** **380** **381** **382** **383** **384** **385** **386** **387** **388** **389** **390** **391** **392** **393** **394** **395** **396** **397** **398** **399** **400** **401** **402** **403** **404** **405** **406** **407** **408** **409** **410** **411** **412** **413** **414** **415** **416** **417** **418** **419** **420** **421** **422** **423** **424** **425** **426** **427** **428** **429** **430** **431** **432** **433** **434** **435** **436** **437** **438** **439** **440** **441** **442** **443** **444** **445** **446** **447** **448** **449** **450** **451** **452** **453** **454** **455** **456** **457** **458** **459** **460** **461** **462** **463** **464** **465** **466** **467** **468** **469** **470** **471** **472** **473</**

q) Soil Code: Crops for Consumption

s) Soil Code: Grazing Animals

t) Soil Code: Background

7. _____

y) Other Generic Criteria

x) Laboratory limit of detection

[illegible]

Data Summary Statistics

Site:	DSDC Bicester Site C	Project No:	26999
Data Description:	Zone 1	SOM (%):	1.0%
Land Use:	Commercial	Completed By:	RIDEJ
Receptor:	Human Health	Checked By:	

Assessment Criteria Key

- a) 2009 SGV (Res with Plant)
b) 2009 SGV (Allotment)
c) 2009 SGV (Commercial/Industrial)
d) EIC GAC (Res with Plant)
- e) EIC GAC (Res without Plant)
f) EIC GAC (Allotment)
g) EIC GAC (Commercial/Ind)
h) Entec GAC (Res with Plant)
- i) Entec GAC (Res without Plant)
j) Entec GAC (Allotment)
k) Entec GAC (Commercial/Ind)
l) LQM CIEH GAC (Res with Plant)
- m) LQM CIEH GAC (Res without Plant)
n) LQM CIEH GAC (Commercial/Ind)
o) Dutch Intervention values
p) Dutch Target Values
- q) Soil Code: Crops for Consumption
r) Soil Code: Sensitive Species
s) Soil Code: Grazing Animals
t) Soil Code: Background
- u) BRE Special Digest
v) Other Generic Criteria
w) Site Specific Assessment Criteria
x) Laboratory limit of detection
- y) CLR SGV for Lead (2002)

Contaminant	Units	Method Detection Limit	Assess-ment Criteria (AC)	Source (see key)	Summary Statistics							Sample Identifiers and Analytical Data																														
					Total Number of Samples	Results Above Detection Limit	Minimum	Maximum	Arithmetic Mean	Standard Deviation	Number of results >AC	WSC01	WSC02																													
												C61 POL	C61 POL																													
												0.0-0.2	0.2-0.4																													
												MG	MG																													
Inorganics					0	0	0	0	-	-	0																															
Soil Organic Matter (SOM)	%	<0.35 %	0.35		0	0	0	0	-	-	0																															
pH	pH Units	1 pH unit			2	2	7.98	8.13	8.055	0.106066017	0	7.98	8.13																													
Sulphate, 2:1 water soluble	g/l	<0.003 g/l	0.003		2	2	0.043	1.45	0.7465	0.994899241	2	0.043	1.45																													
Ammoniacal Nitrogen, exchangeable as NH4	mg/kg	<15 mg/kg	15		2	0	15	15	-	-	0	<15	<15																													
Boron, water soluble	mg/kg	<1 mg/kg	190000	n	2	0	1	1	-	-	0	<1	<1																													
Arsenic	mg/kg	<0.6 mg/kg	640	c	2	2	22.4	24	23.2	1.13137085	0	22.4	24																													
Chromium, Hexavalent	mg/kg	<0.6 mg/kg	35	n	2	0	0.6	1.2	-	-	0	<1.2	<0.6																													
Cadmium	mg/kg	<0.02 mg/kg	230	c	2	0	0.02	0.02	-	-	0	<0.02	<0.02																													
Chromium	mg/kg	<0.9 mg/kg	30000	n	2	2	60.5	73.2	66.85	8.980256121	0	60.5	73.2																													
Copper	mg/kg	<1.4 mg/kg	72000	n	2	2	20.1	39.4	29.75	13.64716088	0	20.1	39.4																													
Lead	mg/kg	<0.7 mg/kg	750	y	2	2	29.3	60.1	44.7	21.77888886	0	29.3	60.1																													
Mercury	mg/kg	<0.14 mg/kg	0.14		2	0	0.14	0.14	-	-	0	<0.14	<0.14																													
Nickel	mg/kg	<0.2 mg/kg	1800	c	2	2	34.9	41.7	38.3	4.808326112	0	34.9	41.7																													
Selenium	mg/kg	<1 mg/kg	13000	c	2	2	1.23	1.4	1.315	0.120208153	0	1.4	1.23																													
Zinc	mg/kg	<1.9 mg/kg	670000	n	2	2	99.6	137	118.3	26.44579362	0	99.6	137																													
Asbestos Containing Material Screen					0	0	#VALUE!	#VALUE!	-	-	0	No ACM Detected																														
Asbestos, Chrysotile (white)					0	0	0	0	-	-	0																															

Data Summary Statistics

Site:	DSDC Bicester Site C	Project No:	26999
Data Description:	Zone 2	SOM (%):	1.0%
Land Use:	Commercial	Completed By:	RIDEJ
Receptor:	Human Health	Checked By:	

Assessment Criteria Key

a) 2009 SGV (Res with Plant)	e) EIC GAC (Res without Plant)	i) Entec GAC (Res without Plant)	m) LQM CIEH GAC (Res without Plant)	q) Soil Code: Crops for Consumption	u) BRE Special Digest	y) CLR SGV for Lead (2002)
b) 2009 SGV (Allotment)	f) EIC GAC (Allotment)	j) Entec GAC (Allotment)	n) LQM CIEH GAC (Commercial/Ind)	r) Soil Code: Sensitive Species	v) Other Generic Criteria	
c) 2009 SGV (Commercial/Industrial)	g) EIC GAC (Commercial/Ind)	k) Entec GAC (Commercial/Ind)	o) Dutch Intervention values	s) Soil Code: Grazing Animals	w) Site Specific Assessment Criteria	
d) EIC GAC (Res with Plant)	h) Entec GAC (Res with Plant)	l) LQM CIEH GAC (Res with Plant)	p) Dutch Target Values	t) Soil Code: Background	x) Laboratory limit of detection	

Contaminant	Units	Method Detection Limit	Assess-ment Criteria (AC)	Source (see key)	Summary Statistics						Sample Identifiers and Analytical Data																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
					Total Number of Samples	Results Above Detection Limit	Minimum	Maximum	Arithmetic Mean	Standard Deviation	Number of results >AC	TPC04																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															</

Data Summary Statistics

Site:	DSDC Bicester Site C	Project No:	26999
Data Description:	Zone 4 - C33 Landfill Area	SOM (%):	1.0%
Land Use:	Commercial	Completed By:	RIDEJ
Receptor:	Human Health	Checked By:	DOOLS

Assessment Criteria Key

- | | | | | | | |
|-------------------------------------|--------------------------------|----------------------------------|-------------------------------------|-------------------------------------|--------------------------------------|----------------------------|
| a) 2009 SGV (Res with Plant) | e) EIC GAC (Res without Plant) | i) Entec GAC (Res without Plant) | m) LQM CIEH GAC (Res without Plant) | q) Soil Code: Crops for Consumption | u) BRE Special Digest | y) CLR SGV for Lead (2002) |
| b) 2009 SGV (Allotment) | f) EIC GAC (Allotment) | j) Entec GAC (Allotment) | n) LQM CIEH GAC (Commercial/Ind) | r) Soil Code: Sensitive Species | v) Other Generic Criteria | |
| c) 2009 SGV (Commercial/Industrial) | g) EIC GAC (Commercial/Ind) | k) Entec GAC (Commercial/Ind) | o) Dutch Intervention values | s) Soil Code: Grazing Animals | w) Site Specific Assessment Criteria | |
| d) EIC GAC (Res with Plant) | h) Entec GAC (Res with Plant) | l) LQM CIEH GAC (Res with Plant) | p) Dutch Target Values | t) Soil Code: Background | x) Laboratory limit of detection | |

Contaminant	Units	Method Detection Limit	Assess-ment Criteria (AC)	Source (see key)	Summary Statistics							Sample Identifiers and Analytical Data																												
					Total Number of Samples	Results Above Detection Limit	Minimum	Maximum	Arithmetic Mean	Standard Deviation	Number of results >AC	TPC07	TPC09	TPC10																										
												C33 Land	C33 Land	C33 Land																										
												0.3	0.2	0.1																										
												MG	MG	MG																										
Inorganics					0	0	0	0	-	-	0																													
Soil Organic Matter (SOM)	%	<0.35 %	-		0	0	0	0	-	-	-																													
pH	pH Units	1 pH unit	-		3	3	7.87	8.29	8.043333333	0.219393102	-	7.97	7.87	8.29																										
Sulphate, 2:1 water soluble	g/l	<0.003 g/l	0.5	u	3	3	0.157	0.386	0.235	0.130793731	0	0.386	0.157	0.162																										
Ammoniacal Nitrogen, exchangeable as NH4	mg/kg	<15 mg/kg	15		3	1	15	105	45	-	1	105	<15	<15																										
Boron, water soluble	mg/kg	<1 mg/kg	190000	n	3	3	1.29	4.62	3.213333333	1.724074631	0	4.62	3.73	1.29																										
Arsenic	mg/kg	<0.6 mg/kg	640	c	3	3	7.07	77.4	32.35666667	39.10654208	0	12.6	77.4	7.07																										
Chromium, Hexavalent	mg/kg	<0.6 mg/kg	35	n	3	1	0.6	2.44	1.413333333	-	0	<0.6	2.44	<1.2																										
Cadmium	mg/kg	<0.02 mg/kg	230	c	3	3	0.32	24.2	10.08	12.52281119	0	5.72	24.2	0.32																										
Chromium	mg/kg	<0.9 mg/kg	30000	n	3	3	18.9	324	134.3666667	165.520462	0	60.2	324	18.9																										
Copper	mg/kg	<1.4 mg/kg	72000	n	3	3	405	7070	2658	3821.193138	0	499	7070	405																										
Lead	mg/kg	<0.7 mg/kg	750	y	3	3	105	4080	1574.333333	2180.744445	1	538	4080	105																										
Mercury	mg/kg	<0.14 mg/kg	0.14		3	0	0.14	1.4	-	-	1	<0.14	<1.4	<0.14																										
Nickel	mg/kg	<0.2 mg/kg	1800	c	3	3	15.5	200	89.6	97.45937615	0	53.3	200	15.5																										
Selenium	mg/kg	<1 mg/kg	13000	c	3	1	1	10	4.143333333	-	0	1.43	<10	<1																										
Zinc	mg/kg	<1.9 mg/kg	670000	n	3	3	219	4600	1791	2438.425106	0	554	4600	219																										
Asbestos Containing Material Screen					0	0	#VALUE!	#VALUE!	-	-	0	p ACM Detected	p ACM Detected	p ACM Detected																										
Asbestos, Chrysotile (white)					0	0	0	0	-	-	0																													
TPH 6 Split					0	0	0	0	-	-	0																													
TPH >C6-C8	mg/kg	<10 mg/kg	8300		2	0	10	50	-	-	0	<50	<10																											
TPH >C8-C10	mg/kg	<10 mg/kg	2100		2	0	10	50	-	-	0	<50	<10																											
TPH >C10-C12	mg/kg	<10 mg/kg	10000		2	1	10	76.1	43.05	-	0	76.1	<10																											
TPH >C12-C16	mg/kg	<10 mg/kg	36000		2	1	10	417	213.5	-	0	417	<10																											
TPH >C16-C21	mg/kg	<10 mg/kg	28000		2	2	110	1080	595	685.8935778	0	1080	110																											
TPH >C21-C40	mg/kg	<10 mg/kg	28000		2	2	2420	13600	8010	7905.453814	0	13600	2420																											
TPH >C6-C40	mg/kg	<10 mg/kg	28000		2	2	2540	15200	8870	8951.97185	0	15200	2540																											

Annex D

Laboratory Analysis Certificates



Entec UK Ltd
Canon Court North
Abbey Lawn
Abbey Foregate
Shrewsbury
Shropshire
SY2 5DE

Attention: Steve Dooley

CERTIFICATE OF ANALYSIS

Date:	23 July 2010	
Customer:	H_ENTEC_SHW-24	
Sample Delivery Group (SDG):	100715-42	Report No.: 91349
Your Reference:	26999	
Location:	KL056 DSDC Bicester	

We received 30 samples on Thursday July 15, 2010 and 30 of these samples were scheduled for analysis which was completed on Friday July 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

Operations Director - Land UK & Ireland



SDG:	100715-42	Customer:	Entec UK Ltd
Job:	H_ENTEC_SHW-24	Attention:	Steve Dooley
Client Reference:	26999	Order No.:	
Location:	KL056 DSDC Bicester	Report No:	91349

Received Sample Overview



Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Sampled Date
1822748	BH01	0.70 - 0.90	13/07/2010
1822829	BH01	1.60 - 2.00	13/07/2010
1822729	BH01	3.60 - 3.80	13/07/2010
1822510	TPD10	0.20 - 0.30	13/07/2010
1822602	TPD10	0.50 - 0.60	13/07/2010
1822579	TPD10	1.00 - 1.10	13/07/2010
1822491	TPD10	2.60 - 2.70	13/07/2010
1822592	TPD10	2.90 - 3.00	13/07/2010
1822471	TPD4	0.00 - 0.10	13/07/2010
1822422	TPD4	0.50 - 0.60	13/07/2010
1823171	TPD4	2.80 - 2.90	13/07/2010
1822653	TPD7	0.30 - 0.40	13/07/2010
1822849	TPD7	1.10 - 1.20	13/07/2010
1822792	TPD7	2.10 - 2.20	13/07/2010
1823119	TPD8	0.40 - 0.50	13/07/2010
1822842	TPD8	1.10 - 1.20	13/07/2010
1823129	TPD8	2.50 - 2.60	13/07/2010
1822781	TPD8	2.80 - 2.90	13/07/2010
1822969	TPD9	0.20 - 0.30	13/07/2010
1822414	TPD9	1.00 - 1.10	13/07/2010
1822480	TPD9	3.90 - 4.00	13/07/2010
1822872	WSD14	0.50 - 0.50	13/07/2010
1822803	WSD14	3.00 - 3.20	13/07/2010
1823416	WSD15	0.40 - 0.50	13/07/2010
1822813	WSD15	3.00 - 3.40	13/07/2010
1822855	WSE15	0.30 - 0.40	13/07/2010
1823628	WSE15	1.80 - 2.00	13/07/2010
1822986	WSE16	0.50 - 0.60	13/07/2010
1823508	WSE16	1.20 - 1.40	13/07/2010
1823615	WSE9	0.50 - 0.60	13/07/2010

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

SDG: 100715-42
Job: H_ENTEC_SHW-24
Client Reference: 26999
Location: KL056 DSDC Bicester

Customer: Entec UK Ltd
Attention: Steve Dooley
Order No.:
Report No: 91349

SOLID

Results Legend	Lab Sample No(s)				Customer Sample Ref.				Depth (m)				Container			
	 Test				 No Determination Possible											
Ammonium Soil by Titration	All															
Asbestos Containing Material Screen	All															
Boron Water Soluble	All															
EPH CWG (Aliphatic) GC (S)	All															
EPH CWG (Aromatic) GC (S)	All															
GRO BTEX MTBE GC (S)	All															
Hexavalent Chromium (s)	All															
Metals by iCap-OES (Soil)	Arsenic															
	Cadmium															
	Chromium															
	Copper															
	Lead															
	Mercury															
	Nickel															
	Selenium															
	Zinc															
PAH by GCMS	All															
PCBs (vs Aroclor 1254)	All															
pH	All															
Sample description	All															
Semi Volatile Organic Compounds	All															
Total Organic Carbon	All															
TPH c6-40 Value of soil	All															

[illegible]

SDG:	100715-42	Customer:	Entec UK Ltd
Job:	H_ENTEC_SHW-24	Attention:	Steve Dooley
Client Reference:	26999	Order No.:	
Location:	KL056 DSDC Bicester	Report No:	91349

	1822872	WSD14	0.50 - 0.50	400g Tub			X
	1822855	WSE15	0.30 - 0.40	250g Amber Jar			
				400g Tub			
	1822849	TPD7	1.10 - 1.20	250g Amber Jar			X
				400g Tub			
	1822842	TPD8	1.10 - 1.20	250g Amber Jar			X
				400g Tub			
	1822829	BH01	1.60 - 2.00	250g Amber Jar			X
				400g Tub			
	1822813	WSD15	3.00 - 3.40	250g Amber Jar			
				400g Tub			
	1822803	WSD14	3.00 - 3.20	250g Amber Jar			X
				400g Tub			
	1822792	TPD7	2.10 - 2.20	250g Amber Jar			X
				400g Tub			
	1822781	TPD8	2.80 - 2.90	250g Amber Jar			X
				400g Tub			
	1822748	BH01	0.70 - 0.90	250g Amber Jar			X
				400g Tub			
	1822729	BH01	3.60 - 3.80	60g VOC		X	
				400g Tub			
	1822653	TPD7	0.30 - 0.40	250g Amber Jar		X	X
				400g Tub			
	1822602	TPD10	0.50 - 0.60	250g Amber Jar			
				400g Tub			
	1822592	TPD10	2.90 - 3.00	250g Amber Jar			
				400g Tub			
	1822579	TPD10	1.00 - 1.10	250g Amber Jar			X
				400g Tub			
	1822510	TPD10	0.20 - 0.30	250g Amber Jar			X
				400g Tub			
	1822491	TPD10	2.60 - 2.70	250g Amber Jar			X
				400g Tub			
	1822480	TPD9	3.90 - 4.00	250g Amber Jar			
				400g Tub			
	1822471	TPD4	0.00 - 0.10	250g Amber Jar			X
				400g Tub			
	1822422	TPD4	0.50 - 0.60	250g Amber Jar			X
				400g Tub			
	1822414	TPD9	1.00 - 1.10	250g Amber Jar			X
				400g Tub			
TPH CWG GC (S)	All						
VOC MS (S)	All						
Water Soluble Sulphate 2:1	All						

Total				0	1	0	1	0	19
1823628	WSE15	1.80 - 2.00	400g Tub						
			250g Amber Jar						X
1823615	WSE9	0.50 - 0.60	400g Tub						
			250g Amber Jar						X
1823608	WSE16	1.20 - 1.40	400g Tub						
			250g Amber Jar						
1823416	WSD15	0.40 - 0.50	400g Tub						X
			250g Amber Jar						
1823171	TPD4	2.80 - 2.90	400g Tub						
			250g Amber Jar						
1823129	TPD8	2.50 - 2.60	400g Tub						
			250g Amber Jar						
1823119	TPD8	0.40 - 0.50	400g Tub						
			250g Amber Jar						
1822986	WSE16	0.50 - 0.60	400g Tub						X
			250g Amber Jar						
1822969	TPD9	0.20 - 0.30	400g Tub						
			250g Amber Jar						

SDG:	100715-42	Customer:	Entec UK Ltd
Job:	H_ENTEC_SHW-24	Attention:	Steve Dooley
Client Reference:	26999	Order No.:	
Location:	KL056 DSDC Bicester	Report No:	91349

Sample Descriptions

Grain Sizes:

<0.063mm very fine,
0.063mm - 0.1mm fine,
0.1mm - 2mm medium,
2mm - 10mm coarse,
>10mm very coarse

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Grain size	Inclusions
1822414	TPD9	1.00 - 1.10	Dark Brown	Silty Clay	0.063 - 0.1 mm	Stones
1822422	TPD4	0.50 - 0.60	Dark Brown	Silty Clay	0.063 - 0.1 mm	Vegetation
1822471	TPD4	0.00 - 0.10	Dark Brown	Silty Clay	0.063 - 0.1 mm	Vegetation
1822480	TPD9	3.90 - 4.00	Dark Brown	Silty Clay	0.063 - 0.1 mm	Stones
1822491	TPD10	2.60 - 2.70	Dark Brown	Sand	0.1 - 2 mm	Stones
1822510	TPD10	0.20 - 0.30	Dark Brown	Silty Clay	0.063 - 0.1 mm	N/A
1822579	TPD10	1.00 - 1.10	Dark Brown	Sandy Clay	0.1 - 2 mm	Stones
1822592	TPD10	2.90 - 3.00	Dark Brown	Clay Loam	<0.063 mm	None
1822602	TPD10	0.50 - 0.60	Light Brown	Clay Loam	<0.063 mm	Stones
1822653	TPD7	0.30 - 0.40	Dark Brown	Silty Clay	0.063 - 0.1 mm	Stones
1822729	BH01	3.60 - 3.80	Light Brown	Silt Loam	0.063 - 0.1 mm	Stones
1822748	BH01	0.70 - 0.90	Dark Brown	Sandy Clay	0.1 - 2 mm	Stones
1822781	TPD8	2.80 - 2.90	Dark Brown	Sandy Clay	0.1 - 2 mm	Stones
1822792	TPD7	2.10 - 2.20	Dark Brown	Clay Loam	0.063 - 0.1 mm	N/A
1822803	WSD14	3.00 - 3.20	Light Brown	Silt Loam	0.063 - 0.1 mm	Stones
1822813	WSD15	3.00 - 3.40	Light Brown	Sandy Clay	0.1 - 2 mm	Stones
1822829	BH01	1.60 - 2.00	Dark Brown	Silt Loam	0.063 - 0.1 mm	Stones
1822842	TPD8	1.10 - 1.20	Dark Brown	Sandy Loam	0.1 - 2 mm	Stones
1822849	TPD7	1.10 - 1.20	Dark Brown	Sandy Clay Loam	0.063 - 0.1 mm	Stones
1822855	WSE15	0.30 - 0.40	Light Brown	Clay	<0.063 mm	None
1822872	WSD14	0.50 - 0.50	Dark Brown	Clay Loam	<0.063 mm	Stones
1822969	TPD9	0.20 - 0.30	Light Brown	Clay Loam	<0.063 mm	Stones
1822986	WSE16	0.50 - 0.60	Light Brown	Clay Loam	<0.063 mm	None
1823119	TPD8	0.40 - 0.50	Dark Brown	Sandy Loam	0.1 - 2 mm	Stones
1823129	TPD8	2.50 - 2.60	Dark Brown	Clay Loam	0.063 - 0.1 mm	Vegetation
1823171	TPD4	2.80 - 2.90	Dark Brown	Silty Clay Loam	0.063 - 0.1 mm	None
1823416	WSD15	0.40 - 0.50	Dark Brown	Loamy Sand	0.1 - 2 mm	Stones
1823508	WSE16	1.20 - 1.40	Light Brown	Silty Clay	0.063 - 0.1 mm	N/A
1823615	WSE9	0.50 - 0.60	Light Brown	Clay	<0.063 mm	None
1823628	WSE15	1.80 - 2.00	Light Brown	Clay	<0.063 mm	None

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

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

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

SDG:	100715-42	Customer:	Entec UK Ltd
Job:	H_ENTEC_SHW-24	Attention:	Steve Dooley
Client Reference:	26999	Order No.:	
Location:	KL056 DSDC Bicester	Report No:	91349

Test Completion dates

SDG reference: 100715-42

Lab Sample No(s)	1822414	1822422	1822471	1822480	1822491	1822510	1822579	1822592	1822602	1822653	1822729	1822748
Customer Sample Ref.	TPD9	TPD4	TPD4	TPD9	TPD10	TPD10	TPD10	TPD10	TPD10	TPD7	BH01	BH01
Depth	1.00 - 1.10	0.50 - 0.60	0.00 - 0.10	3.90 - 4.00	2.60 - 2.70	0.20 - 0.30	1.00 - 1.10	2.90 - 3.00	0.50 - 0.60	0.30 - 0.40	3.60 - 3.80	0.70 - 0.90
Type	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
Ammonium Soil by Titration	19/07/2010	19/07/2010	19/07/2010			20/07/2010	19/07/2010				19/07/2010	19/07/2010
Asbestos Containing Material	16/07/2010					16/07/2010						
Boron Water Soluble	20/07/2010	20/07/2010	20/07/2010			20/07/2010	20/07/2010				20/07/2010	20/07/2010
EPH CWG (Aliphatic) GC (S)											22/07/2010	
EPH CWG (Aromatic) GC (S)											22/07/2010	
GRO by GC-FID (S)											22/07/2010	
Hexavalent Chromium (s)	20/07/2010	20/07/2010	20/07/2010		20/07/2010	20/07/2010	20/07/2010	20/07/2010	20/07/2010	20/07/2010	20/07/2010	20/07/2010
Metals by iCap-OES (Soil)	20/07/2010	20/07/2010	20/07/2010			20/07/2010	20/07/2010				20/07/2010	20/07/2010
PAH by GCMS											19/07/2010	
PCBs (vs Aroclor 1254)											20/07/2010	
pH	19/07/2010	19/07/2010	19/07/2010			19/07/2010	19/07/2010				19/07/2010	19/07/2010
Sample description	16/07/2010	16/07/2010	16/07/2010	20/07/2010	19/07/2010	16/07/2010	16/07/2010	19/07/2010	19/07/2010	19/07/2010	16/07/2010	16/07/2010
Semi Volatile Organic Compounds											20/07/2010	
Total Organic Carbon		20/07/2010									20/07/2010	20/07/2010
TPH c6-40 Value of soil							22/07/2010					20/07/2010
TPH CWG GC (S)											23/07/2010	
VOC MS (S)											21/07/2010	
Water Soluble Sulphate 2:1	20/07/2010	20/07/2010	20/07/2010			20/07/2010	20/07/2010				20/07/2010	20/07/2010

1822781	1822792	1822803	1822813	1822829	1822842	1822849	1822855	1822872	1822969	1822986	1823119	1823129	1823171	1823416
TPD8	TPD7	WSD14	WSD15	BH01	TPD8	TPD7	WSE15	WSD14	TPD9	WSE16	TPD8	TPD8	TPD4	WSD15
2.80 - 2.90	2.10 - 2.20	3.00 - 3.20	3.00 - 3.40	1.60 - 2.00	1.10 - 1.20	1.10 - 1.20	0.30 - 0.40	0.50 - 0.50	0.20 - 0.30	0.50 - 0.60	0.40 - 0.50	2.50 - 2.60	2.80 - 2.90	0.40 - 0.50
SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
19/07/2010	19/07/2010	19/07/2010		19/07/2010	19/07/2010	20/07/2010	19/07/2010	19/07/2010		19/07/2010				19/07/2010
					16/07/2010									
20/07/2010	20/07/2010	20/07/2010		20/07/2010	20/07/2010	20/07/2010	20/07/2010	20/07/2010		20/07/2010				20/07/2010
20/07/2010	20/07/2010	20/07/2010	21/07/2010	20/07/2010	20/07/2010	20/07/2010	20/07/2010	20/07/2010	20/07/2010	20/07/2010	21/07/2010	20/07/2010	20/07/2010	20/07/2010
20/07/2010	20/07/2010	20/07/2010		20/07/2010	20/07/2010	20/07/2010	20/07/2010	20/07/2010		20/07/2010				20/07/2010
19/07/2010	19/07/2010	19/07/2010		19/07/2010	19/07/2010	19/07/2010	19/07/2010	19/07/2010		19/07/2010				19/07/2010
16/07/2010	16/07/2010	16/07/2010	20/07/2010	16/07/2010	16/07/2010	16/07/2010	16/07/2010	16/07/2010	19/07/2010	16/07/2010	20/07/2010	19/07/2010	19/07/2010	16/07/2010
					20/07/2010									
	22/07/2010	20/07/2010			20/07/2010	22/07/2010				20/07/2010				20/07/2010
20/07/2010	20/07/2010	20/07/2010		20/07/2010	20/07/2010	20/07/2010	20/07/2010	20/07/2010		20/07/2010				20/07/2010

1823508	1823615	1823628
WSE16	WSE9	WSE15
1.20 - 1.40	0.50 - 0.60	1.80 - 2.00
SOLID	SOLID	SOLID
	19/07/2010	19/07/2010
	20/07/2010	20/07/2010
20/07/2010	20/07/2010	20/07/2010
	20/07/2010	20/07/2010
	19/07/2010	19/07/2010
19/07/2010	16/07/2010	16/07/2010
	20/07/2010	
	20/07/2010	20/07/2010
	20/07/2010	20/07/2010

SDG:	100715-42	Customer:	Entec UK Ltd
Job:	H_ENTEC_SHW-24	Attention:	Steve Dooley
Client Reference:	26999	Order No.:	
Location:	KL056 DSDC Bicester	Report No:	91349

Semi Volatile Organic Compounds							
Results Legend		Customer Sample Ref.	BH01				
#	ISO17025 accredited.						
M	mCERTS accredited.						
aq	Aqueous / settled sample.						
diss.filt	Dissolved / filtered sample.						
tot.unfilt	Total / unfiltered sample.						
*	subcontracted test.						
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.						
Component		LOD/Units	Method				
Phenol		<0.1 mg/kg	TM157	<0.1			
Pentachlorophenol		<0.1 mg/kg	TM157	<0.1			
n-Nitroso-n-dipropylamine		<0.1 mg/kg	TM157	<0.1			
Nitrobenzene		<0.1 mg/kg	TM157	<0.1			
Isophorone		<0.1 mg/kg	TM157	<0.1			
Hexachloroethane		<0.1 mg/kg	TM157	<0.1			
Hexachlorocyclopentadiene		<0.1 mg/kg	TM157	<0.1			
Hexachlorobutadiene		<0.1 mg/kg	TM157	<0.1			
Hexachlorobenzene		<0.1 mg/kg	TM157	<0.1			
n-Dioctyl phthalate		<0.1 mg/kg	TM157	<0.1			
Dimethyl phthalate		<0.1 mg/kg	TM157	<0.1			
Diethyl phthalate		<0.1 mg/kg	TM157	<0.1			
n-Dibutyl phthalate		<0.1 mg/kg	TM157	<0.1			
Dibenzofuran		<0.1 mg/kg	TM157	<0.1			
Carbazole		<0.1 mg/kg	TM157	<0.1			
Butylbenzyl phthalate		<0.1 mg/kg	TM157	<0.1			
bis(2-Ethylhexyl) phthalate		<0.1 mg/kg	TM157	<0.1			
bis(2-Chloroethoxy)methane		<0.1 mg/kg	TM157	<0.1			
bis(2-Chloroethyl)ether		<0.1 mg/kg	TM157	<0.1			
Azobenzene		<0.1 mg/kg	TM157	<0.1			
4-Nitrophenol		<0.1 mg/kg	TM157	<0.1			
4-Nitroaniline		<0.1 mg/kg	TM157	<0.1			
4-Methylphenol		<0.1 mg/kg	TM157	<0.1			
4-Chlorophenylphenylether		<0.1 mg/kg	TM157	<0.1			
4-Chloroaniline		<0.1 mg/kg	TM157	<0.1			
4-Chloro-3-methylphenol		<0.1 mg/kg	TM157	<0.1			
4-Bromophenylphenylether		<0.1 mg/kg	TM157	<0.1			
3-Nitroaniline		<0.1 mg/kg	TM157	<0.1			
2-Nitrophenol		<0.1 mg/kg	TM157	<0.1			
2-Nitroaniline		<0.1 mg/kg	TM157	<0.1			
2-Methylphenol		<0.1 mg/kg	TM157	<0.1			
1,2,4-Trichlorobenzene		<0.1 mg/kg	TM157	<0.1			
2-Chlorophenol		<0.1 mg/kg	TM157	<0.1			
2,6-Dinitrotoluene		<0.1 mg/kg	TM157	<0.1			
2,4-Dinitrotoluene		<0.1 mg/kg	TM157	<0.1			
2,4-Dimethylphenol		<0.1 mg/kg	TM157	<0.1			
2,4-Dichlorophenol		<0.1 mg/kg	TM157	<0.1			
2,4,6-Trichlorophenol		<0.1 mg/kg	TM157	<0.1			
2,4,5-Trichlorophenol		<0.1 mg/kg	TM157	<0.1			

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TPH CWG (S)							
Results Legend		Customer Sample Ref.	BH01				
#	ISO17025 accredited.						
M	mCERTS accredited.						
aq	Aqueous / settled sample.						
diss.filt	Dissolved / filtered sample.						
tot.unfilt	Total / unfiltered sample.						
*	subcontracted test.						
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.						
Component		LOD/Units	Method				
GRO Surrogate % recovery**		%	TM089	66			
GRO >C5-C12		<0.044 mg/kg	TM089	<0.044			
Benzene		<0.01 mg/kg	TM089	<0.01	M		
Ethylbenzene		<0.003 mg/kg	TM089	<0.003	M		
Toluene		<0.002 mg/kg	TM089	<0.002	M		
m,p-Xylene		<0.006 mg/kg	TM089	<0.006	M		
o-Xylene		<0.003 mg/kg	TM089	<0.003	M		
m,p,o-Xylene		<0.01 mg/kg	TM089	<0.01	M		
BTEX, Total		<0.01 mg/kg	TM089	<0.01	M		
Methyl tertiary butyl ether (MTBE)		<0.005 mg/kg	TM089	<0.005	#		
Aliphatics >C5-C6		<0.01 mg/kg	TM089	<0.01			
Aliphatics >C6-C8		<0.01 mg/kg	TM089	<0.01			
Aliphatics >C8-C10		<0.01 mg/kg	TM089	<0.01			
Aliphatics >C10-C12		<0.01 mg/kg	TM089	<0.01			
Aromatics >C6-C7		<0.01 mg/kg	TM089	<0.01			
Aromatics >C7-C8		<0.01 mg/kg	TM089	<0.01			
Aromatics >EC8-EC10		<0.01 mg/kg	TM089	<0.01			
Aromatics >EC10-EC12		<0.01 mg/kg	TM089	<0.01			
Total Aliphatics >C5-C12		<0.01 mg/kg	TM089	<0.01			
Total Aromatics >C6-C12		<0.01 mg/kg	TM089	<0.01			
Aliphatics >C12-C16		<0.1 mg/kg	TM173	7.75			
Aliphatics >C16-C21		<0.1 mg/kg	TM173	6.67			
Aliphatics >C16-C35		<0.1 mg/kg	TM173	23.2			
Aliphatics >C21-C35		<0.1 mg/kg	TM173	16.6			
Aliphatics >C35-C44		<0.1 mg/kg	TM173	3.39			
Aromatics >EC12-EC16		<0.1 mg/kg	TM173	8.02			
Aromatics >EC16-EC21		<0.1 mg/kg	TM173	20.6			
Aromatics >EC21-EC35		<0.1 mg/kg	TM173	50.3			
Aromatics >EC35-EC44		<0.1 mg/kg	TM173	17.4			
Aromatics >EC40-EC44		<0.1 mg/kg	TM173	6.11			
Total Aliphatics >C12-C44		<0.1 mg/kg	TM173	34.4			
Total Aromatics >EC12-EC44		<0.1 mg/kg	TM173	96.3			
Total Aliphatics >C5-35		<0.1 mg/kg	TM173	31			
Total Aliphatics >C5-C44		<0.1 mg/kg	TM173	34.4			
Total Aromatics >C5-35		<0.1 mg/kg	TM173	78.9			
Total Aromatics >C6-C44		<0.1 mg/kg	TM173	96.3			
Total Aliphatics & Aromatics >C5-35		<0.1 mg/kg	TM173	110			
Total Aliphatics & Aromatics >C5-C44		<0.1 mg/kg	TM173	131			

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VOC MS (S)		Customer Sample Ref.		BH01				
Results Legend								
#	ISO17025 accredited.							
M	mCERTS accredited.							
aq	Aqueous / settled sample.							
diss.filt	Dissolved / filtered sample.							
tot.unfilt	Total / unfiltered sample.							
*	subcontracted test.							
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.							

SDG:	100715-42
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[illegible]

SDG:	100715-42	Customer:	Entec UK Ltd
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Client Reference:	26999	Order No.:	
Location:	KL056 DSDC Bicester	Report No:	91349

ASSOCIATED AQC DATA

Ammonium Soil by Titration

Component	Method Code	QC 13	QC 17	QC 15	QC 16
Exchangeable Ammonium as NH4	TM024	88.97 80.84 : 103.27	87.18 80.84 : 103.27	88.08 80.84 : 103.27	87.54 80.84 : 103.27

Boron Water Soluble

Component	Method Code	QC 11	QC 16	QC 14
Water Soluble Boron	TM222	104.95 82.59 : 112.64	100.20 82.59 : 112.64	99.20 82.59 : 112.64

EPH CWG (Aliphatic) GC (S)

Component	Method Code	QC 14
Total Aliphatics >C12-C35	TM173	81.79 55.20 : 114.58

Hexavalent Chromium (s)

Component	Method Code	QC 11	QC 13	QC 13
Hexavalent Chromium	TM151	112.80 76.40 : 131.80	109.40 76.40 : 131.80	108.40 76.40 : 131.80

Metals by iCap-OES (Soil)

Component	Method Code	QC 18	QC 15	QC 11
Aluminium	TM181	108.50 95.21 : 133.11	108.11 95.21 : 133.11	109.67 95.21 : 133.11
Antimony	TM181	88.97 63.92 : 138.56	97.82 63.92 : 138.56	104.62 63.92 : 138.56
Arsenic	TM181	93.28 77.96 : 122.04	98.45 77.96 : 122.04	100.34 77.96 : 122.04
Barium	TM181	98.09 90.49 : 117.24	97.90 90.49 : 117.24	105.34 90.49 : 117.24
Beryllium	TM181	85.94 77.50 : 122.50	95.87 77.50 : 122.50	103.31 77.50 : 122.50
Boron	TM181	93.55 82.46 : 141.11	93.82 82.46 : 141.11	108.59 82.46 : 141.11
Cadmium	TM181	86.13 77.50 : 122.50	95.36 77.50 : 122.50	104.18 77.50 : 122.50
Chromium	TM181	94.52 82.90 : 117.10	94.71 82.90 : 117.10	97.47 82.90 : 117.10
Cobalt	TM181	91.12 78.26 : 121.74	96.27 78.26 : 121.74	101.69 78.26 : 121.74
Copper	TM181	96.31 86.52 : 113.48	97.13 86.52 : 113.48	97.81 86.52 : 113.48

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		QC 18	QC 15	QC 11
Iron	TM181	102.14 93.59 : 123.28	101.87 93.59 : 123.28	105.67 93.59 : 123.28
Lead	TM181	97.78 81.22 : 118.78	98.06 81.22 : 118.78	99.78 81.22 : 118.78
Manganese	TM181	92.73 87.42 : 112.58	95.06 87.42 : 112.58	96.80 87.42 : 112.58
Mercury	TM181	95.87 72.27 : 127.73	104.66 72.27 : 127.73	105.10 72.27 : 127.73
Molybdenum	TM181	85.23 71.12 : 128.88	94.49 71.12 : 128.88	114.17 71.12 : 128.88
Nickel	TM181	96.79 81.27 : 118.73	97.48 81.27 : 118.73	99.92 81.27 : 118.73
Phosphorus	TM181	94.48 84.04 : 115.96	98.58 84.04 : 115.96	98.54 84.04 : 115.96
Selenium	TM181	86.36 72.61 : 127.39	104.54 72.61 : 127.39	110.18 72.61 : 127.39
Strontium	TM181	94.79 80.21 : 119.79	99.71 80.21 : 119.79	93.44 80.21 : 119.79
Thallium	TM181	83.07 73.04 : 126.96	90.56 73.04 : 126.96	101.94 73.04 : 126.96
Tin	TM181	88.28 71.55 : 128.45	94.22 71.55 : 128.45	104.41 71.55 : 128.45
Titanium	TM181	99.85 78.26 : 121.74	98.49 78.26 : 121.74	108.78 78.26 : 121.74
Vanadium	TM181	96.22 82.03 : 117.97	97.50 82.03 : 117.97	96.96 82.03 : 117.97
Zinc	TM181	90.30 77.50 : 122.50	93.83 77.50 : 122.50	92.48 77.50 : 122.50

PAH by GCMS

Component	Method Code	QC 19
Acenaphthene	TM218	96.10 71.41 : 116.50
Acenaphthylene	TM218	86.04 74.28 : 102.70
Anthracene	TM218	91.23 67.40 : 117.21
Benz(a)anthracene	TM218	102.22 66.80 : 125.05
Benzo(a)pyrene	TM218	105.87 69.15 : 119.77
Benzo(b)fluoranthene	TM218	107.60 70.01 : 124.88
Benzo(ghi)perylene	TM218	109.94 81.23 : 116.67
Benzo(k)fluoranthene	TM218	106.01 71.46 : 117.67
Chrysene	TM218	102.71 71.32 : 130.95
Dibenzo(ah)anthracene	TM218	111.74 81.17 : 118.65
Fluoranthene	TM218	95.77 69.52 : 118.84
Fluorene	TM218	94.28 71.38 : 111.04

SDG:	100715-42	Customer:	Entec UK Ltd
Job:	H_ENTEC_SHW-24	Attention:	Steve Dooley
Client Reference:	26999	Order No.:	
Location:	KL056 DSDC Bicester	Report No:	91349

		QC 19
Indeno(123cd)pyrene	TM218	112.31 80.81 : 118.96
Naphthalene	TM218	90.36 81.16 : 104.84
Phenanthrene	TM218	96.50 69.56 : 121.45
Pyrene	TM218	95.68 70.34 : 117.79

PCBs (vs Aroclor 1254)

Component	Method Code	QC 14
PCBs (vs Aroclor 1254)	TM070	109.33 75.18 : 122.16

pH

Component	Method Code	QC 18	QC 19	QC 12	QC 10	QC 14
pH	TM133	100.75 97.90 : 102.35	100.38 97.90 : 102.35	99.62 97.90 : 102.35	98.75 97.42 : 102.50	100.00 97.90 : 102.35

Semi Volatile Organic Compounds

Component	Method Code	QC 10
4-Bromophenylphenylether (Soil)	TM157	87.87 28.30 : 143.78
Benzo(a)anthracene (Soil)	TM157	94.55 18.50 : 151.06
Hexachlorobutadiene (Soil)	TM157	86.87 31.16 : 138.34
Naphthalene (Soil)	TM157	89.73 26.59 : 145.57
Nitrobenzene (Soil)	TM157	87.50 25.35 : 142.64
Phenol (Soil)	TM157	86.80 28.59 : 134.35

Total Organic Carbon

Component	Method Code	QC 11	QC 19	QC 18
Total Organic Carbon	TM132	92.99 88.75 : 104.70	98.03 88.75 : 104.70	97.96 88.75 : 104.70

TPH c6-40 Value of soil

Component	Method Code	QC 16	QC 11
Diesel QC	TM154	92.86 87.23 : 113.71	92.67 87.23 : 113.71
Lube Oil QC	TM154	104.28 88.71 : 110.56	101.36 88.71 : 110.56

SDG:	100715-42	Customer:	Entec UK Ltd
Job:	H_ENTEC_SHW-24	Attention:	Steve Dooley
Client Reference:	26999	Order No.:	
Location:	KL056 DSDC Bicester	Report No:	91349

		QC 16	QC 11
TPH C6-40 Corrected	TM154	98.57 86.39 : 109.99	97.01 86.39 : 109.99

Water Soluble Sulphate 2:1

Component	Method Code	QC 19	QC 12	QC 14
Soluble SO4	TM098	82.09 76.87 : 120.45	81.57 76.87 : 120.45	84.69 76.87 : 120.45

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.

Table of Results - Appendix

SDG Number : 100715-42

Client : Entec UK Ltd

Client Ref : 26999

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
PM001		Preparation of Samples for Metals Analysis	Dry
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material	Wet
TM001	In - house Method	Determination of asbestos containing material by screening on solids	
TM024	Method 4500A & B, AWWA/APHA, 20th Ed., 1999	Determination of Exchangeable Ammonium and Ammoniacal Nitrogen as N by titration on solids	Wet
TM070	Modified: US EPA Method 8250 & 625	Determination of Total Polychlorinated Biphenyls (PCB/Es) as Aroclor 1254 by GC-MS in Soils	Dry
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) and BTEX (MTBE) compounds by Headspace GC-FID (C4-C12)	
TM098	Method 4500E, AWWA/APHA, 20th Ed., 1999	Determination of Sulphate using the Kone Analyser	Dry
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	Dry
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter	Wet
TM151	Method 3500D, AWWA/APHA, 20th Ed., 1999	Determination of Hexavalent Chromium using Kone analyser	Wet
TM154	In - house Method	Determination of Petroleum Hydrocarbons by EZ Flash GC-FID in the Carbon range C6- C40	Wet
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	Wet
TM173	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GC-FID	Dry
TM181	US EPA Method 6010B	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES	Dry
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers	Dry
TM218	Microwave extraction – EPA method 3546	Microwave extraction - EPA method 3546	Wet
TM222	In-House Method	Determination of Hot Water Soluble Boron in Soils (10:1 Water:soil) by IRIS Emission Spectrometer	Dry

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

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 ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

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)	GS 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	SOXTHERM	GRAVIMETRIC
Cyclohexane Ext. Matter	D&C	CYCLOHEXANE	SOXTHERM	GRAVIMETRIC
Thin Layer Chromatography	D&C	DCM	SOXTHERM	IATROSCAN
Elemental Sulphur	D&C	DCM	SOXTHERM	HPLC
Phenols by GCMS	WET	DCM	SOXTHERM	GC-MS
Herbicides	D&C	HEXANE:ACETONE	SOXTHERM	GC-MS
Pesticides	D&C	HEXANE:ACETONE	SOXTHERM	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.

<u>Asbestos Type</u>	<u>Common Name</u>
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-



Entec UK Ltd
Canon Court North
Abbey Lawn
Abbey Foregate
Shrewsbury
Shropshire
SY2 5DE

Attention: Steve Dooley

CERTIFICATE OF ANALYSIS

Date:	26 July 2010	
Customer:	H_ENTEC_SHW-25	
Sample Delivery Group (SDG):	100716-54	Report No.: 91555
Your Reference:	12L056	
Location:	DSDC Bicester	

We received 45 samples on Friday July 16, 2010 and 45 of these samples were scheduled for analysis which was completed on Monday July 26, 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

Operations Director - Land UK & Ireland



SDG:	100716-54	Customer:	Entec UK Ltd
Job:	H_ENTEC_SHW-25	Attention:	Steve Dooley
Client Reference:	12L056	Order No.:	
Location:	DSDC Bicester	Report No:	91555

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Sampled Date
1832275	BHE01	0.10 - 0.30	14/07/2010
1832273	BHE01	1.00 - 1.30	14/07/2010
1832276	BHE01	3.00 - 3.20	14/07/2010
1832277	BHE02	0.20 - 0.40	14/07/2010
1832279	BHE02	1.60 - 2.00	14/07/2010
1832281	BHE02	6.80 - 7.00	14/07/2010
1832282	TP5L	1.00	14/07/2010
1832287	TPC1	0.20	14/07/2010
1832283	TPC1	0.50	14/07/2010
1832285	TPC1	1.30	14/07/2010
1832284	TPC1	1.50	14/07/2010
1832289	TPC2	0.70	14/07/2010
1832288	TPC2	1.60	14/07/2010
1832292	TPC3	0.20	14/07/2010
1832290	TPC3	1.20	14/07/2010
1832293	TPC3	2.50	14/07/2010
1832294	TPC4	0.50	14/07/2010
1832295	TPC4	1.50	14/07/2010
1832298	TPC5	0.10	14/07/2010
1832297	TPC5	2.00	14/07/2010
1832300	TPD1	0.50	14/07/2010
1832299	TPD1	1.30	14/07/2010
1832302	TPD2	0.50	14/07/2010
1832301	TPD2	1.90	14/07/2010
1832303	TPD3	0.60	14/07/2010
1832304	TPD3	1.40	14/07/2010
1832305	TPD5	0.50 - 0.60	14/07/2010
1832307	TPD5	3.80	14/07/2010
1832309	TPD6	0.30	14/07/2010
1832308	TPD6	2.40	14/07/2010
1832312	WSD3	0.10 - 0.20	14/07/2010
1832310	WSD3	0.50 - 0.60	14/07/2010
1832313	WSD3	1.00 - 1.10	14/07/2010
1832315	WSD4	0.00 - 0.10	14/07/2010
1832314	WSD4	0.20 - 0.30	14/07/2010
1832316	WSD4	0.50 - 0.60	14/07/2010
1832317	WSD5	0.20 - 0.30	14/07/2010
1832319	WSD5	0.60 - 0.70	14/07/2010
1832320	WSD5	1.10 - 1.20	14/07/2010
1832321	WSD6	0.30 - 0.40	14/07/2010
1832322	WSD6	2.00 - 2.10	14/07/2010
1832323	WSD7	0.50 - 0.60	14/07/2010
1832324	WSD7	1.60 - 1.70	14/07/2010



SDG:	100716-54	Customer:	Entec UK Ltd
Job:	H_ENTEC_SHW-25	Attention:	Steve Dooley
Client Reference:	12L056	Order No.:	
Location:	DSDC Bicester	Report No:	91555
1832325	WSD8	0.00 - 0.10	14/07/2010
1832326	WSD8	1.00 - 1.10	14/07/2010

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

SDG: 100716-54
Job: H_ENTEC_SHW-25
Client Reference: 12L056
Location: DSDC Bicester

Customer: Entec UK Ltd
Attention: Steve Dooley
Order No.:
Report No: 91555

SOLID

Results Legend	Lab Sample No(s)				Customer Sample Ref.				Depth (m)				Container			
	1832302				TPD2				0.50				40g Tub			
	1832301				TPD2				1.90				250g Amber Jar			
	1832300				TPD1				0.50				40g Tub			
	1832299				TPD1				1.30				250g Amber Jar			
 Test	1832298				TPC5				0.10				40g Tub			
	1832297				TPC5				2.00				250g Amber Jar			
 No Determination Possible	1832295				TPC4				1.50				40g Tub			
	1832294				TPC4				0.50				40g Tub			
	1832293				TPC3				2.50				40g Tub			
	1832292				TPC3				0.20				250g Amber Jar			
	1832290				TPC3				1.20				40g Tub			
	1832289				TPC2				0.70				250g Amber Jar			
	1832288				TPC2				1.60				40g Tub			
	1832287				TPC1				0.20				250g Amber Jar			
	1832285				TPC1				1.30				40g Tub			
	1832284				TPC1				1.50				250g Amber Jar			
	1832283				TPC1				0.50				250g Amber Jar			
	1832282				TP5L				1.00				250g Amber Jar			
	1832281				BHE02				6.80 - 7.00				40g Tub			
	1832279				BHE02				1.60 - 2.00				250g Amber Jar			
	1832277				BHE02				0.20 - 0.40				60g VOC			
	1832276				BHE01				3.00 - 3.20				40g Tub			
	1832275				BHE01				0.10 - 0.30				250g Amber Jar			
	1832273				BHE01				1.00 - 1.30				40g Tub			
													250g Amber Jar			
Ammonium Soil by Titration	All															
Asbestos Containing Material Screen	All															
Asbestos Identification	All															
Boron Water Soluble	All															
EPH CWG (Aliphatic) GC (S)	All															
EPH CWG (Aromatic) GC (S)	All															
GRO BTEX MTBE GC (S)	All															
Hexavalent Chromium (s)	All															
Metals by iCap-OES (Soil)	Arsenic															
	Cadmium															
	Chromium															
	Copper															
	Lead															
	Mercury															
	Nickel															
	Selenium															
	Zinc															
PAH by GCMS	All															
PCBs (vs Aroclor 1254)	All															
pH	All															
Sample description	All															
Semi Volatile Organic Compounds	All															
Total Organic Carbon	All															

Total			0	26	0	6	0	2	0	26	0	2	0	2	0	2	0	44	0	26	0	26	0	26	0	26	0	26	0	26	0	4	0	1	0	26	0	44	0	2	0	8								
1832326	WSD8	1.00 - 1.10																X																																
1832325	WSD8	0.00 - 0.10		X						X								X																																
1832324	WSD7	1.60 - 1.70																X																																
1832323	WSD7	0.50 - 0.60		X						X								X																																
1832322	WSD6	2.00 - 2.10		X														X																																
1832321	WSD6	0.30 - 0.40		X						X								X																																
1832320	WSD5	1.10 - 1.20																X																																
1832319	WSD5	0.60 - 0.70		X														X																																
1832317	WSD5	0.20 - 0.30		X						X								X																																
1832316	WSD4	0.50 - 0.60		X						X								X																																
1832315	WSD4	0.00 - 0.10																X																																
1832314	WSD4	0.20 - 0.30																X																																
1832313	WSD3	1.00 - 1.10																X																																
1832312	WSD3	0.10 - 0.20																X																																
1832310	WSD3	0.50 - 0.60																X																																
1832309	TPD6	0.30		X						X								X																																
1832308	TPD6	2.40																X																																
1832307	TPD5	3.80		X						X								X																																
1832305	TPD5	0.50 - 0.60		X						X								X																																
1832304	TPD3	1.40																X																																
1832303	TPD3	0.60		X						X								X																																

SDG:	100716-54	Customer:	Entec UK Ltd
Job:	H_ENTEC_SHW-25	Attention:	Steve Dooley
Client Reference:	12L056	Order No.:	
Location:	DSDC Bicester	Report No:	91555

1832302	TPD2	0.50	400g Tub				
1832301	TPD2	1.90	250g Amber Jar				
			400g Tub				
1832300	TPD1	0.50	250g Amber Jar				
			400g Tub				
1832299	TPD1	1.30	250g Amber Jar				
			400g Tub				
1832298	TPC5	0.10	250g Amber Jar				
			400g Tub				
1832297	TPC5	2.00	250g Amber Jar				
			400g Tub				
1832295	TPC4	1.50	400g Tub				
1832294	TPC4	0.50	400g Tub				
1832293	TPC3	2.50	400g Tub				
			250g Amber Jar				
1832292	TPC3	0.20	400g Tub				
			250g Amber Jar				
1832290	TPC3	1.20	400g Tub				
			250g Amber Jar				
1832289	TPC2	0.70	400g Tub				
			250g Amber Jar				
1832288	TPC2	1.60	400g Tub				
			250g Amber Jar				
1832287	TPC1	0.20	400g Tub				
			250g Amber Jar				
1832285	TPC1	1.30	400g Tub				
			250g Amber Jar				
1832284	TPC1	1.50	250g Amber Jar				
1832283	TPC1	0.50	250g Amber Jar				
1832282	TPSL	1.00	250g Amber Jar				
1832281	BHE02	6.80 - 7.00	400g Tub				
			250g Amber Jar				
1832279	BHE02	1.60 - 2.00	60g VOC				
			400g Tub				
1832277	BHE02	0.20 - 0.40	250g Amber Jar				
			400g Tub				
1832276	BHE01	3.00 - 3.20	250g Amber Jar				
			400g Tub				
1832275	BHE01	0.10 - 0.30	250g Amber Jar				
			400g Tub				
1832273	BHE01	1.00 - 1.30	400g Tub				
			250g Amber Jar				
TPH c6-40 Value of soil	All						
TPH CWG GC (S)	All						
VOC MS (S)	All						
Water Soluble Sulphate 2:1	All						

Total					0	8	0	2	0	2	0	26
1832326	WSD8	1.00 - 1.10	400g Tub									
			250g Amber Jar									
1832325	WSD8	0.00 - 0.10	400g Tub									
			250g Amber Jar	X								X
1832324	WSD7	1.60 - 1.70	400g Tub									
			250g Amber Jar									
1832323	WSD7	0.50 - 0.60	400g Tub									
			250g Amber Jar									X
1832322	WSD6	2.00 - 2.10	400g Tub									
			250g Amber Jar	X								X
1832321	WSD6	0.30 - 0.40	400g Tub									
			250g Amber Jar									X
1832320	WSD5	1.10 - 1.20	400g Tub									
			250g Amber Jar									
1832319	WSD5	0.60 - 0.70	60g VOC							X		
			400g Tub									
			250g Amber Jar									X
1832317	WSD5	0.20 - 0.30	400g Tub				X					X
			250g Amber Jar									X
1832316	WSD4	0.50 - 0.60	400g Tub									X
			250g Amber Jar									
1832315	WSD4	0.00 - 0.10	400g Tub									
1832314	WSD4	0.20 - 0.30	250g Amber Jar									
1832313	WSD3	1.00 - 1.10	400g Tub									
			250g Amber Jar									
1832312	WSD3	0.10 - 0.20	400g Tub									
1832310	WSD3	0.50 - 0.60	400g Tub									
			250g Amber Jar									
1832309	TPD6	0.30	400g Tub									
			250g Amber Jar									X
1832308	TPD6	2.40	400g Tub									
			250g Amber Jar									
1832307	TPD5	3.80	400g Tub									
			250g Amber Jar	X								X
1832305	TPD5	0.50 - 0.60	400g Tub									
			250g Amber Jar									X
1832304	TPD3	1.40	400g Tub									
			250g Amber Jar									
1832303	TPD3	0.60	400g Tub									
			250g Amber Jar									X

SDG:	100716-54	Customer:	Entec UK Ltd
Job:	H_ENTEC_SHW-25	Attention:	Steve Dooley
Client Reference:	12L056	Order No.:	
Location:	DSDC Bicester	Report No:	91555

Sample Descriptions

Grain Sizes:

<0.063mm very fine,
0.063mm - 0.1mm fine,
0.1mm - 2mm medium,
2mm - 10mm coarse,
>10mm very coarse

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Grain size	Inclusions
1832273	BHE01	1.00 - 1.30	Light Brown	Clay	<0.063 mm	Vegetation
1832275	BHE01	0.10 - 0.30	Light Brown	Sandy Clay	0.1 - 2 mm	Stones
1832276	BHE01	3.00 - 3.20	Dark Brown	Silty Clay	0.063 - 0.1 mm	Stones
1832277	BHE02	0.20 - 0.40	Dark Brown	Silty Clay	0.063 - 0.1 mm	Vegetation
1832279	BHE02	1.60 - 2.00	Light Brown	Silty Clay	0.063 - 0.1 mm	Stones
1832281	BHE02	6.80 - 7.00	Dark Brown	Clay	<0.063 mm	None
1832282	TP5L	1.00	Light Brown	Clay	0.063 - 0.1 mm	None
1832283	TPC1	0.50	Light Brown	Clay	<0.063 mm	Stones
1832284	TPC1	1.50	Light Brown	Clay	0.063 - 0.1 mm	Stones
1832285	TPC1	1.30	Light Brown	Clay	<0.063 mm	None
1832287	TPC1	0.20	Dark Brown	Sandy Clay	0.1 - 2 mm	Vegetation
1832288	TPC2	1.60	Light Brown	Silty Clay	0.063 - 0.1 mm	None
1832289	TPC2	0.70	Light Brown	Silty Clay	0.063 - 0.1 mm	Stones
1832290	TPC3	1.20	Dark Brown	Sandy Loam	0.1 - 2 mm	Stones
1832292	TPC3	0.20	Light Brown	Silty Clay	0.063 - 0.1 mm	N/A
1832293	TPC3	2.50	Light Brown	Silty Clay	0.063 - 0.1 mm	Stones
1832294	TPC4	0.50	Light Brown	Clay Loam	<0.063 mm	None
1832295	TPC4	1.50	Light Brown	Clay	<0.063 mm	Stones
1832297	TPC5	2.00	Light Brown	Clay	<0.063 mm	None
1832298	TPC5	0.10	Black	Sand	0.1 - 2 mm	Stones
1832299	TPD1	1.30	Dark Brown	Silty Clay	0.063 - 0.1 mm	Vegetation
1832300	TPD1	0.50	Light Brown	Silty Clay	0.063 - 0.1 mm	Vegetation
1832301	TPD2	1.90	Light Brown	Clay	<0.063 mm	None
1832302	TPD2	0.50	Dark Brown	Silty Clay	0.063 - 0.1 mm	Vegetation
1832303	TPD3	0.60	Light Brown	Sandy Clay	0.1 - 2 mm	Stones
1832304	TPD3	1.40	Dark Brown	Silty Clay Loam	0.063 - 0.1 mm	Stones
1832305	TPD5	0.50 - 0.60	Light Brown	Silty Clay	0.063 - 0.1 mm	Stones
1832307	TPD5	3.80	Dark Brown	Silty Clay	0.063 - 0.1 mm	Stones
1832308	TPD6	2.40	Dark Brown	Clay Loam	0.063 - 0.1 mm	None
1832309	TPD6	0.30	Dark Brown	Silty Clay	0.063 - 0.1 mm	Vegetation

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			Colour	Description	Grain size	Inclusions
1832310	WSD3	0.50 - 0.60	Light Brown	Silty Clay	0.063 - 0.1 mm	Stones
1832313	WSD3	1.00 - 1.10	Dark Brown	Silty Clay Loam	0.063 - 0.1 mm	Stones
1832314	WSD4	0.20 - 0.30	Dark Brown	Silty Clay	0.063 - 0.1 mm	Stones
1832315	WSD4	0.00 - 0.10	Dark Brown	Silty Clay Loam	0.063 - 0.1 mm	Vegetation
1832316	WSD4	0.50 - 0.60	Light Brown	Silty Clay	<0.063 mm	N/A
1832317	WSD5	0.20 - 0.30	Light Brown	Sandy Clay	0.1 - 2 mm	Stones
1832319	WSD5	0.60 - 0.70	Dark Brown	Silty Clay	0.063 - 0.1 mm	Oil/Petroleum
1832320	WSD5	1.10 - 1.20	Dark Brown	Clay	<0.063 mm	None
1832321	WSD6	0.30 - 0.40	Dark Brown	Silty Clay	0.063 - 0.1 mm	Vegetation
1832322	WSD6	2.00 - 2.10	Dark Brown	Silty Clay	0.063 - 0.1 mm	Stones
1832323	WSD7	0.50 - 0.60	Light Brown	Clay	<0.063 mm	Stones
1832324	WSD7	1.60 - 1.70	Light Brown	Clay	<0.063 mm	Stones
1832325	WSD8	0.00 - 0.10	Light Brown	Silty Clay	0.063 - 0.1 mm	Vegetation
1832326	WSD8	1.00 - 1.10	Light Brown	Clay	<0.063 mm	None

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

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

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

SDG:	100716-54	Customer:	Entec UK Ltd
Job:	H_ENTEC_SHW-25	Attention:	Steve Dooley
Client Reference:	12L056	Order No.:	
Location:	DSDC Bicester	Report No:	91555

Test Completion dates

SDG reference: 100716-54

Lab Sample No(s)	1832273	1832275	1832276	1832277	1832279	1832281	1832282	1832283	1832284	1832285	1832287	1832288
Customer Sample Ref.	BHE01	BHE01	BHE01	BHE02	BHE02	BHE02	TP5L	TPC1	TPC1	TPC1	TPC1	TPC2
Depth	1.00 - 1.30	0.10 - 0.30	3.00 - 3.20	0.20 - 0.40	1.60 - 2.00	6.80 - 7.00	1.00	0.50	1.50	1.30	0.20	1.60
Type	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
Ammonium Soil by Titration	19/07/2010	19/07/2010	19/07/2010	19/07/2010	19/07/2010						19/07/2010	
Asbestos Containing Material		16/07/2010									16/07/2010	
Asbestos Identification												
Boron Water Soluble	20/07/2010	20/07/2010	20/07/2010	20/07/2010	20/07/2010						20/07/2010	
EPH CWG (Aliphatic) GC (S)					22/07/2010							
EPH CWG (Aromatic) GC (S)					22/07/2010							
GRO by GC-FID (S)					23/07/2010							
Hexavalent Chromium (s)	20/07/2010	20/07/2010	20/07/2010	20/07/2010	20/07/2010	20/07/2010	20/07/2010	20/07/2010	20/07/2010	21/07/2010	20/07/2010	20/07/2010
Metals by iCap-OES (Soil)	20/07/2010	20/07/2010	20/07/2010	20/07/2010	20/07/2010						20/07/2010	
PAH by GCMS					19/07/2010						19/07/2010	
PCBs (vs Aroclor 1254)												
pH	19/07/2010	19/07/2010	19/07/2010	19/07/2010	19/07/2010						19/07/2010	
Sample description	16/07/2010	16/07/2010	16/07/2010	16/07/2010	16/07/2010	19/07/2010	19/07/2010	19/07/2010	19/07/2010	20/07/2010	16/07/2010	19/07/2010
Semi Volatile Organic Compounds					20/07/2010							
Total Organic Carbon		20/07/2010	20/07/2010		20/07/2010							
TPH c6-40 Value of soil											22/07/2010	
TPH CWG GC (S)					23/07/2010							
VOC MS (S)					21/07/2010							
Water Soluble Sulphate 2:1	20/07/2010	20/07/2010	20/07/2010	20/07/2010	20/07/2010						20/07/2010	

1832289	1832290	1832292	1832293	1832294	1832295	1832297	1832298	1832299	1832300	1832301	1832302	1832303	1832304	1832305
TPC2	TPC3	TPC3	TPC3	TPC4	TPC4	TPC5	TPC5	TPD1	TPD1	TPD2	TPD2	TPD3	TPD3	TPD5
0.70	1.20	0.20	2.50	0.50	1.50	2.00	0.10	1.30	0.50	1.90	0.50	0.60	1.40	0.50 - 0.60
SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
19/07/2010	19/07/2010	19/07/2010		19/07/2010	19/07/2010		19/07/2010	19/07/2010	19/07/2010		19/07/2010	19/07/2010		19/07/2010
	16/07/2010											16/07/2010		
20/07/2010	20/07/2010	20/07/2010		20/07/2010	20/07/2010		20/07/2010	20/07/2010	20/07/2010		20/07/2010	20/07/2010		20/07/2010
20/07/2010	20/07/2010	20/07/2010	20/07/2010	20/07/2010	20/07/2010	20/07/2010	20/07/2010	20/07/2010	20/07/2010	21/07/2010	20/07/2010	20/07/2010	21/07/2010	20/07/2010
20/07/2010	20/07/2010	20/07/2010		20/07/2010	20/07/2010		20/07/2010	20/07/2010	20/07/2010		20/07/2010	20/07/2010		20/07/2010
							21/07/2010							
19/07/2010	19/07/2010	19/07/2010		19/07/2010	19/07/2010		19/07/2010	19/07/2010	19/07/2010		19/07/2010	19/07/2010		19/07/2010
16/07/2010	16/07/2010	16/07/2010	19/07/2010	16/07/2010	16/07/2010	19/07/2010	16/07/2010	16/07/2010	16/07/2010	20/07/2010	16/07/2010	16/07/2010	20/07/2010	16/07/2010
	20/07/2010							20/07/2010						
	21/07/2010				20/07/2010		20/07/2010	20/07/2010						
20/07/2010	20/07/2010	20/07/2010		20/07/2010	20/07/2010		20/07/2010	20/07/2010	20/07/2010		20/07/2010	20/07/2010		20/07/2010

1832307	1832308	1832309	1832310	1832312	1832313	1832314	1832315	1832316	1832317	1832319	1832320	1832321	1832322	1832323
TPD5	TPD6	TPD6	WSD3	WSD3	WSD3	WSD4	WSD4	WSD4	WSD5	WSD5	WSD5	WSD6	WSD6	WSD7
3.80	2.40	0.30	0.50 - 0.60	0.10 - 0.20	1.00 - 1.10	0.20 - 0.30	0.00 - 0.10	0.50 - 0.60	0.20 - 0.30	0.60 - 0.70	1.10 - 1.20	0.30 - 0.40	2.00 - 2.10	0.50 - 0.60
SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
19/07/2010		19/07/2010						19/07/2010	19/07/2010	19/07/2010		19/07/2010	19/07/2010	19/07/2010
				16/07/2010					16/07/2010					
				19/07/2010					22/07/2010					
20/07/2010		20/07/2010						20/07/2010	20/07/2010	20/07/2010		20/07/2010	20/07/2010	20/07/2010
										21/07/2010				
										21/07/2010				
										26/07/2010				
20/07/2010	20/07/2010	20/07/2010	20/07/2010		20/07/2010	20/07/2010	20/07/2010	20/07/2010	20/07/2010	20/07/2010	20/07/2010	20/07/2010	20/07/2010	20/07/2010
20/07/2010		20/07/2010						20/07/2010	20/07/2010	20/07/2010		20/07/2010	20/07/2010	20/07/2010
										19/07/2010				
										20/07/2010				
19/07/2010		19/07/2010						19/07/2010	19/07/2010	19/07/2010		19/07/2010	19/07/2010	19/07/2010
16/07/2010	19/07/2010	16/07/2010	19/07/2010		19/07/2010	19/07/2010	19/07/2010	16/07/2010	16/07/2010	16/07/2010	19/07/2010	16/07/2010	16/07/2010	16/07/2010
										20/07/2010				
20/07/2010										20/07/2010			20/07/2010	
20/07/2010													20/07/2010	
										26/07/2010				
										21/07/2010				
20/07/2010		20/07/2010						20/07/2010	20/07/2010	20/07/2010		20/07/2010	20/07/2010	20/07/2010

1832324	1832325	1832326
WSD7	WSD8	WSD8
1.60 - 1.70	0.00 - 0.10	1.00 - 1.10
SOLID	SOLID	SOLID
	19/07/2010	
	20/07/2010	
20/07/2010	20/07/2010	20/07/2010
	20/07/2010	
	19/07/2010	
19/07/2010	16/07/2010	19/07/2010
	20/07/2010	
	20/07/2010	

SDG:	100716-54	Customer:	Entec UK Ltd
Job:	H_ENTEC_SHW-25	Attention:	Steve Dooley
Client Reference:	12L056	Order No.:	
Location:	SDSC Bicester	Report No:	91555

Semi Volatile Organic Compounds

Results Legend		Customer Sample Ref.		BHE02				
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Date Received SDG Ref Lab Sample No.(s)	1.60 - 2.00 Soil/Solid 14/07/2010 16/07/2010 100716-54 1832279					
M	mCERTS accredited.							
aq	Aqueous / settled sample.							
diss.filt	Dissolved / filtered sample.							
tot.unfilt	Total / unfiltered sample.							
*	subcontracted test.							
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.							
Component		LOD/Units	Method					
Phenol		<0.1 mg/kg	TM157	<0.1				
Pentachlorophenol		<0.1 mg/kg	TM157	<0.1				
n-Nitroso-n-dipropylamine		<0.1 mg/kg	TM157	<0.1				
Nitrobenzene		<0.1 mg/kg	TM157	<0.1				
Isophorone		<0.1 mg/kg	TM157	<0.1				
Hexachloroethane		<0.1 mg/kg	TM157	<0.1				
Hexachlorocyclopentadiene		<0.1 mg/kg	TM157	<0.1				
Hexachlorobutadiene		<0.1 mg/kg	TM157	<0.1				
Hexachlorobenzene		<0.1 mg/kg	TM157	<0.1				
n-Dioctyl phthalate		<0.1 mg/kg	TM157	<0.1				
Dimethyl phthalate		<0.1 mg/kg	TM157	<0.1				
Diethyl phthalate		<0.1 mg/kg	TM157	<0.1				
n-Dibutyl phthalate		<0.1 mg/kg	TM157	<0.1				
Dibenzofuran		<0.1 mg/kg	TM157	<0.1				
Carbazole		<0.1 mg/kg	TM157	<0.1				
Butylbenzyl phthalate		<0.1 mg/kg	TM157	<0.1				
bis(2-Ethylhexyl) phthalate		<0.1 mg/kg	TM157	<0.1				
bis(2-Chloroethoxy)methane		<0.1 mg/kg	TM157	<0.1				
bis(2-Chloroethyl)ether		<0.1 mg/kg	TM157	<0.1				
Azobenzene		<0.1 mg/kg	TM157	<0.1				
4-Nitrophenol		<0.1 mg/kg	TM157	<0.1				
4-Nitroaniline		<0.1 mg/kg	TM157	<0.1				
4-Methylphenol		<0.1 mg/kg	TM157	<0.1				
4-Chlorophenylphenylether		<0.1 mg/kg	TM157	<0.1				
4-Chloroaniline		<0.1 mg/kg	TM157	<0.1				
4-Chloro-3-methylphenol		<0.1 mg/kg	TM157	<0.1				
4-Bromophenylphenylether		<0.1 mg/kg	TM157	<0.1				
3-Nitroaniline		<0.1 mg/kg	TM157	<0.1				
2-Nitrophenol		<0.1 mg/kg	TM157	<0.1				
2-Nitroaniline		<0.1 mg/kg	TM157	<0.1				
2-Methylphenol		<0.1 mg/kg	TM157	<0.1				
1,2,4-Trichlorobenzene		<0.1 mg/kg	TM157	<0.1				
2-Chlorophenol		<0.1 mg/kg	TM157	<0.1				
2,6-Dinitrotoluene		<0.1 mg/kg	TM157	<0.1				
2,4-Dinitrotoluene		<0.1 mg/kg	TM157	<0.1				
2,4-Dimethylphenol		<0.1 mg/kg	TM157	<0.1				
2,4-Dichlorophenol		<0.1 mg/kg	TM157	<0.1				
2,4,6-Trichlorophenol		<0.1 mg/kg	TM157	<0.1				
2,4,5-Trichlorophenol		<0.1 mg/kg	TM157	<0.1				

SDG:	100716-54	Customer:	Entec UK Ltd
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TPH CWG (S)			Customer Sample Ref.	BHE02				
Results Legend								
#	ISO17025 accredited.							
M	mCERTS accredited.							
aq	Aqueous / settled sample.							
diss.filt	Dissolved / filtered sample.							
tot.unfilt	Total / unfiltered sample.							
*	subcontracted test.							
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.							
Component	LOD/Units	Method						
GRO Surrogate % recovery**	%	TM089	103					
GRO >C5-C12	<0.044 mg/kg	TM089	<0.044					
Benzene	<0.01 mg/kg	TM089	<0.01	M				
Ethylbenzene	<0.003 mg/kg	TM089	<0.003	M				
Toluene	<0.002 mg/kg	TM089	<0.002	M				
m,p-Xylene	<0.006 mg/kg	TM089	<0.006	M				
o-Xylene	<0.003 mg/kg	TM089	<0.003	M				
m,p,o-Xylene	<0.01 mg/kg	TM089	<0.01	M				
BTEX, Total	<0.01 mg/kg	TM089	<0.01	M				
Methyl tertiary butyl ether (MTBE)	<0.005 mg/kg	TM089	<0.005	#				
Aliphatics >C5-C6	<0.01 mg/kg	TM089	<0.01					
Aliphatics >C6-C8	<0.01 mg/kg	TM089	<0.01					
Aliphatics >C8-C10	<0.01 mg/kg	TM089	<0.01					
Aliphatics >C10-C12	<0.01 mg/kg	TM089	<0.01					
Aromatics >C6-C7	<0.01 mg/kg	TM089	<0.01					
Aromatics >C7-C8	<0.01 mg/kg	TM089	<0.01					
Aromatics >EC8-EC10	<0.01 mg/kg	TM089	<0.01					
Aromatics >EC10-EC12	<0.01 mg/kg	TM089	<0.01					
Total Aliphatics >C5-C12	<0.01 mg/kg	TM089	<0.01					
Total Aromatics >C6-C12	<0.01 mg/kg	TM089	<0.01					
Aliphatics >C12-C16	<0.1 mg/kg	TM173	5.16					
Aliphatics >C16-C21	<0.1 mg/kg	TM173	3.41					
Aliphatics >C16-C35	<0.1 mg/kg	TM173	12.2					
Aliphatics >C21-C35	<0.1 mg/kg	TM173	8.78					
Aliphatics >C35-C44	<0.1 mg/kg	TM173	<0.1					
Aromatics >EC12-EC16	<0.1 mg/kg	TM173	0.599					
Aromatics >EC16-EC21	<0.1 mg/kg	TM173	3.86					
Aromatics >EC21-EC35	<0.1 mg/kg	TM173	11.9					
Aromatics >EC35-EC44	<0.1 mg/kg	TM173	6.92					
Aromatics >EC40-EC44	<0.1 mg/kg	TM173	1.85					
Total Aliphatics >C12-C44	<0.1 mg/kg	TM173	17.3					
Total Aromatics >EC12-EC44	<0.1 mg/kg	TM173	23.3					
Total Aliphatics >C5-35	<0.1 mg/kg	TM173	17.3					
Total Aliphatics >C5-C44	<0.1 mg/kg	TM173	17.3					
Total Aromatics >C5-35	<0.1 mg/kg	TM173	16.4					
Total Aromatics >C6-C44	<0.1 mg/kg	TM173	23.3					
Total Aliphatics & Aromatics >C5-35	<0.1 mg/kg	TM173	33.7					
Total Aliphatics & Aromatics >C5-C44	<0.1 mg/kg	TM173	40.6					

SDG:	100716-54	Customer:	Entec UK Ltd
Job:	H_ENTEC_SHW-25	Attention:	Steve Dooley
Client Reference:	12L056	Order No.:	
Location:	DSDC Bicester	Report No:	91555

VOC MS (S)							
Results Legend		Customer Sample Ref.					
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Date Received SDG Ref Lab Sample No.(s)	BHE02 1.60 - 2.00 Soil/Solid 14/07/2010 16/07/2010 100716-54 1832279				
M	mCERTS accredited.						
aq	Aqueous / settled sample.						
diss.filt	Dissolved / filtered sample.						
tot.unfilt	Total / unfiltered sample.						
*	subcontracted test.						
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.						
Component		LOD/Units	Method				
Dibromofluoromethane**		%	TM116	98.9			
Toluene-d8**		%	TM116	101			
4-Bromofluorobenzene**		%	TM116	111			
Dichlorodifluoromethane	<0.004 mg/kg	TM116	<0.004	M			
Chloromethane	<0.007 mg/kg	TM116	<0.007	#			
Vinyl Chloride	<0.01 mg/kg	TM116	<0.01	#			
Bromomethane	<0.013 mg/kg	TM116	<0.013	M			
Chloroethane	<0.014 mg/kg	TM116	<0.014	M			
Trichlorofluoromethane	<0.006 mg/kg	TM116	<0.006	M			
1.1-Dichloroethene	<0.01 mg/kg	TM116	<0.01	#			
Carbon Disulphide	<0.007 mg/kg	TM116	<0.007	M			
Dichloromethane	<0.01 mg/kg	TM116	<0.01	#			
Methyl Tertiary Butyl Ether	<0.011 mg/kg	TM116	<0.011	M			
trans-1-2-Dichloroethene	<0.011 mg/kg	TM116	<0.011	M			
1.1-Dichloroethane	<0.008 mg/kg	TM116	<0.008	M			
cis-1-2-Dichloroethene	<0.005 mg/kg	TM116	<0.005	M			
2.2-Dichloropropane	<0.012 mg/kg	TM116	<0.012	M			
Bromochloromethane	<0.014 mg/kg	TM116	<0.014	M			
Chloroform	<0.008 mg/kg	TM116	<0.008	M			
1.1.1-Trichloroethane	<0.007 mg/kg	TM116	<0.007	M			
1.1-Dichloropropene	<0.011 mg/kg	TM116	<0.011	M			
Carbontetrachloride	<0.014 mg/kg	TM116	<0.014	M			
1.2-Dichloroethane	<0.005 mg/kg	TM116	<0.005	M			
Benzene	<0.009 mg/kg	TM116	<0.009	M			
Trichloroethene	<0.009 mg/kg	TM116	<0.009	M			
1.2-Dichloropropane	<0.012 mg/kg	TM116	<0.012	M			
Dibromomethane	<0.009 mg/kg	TM116	<0.009	M			
Bromodichloromethane	<0.007 mg/kg	TM116	<0.007	M			
cis-1-3-Dichloropropene	<0.014 mg/kg	TM116	<0.014	M			
Toluene	<0.005 mg/kg	TM116	<0.005	M			
trans-1-3-Dichloropropene	<0.014 mg/kg	TM116	<0.014				
1.1.2-Trichloroethane	<0.01 mg/kg	TM116	<0.01	M			
1.3-Dichloropropane	<0.007 mg/kg	TM116	<0.007	#			
Tetrachloroethene	<0.005 mg/kg	TM116	<0.005	M			
Dibromochloromethane	<0.013 mg/kg	TM116	<0.013	M			
1.2-Dibromoethane	<0.012 mg/kg	TM116	<0.012	M			
Chorobenzene	<0.005 mg/kg	TM116	<0.005	M			
1.1.1.2-Tetrachloroethane	<0.01 mg/kg	TM116	<0.01	M			
Ethylbenzene	<0.004 mg/kg	TM116	<0.004	M			

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Job:	H_ENTEC_SHW-25	Attention:	Steve Dooley
Client Reference:	12L056	Order No.:	
Location:	SDSC Bicester	Report No:	91555

Semi Volatile Organic Compounds

Results Legend		Customer Sample Ref.	WSD5				
#	ISO17025 accredited.						
M	mCERTS accredited.						
aq	Aqueous / settled sample.						
diss.filt	Dissolved / filtered sample.						
tot.unfilt	Total / unfiltered sample.						
*	subcontracted test.						
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.						
		Depth (m)	0.60 - 0.70				
		Sample Type	Soil/Solid				
		Date Sampled	14/07/2010				
		Date Received	16/07/2010				
		SDG Ref	100716-54				
		Lab Sample No.(s)	1832319				
Component		LOD/Units	Method				
Phenol		<0.1 mg/kg	TM157	<0.1			
Pentachlorophenol		<0.1 mg/kg	TM157	<0.1			
n-Nitroso-n-dipropylamine		<0.1 mg/kg	TM157	<0.1			
Nitrobenzene		<0.1 mg/kg	TM157	<0.1			
Isophorone		<0.1 mg/kg	TM157	<0.1			
Hexachloroethane		<0.1 mg/kg	TM157	<0.1			
Hexachlorocyclopentadiene		<0.1 mg/kg	TM157	<0.1			
Hexachlorobutadiene		<0.1 mg/kg	TM157	<0.1			
Hexachlorobenzene		<0.1 mg/kg	TM157	<0.1			
n-Dioctyl phthalate		<0.1 mg/kg	TM157	<0.1			
Dimethyl phthalate		<0.1 mg/kg	TM157	<0.1			
Diethyl phthalate		<0.1 mg/kg	TM157	<0.1			
n-Dibutyl phthalate		<0.1 mg/kg	TM157	<0.1			
Dibenzofuran		<0.1 mg/kg	TM157	<0.1			
Carbazole		<0.1 mg/kg	TM157	<0.1			
Butylbenzyl phthalate		<0.1 mg/kg	TM157	<0.1			
bis(2-Ethylhexyl) phthalate		<0.1 mg/kg	TM157	<0.1			
bis(2-Chloroethoxy)methane		<0.1 mg/kg	TM157	<0.1			
bis(2-Chloroethyl)ether		<0.1 mg/kg	TM157	<0.1			
Azobenzene		<0.1 mg/kg	TM157	<0.1			
4-Nitrophenol		<0.1 mg/kg	TM157	<0.1			
4-Nitroaniline		<0.1 mg/kg	TM157	<0.1			
4-Methylphenol		<0.1 mg/kg	TM157	<0.1			
4-Chlorophenylphenylether		<0.1 mg/kg	TM157	<0.1			
4-Chloroaniline		<0.1 mg/kg	TM157	<0.1			
4-Chloro-3-methylphenol		<0.1 mg/kg	TM157	<0.1			
4-Bromophenylphenylether		<0.1 mg/kg	TM157	<0.1			
3-Nitroaniline		<0.1 mg/kg	TM157	<0.1			
2-Nitrophenol		<0.1 mg/kg	TM157	<0.1			
2-Nitroaniline		<0.1 mg/kg	TM157	<0.1			
2-Methylphenol		<0.1 mg/kg	TM157	<0.1			
1,2,4-Trichlorobenzene		<0.1 mg/kg	TM157	<0.1			
2-Chlorophenol		<0.1 mg/kg	TM157	<0.1			
2,6-Dinitrotoluene		<0.1 mg/kg	TM157	<0.1			
2,4-Dinitrotoluene		<0.1 mg/kg	TM157	0.184			
2,4-Dimethylphenol		<0.1 mg/kg	TM157	<0.1			
2,4-Dichlorophenol		<0.1 mg/kg	TM157	<0.1			
2,4,6-Trichlorophenol		<0.1 mg/kg	TM157	<0.1			
2,4,5-Trichlorophenol		<0.1 mg/kg	TM157	<0.1			

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Job:	H_ENTEC_SHW-25	Attention:	Steve Dooley
Client Reference:	12L056	Order No.:	
Location:	DSDC Bicester	Report No:	91555

TPH CWG (S)

Results Legend		Customer Sample Ref.	WSD5					
#	ISO17025 accredited.							
M	mCERTS accredited.							
aq	Aqueous / settled sample.							
diss.filt	Dissolved / filtered sample.							
tot.unfilt	Total / unfiltered sample.							
*	subcontracted test.							
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.							
		Depth (m)	0.60 - 0.70					
		Sample Type	Soil/Solid					
		Date Sampled	14/07/2010					
		Date Received	16/07/2010					
		SDG Ref	100716-54					
		Lab Sample No.(s)	1832319					
Component		LOD/Units	Method					
GRO Surrogate % recovery**		%	TM089	49				
GRO >C5-C12		<0.044 mg/kg	TM089	8.96				
Benzene		<0.01 mg/kg	TM089	<0.01				
Ethylbenzene		<0.003 mg/kg	TM089	<0.003				
Toluene		<0.002 mg/kg	TM089	<0.002				
m,p-Xylene		<0.006 mg/kg	TM089	<0.006				
o-Xylene		<0.003 mg/kg	TM089	<0.003				
m,p,o-Xylene		<0.01 mg/kg	TM089	<0.01				
BTX, Total		<0.01 mg/kg	TM089	<0.01				
Methyl tertiary butyl ether (MTBE)		<0.005 mg/kg	TM089	<0.005				
Aliphatics >C5-C6		<0.01 mg/kg	TM089	0.0218				
Aliphatics >C6-C8		<0.01 mg/kg	TM089	0.166				
Aliphatics >C8-C10		<0.01 mg/kg	TM089	0.862				
Aliphatics >C10-C12		<0.01 mg/kg	TM089	2.65				
Aromatics >C6-C7		<0.01 mg/kg	TM089	<0.01				
Aromatics >C7-C8		<0.01 mg/kg	TM089	<0.01				
Aromatics >EC8-EC10		<0.01 mg/kg	TM089	1.29				
Aromatics >EC10-EC12		<0.01 mg/kg	TM089	3.97				
Total Aliphatics >C5-C12		<0.01 mg/kg	TM089	3.7				
Total Aromatics >C6-C12		<0.01 mg/kg	TM089	5.26				
Aliphatics >C12-C16		<0.1 mg/kg	TM173	192				
Aliphatics >C16-C21		<0.1 mg/kg	TM173	333				
Aliphatics >C16-C35		<0.1 mg/kg	TM173	490				
Aliphatics >C21-C35		<0.1 mg/kg	TM173	157				
Aliphatics >C35-C44		<0.1 mg/kg	TM173	<0.1				
Aromatics >EC12-EC16		<0.1 mg/kg	TM173	24.7				
Aromatics >EC16-EC21		<0.1 mg/kg	TM173	53.9				
Aromatics >EC21-EC35		<0.1 mg/kg	TM173	59.5				
Aromatics >EC35-EC44		<0.1 mg/kg	TM173	16.4				
Aromatics >EC40-EC44		<0.1 mg/kg	TM173	5.39				
Total Aliphatics >C12-C44		<0.1 mg/kg	TM173	682				
Total Aromatics >EC12-EC44		<0.1 mg/kg	TM173	154				
Total Aliphatics >C5-35		<0.1 mg/kg	TM173	686				
Total Aliphatics >C5-C44		<0.1 mg/kg	TM173	686				
Total Aromatics >C5-35		<0.1 mg/kg	TM173	143				
Total Aromatics >C6-C44		<0.1 mg/kg	TM173	160				
Total Aliphatics & Aromatics >C5-35		<0.1 mg/kg	TM173	829				
Total Aliphatics & Aromatics >C5-C44		<0.1 mg/kg	TM173	845				

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Job:	H_ENTEC_SHW-25	Attention:	Steve Dooley
Client Reference:	12L056	Order No.:	
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VOC MS (S)		Customer Sample Ref.		WSD5				
Results Legend								
#	ISO17025 accredited.							
M	mCERTS accredited.							
aq	Aqueous / settled sample.							
diss.filt	Dissolved / filtered sample.							
tot.unfilt	Total / unfiltered sample.							
*	subcontracted test.							
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.							

SDG:	100716-54	Customer:	Entec UK Ltd
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Client Reference:	12L056	Order No.:	
Location:	DSDC Bicester	Report No:	91555

ASSOCIATED AQC DATA

Ammonium Soil by Titration

Component	Method Code	QC 13	QC 17	QC 15
Exchangeable Ammonium as NH4	TM024	88.97 80.84 : 103.27	87.18 80.84 : 103.27	88.08 80.84 : 103.27

Boron Water Soluble

Component	Method Code	QC 17	QC 11	QC 16	QC 12	QC 14
Water Soluble Boron	TM222	100.80 82.59 : 112.64	104.95 82.59 : 112.64	100.20 82.59 : 112.64	98.80 82.59 : 112.64	99.20 82.59 : 112.64

EPH CWG (Aliphatic) GC (S)

Component	Method Code	QC 15	QC 14
Total Aliphatics >C12-C35	TM173	77.51 60.00 : 116.88	81.79 66.13 : 101.56

EPH CWG (Aromatic) GC (S)

Component	Method Code	QC 15
Total Aromatics >EC12-EC35	TM173	79.23 64.98 : 117.66

Hexavalent Chromium (s)

Component	Method Code	QC 11	QC 13	QC 13	QC 13
Hexavalent Chromium	TM151	112.80 76.40 : 131.80	109.40 76.40 : 131.80	117.80 76.40 : 131.80	108.40 76.40 : 131.80

Metals by iCap-OES (Soil)

Component	Method Code	QC 16	QC 18	QC 15	QC 11	QC 10	QC 13
Aluminium	TM181	112.20 95.21 : 133.11	108.50 95.21 : 133.11	108.11 95.21 : 133.11	109.67 95.21 : 133.11	102.37 95.21 : 133.11	118.24 95.21 : 133.11
Antimony	TM181	113.55 63.92 : 138.56	88.97 63.92 : 138.56	97.82 63.92 : 138.56	104.62 63.92 : 138.56	120.94 63.92 : 138.56	111.91 63.92 : 138.56
Arsenic	TM181	104.22 77.96 : 122.04	93.28 77.96 : 122.04	98.45 77.96 : 122.04	100.34 77.96 : 122.04	107.24 77.96 : 122.04	101.72 77.96 : 122.04
Barium	TM181	101.42 90.49 : 117.24	98.09 90.49 : 117.24	97.90 90.49 : 117.24	105.34 90.49 : 117.24	90.84 90.49 : 117.24	105.14 90.49 : 117.24
Beryllium	TM181	112.86 77.50 : 122.50	85.94 77.50 : 122.50	95.87 77.50 : 122.50	103.31 77.50 : 122.50	102.48 77.50 : 122.50	108.36 77.50 : 122.50
Boron	TM181	99.64 82.46 : 141.11	93.55 82.46 : 141.11	93.82 82.46 : 141.11	108.59 82.46 : 141.11	104.30 82.46 : 141.11	114.32 82.46 : 141.11

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		QC 16	QC 18	QC 15	QC 11	QC 10	QC 13
Cadmium	TM181	113.37 77.50 : 122.50	86.13 77.50 : 122.50	95.36 77.50 : 122.50	104.18 77.50 : 122.50	120.51 77.50 : 122.50	106.63 77.50 : 122.50
Chromium	TM181	123.03 82.90 : 117.10	94.52 82.90 : 117.10	94.71 82.90 : 117.10	97.47 82.90 : 117.10	92.85 82.90 : 117.10	95.66 82.90 : 117.10
Cobalt	TM181	107.19 78.26 : 121.74	91.12 78.26 : 121.74	96.27 78.26 : 121.74	101.69 78.26 : 121.74	107.64 78.26 : 121.74	102.31 78.26 : 121.74
Copper	TM181	101.26 86.52 : 113.48	96.31 86.52 : 113.48	97.13 86.52 : 113.48	97.81 86.52 : 113.48	91.54 86.52 : 113.48	99.27 86.52 : 113.48
Iron	TM181	108.38 93.59 : 123.28	102.14 93.59 : 123.28	101.87 93.59 : 123.28	105.67 93.59 : 123.28	90.46 93.59 : 123.28	105.40 93.59 : 123.28
Lead	TM181	99.89 81.22 : 118.78	97.78 81.22 : 118.78	98.06 81.22 : 118.78	99.78 81.22 : 118.78	116.31 81.22 : 118.78	95.67 81.22 : 118.78
Manganese	TM181	96.60 87.42 : 112.58	92.73 87.42 : 112.58	95.06 87.42 : 112.58	96.80 87.42 : 112.58	75.61 87.42 : 112.58	94.09 87.42 : 112.58
Mercury	TM181	116.61 72.27 : 127.73	95.87 72.27 : 127.73	104.66 72.27 : 127.73	105.10 72.27 : 127.73	116.52 72.27 : 127.73	108.44 72.27 : 127.73
Molybdenum	TM181	112.92 71.12 : 128.88	85.23 71.12 : 128.88	94.49 71.12 : 128.88	114.17 71.12 : 128.88	121.67 71.12 : 128.88	108.23 71.12 : 128.88
Nickel	TM181	101.45 81.27 : 118.73	96.79 81.27 : 118.73	97.48 81.27 : 118.73	99.92 81.27 : 118.73	92.21 81.27 : 118.73	97.02 81.27 : 118.73
Phosphorus	TM181	101.67 84.04 : 115.96	94.48 84.04 : 115.96	98.58 84.04 : 115.96	98.54 84.04 : 115.96	114.19 84.04 : 115.96	101.52 84.04 : 115.96
Selenium	TM181	116.53 72.61 : 127.39	86.36 72.61 : 127.39	104.54 72.61 : 127.39	110.18 72.61 : 127.39	115.12 72.61 : 127.39	112.10 72.61 : 127.39
Strontium	TM181	97.92 80.21 : 119.79	94.79 80.21 : 119.79	99.71 80.21 : 119.79	93.44 80.21 : 119.79	90.64 80.21 : 119.79	98.60 80.21 : 119.79
Thallium	TM181	108.53 73.04 : 126.96	83.07 73.04 : 126.96	90.56 73.04 : 126.96	101.94 73.04 : 126.96	120.50 73.04 : 126.96	102.60 73.04 : 126.96
Tin	TM181	113.05 71.55 : 128.45	88.28 71.55 : 128.45	94.22 71.55 : 128.45	104.41 71.55 : 128.45	116.12 71.55 : 128.45	105.66 71.55 : 128.45
Titanium	TM181	98.13 78.26 : 121.74	99.85 78.26 : 121.74	98.49 78.26 : 121.74	108.78 78.26 : 121.74	99.03 78.26 : 121.74	105.26 78.26 : 121.74
Vanadium	TM181	100.00 82.03 : 117.97	96.22 82.03 : 117.97	97.50 82.03 : 117.97	96.96 82.03 : 117.97	100.78 82.03 : 117.97	101.68 82.03 : 117.97
Zinc	TM181	95.19 77.50 : 122.50	90.30 77.50 : 122.50	93.83 77.50 : 122.50	92.48 77.50 : 122.50	84.17 77.50 : 122.50	92.30 77.50 : 122.50

PAH by GCMS

Component	Method Code	QC 15	QC 19	QC 15
Acenaphthene	TM218	101.47 68.10 : 128.67	96.10 71.41 : 116.50	95.73 72.32 : 109.44
Acenaphthylene	TM218	93.77 68.11 : 109.28	86.04 74.28 : 102.70	83.84 68.65 : 103.57
Anthracene	TM218	98.69 61.75 : 122.01	91.23 67.40 : 117.21	90.99 69.18 : 111.83
Benz(a)anthracene	TM218	95.64 79.35 : 115.30	102.22 66.80 : 125.05	107.56 75.52 : 122.57
Benzo(a)pyrene	TM218	98.16 79.80 : 116.48	105.87 69.15 : 119.77	113.11 71.24 : 119.68
Benzo(b)fluoranthene	TM218	100.82 79.51 : 116.19	107.60 70.01 : 124.88	116.45 75.05 : 121.20
Benzo(ghi)perylene	TM218	100.15 80.08 : 114.22	109.94 81.23 : 116.67	102.34 74.07 : 119.02
Benzo(k)fluoranthene	TM218	97.51 65.05 : 129.07	106.01 71.46 : 117.67	100.40 73.14 : 117.51

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		QC 15	QC 19	QC 15
Chrysene	TM218	99.16 80.14 : 113.92	102.71 71.32 : 130.95	98.07 75.35 : 119.13
Dibenzo(ah)anthracene	TM218	98.02 59.79 : 136.56	111.74 81.17 : 118.65	99.66 72.56 : 120.05
Fluoranthene	TM218	97.89 74.35 : 115.70	95.77 69.52 : 118.84	98.51 72.66 : 116.78
Fluorene	TM218	100.23 75.68 : 111.55	94.28 71.38 : 111.04	94.30 72.26 : 119.17
Indeno(123cd)pyrene	TM218	98.87 74.42 : 114.62	112.31 80.81 : 118.96	105.93 71.54 : 119.37
Naphthalene	TM218	92.45 73.21 : 108.15	90.36 81.16 : 104.84	92.13 76.45 : 106.42
Phenanthrene	TM218	103.45 66.61 : 129.12	96.50 69.56 : 121.45	96.99 71.89 : 117.20
Pyrene	TM218	99.01 74.35 : 111.75	95.68 70.34 : 117.79	98.48 73.05 : 116.68

PCBs (vs Aroclor 1254)

Component	Method Code	QC 14
PCBs (vs Aroclor 1254)	TM070	109.33 75.18 : 122.16

pH

Component	Method Code	QC 18	QC 19	QC 12	QC 12	QC 14
pH	TM133	100.75 97.90 : 102.35	100.38 97.90 : 102.35	99.62 97.90 : 102.35	101.13 97.90 : 102.35	100.00 97.90 : 102.35

Semi Volatile Organic Compounds

Component	Method Code	QC 10
4-Bromophenylphenylether (Soil)	TM157	87.87 28.30 : 143.78
Benzo(a)anthracene (Soil)	TM157	94.55 18.50 : 151.06
Hexachlorobutadiene (Soil)	TM157	86.87 31.16 : 138.34
Naphthalene (Soil)	TM157	89.73 26.59 : 145.57
Nitrobenzene (Soil)	TM157	87.50 25.35 : 142.64
Phenol (Soil)	TM157	86.80 28.59 : 134.35

Total Organic Carbon

Component	Method Code	QC 11	QC 19	QC 18
Total Organic Carbon	TM132	92.99 88.75 : 104.70	98.03 88.75 : 104.70	97.96 88.75 : 104.70

SDG:	100716-54	Customer:	Entec UK Ltd
Job:	H_ENTEC_SHW-25	Attention:	Steve Dooley
Client Reference:	12L056	Order No.:	
Location:	DSDC Bicester	Report No:	91555

TPH c6-40 Value of soil

Component	Method Code	QC 16	QC 14	QC 11
Diesel QC	TM154	92.86 87.23 : 113.71	94.61 87.23 : 113.71	92.67 87.23 : 113.71
Lube Oil QC	TM154	104.28 88.71 : 110.56	102.08 88.71 : 110.56	101.36 88.71 : 110.56
TPH C6-40 Corrected	TM154	98.57 86.39 : 109.99	98.35 86.39 : 109.99	97.01 86.39 : 109.99

Water Soluble Sulphate 2:1

Component	Method Code	QC 11	QC 19	QC 12	QC 14	QC 10
Soluble SO4	TM098	86.26 76.87 : 120.45	82.09 76.87 : 120.45	81.57 76.87 : 120.45	84.69 76.87 : 120.45	92.60 76.87 : 120.45

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.

SDG:	100716-54	Customer:	Entec UK Ltd
Job:	H_ENTEC_SHW-25	Attention:	Steve Dooley
Client Reference:	12L056	Order No.:	
Location:	DSDC Bicester	Report No:	91555

Asbestos Identification

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Fibrous Actinolite	Fibrous Anthophyllite	Fibrous Tremolite	Non-Asbestos Fibre
Customer Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	WSD3 NS Z 0.10 - 0.20 SOLID 14/07/2010 00:00:00 16/07/2010 10:48:07 100716-54 1,832,312 TM048	19/7/10	Tomasz Pawlikowski	Typical of asbestos cement	Not Detected	Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
Customer Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	WSD5 NS Z 0.20 - 0.30 SOLID 14/07/2010 00:00:00 16/07/2010 11:03:40 100716-54 1,832,317 TM048	22/7/10	Rhodri Williams	Typical of asbestos cement	Not Detected	Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected

Table of Results - Appendix

SDG Number : 100716-54

Client : Entec UK Ltd

Client Ref : 12L056

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
PM001		Preparation of Samples for Metals Analysis	Dry
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material	Wet
TM001	In - house Method	Determination of asbestos containing material by screening on solids	
TM024	Method 4500A & B, AWWA/APHA, 20th Ed., 1999	Determination of Exchangeable Ammonium and Ammoniacal Nitrogen as N by titration on solids	Wet
TM048	HSG 248, Asbestos: The analysts' guide for sampling, analysis and clearance procedures	Identification of Asbestos in Bulk Material	
TM070	Modified: US EPA Method 8250 & 625	Determination of Total Polychlorinated Biphenyls (PCB/Es) as Aroclor 1254 by GC-MS in Soils	Dry
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) and BTEX (MTBE) compounds by Headspace GC-FID (C4-C12)	
TM098	Method 4500E, AWWA/APHA, 20th Ed., 1999	Determination of Sulphate using the Kone Analyser	Dry
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	Dry
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter	Wet
TM151	Method 3500D, AWWA/APHA, 20th Ed., 1999	Determination of Hexavalent Chromium using Kone analyser	Wet
TM154	In - house Method	Determination of Petroleum Hydrocarbons by EZ Flash GC-FID in the Carbon range C6- C40	Wet
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	Wet
TM173	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GC-FID	Dry
TM181	US EPA Method 6010B	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES	Dry
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers	Dry
TM218	Microwave extraction – EPA method 3546	Microwave extraction - EPA method 3546	Wet
TM222	In-House Method	Determination of Hot Water Soluble Boron in Soils (10:1 Water:soil) by IRIS Emission Spectrometer	Dry

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

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 ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

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)	GS 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	SOXTHERM	GRAVIMETRIC
Cyclohexane Ext. Matter	D&C	CYCLOHEXANE	SOXTHERM	GRAVIMETRIC
Thin Layer Chromatography	D&C	DCM	SOXTHERM	IATROSCAN
Elemental Sulphur	D&C	DCM	SOXTHERM	HPLC
Phenols by GCMS	WET	DCM	SOXTHERM	GC-MS
Herbicides	D&C	HEXANE:ACETONE	SOXTHERM	GC-MS
Pesticides	D&C	HEXANE:ACETONE	SOXTHERM	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.

<u>Asbestos Type</u>	<u>Common Name</u>
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-



Entec UK Ltd
Canon Court North
Abbey Lawn
Abbey Foregate
Shrewsbury
Shropshire
SY2 5DE

Attention: Steve Dooley

CERTIFICATE OF ANALYSIS

Date:	28 July 2010	
Customer:	H_ENTEC_SHW-24	
Sample Delivery Group (SDG):	100719-9	Report No.: 91728
Your Reference:	26999	
Location:	KL056 DSDC Bicester	

We received 48 samples on Saturday July 17, 2010 and 29 of these samples were scheduled for analysis which was completed on Wednesday July 28, 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

Operations Director - Land UK & Ireland



SDG:	100719-9	Customer:	Entec UK Ltd
Job:	H_ENTEC_SHW-24	Attention:	Steve Dooley
Client Reference:	26999	Order No.:	
Location:	KL056 DSDC Bicester	Report No:	91728

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Sampled Date
1836401	BHC3	0.50 - 0.65	15/07/2010
1836414	BHC3	1.00	15/07/2010
1837405	BHC3	2.00	15/07/2010
1837306	BHC3	2.50	15/07/2010
1837396	BHC5	1.00	15/07/2010
1837371	BHC5	2.00	15/07/2010
1837412	BHC5	3.00	15/07/2010
1837381	TPC10 ES1	0.10	15/07/2010
1837355	TPC10 ES2	1.00	15/07/2010
1837139	TPC10 ES3	1.60	15/07/2010
1837142	TPC10 ES4	2.20	15/07/2010
1837467	TPC6 ES1	0.10	15/07/2010
1837333	TPC6 ES2	1.00	15/07/2010
1844739	TPC7 ES1	0.30	15/07/2010
1837312	TPC7 ES2	1.10	15/07/2010
1837349	TPC7 ES3	1.70	15/07/2010
1837435	TPC8 ES1	0.20	15/07/2010
1837478	TPC8 ES2	0.60	15/07/2010
1837295	TPC8 ES3	1.60	15/07/2010
1837454	TPC9 ES1	0.20	15/07/2010
1837299	TPC9 ES2	1.20	15/07/2010
1837117	TPE1 ES1	0.50	15/07/2010
1837103	TPE1 ES2	1.10	15/07/2010
1837129	TPE2 ES1	0.50	15/07/2010
1837108	TPE2 ES2	1.80	15/07/2010
1836354	WSC1	0.00 - 0.20	16/07/2010
1836522	WSC1	1.50 - 1.70	16/07/2010
1836584	WSC1	5.50 - 5.80	16/07/2010
1836545	WSC2	0.20 - 0.40	16/07/2010
1836658	WSC2	1.20 - 1.40	16/07/2010
1836678	WSC2	2.40 - 2.70	16/07/2010
1836437	WSC3	0.00 - 0.20	16/07/2010
1836565	WSC3	2.40 - 2.60	16/07/2010
1836593	WSC3	3.00 - 3.20	16/07/2010
1836207	WSD10	0.20 - 0.40	15/07/2010
1836248	WSD10	1.60 - 1.90	15/07/2010
1836258	WSD11	0.30 - 0.40	15/07/2010
1841524	WSD11	2.90 - 3.10	15/07/2010
1836179	WSD12	0.30 - 0.60	15/07/2010
1836196	WSD12	1.50 - 1.70	15/07/2010
1836188	WSD12	3.25 - 3.40	15/07/2010
1836238	WSD13	0.10 - 0.30	15/07/2010
1836263	WSD13	2.50 - 2.80	15/07/2010

SDG:	100719-9	Customer:	Entec UK Ltd
Job:	H_ENTEC_SHW-24	Attention:	Steve Dooley
Client Reference:	26999	Order No.:	
Location:	KL056 DSDC Bicester	Report No:	91728



1836192	WSD9	0.30 - 0.50	15/07/2010
1836218	WSD9	3.80 - 4.00	15/07/2010
1836227	WSE17	0.20 - 0.40	15/07/2010
1836300	WSE17	0.60 - 0.80	15/07/2010
1836307	WSE17	2.40 - 2.60	15/07/2010

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

SDG: 100719-9
Job: H_ENTEC_SHW-24
Client Reference: 26999
Location: KL056 DSDC Bicester

Customer: Entec UK Ltd
Attention: Steve Dooley
Order No.:
Report No: 91728

SOLID

Results Legend	Lab Sample No(s)		Customer Sample Ref.		Depth (m)		Container	
	 Test		 No Determination Possible					
Ammonium Soil by Titration	All							
Asbestos Containing Material Screen	All							
Boron Water Soluble	All							
EPH CWG (Aliphatic) GC (S)	All							
EPH CWG (Aromatic) GC (S)	All							
GRO BTEX MTBE GC (S)	All							
Hexavalent Chromium (s)	All							
Metals by iCap-OES (Soil)	Arsenic							
	Cadmium							
	Chromium							
	Copper							
	Lead							
	Mercury							
	Nickel							
	Selenium							
	Zinc							
PAH by GCMS	All							
PCBs (vs Aroclor 1254)	All							
pH	All							
Sample description	All							
Semi Volatile Organic Compounds	All							
Total Organic Carbon	All							
TPH c6-40 Value of soil	All							

Total									
1844739	TPC7 ES1	0.30	400g Tub	X					
1841524	WSD11	2.90 - 3.10	250g Amber Jar	X					
1837478	TPC8 ES2	0.50	400g Tub	X					
1837467	TPC6 ES1	0.10	250g Amber Jar	X					
1837454	TPC9 ES1	0.20	400g Tub	X					
1837412	BHC5	3.00	400g Tub	X					
1837405	BHC3	2.00	250g Amber Jar	X					
1837396	BHC5	1.00	400g Tub	X					
1837381	TPC10 ES1	0.10	250g Amber Jar	X					
			60g VOC	X					
			400a Tub	X					

SDG:	100719-9	Customer:	Entec UK Ltd
Job:	H_ENTEC_SHW-24	Attention:	Steve Dooley
Client Reference:	26999	Order No.:	
Location:	KL056 DSDC Bicester	Report No:	91728

	1837295	TPC8 ES3	1.60	250g Amber Jar		X		X
	1837139	TPC10 ES3	1.60	400g Tub				X
				250g Amber Jar				
				60g VOC			X	
				400g Tub				
	1837129	TPE2 ES1	0.50	250g Amber Jar		X		X
				400g Tub				
	1837117	TPE1 ES1	0.50	250g Amber Jar				X
				400g Tub				
	1837108	TPE2 ES2	1.80	250g Amber Jar				X
				400g Tub				
	1836658	WSC2	1.20 - 1.40	250g Amber Jar				X
				400g Tub				
	1836665	WSC3	2.40 - 2.60	250g Amber Jar			X	X
				60g VOC				
				400g Tub				
	1836545	WSC2	0.20 - 0.40	250g Amber Jar		X		X
				400g Tub				
	1836522	WSC1	1.50 - 1.70	250g Amber Jar				X
				400g Tub				
	1836414	BHC3	1.00	250g Amber Jar			X	X
				60g VOC				
				400g Tub				
	1836401	BHC3	0.50 - 0.65	250g Amber Jar		X		X
				400g Tub				
	1836354	WSC1	0.00 - 0.20	250g Amber Jar				X
				400g Tub				
	1836307	WSE17	2.40 - 2.60	250g Amber Jar				X
				400g Tub				
	1836300	WSE17	0.60 - 0.80	250g Amber Jar				X
				400g Tub				
	1836248	WSD10	1.60 - 1.90	250g Amber Jar				X
				400g Tub				
	1836238	WSD13	0.10 - 0.30	250g Amber Jar				X
				400g Tub				
	1836218	WSD9	3.80 - 4.00	250g Amber Jar			X	X
				60g VOC				
				400g Tub				
	1836196	WSD12	1.50 - 1.70	250g Amber Jar		X		X
				400g Tub				
	1836192	WSD9	0.30 - 0.50	250g Amber Jar				X
				400g Tub				
TPH CWG GC (S)	All							
VOC MS (S)	All							
Water Soluble Sulphate 2:1	All							

Total				
1844739	TPC7 ES1	0.30	400g Tub	
1841524	WSD11	2.90 - 3.10	250g Amber Jar	X
			400g Tub	
1837478	TPC8 ES2	0.60	250g Amber Jar	X
			400g Tub	
1837467	TPC6 ES1	0.10	250g Amber Jar	X
			400g Tub	
1837454	TPC9 ES1	0.20	250g Amber Jar	X
			400g Tub	
1837412	BHC5	3.00	250g Amber Jar	X
			400g Tub	
1837405	BHC3	2.00	250g Amber Jar	X
			400g Tub	
1837396	BHC5	1.00	250g Amber Jar	X
			400g Tub	
1837381	TPC10 ES1	0.10	250g Amber Jar	X
			60g VOC	X
			400g Tub	

SDG:	100719-9	Customer:	Entec UK Ltd
Job:	H_ENTEC_SHW-24	Attention:	Steve Dooley
Client Reference:	26999	Order No.:	
Location:	KL056 DSDC Bicester	Report No:	91728

Sample Descriptions

Grain Sizes:

<0.063mm very fine,
0.063mm - 0.1mm fine,
0.1mm - 2mm medium,
2mm - 10mm coarse,
>10mm very coarse

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Grain size	Inclusions
1836192	WSD9	0.30 - 0.50	Dark Brown	Clay Loam	0.063 - 0.1 mm	Stones
1836196	WSD12	1.50 - 1.70	Dark Brown	Silty Clay Loam	<0.063 mm	N/A
1836218	WSD9	3.80 - 4.00	Dark Brown	Sandy Clay	0.063 - 0.1 mm	Stones
1836238	WSD13	0.10 - 0.30	Light Brown	Silty Clay	0.063 - 0.1 mm	Stones
1836248	WSD10	1.60 - 1.90	Dark Brown	Silty Clay	0.063 - 0.1 mm	Stones
1836300	WSE17	0.60 - 0.80	Dark Brown	Silty Clay Loam	<0.063 mm	Stones
1836307	WSE17	2.40 - 2.60	Dark Brown	Clay	<0.063 mm	None
1836354	WSC1	0.00 - 0.20	Light Brown	Silty Clay	0.063 - 0.1 mm	Vegetation
1836401	BHC3	0.50 - 0.65	Black	Sandy Silt Loam	0.1 - 2 mm	Stones
1836414	BHC3	1.00	Dark Brown	Clay	<0.063 mm	None
1836522	WSC1	1.50 - 1.70	Dark Brown	Silty Clay Loam	<0.063 mm	N/A
1836545	WSC2	0.20 - 0.40	Dark Brown	Clay Loam	0.063 - 0.1 mm	Vegetation
1836565	WSC3	2.40 - 2.60	Dark Brown	Clay	<0.063 mm	Vegetation
1836658	WSC2	1.20 - 1.40	Light Brown	Clay	<0.063 mm	Vegetation
1837108	TPE2	1.80	Light Brown	Clay	<0.063 mm	None
1837117	TPE1	0.50	Grey	Silty Sand	0.063 - 0.1 mm	Stones
1837129	TPE2	0.50	Light Brown	Silty Clay	0.063 - 0.1 mm	Stones
1837139	TPC10	1.60	Light Brown	Sandy Clay	0.1 - 2 mm	Stones
1837295	TPC8	1.60	Light Brown	Silty Clay	0.063 - 0.1 mm	Stones
1837371	BHC5	2.00	Light Brown	Clay	<0.063 mm	Stones
1837381	TPC10	0.10	Grey	Silt	0.063 - 0.1 mm	Stones
1837396	BHC5	1.00	Grey	Sandy Clay Loam	0.1 - 2 mm	Stones
1837405	BHC3	2.00	Dark Brown	Clay	<0.063 mm	Stones
1837412	BHC5	3.00	Dark Brown	Clay	<0.063 mm	N/A
1837454	TPC9	0.20	Dark Brown	Top Soil	0.063 - 0.1 mm	Vegetation
1837467	TPC6	0.10	Dark Brown	Sandy Loam	0.063 - 0.1 mm	Stones
1837478	TPC8	0.60	Dark Brown	Clay	<0.063 mm	Stones
1841524	WSD11	2.90 - 3.10	Dark Brown	Sandy Clay Loam	0.063 - 0.1 mm	N/A
1844739	TPC7	0.30	Dark Brown	Silty Clay Loam	0.063 - 0.1 mm	Stones

SDG:	100719-9	Customer:	Entec UK Ltd
Job:	H_ENTEC_SHW-24	Attention:	Steve Dooley
Client Reference:	26999	Order No.:	
Location:	KL056 DSDC Bicester	Report No:	91728

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

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

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

SDG:	100719-9	Customer:	Entec UK Ltd
Job:	H_ENTEC_SHW-24	Attention:	Steve Dooley
Client Reference:	26999	Order No.:	
Location:	KL056 DSDC Bicester	Report No:	91728

Test Completion dates

SDG reference: 100719-9												
Lab Sample No(s)	1836192	1836196	1836218	1836238	1836248	1836300	1836307	1836354	1836401	1836414	1836522	1836545
Customer Sample Ref.	WSD9	WSD12	WSD9	WSD13	WSD10	WSE17	WSE17	WSC1	BHC3	BHC3	WSC1	WSC2
Depth	0.30 - 0.50	1.50 - 1.70	3.80 - 4.00	0.10 - 0.30	1.60 - 1.90	0.60 - 0.80	2.40 - 2.60	0.00 - 0.20	0.50 - 0.65	1.00	1.50 - 1.70	0.20 - 0.40
Type	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
Ammonium Soil by Titration	21/07/2010	21/07/2010	21/07/2010	21/07/2010	21/07/2010	21/07/2010	21/07/2010	21/07/2010		21/07/2010	21/07/2010	21/07/2010
Asbestos Containing Material	20/07/2010											20/07/2010
Boron Water Soluble	22/07/2010	22/07/2010	22/07/2010	22/07/2010	22/07/2010	22/07/2010	22/07/2010	22/07/2010		21/07/2010	22/07/2010	22/07/2010
EPH CWG (Aliphatic) GC (S)			23/07/2010							23/07/2010		
EPH CWG (Aromatic) GC (S)			23/07/2010							23/07/2010		
GRO by GC-FID (S)			27/07/2010							27/07/2010		
Hexavalent Chromium (s)	21/07/2010	21/07/2010	21/07/2010	21/07/2010	21/07/2010	21/07/2010	21/07/2010	21/07/2010	21/07/2010	21/07/2010	21/07/2010	21/07/2010
Metals by iCap-OES (Soil)	22/07/2010	22/07/2010	22/07/2010	22/07/2010	22/07/2010	22/07/2010	22/07/2010	22/07/2010	22/07/2010	21/07/2010	22/07/2010	22/07/2010
PAH by GCMS			21/07/2010							21/07/2010		
PCBs (vs Aroclor 1254)										22/07/2010		
pH	21/07/2010	21/07/2010	21/07/2010	21/07/2010	21/07/2010	21/07/2010	21/07/2010	21/07/2010		21/07/2010	21/07/2010	21/07/2010
Sample description	20/07/2010	20/07/2010	20/07/2010	20/07/2010	20/07/2010	20/07/2010	20/07/2010	20/07/2010	20/07/2010	20/07/2010	20/07/2010	20/07/2010
Semi Volatile Organic Compounds			22/07/2010							23/07/2010		
Total Organic Carbon					22/07/2010	22/07/2010				21/07/2010	22/07/2010	
TPH c6-40 Value of soil	22/07/2010	22/07/2010			22/07/2010	22/07/2010	22/07/2010				22/07/2010	
TPH CWG GC (S)			28/07/2010							27/07/2010		
VOC MS (S)			22/07/2010							22/07/2010		
Water Soluble Sulphate 2:1	22/07/2010	22/07/2010	22/07/2010	22/07/2010	22/07/2010	22/07/2010	22/07/2010	22/07/2010	22/07/2010	22/07/2010	22/07/2010	22/07/2010

1836565	1836658	1837108	1837117	1837129	1837139	1837295	1837371	1837381	1837396	1837405	1837412	1837454	1837467	1837478
WSC3	WSC2	TPE2	TPE1	TPE2	TPC10	TPC8	BHC5	TPC10	BHC5	BHC3	BHC5	TPC9	TPC6	TPC8
2.40 - 2.60	1.20 - 1.40	1.80	0.50	0.50	1.60	1.60	2.00	0.10	1.00	2.00	3.00	0.20	0.10	0.60
SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
21/07/2010	21/07/2010	21/07/2010	21/07/2010	21/07/2010	21/07/2010	21/07/2010	21/07/2010	21/07/2010	21/07/2010	21/07/2010	21/07/2010	21/07/2010	21/07/2010	21/07/2010
				20/07/2010				20/07/2010				20/07/2010	20/07/2010	
22/07/2010	22/07/2010	22/07/2010	21/07/2010	22/07/2010	22/07/2010	22/07/2010	22/07/2010	22/07/2010	22/07/2010	21/07/2010	22/07/2010	22/07/2010	22/07/2010	22/07/2010
23/07/2010					23/07/2010		23/07/2010							
27/07/2010					27/07/2010		27/07/2010							
21/07/2010	21/07/2010	21/07/2010	21/07/2010	21/07/2010	21/07/2010	21/07/2010	21/07/2010	21/07/2010	21/07/2010	21/07/2010	21/07/2010	21/07/2010	21/07/2010	21/07/2010
22/07/2010	22/07/2010	21/07/2010	21/07/2010	22/07/2010	22/07/2010	22/07/2010	22/07/2010	22/07/2010	22/07/2010	22/07/2010	22/07/2010	22/07/2010	22/07/2010	22/07/2010
21/07/2010					21/07/2010		21/07/2010							
							22/07/2010							
21/07/2010	21/07/2010	21/07/2010	21/07/2010	21/07/2010	21/07/2010	21/07/2010	21/07/2010	21/07/2010	21/07/2010	21/07/2010	21/07/2010	21/07/2010	21/07/2010	21/07/2010
20/07/2010	20/07/2010	20/07/2010	20/07/2010	20/07/2010	20/07/2010	20/07/2010	20/07/2010	20/07/2010	20/07/2010	20/07/2010	20/07/2010	20/07/2010	20/07/2010	20/07/2010
23/07/2010					23/07/2010		22/07/2010							
					22/07/2010									22/07/2010
	22/07/2010			22/07/2010						22/07/2010		22/07/2010		22/07/2010
27/07/2010					27/07/2010		27/07/2010							
23/07/2010					23/07/2010		22/07/2010							
22/07/2010	22/07/2010	22/07/2010	22/07/2010	22/07/2010	22/07/2010	22/07/2010	22/07/2010	22/07/2010	22/07/2010	22/07/2010	22/07/2010	22/07/2010	22/07/2010	22/07/2010

1841524	1844739
WSD11	TPC7
2.90 - 3.10	0.30
SOLID	SOLID
21/07/2010	21/07/2010
	20/07/2010
22/07/2010	22/07/2010
21/07/2010	21/07/2010
22/07/2010	22/07/2010
21/07/2010	21/07/2010
20/07/2010	20/07/2010
22/07/2010	22/07/2010
22/07/2010	22/07/2010

SDG:	100719-9	Customer:	Entec UK Ltd
Job:	H_ENTEC_SHW-24	Attention:	Steve Dooley
Client Reference:	26999	Order No.:	
Location:	KL056 DSDC Bicester	Report No:	91728

Results Legend		Customer Sample Ref.	BHC3	BHC3	BHC3	BHC5	BHC5	BHC5
#	ISO17025 accredited.							
M	mCERTS accredited.							
aq	Aqueous / settled sample.							
diss.filt	Dissolved / filtered sample.							
tot.unfilt	Total / unfiltered sample.							
*	subcontracted test.							
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.							
		Depth (m)	0.50 - 0.65	1.00	2.00	1.00	2.00	3.00
		Sample Type	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid
		Date Sampled	15/07/2010	15/07/2010	15/07/2010	15/07/2010	15/07/2010	15/07/2010
		Date Received	17/07/2010	17/07/2010	17/07/2010	17/07/2010	17/07/2010	17/07/2010
		SDG Ref	100719-9	100719-9	100719-9	100719-9	100719-9	100719-9
		Lab Sample No.(s)	1836401	1836414	1837405	1837396	1837371	1837412
Component	LOD/Units	Method						
Ammoniacal Nitrogen, exchangeable as NH4	<15 mg/kg	TM024						
Sulphate, 2:1 water soluble	<0.003 g/l	TM098	0.284	0.12	0.148	1.14	0.336	0.221
Soil Organic Matter (SOM)	<0.35 %	TM132		1.42				
pH	1 pH Units	TM133		8.03	8.01	8.98	8.21	8.31
Chromium, Hexavalent	<0.6 mg/kg	TM151	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6
TPH >C6-C8	<10 mg/kg	TM154			108			
TPH >C8-C10	<10 mg/kg	TM154			37.7			
TPH >C10-C12	<10 mg/kg	TM154			<10			
TPH >C12-C16	<10 mg/kg	TM154			<10			
TPH >C16-C21	<10 mg/kg	TM154			<10			
TPH >C21-C40	<10 mg/kg	TM154			72.4			
TPH >C6-C40	<10 mg/kg	TM154			226			
Arsenic	<0.6 mg/kg	TM181	8.66	17.1	38.9	13.1	15.3	7.39
Cadmium	<0.02 mg/kg	TM181	0.288	<0.02	<0.2	<0.02	<0.02	0.0592
Chromium	<0.9 mg/kg	TM181	20.3	46.7	29	55.2	27.6	50.3
Copper	<1.4 mg/kg	TM181	31	17.5	22.7	60.9	16.5	24.3
Lead	<0.7 mg/kg	TM181	475	36.7	12.3	119	17.3	14.3
Mercury	<0.14 mg/kg	TM181	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
Nickel	<0.2 mg/kg	TM181	13.2	38.8	49.1	12.8	29.5	52.6
Selenium	<1 mg/kg	TM181	2.42	<1	<10	4	<1	1.23
Zinc	<1.9 mg/kg	TM181	72.5	104	101	93.1	66.7	187
Boron, water soluble	<1 mg/kg	TM222		1.8	1.67	3.09	1.43	1.96

SDG:	100719-9	Customer:	Entec UK Ltd
Job:	H_ENTEC_SHW-24	Attention:	Steve Dooley
Client Reference:	26999	Order No.:	
Location:	KL056 DSDC Bicester	Report No:	91728

Semi Volatile Organic Compounds

Results Legend		Customer Sample Ref.	BHC3	BHC5				
#	ISO17025 accredited.							
M	mCERTS accredited.							
aq	Aqueous / settled sample.							
diss.filt	Dissolved / filtered sample.							
tot.unfilt	Total / unfiltered sample.							
*	subcontracted test.							
**	% recovery of the surrogate standard to check the efficiency of the method. The results of 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			
Pentachlorophenol		<0.1 mg/kg	TM157	<0.1	<0.1			
n-Nitroso-n-dipropylamine		<0.1 mg/kg	TM157	<0.1	<0.1			
Nitrobenzene		<0.1 mg/kg	TM157	<0.1	<0.1			
Isophorone		<0.1 mg/kg	TM157	<0.1	<0.1			
Hexachloroethane		<0.1 mg/kg	TM157	<0.1	<0.1			
Hexachlorocyclopentadiene		<0.1 mg/kg	TM157	<0.1	<0.1			
Hexachlorobutadiene		<0.1 mg/kg	TM157	<0.1	<0.1			
Hexachlorobenzene		<0.1 mg/kg	TM157	<0.1	<0.1			
n-Dioctyl phthalate		<0.1 mg/kg	TM157	<0.1	<0.1			
Dimethyl phthalate		<0.1 mg/kg	TM157	<0.1	<0.1			
Diethyl phthalate		<0.1 mg/kg	TM157	<0.1	<0.1			
n-Dibutyl phthalate		<0.1 mg/kg	TM157	<0.1	<0.1			
Dibenzofuran		<0.1 mg/kg	TM157	<0.1	<0.1			
Carbazole		<0.1 mg/kg	TM157	<0.1	<0.1			
Butylbenzyl phthalate		<0.1 mg/kg	TM157	<0.1	<0.1			
bis(2-Ethylhexyl) phthalate		<0.1 mg/kg	TM157	<0.1	<0.1			
bis(2-Chloroethoxy)methane		<0.1 mg/kg	TM157	<0.1	<0.1			
bis(2-Chloroethyl)ether		<0.1 mg/kg	TM157	<0.1	<0.1			
Azobenzene		<0.1 mg/kg	TM157	<0.1	<0.1			
4-Nitrophenol		<0.1 mg/kg	TM157	<0.1	<0.1			
4-Nitroaniline		<0.1 mg/kg	TM157	<0.1	<0.1			
4-Methylphenol		<0.1 mg/kg	TM157	<0.1	<0.1			
4-Chlorophenylphenylether		<0.1 mg/kg	TM157	<0.1	<0.1			
4-Chloroaniline		<0.1 mg/kg	TM157	<0.1	<0.1			
4-Chloro-3-methylphenol		<0.1 mg/kg	TM157	<0.1	<0.1			
4-Bromophenylphenylether		<0.1 mg/kg	TM157	<0.1	<0.1			
3-Nitroaniline		<0.1 mg/kg	TM157	<0.1	<0.1			
2-Nitrophenol		<0.1 mg/kg	TM157	<0.1	<0.1			
2-Nitroaniline		<0.1 mg/kg	TM157	<0.1	<0.1			
2-Methylphenol		<0.1 mg/kg	TM157	<0.1	<0.1			
1,2,4-Trichlorobenzene		<0.1 mg/kg	TM157	<0.1	<0.1			
2-Chlorophenol		<0.1 mg/kg	TM157	<0.1	<0.1			
2,6-Dinitrotoluene		<0.1 mg/kg	TM157	<0.1	<0.1			
2,4-Dinitrotoluene		<0.1 mg/kg	TM157	<0.1	<0.1			
2,4-Dimethylphenol		<0.1 mg/kg	TM157	<0.1	<0.1			
2,4-Dichlorophenol		<0.1 mg/kg	TM157	<0.1	<0.1			
2,4,6-Trichlorophenol		<0.1 mg/kg	TM157	<0.1	<0.1			
2,4,5-Trichlorophenol		<0.1 mg/kg	TM157	<0.1	<0.1			

SDG:	100719-9	Customer:	Entec UK Ltd
Job:	H_ENTEC_SHW-24	Attention:	Steve Dooley
Client Reference:	26999	Order No.:	
Location:	KL056 DSDC Bicester	Report No:	91728

TPH CWG (S)								
Results Legend		Customer Sample Ref.	BHC3		BHC5			
#	ISO17025 accredited.		Depth (m) Sample Type Date Sampled Date Received SDG Ref Lab Sample No.(s)	1.00 Soil/Solid 15/07/2010 17/07/2010 100719-9 1836414	2.00 Soil/Solid 15/07/2010 17/07/2010 100719-9 1837371			
M	mCERTS accredited.							
aq	Aqueous / settled sample.							
diss.filt	Dissolved / filtered sample.							
tot.unfilt	Total / unfiltered sample.							
*	subcontracted test.							
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.							
Component		LOD/Units	Method					
GRO Surrogate % recovery**		%	TM089	148	118			
GRO >C5-C12		<0.044 mg/kg	TM089	20.3	<0.044			
Benzene		<0.01 mg/kg	TM089	<0.01	<0.01			
Ethylbenzene		<0.003 mg/kg	TM089	<0.003	<0.003			
Toluene		<0.002 mg/kg	TM089	<0.002	<0.002			
m,p-Xylene		<0.006 mg/kg	TM089	<0.006	<0.006			
o-Xylene		<0.003 mg/kg	TM089	<0.003	<0.003			
m,p,o-Xylene		<0.01 mg/kg	TM089	<0.01	<0.01			
BTEX, Total		<0.01 mg/kg	TM089	<0.01	<0.01			
Methyl tertiary butyl ether (MTBE)		<0.005 mg/kg	TM089	<0.005	<0.005			
Aliphatics >C5-C6		<0.01 mg/kg	TM089	0.0335	<0.01			
Aliphatics >C6-C8		<0.01 mg/kg	TM089	4.02	<0.01			
Aliphatics >C8-C10		<0.01 mg/kg	TM089	4.76	<0.01			
Aliphatics >C10-C12		<0.01 mg/kg	TM089	1.74	<0.01			
Aromatics >C6-C7		<0.01 mg/kg	TM089	<0.01	<0.01			
Aromatics >C7-C8		<0.01 mg/kg	TM089	<0.01	<0.01			
Aromatics >EC8-EC10		<0.01 mg/kg	TM089	7.13	<0.01			
Aromatics >EC10-EC12		<0.01 mg/kg	TM089	2.61	<0.01			
Total Aliphatics >C5-C12		<0.01 mg/kg	TM089	10.6	<0.01			
Total Aromatics >C6-C12		<0.01 mg/kg	TM089	9.74	<0.01			
Aliphatics >C12-C16		<0.1 mg/kg	TM173	8.39	0.721			
Aliphatics >C16-C21		<0.1 mg/kg	TM173	5.25	0.959			
Aliphatics >C16-C35		<0.1 mg/kg	TM173	17.5	2.6			
Aliphatics >C21-C35		<0.1 mg/kg	TM173	12.3	1.64			
Aliphatics >C35-C44		<0.1 mg/kg	TM173	3.11	<0.1			
Aromatics >EC12-EC16		<0.1 mg/kg	TM173	0.389	0.914			
Aromatics >EC16-EC21		<0.1 mg/kg	TM173	3.25	1.09			
Aromatics >EC21-EC35		<0.1 mg/kg	TM173	16.7	5.16			
Aromatics >EC35-EC44		<0.1 mg/kg	TM173	6.45	0.895			
Aromatics >EC40-EC44		<0.1 mg/kg	TM173	2.15	0.333			
Total Aliphatics >C12-C44		<0.1 mg/kg	TM173	29	3.32			
Total Aromatics >EC12-EC44		<0.1 mg/kg	TM173	26.8	8.06			
Total Aliphatics >C5-35		<0.1 mg/kg	TM173	36.5	3.32			
Total Aliphatics >C5-C44		<0.1 mg/kg	TM173	39.6	3.32			
Total Aromatics >C5-35		<0.1 mg/kg	TM173	30.1	7.17			
Total Aromatics >C6-C44		<0.1 mg/kg	TM173	36.6	8.06			
Total Aliphatics & Aromatics >C5-35		<0.1 mg/kg	TM173	66.6	10.5			
Total Aliphatics & Aromatics >C5-C44		<0.1 mg/kg	TM173	76.1	11.4			

SDG:	100719-9	Customer:	Entec UK Ltd
Job:	H_ENTEC_SHW-24	Attention:	Steve Dooley
Client Reference:	26999	Order No.:	
Location:	KL056 DSDC Bicester	Report No:	91728

VOC MS (S)							
Results Legend		Customer Sample Ref.	BHC3	BHC5			
#	ISO17025 accredited.						
M	mCERTS accredited.						
aq	Aqueous / settled sample.						
diss.filt	Dissolved / filtered sample.						
tot.unfilt	Total / unfiltered sample.						
*	subcontracted test.						
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.						
Component		LOD/Units	Method				
Dibromofluoromethane**		%	TM116	106	55.9		
Toluene-d8**		%	TM116	102	103		
4-Bromofluorobenzene**		%	TM116	121	106		
Dichlorodifluoromethane		<0.004 mg/kg	TM116	<0.004 M	<0.004 M		
Chloromethane		<0.007 mg/kg	TM116	<0.007 #	<0.007 #		
Vinyl Chloride		<0.01 mg/kg	TM116	<0.01 #	<0.01 #		
Bromomethane		<0.013 mg/kg	TM116	<0.013 M	<0.013 M		
Chloroethane		<0.014 mg/kg	TM116	<0.014 M	<0.014 M		
Trichlorofluoromethane		<0.006 mg/kg	TM116	<0.006 M	<0.006 M		
1.1-Dichloroethene		<0.01 mg/kg	TM116	<0.01 #	<0.01 #		
Carbon Disulphide		<0.007 mg/kg	TM116	0.0657 M	<0.007 M		
Dichloromethane		<0.01 mg/kg	TM116	<0.01 #	<0.01 #		
Methyl Tertiary Butyl Ether		<0.011 mg/kg	TM116	<0.011 M	<0.011 M		
trans-1-2-Dichloroethene		<0.011 mg/kg	TM116	<0.011 M	<0.011 M		
1.1-Dichloroethane		<0.008 mg/kg	TM116	<0.008 M	<0.008 M		
cis-1-2-Dichloroethene		<0.005 mg/kg	TM116	0.107 M	<0.005 M		
2.2-Dichloropropane		<0.012 mg/kg	TM116	<0.012 M	<0.012 M		
Bromochloromethane		<0.014 mg/kg	TM116	<0.014 M	<0.014 M		
Chloroform		<0.008 mg/kg	TM116	<0.008 M	<0.008 M		
1.1.1-Trichloroethane		<0.007 mg/kg	TM116	<0.007 M	<0.007 M		
1.1-Dichloropropene		<0.011 mg/kg	TM116	<0.011 M	<0.011 M		
Carbontetrachloride		<0.014 mg/kg	TM116	<0.014 M	<0.014 M		
1.2-Dichloroethane		<0.005 mg/kg	TM116	<0.005 M	<0.005 M		
Benzene		<0.009 mg/kg	TM116	0.0313 M	<0.009 M		
Trichloroethene		<0.009 mg/kg	TM116	0.142 M	0.119 M		
1.2-Dichloropropane		<0.012 mg/kg	TM116	<0.012 M	<0.012 M		
Dibromomethane		<0.009 mg/kg	TM116	<0.009 M	<0.009 M		
Bromodichloromethane		<0.007 mg/kg	TM116	<0.007 M	<0.007 M		
cis-1-3-Dichloropropene		<0.014 mg/kg	TM116	<0.014 M	<0.014 M		
Toluene		<0.005 mg/kg	TM116	0.0231 M	0.00732 M		
trans-1-3-Dichloropropene		<0.014 mg/kg	TM116	<0.014	<0.014		
1.1.2-Trichloroethane		<0.01 mg/kg	TM116	<0.01 M	<0.01 M		
1.3-Dichloropropane		<0.007 mg/kg	TM116	<0.007 #	<0.007 #		
Tetrachloroethene		<0.005 mg/kg	TM116	<0.005 M	<0.005 M		
Dibromochloromethane		<0.013 mg/kg	TM116	<0.013 M	<0.013 M		
1.2-Dibromoethane		<0.012 mg/kg	TM116	<0.012 M	<0.012 M		
Chorobenzene		<0.005 mg/kg	TM116	<0.005 M	<0.005 M		
1.1.1.2-Tetrachloroethane		<0.01 mg/kg	TM116	<0.01 M	<0.01 M		
Ethylbenzene		<0.004 mg/kg	TM116	0.0306 M	<0.004 M		

SDG:	100719-9	Customer:	Entec UK Ltd
Job:	H_ENTEC_SHW-24	Attention:	Steve Dooley
Client Reference:	26999	Order No.:	
Location:	KL056 DSDC Bicester	Report No:	91728

Semi Volatile Organic Compounds

Results Legend		Customer Sample Ref.		TPC10 ES3				
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Date Received SDG Ref Lab Sample No.(s)	1.60 Soil/Solid 15/07/2010 17/07/2010 100719-9 1837139					
M	mCERTS accredited.							
aq	Aqueous / settled sample.							
diss.filt	Dissolved / filtered sample.							
tot.unfilt	Total / unfiltered sample.							
*	subcontracted test.							
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.							
Component		LOD/Units	Method					
Phenol		<0.1 mg/kg	TM157	<0.1				
Pentachlorophenol		<0.1 mg/kg	TM157	0.589				
n-Nitroso-n-dipropylamine		<0.1 mg/kg	TM157	<0.1				
Nitrobenzene		<0.1 mg/kg	TM157	<0.1				
Isophorone		<0.1 mg/kg	TM157	<0.1				
Hexachloroethane		<0.1 mg/kg	TM157	<0.1				
Hexachlorocyclopentadiene		<0.1 mg/kg	TM157	<0.1				
Hexachlorobutadiene		<0.1 mg/kg	TM157	<0.1				
Hexachlorobenzene		<0.1 mg/kg	TM157	<0.1				
n-Dioctyl phthalate		<0.1 mg/kg	TM157	<0.1				
Dimethyl phthalate		<0.1 mg/kg	TM157	<0.1				
Diethyl phthalate		<0.1 mg/kg	TM157	<0.1				
n-Dibutyl phthalate		<0.1 mg/kg	TM157	0.209				
Dibenzofuran		<0.1 mg/kg	TM157	<0.1				
Carbazole		<0.1 mg/kg	TM157	<0.1				
Butylbenzyl phthalate		<0.1 mg/kg	TM157	<0.1				
bis(2-Ethylhexyl) phthalate		<0.1 mg/kg	TM157	0.155				
bis(2-Chloroethoxy)methane		<0.1 mg/kg	TM157	<0.1				
bis(2-Chloroethyl)ether		<0.1 mg/kg	TM157	<0.1				
Azobenzene		<0.1 mg/kg	TM157	<0.1				
4-Nitrophenol		<0.1 mg/kg	TM157	<0.1				
4-Nitroaniline		<0.1 mg/kg	TM157	<0.1				
4-Methylphenol		<0.1 mg/kg	TM157	<0.1				
4-Chlorophenylphenylether		<0.1 mg/kg	TM157	<0.1				
4-Chloroaniline		<0.1 mg/kg	TM157	<0.1				
4-Chloro-3-methylphenol		<0.1 mg/kg	TM157	<0.1				
4-Bromophenylphenylether		<0.1 mg/kg	TM157	<0.1				
3-Nitroaniline		<0.1 mg/kg	TM157	<0.1				
2-Nitrophenol		<0.1 mg/kg	TM157	<0.1				
2-Nitroaniline		<0.1 mg/kg	TM157	<0.1				
2-Methylphenol		<0.1 mg/kg	TM157	<0.1				
1,2,4-Trichlorobenzene		<0.1 mg/kg	TM157	<0.1				
2-Chlorophenol		<0.1 mg/kg	TM157	<0.1				
2,6-Dinitrotoluene		<0.1 mg/kg	TM157	<0.1				
2,4-Dinitrotoluene		<0.1 mg/kg	TM157	<0.1				
2,4-Dimethylphenol		<0.1 mg/kg	TM157	<0.1				
2,4-Dichlorophenol		<0.1 mg/kg	TM157	<0.1				
2,4,6-Trichlorophenol		<0.1 mg/kg	TM157	<0.1				
2,4,5-Trichlorophenol		<0.1 mg/kg	TM157	<0.1				

SDG:	100719-9	Customer:	Entec UK Ltd
Job:	H_ENTEC_SHW-24	Attention:	Steve Dooley
Client Reference:	26999	Order No.:	
Location:	KL056 DSDC Bicester	Report No:	91728

VOC MS (S)		Customer Sample Ref.		TPC10 ES3				
Results Legend								
#	ISO17025 accredited.							
M	mCERTS accredited.							
aq	Aqueous / settled sample.							
diss.filt	Dissolved / filtered sample.							
tot.unfilt	Total / unfiltered sample.							
*	subcontracted test.							
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.							
Component	LOD/Units	Method						
Dibromofluoromethane**	%	TM116	92.3					
Toluene-d8**	%	TM116	93.7					
4-Bromofluorobenzene**	%	TM116	143					
Dichlorodifluoromethane	<0.004 mg/kg	TM116	<0.004	M				
Chloromethane	<0.007 mg/kg	TM116	<0.007	#				
Vinyl Chloride	<0.01 mg/kg	TM116	<0.01	#				
Bromomethane	<0.013 mg/kg	TM116	<0.013	M				
Chloroethane	<0.014 mg/kg	TM116	<0.014	M				
Trichlorofluorormethane	<0.006 mg/kg	TM116	<0.006	M				
1.1-Dichloroethene	<0.01 mg/kg	TM116	<0.01	#				
Carbon Disulphide	<0.007 mg/kg	TM116	0.0549	M				
Dichloromethane	<0.01 mg/kg	TM116	<0.01	#				
Methyl Tertiary Butyl Ether	<0.011 mg/kg	TM116	<0.011	M				
trans-1-2-Dichloroethene	<0.011 mg/kg	TM116	<0.011	M				
1.1-Dichloroethane	<0.008 mg/kg	TM116	<0.008	M				
cis-1-2-Dichloroethene	<0.005 mg/kg	TM116	0.0723	M				
2.2-Dichloropropane	<0.012 mg/kg	TM116	<0.012	M				
Bromochloromethane	<0.014 mg/kg	TM116	<0.014	M				
Chloroform	<0.008 mg/kg	TM116	<0.008	M				
1.1.1-Trichloroethane	<0.007 mg/kg	TM116	<0.007	M				
1.1-Dichloropropene	<0.011 mg/kg	TM116	<0.011	M				
Carbontetrachloride	<0.014 mg/kg	TM116	<0.014	M				
1.2-Dichloroethane	<0.005 mg/kg	TM116	<0.005	M				
Benzene	<0.009 mg/kg	TM116	<0.009	M				
Trichloroethene	<0.009 mg/kg	TM116	2.54	M				
1.2-Dichloropropane	<0.012 mg/kg	TM116	<0.012	M				
Dibromomethane	<0.009 mg/kg	TM116	<0.009	M				
Bromodichloromethane	<0.007 mg/kg	TM116	<0.007	M				
cis-1-3-Dichloropropene	<0.014 mg/kg	TM116	<0.014	M				
Toluene	<0.005 mg/kg	TM116	<0.005	M				
trans-1-3-Dichloropropene	<0.014 mg/kg	TM116	<0.014					
1.1.2-Trichloroethane	<0.01 mg/kg	TM116	<0.01	M				
1.3-Dichloropropane	<0.007 mg/kg	TM116	<0.007	#				
Tetrachloroethene	<0.005 mg/kg	TM116	0.159	M				
Dibromochloromethane	<0.013 mg/kg	TM116	<0.013	M				
1.2-Dibromoethane	<0.012 mg/kg	TM116	<0.012	M				
Chorobenzene	<0.005 mg/kg	TM116	<0.005	M				
1.1.1.2-Tetrachloroethane	<0.01 mg/kg	TM116	<0.01	M				
Ethylbenzene	<0.004 mg/kg	TM116	0.00732	M				

SDG:	100719-9	Customer:	Entec UK Ltd
Job:	H_ENTEC_SHW-24	Attention:	Steve Dooley
Client Reference:	26999	Order No.:	
Location:	KL056 DSDC Bicester	Report No:	91728

Semi Volatile Organic Compounds

Results Legend		Customer Sample Ref.		WSC3					
#	ISO17025 accredited.	Customer Sample Ref.	WSC3	2.40 - 2.60	Soil/Solid	16/07/2010	17/07/2010	100719-9	1836565
M	mCERTS accredited.								
aq	Aqueous / settled sample.								
diss.filt	Dissolved / filtered sample.								
tot.unfilt	Total / unfiltered sample.								
*	subcontracted test.								
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.								
Component	LOD/Units	Method							
Phenol	<0.1 mg/kg	TM157	<0.1						
Pentachlorophenol	<0.1 mg/kg	TM157	<0.1						
n-Nitroso-n-dipropylamine	<0.1 mg/kg	TM157	<0.1						
Nitrobenzene	<0.1 mg/kg	TM157	<0.1						
Isophorone	<0.1 mg/kg	TM157	<0.1						
Hexachloroethane	<0.1 mg/kg	TM157	<0.1						
Hexachlorocyclopentadiene	<0.1 mg/kg	TM157	<0.1						
Hexachlorobutadiene	<0.1 mg/kg	TM157	<0.1						
Hexachlorobenzene	<0.1 mg/kg	TM157	<0.1						
n-Dioctyl phthalate	<0.1 mg/kg	TM157	<0.1						
Dimethyl phthalate	<0.1 mg/kg	TM157	<0.1						
Diethyl phthalate	<0.1 mg/kg	TM157	<0.1						
n-Dibutyl phthalate	<0.1 mg/kg	TM157	<0.1						
Dibenzofuran	<0.1 mg/kg	TM157	<0.1						
Carbazole	<0.1 mg/kg	TM157	<0.1						
Butylbenzyl phthalate	<0.1 mg/kg	TM157	<0.1						
bis(2-Ethylhexyl) phthalate	<0.1 mg/kg	TM157	<0.1						
bis(2-Chloroethoxy)methane	<0.1 mg/kg	TM157	<0.1						
bis(2-Chloroethyl)ether	<0.1 mg/kg	TM157	<0.1						
Azobenzene	<0.1 mg/kg	TM157	<0.1						
4-Nitrophenol	<0.1 mg/kg	TM157	<0.1						
4-Nitroaniline	<0.1 mg/kg	TM157	<0.1						
4-Methylphenol	<0.1 mg/kg	TM157	<0.1						
4-Chlorophenylphenylether	<0.1 mg/kg	TM157	<0.1						
4-Chloroaniline	<0.1 mg/kg	TM157	<0.1						
4-Chloro-3-methylphenol	<0.1 mg/kg	TM157	<0.1						
4-Bromophenylphenylether	<0.1 mg/kg	TM157	<0.1						
3-Nitroaniline	<0.1 mg/kg	TM157	<0.1						
2-Nitrophenol	<0.1 mg/kg	TM157	<0.1						
2-Nitroaniline	<0.1 mg/kg	TM157	<0.1						
2-Methylphenol	<0.1 mg/kg	TM157	<0.1						
1,2,4-Trichlorobenzene	<0.1 mg/kg	TM157	<0.1						
2-Chlorophenol	<0.1 mg/kg	TM157	<0.1						
2,6-Dinitrotoluene	<0.1 mg/kg	TM157	<0.1						
2,4-Dinitrotoluene	<0.1 mg/kg	TM157	<0.1						
2,4-Dimethylphenol	<0.1 mg/kg	TM157	<0.1						
2,4-Dichlorophenol	<0.1 mg/kg	TM157	<0.1						
2,4,6-Trichlorophenol	<0.1 mg/kg	TM157	<0.1						
2,4,5-Trichlorophenol	<0.1 mg/kg	TM157	<0.1						

SDG:	100719-9	Customer:	Entec UK Ltd
Job:	H_ENTEC_SHW-24	Attention:	Steve Dooley
Client Reference:	26999	Order No.:	
Location:	KL056 DSDC Bicester	Report No:	91728

TPH CWG (S)							
Results Legend		Customer Sample Ref.		WSC3			
#	ISO17025 accredited.						
M	mCERTS accredited.						
aq	Aqueous / settled sample.						
diss.filt	Dissolved / filtered sample.						
tot.unfilt	Total / unfiltered sample.						
*	subcontracted test.						
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.						
		Depth (m)	2.40 - 2.60				
		Sample Type	Soil/Solid				
		Date Sampled	16/07/2010				
		Date Received	17/07/2010				
		SDG Ref	100719-9				
		Lab Sample No.(s)	1836565				
Component		LOD/Units	Method				
GRO Surrogate % recovery**		%	TM089	19			
GRO >C5-C12		<0.044 mg/kg	TM089	0.531			
Benzene		<0.01 mg/kg	TM089	<0.01	M		
Ethylbenzene		<0.003 mg/kg	TM089	<0.003	M		
Toluene		<0.002 mg/kg	TM089	<0.002	M		
m,p-Xylene		<0.006 mg/kg	TM089	<0.006	M		
o-Xylene		<0.003 mg/kg	TM089	<0.003	M		
m,p,o-Xylene		<0.01 mg/kg	TM089	<0.01	M		
BTEX, Total		<0.01 mg/kg	TM089	<0.01	M		
Methyl tertiary butyl ether (MTBE)		<0.005 mg/kg	TM089	<0.005	#		
Aliphatics >C5-C6		<0.01 mg/kg	TM089	0.0368			
Aliphatics >C6-C8		<0.01 mg/kg	TM089	0.494			
Aliphatics >C8-C10		<0.01 mg/kg	TM089	<0.01			
Aliphatics >C10-C12		<0.01 mg/kg	TM089	<0.01			
Aromatics >C6-C7		<0.01 mg/kg	TM089	<0.01			
Aromatics >C7-C8		<0.01 mg/kg	TM089	<0.01			
Aromatics >EC8-EC10		<0.01 mg/kg	TM089	<0.01			
Aromatics >EC10-EC12		<0.01 mg/kg	TM089	<0.01			
Total Aliphatics >C5-C12		<0.01 mg/kg	TM089	0.531			
Total Aromatics >C6-C12		<0.01 mg/kg	TM089	<0.01			
Aliphatics >C12-C16		<0.1 mg/kg	TM173	8.72			
Aliphatics >C16-C21		<0.1 mg/kg	TM173	11.1			
Aliphatics >C16-C35		<0.1 mg/kg	TM173	63.3			
Aliphatics >C21-C35		<0.1 mg/kg	TM173	52.1			
Aliphatics >C35-C44		<0.1 mg/kg	TM173	4.19			
Aromatics >EC12-EC16		<0.1 mg/kg	TM173	7.17			
Aromatics >EC16-EC21		<0.1 mg/kg	TM173	21.7			
Aromatics >EC21-EC35		<0.1 mg/kg	TM173	214			
Aromatics >EC35-EC44		<0.1 mg/kg	TM173	71.5			
Aromatics >EC40-EC44		<0.1 mg/kg	TM173	27.4			
Total Aliphatics >C12-C44		<0.1 mg/kg	TM173	76.2			
Total Aromatics >EC12-EC44		<0.1 mg/kg	TM173	314			
Total Aliphatics >C5-35		<0.1 mg/kg	TM173	72.5			
Total Aliphatics >C5-C44		<0.1 mg/kg	TM173	76.7			
Total Aromatics >C5-35		<0.1 mg/kg	TM173	243			
Total Aromatics >C6-C44		<0.1 mg/kg	TM173	314			
Total Aliphatics & Aromatics >C5-35		<0.1 mg/kg	TM173	315			
Total Aliphatics & Aromatics >C5-C44		<0.1 mg/kg	TM173	391			

SDG:	100719-9	Customer:	Entec UK Ltd
Job:	H_ENTEC_SHW-24	Attention:	Steve Dooley
Client Reference:	26999	Order No.:	
Location:	KL056 DSDC Bicester	Report No:	91728

VOC MS (S)		Customer Sample Ref.		WSC3				
Results Legend								
#	ISO17025 accredited.							
M	mCERTS accredited.							
aq	Aqueous / settled sample.							
diss.filt	Dissolved / filtered sample.							
tot.unfilt	Total / unfiltered sample.							
*	subcontracted test.							
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.							

SDG:	100719-9	Customer:	Entec UK Ltd
Job:	H_ENTEC_SHW-24	Attention:	Steve Dooley
Client Reference:	26999	Order No.:	
Location:	KL056 DSDC Bicester	Report No:	91728

Semi Volatile Organic Compounds

Results Legend		Customer Sample Ref.		WSD9				
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Date Received SDG Ref Lab Sample No.(s)	3.80 - 4.00 Soil/Solid 15/07/2010 17/07/2010 100719-9 1836218					
M	mCERTS accredited.							
aq	Aqueous / settled sample.							
diss.filt	Dissolved / filtered sample.							
tot.unfilt	Total / unfiltered sample.							
*	subcontracted test.							
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.							
Component	LOD/Units	Method						
Phenol	<0.1 mg/kg	TM157	<0.1					
Pentachlorophenol	<0.1 mg/kg	TM157	<0.1					
n-Nitroso-n-dipropylamine	<0.1 mg/kg	TM157	<0.1					
Nitrobenzene	<0.1 mg/kg	TM157	<0.1					
Isophorone	<0.1 mg/kg	TM157	<0.1					
Hexachloroethane	<0.1 mg/kg	TM157	<0.1					
Hexachlorocyclopentadiene	<0.1 mg/kg	TM157	<0.1					
Hexachlorobutadiene	<0.1 mg/kg	TM157	<0.1					
Hexachlorobenzene	<0.1 mg/kg	TM157	<0.1					
n-Dioctyl phthalate	<0.1 mg/kg	TM157	<0.1					
Dimethyl phthalate	<0.1 mg/kg	TM157	<0.1					
Diethyl phthalate	<0.1 mg/kg	TM157	<0.1					
n-Dibutyl phthalate	<0.1 mg/kg	TM157	<0.1					
Dibenzofuran	<0.1 mg/kg	TM157	<0.1					
Carbazole	<0.1 mg/kg	TM157	<0.1					
Butylbenzyl phthalate	<0.1 mg/kg	TM157	<0.1					
bis(2-Ethylhexyl) phthalate	<0.1 mg/kg	TM157	<0.1					
bis(2-Chloroethoxy)methane	<0.1 mg/kg	TM157	<0.1					
bis(2-Chloroethyl)ether	<0.1 mg/kg	TM157	<0.1					
Azobenzene	<0.1 mg/kg	TM157	<0.1					
4-Nitrophenol	<0.1 mg/kg	TM157	<0.1					
4-Nitroaniline	<0.1 mg/kg	TM157	<0.1					
4-Methylphenol	<0.1 mg/kg	TM157	<0.1					
4-Chlorophenylphenylether	<0.1 mg/kg	TM157	<0.1					
4-Chloroaniline	<0.1 mg/kg	TM157	<0.1					
4-Chloro-3-methylphenol	<0.1 mg/kg	TM157	<0.1					
4-Bromophenylphenylether	<0.1 mg/kg	TM157	<0.1					
3-Nitroaniline	<0.1 mg/kg	TM157	<0.1					
2-Nitrophenol	<0.1 mg/kg	TM157	<0.1					
2-Nitroaniline	<0.1 mg/kg	TM157	<0.1					
2-Methylphenol	<0.1 mg/kg	TM157	<0.1					
1,2,4-Trichlorobenzene	<0.1 mg/kg	TM157	<0.1					
2-Chlorophenol	<0.1 mg/kg	TM157	<0.1					
2,6-Dinitrotoluene	<0.1 mg/kg	TM157	<0.1					
2,4-Dinitrotoluene	<0.1 mg/kg	TM157	<0.1					
2,4-Dimethylphenol	<0.1 mg/kg	TM157	<0.1					
2,4-Dichlorophenol	<0.1 mg/kg	TM157	<0.1					
2,4,6-Trichlorophenol	<0.1 mg/kg	TM157	<0.1					
2,4,5-Trichlorophenol	<0.1 mg/kg	TM157	<0.1					

SDG:	100719-9	Customer:	Entec UK Ltd
Job:	H_ENTEC_SHW-24	Attention:	Steve Dooley
Client Reference:	26999	Order No.:	
Location:	KL056 DSDC Bicester	Report No:	91728

TPH CWG (S)			Customer Sample Ref.	WSD9 3.80 - 4.00 Soil/Solid 15/07/2010 17/07/2010 100719-9 1836218				
Results Legend		Depth (m) Sample Type Date Sampled Date Received SDG Ref Lab Sample No.(s)						
#	ISO17025 accredited.							
M	mCERTS accredited.							
aq	Aqueous / settled sample.							
diss.filt	Dissolved / filtered sample.							
tot.unfilt	Total / unfiltered sample.							
*	subcontracted test.							
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.							
Component								
GRO Surrogate % recovery**		%	TM089	45				
GRO >C5-C12		<0.044 mg/kg	TM089	0.238				
Benzene		<0.01 mg/kg	TM089	<0.01	M			
Ethylbenzene		<0.003 mg/kg	TM089	<0.003	M			
Toluene		<0.002 mg/kg	TM089	<0.002	M			
m,p-Xylene		<0.006 mg/kg	TM089	<0.006	M			
o-Xylene		<0.003 mg/kg	TM089	<0.003	M			
m,p,o-Xylene		<0.01 mg/kg	TM089	<0.01	M			
BTEX, Total		<0.01 mg/kg	TM089	<0.01	M			
Methyl tertiary butyl ether (MTBE)		<0.005 mg/kg	TM089	<0.005	#			
Aliphatics >C5-C6		<0.01 mg/kg	TM089	0.0199				
Aliphatics >C6-C8		<0.01 mg/kg	TM089	0.0745				
Aliphatics >C8-C10		<0.01 mg/kg	TM089	0.0177				
Aliphatics >C10-C12		<0.01 mg/kg	TM089	0.0362				
Aromatics >C6-C7		<0.01 mg/kg	TM089	<0.01				
Aromatics >C7-C8		<0.01 mg/kg	TM089	<0.01				
Aromatics >EC8-EC10		<0.01 mg/kg	TM089	0.0266				
Aromatics >EC10-EC12		<0.01 mg/kg	TM089	0.0543				
Total Aliphatics >C5-C12		<0.01 mg/kg	TM089	0.148				
Total Aromatics >C6-C12		<0.01 mg/kg	TM089	0.0809				
Aliphatics >C12-C16		<0.1 mg/kg	TM173	4.99				
Aliphatics >C16-C21		<0.1 mg/kg	TM173	2.69				
Aliphatics >C16-C35		<0.1 mg/kg	TM173	12				
Aliphatics >C21-C35		<0.1 mg/kg	TM173	9.31				
Aliphatics >C35-C44		<0.1 mg/kg	TM173	<0.1				
Aromatics >EC12-EC16		<0.1 mg/kg	TM173	2.83				
Aromatics >EC16-EC21		<0.1 mg/kg	TM173	4.83				
Aromatics >EC21-EC35		<0.1 mg/kg	TM173	14.1				
Aromatics >EC35-EC44		<0.1 mg/kg	TM173	8.06				
Aromatics >EC40-EC44		<0.1 mg/kg	TM173	3.27				
Total Aliphatics >C12-C44		<0.1 mg/kg	TM173	17				
Total Aromatics >EC12-EC44		<0.1 mg/kg	TM173	29.9				
Total Aliphatics >C5-35		<0.1 mg/kg	TM173	17.1				
Total Aliphatics >C5-C44		<0.1 mg/kg	TM173	17.1				
Total Aromatics >C5-35		<0.1 mg/kg	TM173	21.9				
Total Aromatics >C6-C44		<0.1 mg/kg	TM173	29.9				
Total Aliphatics & Aromatics >C5-35		<0.1 mg/kg	TM173	39				
Total Aliphatics & Aromatics >C5-C44		<0.1 mg/kg	TM173	47.1				

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VOC MS (S)							
Results Legend		Customer Sample Ref.	WSD9				
#	ISO17025 accredited.						
M	mCERTS accredited.						
aq	Aqueous / settled sample.						
diss.filt	Dissolved / filtered sample.						
tot.unfilt	Total / unfiltered sample.						
*	subcontracted test.						
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.						
Component		LOD/Units	Method				
Dibromofluoromethane**		%	TM116	97.7			
Toluene-d8**		%	TM116	93.6			
4-Bromofluorobenzene**		%	TM116	142			
Dichlorodifluoromethane		<0.004 mg/kg	TM116	<0.004	M		
Chloromethane		<0.007 mg/kg	TM116	<0.007	#		
Vinyl Chloride		<0.01 mg/kg	TM116	<0.01	#		
Bromomethane		<0.013 mg/kg	TM116	<0.013	M		
Chloroethane		<0.014 mg/kg	TM116	<0.014	M		
Trichlorofluoromethane		<0.006 mg/kg	TM116	<0.006	M		
1.1-Dichloroethene		<0.01 mg/kg	TM116	<0.01	#		
Carbon Disulphide		<0.007 mg/kg	TM116	<0.007	M		
Dichloromethane		<0.01 mg/kg	TM116	<0.01	#		
Methyl Tertiary Butyl Ether		<0.011 mg/kg	TM116	<0.011	M		
trans-1-2-Dichloroethene		<0.011 mg/kg	TM116	<0.011	M		
1.1-Dichloroethane		<0.008 mg/kg	TM116	<0.008	M		
cis-1-2-Dichloroethene		<0.005 mg/kg	TM116	<0.005	M		
2.2-Dichloropropane		<0.012 mg/kg	TM116	<0.012	M		
Bromochloromethane		<0.014 mg/kg	TM116	<0.014	M		
Chloroform		<0.008 mg/kg	TM116	<0.008	M		
1.1.1-Trichloroethane		<0.007 mg/kg	TM116	<0.007	M		
1.1-Dichloropropene		<0.011 mg/kg	TM116	<0.011	M		
Carbontetrachloride		<0.014 mg/kg	TM116	<0.014	M		
1.2-Dichloroethane		<0.005 mg/kg	TM116	<0.005	M		
Benzene		<0.009 mg/kg	TM116	<0.009	M		
Trichloroethene		<0.009 mg/kg	TM116	0.0768	M		
1.2-Dichloropropane		<0.012 mg/kg	TM116	<0.012	M		
Dibromomethane		<0.009 mg/kg	TM116	<0.009	M		
Bromodichloromethane		<0.007 mg/kg	TM116	<0.007	M		
cis-1-3-Dichloropropene		<0.014 mg/kg	TM116	<0.014	M		
Toluene		<0.005 mg/kg	TM116	<0.005	M		
trans-1-3-Dichloropropene		<0.014 mg/kg	TM116	<0.014			
1.1.2-Trichloroethane		<0.01 mg/kg	TM116	<0.01	M		
1.3-Dichloropropane		<0.007 mg/kg	TM116	<0.007	#		
Tetrachloroethene		<0.005 mg/kg	TM116	<0.005	M		
Dibromochloromethane		<0.013 mg/kg	TM116	<0.013	M		
1.2-Dibromoethane		<0.012 mg/kg	TM116	<0.012	M		
Chorobenzene		<0.005 mg/kg	TM116	<0.005	M		
1.1.1.2-Tetrachloroethane		<0.01 mg/kg	TM116	<0.01	M		
Ethylbenzene		<0.004 mg/kg	TM116	<0.004	M		

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ASSOCIATED AQC DATA

Ammonium Soil by Titration

Component	Method Code	QC 10	QC 17
Exchangeable Ammonium as NH4	TM024	89.60 80.84 : 103.27	90.50 80.84 : 103.27

Boron Water Soluble

Component	Method Code	QC 19	QC 14	QC 13
Water Soluble Boron	TM222	99.80 82.59 : 112.64	94.70 82.59 : 112.64	103.85 82.59 : 112.64

EPH CWG (Aliphatic) GC (S)

Component	Method Code	QC 14	QC 18	QC 12
Total Aliphatics >C12-C35	TM173	75.74 55.20 : 114.58	80.45 58.96 : 117.71	74.07 55.20 : 114.58

EPH CWG (Aromatic) GC (S)

Component	Method Code	QC 14	QC 18	QC 12
Total Aromatics >EC12-EC35	TM173	73.49 54.00 : 123.00	89.70 58.79 : 118.66	89.90 54.00 : 123.00

Hexavalent Chromium (s)

Component	Method Code	QC 15	QC 16	QC 19
Hexavalent Chromium	TM151	105.60 76.40 : 131.80	103.00 76.40 : 131.80	103.00 76.40 : 131.80

Metals by iCap-OES (Soil)

Component	Method Code	QC 16	QC 10	QC 14	QC 17
Aluminium	TM181	109.18 95.21 : 133.11	112.69 95.21 : 133.11	115.22 95.21 : 133.11	109.28 95.21 : 133.11
Antimony	TM181	92.46 63.92 : 138.56	108.62 63.92 : 138.56	106.67 63.92 : 138.56	105.13 63.92 : 138.56
Arsenic	TM181	97.67 77.96 : 122.04	97.76 77.96 : 122.04	102.67 77.96 : 122.04	99.57 77.96 : 122.04
Barium	TM181	104.94 90.49 : 117.24	102.20 90.49 : 117.24	109.15 90.49 : 117.24	104.06 90.49 : 117.24
Beryllium	TM181	93.94 77.50 : 122.50	108.26 77.50 : 122.50	107.16 77.50 : 122.50	105.23 77.50 : 122.50
Boron	TM181	106.54 82.46 : 141.11	114.68 82.46 : 141.11	112.26 82.46 : 141.11	108.95 82.46 : 141.11

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		QC 16	QC 10	QC 14	QC 17
Cadmium	TM181	92.21 77.50 : 122.50	105.71 77.50 : 122.50	106.33 77.50 : 122.50	102.65 77.50 : 122.50
Chromium	TM181	96.95 82.90 : 117.10	97.57 82.90 : 117.10	100.91 82.90 : 117.10	97.23 82.90 : 117.10
Cobalt	TM181	94.76 78.26 : 121.74	107.64 78.26 : 121.74	103.37 78.26 : 121.74	103.64 78.26 : 121.74
Copper	TM181	99.54 86.52 : 113.48	101.26 86.52 : 113.48	105.41 86.52 : 113.48	101.50 86.52 : 113.48
Iron	TM181	102.77 93.59 : 123.28	99.70 93.59 : 123.28	106.75 93.59 : 123.28	103.77 93.59 : 123.28
Lead	TM181	97.67 81.22 : 118.78	98.00 81.22 : 118.78	106.27 81.22 : 118.78	104.10 81.22 : 118.78
Manganese	TM181	96.45 87.42 : 112.58	97.83 87.42 : 112.58	101.27 87.42 : 112.58	104.28 87.42 : 112.58
Mercury	TM181	99.30 72.27 : 127.73	108.17 72.27 : 127.73	109.23 72.27 : 127.73	106.85 72.27 : 127.73
Molybdenum	TM181	91.51 71.12 : 128.88	105.63 71.12 : 128.88	103.41 71.12 : 128.88	100.49 71.12 : 128.88
Nickel	TM181	97.18 81.27 : 118.73	95.73 81.27 : 118.73	99.85 81.27 : 118.73	99.47 81.27 : 118.73
Phosphorus	TM181	107.04 84.04 : 115.96	98.65 84.04 : 115.96	106.68 84.04 : 115.96	106.59 84.04 : 115.96
Selenium	TM181	97.89 72.61 : 127.39	111.79 72.61 : 127.39	105.54 72.61 : 127.39	107.06 72.61 : 127.39
Strontium	TM181	97.01 80.21 : 119.79	96.91 80.21 : 119.79	101.98 80.21 : 119.79	101.88 80.21 : 119.79
Thallium	TM181	90.24 73.04 : 126.96	26.62 73.04 : 126.96	100.36 73.04 : 126.96	97.62 73.04 : 126.96
Tin	TM181	90.60 71.55 : 128.45	110.27 71.55 : 128.45	104.13 71.55 : 128.45	100.10 71.55 : 128.45
Titanium	TM181	100.93 78.26 : 121.74	103.82 78.26 : 121.74	102.91 78.26 : 121.74	104.99 78.26 : 121.74
Vanadium	TM181	99.45 82.03 : 117.97	99.18 82.03 : 117.97	106.05 82.03 : 117.97	100.94 82.03 : 117.97
Zinc	TM181	91.41 77.50 : 122.50	93.65 77.50 : 122.50	96.38 77.50 : 122.50	93.53 77.50 : 122.50

PAH by GCMS

Component	Method Code	QC 18	QC 13
Acenaphthene	TM218	101.77 68.10 : 128.67	99.12 71.41 : 116.50
Acenaphthylene	TM218	93.72 68.11 : 109.28	88.58 74.28 : 102.70
Anthracene	TM218	95.97 61.75 : 122.01	93.36 67.40 : 117.21
Benz(a)anthracene	TM218	100.80 79.35 : 115.30	104.79 66.80 : 125.05
Benzo(a)pyrene	TM218	103.07 79.80 : 116.48	107.96 69.15 : 119.77
Benzo(b)fluoranthene	TM218	103.98 79.51 : 116.19	106.72 70.01 : 124.88
Benzo(ghi)perylene	TM218	100.82 80.08 : 114.22	101.42 81.23 : 116.67
Benzo(k)fluoranthene	TM218	101.42 65.05 : 129.07	99.63 71.46 : 117.67

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		QC 18	QC 13
Chrysene	TM218	100.97 80.14 : 113.92	99.82 71.32 : 130.95
Dibenzo(ah)anthracene	TM218	100.16 59.79 : 136.56	103.52 81.17 : 118.65
Fluoranthene	TM218	98.87 74.35 : 115.70	98.01 69.52 : 118.84
Fluorene	TM218	99.43 75.68 : 111.55	98.40 71.38 : 111.04
Indeno(123cd)pyrene	TM218	102.48 74.42 : 114.62	103.93 80.81 : 118.96
Naphthalene	TM218	99.74 73.21 : 108.15	96.79 81.16 : 104.84
Phenanthrene	TM218	100.24 66.61 : 129.12	99.05 69.56 : 121.45
Pyrene	TM218	97.66 74.35 : 111.75	97.27 70.34 : 117.79

PCBs (vs Aroclor 1254)

Component	Method Code	QC 16
PCBs (vs Aroclor 1254)	TM070	102.84 75.18 : 122.16

pH

Component	Method Code	QC 17	QC 18	QC 15	QC 13
pH	TM133	100.75 97.90 : 102.35	98.75 97.42 : 102.50	100.13 97.90 : 102.35	99.87 97.90 : 102.35

Semi Volatile Organic Compounds

Component	Method Code	QC 17	QC 11
4-Bromophenylphenylether (Soil)	TM157	98.08 28.30 : 143.78	94.28 12.25 : 162.08
Benzo(a)anthracene (Soil)	TM157	103.15 18.50 : 151.06	98.45 38.70 : 146.05
Hexachlorobutadiene (Soil)	TM157	97.13 31.16 : 138.34	95.46 17.33 : 157.33
Naphthalene (Soil)	TM157	99.82 26.59 : 145.57	96.09 17.33 : 157.33
Nitrobenzene (Soil)	TM157	98.07 25.35 : 142.64	93.63 19.50 : 154.53
Phenol (Soil)	TM157	94.88 28.59 : 134.35	95.35 23.40 : 144.15

Total Organic Carbon

Component	Method Code	QC 15	QC 12
Total Organic Carbon	TM132	94.81 88.75 : 104.70	100.53 88.75 : 104.70

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TPH c6-40 Value of soil

Component	Method Code	QC 14
Diesel QC	TM154	98.42 87.23 : 113.71
Lube Oil QC	TM154	103.20 88.71 : 110.56
TPH C6-40 Corrected	TM154	100.81 86.39 : 109.99

VOC MS (S)

Component	Method Code	QC 14
1,1,1,2-tetrachloroethane	TM116	102.02 68.18 : 144.88
1,1,1-Trichloroethane	TM116	107.54 67.21 : 142.82
1,1,2-Trichloroethane	TM116	116.93 75.40 : 160.23
1,1-Dichloroethene	TM116	101.50
1,2-Dichloroethane	TM116	124.72 72.96 : 155.03
1,4-Dichlorobenzene	TM116	104.13 72.36 : 153.77
2-Chlorotoluene	TM116	126.50 83.36 : 177.15
4-Chlorotoluene	TM116	121.55 84.28 : 179.10
Benzene	TM116	107.50 69.92 : 148.58
Carbon Disulphide	TM116	91.40 63.87 : 135.73
Carbontetrachloride	TM116	113.76 73.39 : 155.95
Chlorobenzene	TM116	99.76 69.59 : 147.89
Chloroform	TM116	112.78 70.48 : 149.78
Chloromethane	TM116	128.96 75.88 : 161.25
Cis-1,2-Dichloroethene	TM116	105.81 65.49 : 139.18
Dibromomethane	TM116	103.74 65.97 : 140.19
Dichloromethane	TM116	119.23 71.23 : 151.36
Ethylbenzene	TM116	98.44 68.41 : 145.37
Hexachlorobutadiene	TM116	92.91 85.39 : 181.46
Isopropylbenzene	TM116	88.46 58.18 : 123.62
Naphthalene	TM116	99.43 75.23 : 159.86

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		QC 14
o-Xylene	TM116	103.22 65.38 : 138.92
p/m-Xylene	TM116	98.01 68.19 : 144.91
Sec-Butylbenzene	TM116	92.66 66.07 : 140.41
Tetrachloroethene	TM116	100.39 72.85 : 154.80
Toluene	TM116	102.94 67.17 : 142.75
Trichloroethene	TM116	103.13 68.75 : 146.10
Trichlorofluoromethane	TM116	96.07 62.67 : 133.18
Vinyl Chloride	TM116	106.86 67.16 : 142.72

Water Soluble Sulphate 2:1

Component	Method Code	QC 13	QC 12	QC 11	QC 10
Soluble SO4	TM098	86.50 76.87 : 120.45	82.52 76.87 : 120.45	82.01 76.87 : 120.45	84.80 76.87 : 120.45

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.

Table of Results - Appendix

SDG Number : 100719-9

Client : Entec UK Ltd

Client Ref : 26999

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
PM001		Preparation of Samples for Metals Analysis	Dry
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material	Wet
TM001	In - house Method	Determination of asbestos containing material by screening on solids	
TM024	Method 4500A & B, AWWA/APHA, 20th Ed., 1999	Determination of Exchangeable Ammonium and Ammoniacal Nitrogen as N by titration on solids	Wet
TM070	Modified: US EPA Method 8250 & 625	Determination of Total Polychlorinated Biphenyls (PCB/Es) as Aroclor 1254 by GC-MS in Soils	Dry
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) and BTEX (MTBE) compounds by Headspace GC-FID (C4-C12)	
TM098	Method 4500E, AWWA/APHA, 20th Ed., 1999	Determination of Sulphate using the Kone Analyser	Dry
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	Dry
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter	Wet
TM151	Method 3500D, AWWA/APHA, 20th Ed., 1999	Determination of Hexavalent Chromium using Kone analyser	Wet
TM154	In - house Method	Determination of Petroleum Hydrocarbons by EZ Flash GC-FID in the Carbon range C6- C40	Wet
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	Wet
TM173	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GC-FID	Dry
TM181	US EPA Method 6010B	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES	Dry
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers	Dry
TM218	Microwave extraction – EPA method 3546	Microwave extraction - EPA method 3546	Wet
TM222	In-House Method	Determination of Hot Water Soluble Boron in Soils (10:1 Water:soil) by IRIS Emission Spectrometer	Dry

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

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 NH₄ 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 ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

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)	GS 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	SOXTHERM	GRAVIMETRIC
Cyclohexane Ext. Matter	D&C	CYCLOHEXANE	SOXTHERM	GRAVIMETRIC
Thin Layer Chromatography	D&C	DCM	SOXTHERM	IATROSCAN
Elemental Sulphur	D&C	DCM	SOXTHERM	HPLC
Phenols by GCMS	WET	DCM	SOXTHERM	GC-MS
Herbicides	D&C	HEXANE:ACETONE	SOXTHERM	GC-MS
Pesticides	D&C	HEXANE:ACETONE	SOXTHERM	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.

<u>Asbestos Type</u>	<u>Common Name</u>
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-



Entec UK Ltd
Canon Court North
Abbey Lawn
Abbey Foregate
Shrewsbury
Shropshire
SY2 5DE

Attention: Steve Dooley

CERTIFICATE OF ANALYSIS

Date:	26 July 2010	
Customer:	H_ENTEC_SHW-24	
Sample Delivery Group (SDG):	100721-18	Report No.: 91567
Your Reference:	26999	
Location:	KL056 DSDC Bicester	

We received 9 samples on Wednesday July 21, 2010 and 8 of these samples were scheduled for analysis which was completed on Monday July 26, 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

Operations Director - Land UK & Ireland



SDG:	100721-18	Customer:	Entec UK Ltd
Job:	H_ENTEC_SHW-24	Attention:	Steve Dooley
Client Reference:	26999	Order No.:	
Location:	KL056 DSDC Bicester	Report No:	91567

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Sampled Date
1847612	HDPER3	0.20 - 0.30	16/07/2010
1847955	WSC04	0.40 - 0.60	19/07/2010
1847961	WSC04	2.00 - 2.20	19/07/2010
1847967	WSC05	0.40 - 0.60	19/07/2010
1847974	WSC06	0.60 - 0.80	19/07/2010
1847629	WSC07	0.45 - 0.60	19/07/2010
1847911	WSC07	2.90 - 3.20	19/07/2010
1847926	WSC08	0.40 - 0.70	19/07/2010
1847951	WSC08	2.50 - 2.80	19/07/2010

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

SDG: 100721-18
Job: H_ENTEC_SHW-24
Client Reference: 26999
Location: KL056 DSDC Bicester

Customer: Entec UK Ltd
Attention: Steve Dooley
Order No.:
Report No: 91567

SOLID

Results Legend	Lab Sample No(s)		Customer Sample Ref.		Depth (m)		Container		Total
	1847974		WSC06		0.60 - 0.80		400g Tub		
	1847967		WSC05		0.40 - 0.60		250g Amber Jar 60g VOC 400g Tub		
	1847961		WSC04		2.00 - 2.20		250g Amber Jar 400g Tub		
	1847955		WSC04		0.40 - 0.60		250g Amber Jar 400g Tub		
	1847951		WSC08		2.50 - 2.80		250g Amber Jar 400g Tub		
	1847926		WSC08		0.40 - 0.70		250g Amber Jar 400g Tub		
	1847629		WSC07		0.45 - 0.60		250g Amber Jar 400g Tub		
	1847612		HDPER3		0.20 - 0.30		250g Amber Jar		
Ammonium Soil by Titration		All							08
Asbestos Containing Material Screen		All							01
Boron Water Soluble		All							08
EPH CWG (Aliphatic) GC (S)		All							01
EPH CWG (Aromatic) GC (S)		All							01
GRO BTEX MTBE GC (S)		All							01
Hexavalent Chromium (s)		All							08
Metals by iCap-OES (Soil)		Arsenic							08
		Cadmium							08
		Chromium							08
		Copper							08
		Lead							08
		Mercury							08
		Nickel							08
		Selenium							08
		Zinc							08
PAH by GCMS		All							01
PCBs (vs Aroclor 1254)		All							01
pH		All							08
Sample description		All							08
Semi Volatile Organic Compounds		All							01
Total Organic Carbon		All							03
TPH c6-40 Value of soil		All							06

SDG:	100721-18	Customer:	Entec UK Ltd
Job:	H_ENTEC_SHW-24	Attention:	Steve Dooley
Client Reference:	26999	Order No.:	
Location:	KL056 DSDC Bicester	Report No:	91567

		Total			
		1847974	WSC06	0.60 - 0.80	400g Tub
		1847967	WSC05	0.40 - 0.60	250g Amber Jar 60g VOC 400g Tub
		1847961	WSC04	2.00 - 2.20	250g Amber Jar 400g Tub
		1847955	WSC04	0.40 - 0.60	250g Amber Jar 400g Tub
		1847951	WSC08	2.50 - 2.80	250g Amber Jar 400g Tub
		1847926	WSC08	0.40 - 0.70	250g Amber Jar 400g Tub
		1847629	WSC07	0.45 - 0.60	250g Amber Jar 400g Tub
		1847612	HDPER3	0.20 - 0.30	400g Tub 250g Amber Jar
TPH CWG GC (S)	All				0 1
VOC MS (S)	All				0 1
Water Soluble Sulphate 2:1	All				0 8

SDG:	100721-18	Customer:	Entec UK Ltd
Job:	H_ENTEC_SHW-24	Attention:	Steve Dooley
Client Reference:	26999	Order No.:	
Location:	KL056 DSDC Bicester	Report No:	91567

Sample Descriptions

Grain Sizes:

<0.063mm very fine,
0.063mm - 0.1mm fine,
0.1mm - 2mm medium,
2mm - 10mm coarse,
>10mm very coarse

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Grain size	Inclusions
1847612	HDPER3	0.20 - 0.30	Dark Brown	Clay Loam	0.063 - 0.1 mm	Stones
1847629	WSC07	0.45 - 0.60	Dark Brown	Sandy Clay	0.063 - 0.1 mm	Stones
1847926	WSC08	0.40 - 0.70	Dark Brown	Silty Clay Loam	<0.063 mm	Stones
1847951	WSC08	2.50 - 2.80	Dark Brown	Silty Clay Loam	<0.063 mm	N/A
1847955	WSC04	0.40 - 0.60	Dark Brown	Sandy Loam	0.063 - 0.1 mm	Stones
1847961	WSC04	2.00 - 2.20	Light Brown	Sandy Clay	0.063 - 0.1 mm	Stones
1847967	WSC05	0.40 - 0.60	Dark Brown	Loamy Sand	0.1 - 2 mm	Stones
1847974	WSC06	0.60 - 0.80	Dark Brown	Loamy Sand	0.1 - 2 mm	Stones

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

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

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

SDG:	100721-18	Customer:	Entec UK Ltd
Job:	H_ENTEC_SHW-24	Attention:	Steve Dooley
Client Reference:	26999	Order No.:	
Location:	KL056 DSDC Bicester	Report No:	91567

Test Completion dates

SDG reference: 100721-18

Lab Sample No(s)	1847612	1847629	1847926	1847951	1847955	1847961	1847967	1847974
Customer Sample Ref.	HDPER3	WSC07	WSC08	WSC08	WSC04	WSC04	WSC05	WSC06
Depth	0.20 - 0.30	0.45 - 0.60	0.40 - 0.70	2.50 - 2.80	0.40 - 0.60	2.00 - 2.20	0.40 - 0.60	0.60 - 0.80
Type	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
Ammonium Soil by Titration	22/07/2010	22/07/2010	22/07/2010	22/07/2010	22/07/2010	22/07/2010	22/07/2010	22/07/2010
Asbestos Containing Material	21/07/2010							
Boron Water Soluble	23/07/2010	23/07/2010	23/07/2010	23/07/2010	23/07/2010	23/07/2010	23/07/2010	23/07/2010
EPH CWG (Aliphatic) GC (S)							23/07/2010	
EPH CWG (Aromatic) GC (S)							23/07/2010	
GRO by GC-FID (S)							26/07/2010	
Hexavalent Chromium (s)	22/07/2010	22/07/2010	22/07/2010	22/07/2010	22/07/2010	22/07/2010	22/07/2010	22/07/2010
Metals by iCap-OES (Soil)	23/07/2010	23/07/2010	23/07/2010	23/07/2010	23/07/2010	26/07/2010	23/07/2010	23/07/2010
PAH by GCMS							22/07/2010	
PCBs (vs Aroclor 1254)							22/07/2010	
pH	22/07/2010	22/07/2010	22/07/2010	22/07/2010	22/07/2010	22/07/2010	22/07/2010	22/07/2010
Sample description	21/07/2010	21/07/2010	21/07/2010	21/07/2010	21/07/2010	21/07/2010	21/07/2010	21/07/2010
Semi Volatile Organic Compounds							23/07/2010	
Total Organic Carbon				22/07/2010	22/07/2010		22/07/2010	
TPH c6-40 Value of soil	23/07/2010	23/07/2010		23/07/2010	23/07/2010	23/07/2010		23/07/2010
TPH CWG GC (S)							26/07/2010	
VOC MS (S)							23/07/2010	
Water Soluble Sulphate 2:1	23/07/2010	23/07/2010	23/07/2010	23/07/2010	23/07/2010	23/07/2010	23/07/2010	23/07/2010

SDG:	100721-18
Job:	H_ENTEC_SHW-24
Client Reference:	26999
Location:	KL056 DSDC Bicester

Customer:	Entec UK Ltd
Attention:	Steve Dooley
Order No.:	
Report No:	91567

PAH by GCMS

[illegible]

SDG:	100721-18	Customer:	Entec UK Ltd
Job:	H_ENTEC_SHW-24	Attention:	Steve Dooley
Client Reference:	26999	Order No.:	
Location:	KL056 DSDC Bicester	Report No:	91567

Semi Volatile Organic Compounds

Results Legend		Customer Sample Ref.		WSC05				
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Date Received SDG Ref Lab Sample No.(s)	0.40 - 0.60 Soil/Solid 19/07/2010 21/07/2010 100721-18 1847967					
M	mCERTS accredited.							
aq	Aqueous / settled sample.							
diss.filt	Dissolved / filtered sample.							
tot.unfilt	Total / unfiltered sample.							
*	subcontracted test.							
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.							
Component								
Phenol		<0.1 mg/kg	TM157	<0.1				
Pentachlorophenol		<0.1 mg/kg	TM157	<0.1				
n-Nitroso-n-dipropylamine		<0.1 mg/kg	TM157	<0.1				
Nitrobenzene		<0.1 mg/kg	TM157	<0.1				
Isophorone		<0.1 mg/kg	TM157	<0.1				
Hexachloroethane		<0.1 mg/kg	TM157	<0.1				
Hexachlorocyclopentadiene		<0.1 mg/kg	TM157	<0.1				
Hexachlorobutadiene		<0.1 mg/kg	TM157	<0.1				
Hexachlorobenzene		<0.1 mg/kg	TM157	<0.1				
n-Dioctyl phthalate		<0.1 mg/kg	TM157	<0.1				
Dimethyl phthalate		<0.1 mg/kg	TM157	<0.1				
Diethyl phthalate		<0.1 mg/kg	TM157	<0.1				
n-Dibutyl phthalate		<0.1 mg/kg	TM157	<0.1				
Dibenzofuran		<0.1 mg/kg	TM157	<0.1				
Carbazole		<0.1 mg/kg	TM157	<0.1				
Butylbenzyl phthalate		<0.1 mg/kg	TM157	<0.1				
bis(2-Ethylhexyl) phthalate		<0.1 mg/kg	TM157	<0.1				
bis(2-Chloroethoxy)methane		<0.1 mg/kg	TM157	<0.1				
bis(2-Chloroethyl)ether		<0.1 mg/kg	TM157	<0.1				
Azobenzene		<0.1 mg/kg	TM157	<0.1				
4-Nitrophenol		<0.1 mg/kg	TM157	<0.1				
4-Nitroaniline		<0.1 mg/kg	TM157	<0.1				
4-Methylphenol		<0.1 mg/kg	TM157	<0.1				
4-Chlorophenylphenylether		<0.1 mg/kg	TM157	<0.1				
4-Chloroaniline		<0.1 mg/kg	TM157	<0.1				
4-Chloro-3-methylphenol		<0.1 mg/kg	TM157	<0.1				
4-Bromophenylphenylether		<0.1 mg/kg	TM157	<0.1				
3-Nitroaniline		<0.1 mg/kg	TM157	<0.1				
2-Nitrophenol		<0.1 mg/kg	TM157	<0.1				
2-Nitroaniline		<0.1 mg/kg	TM157	<0.1				
2-Methylphenol		<0.1 mg/kg	TM157	<0.1				
1,2,4-Trichlorobenzene		<0.1 mg/kg	TM157	<0.1				
2-Chlorophenol		<0.1 mg/kg	TM157	<0.1				
2,6-Dinitrotoluene		<0.1 mg/kg	TM157	<0.1				
2,4-Dinitrotoluene		<0.1 mg/kg	TM157	<0.1				
2,4-Dimethylphenol		<0.1 mg/kg	TM157	<0.1				
2,4-Dichlorophenol		<0.1 mg/kg	TM157	<0.1				
2,4,6-Trichlorophenol		<0.1 mg/kg	TM157	<0.1				
2,4,5-Trichlorophenol		<0.1 mg/kg	TM157	<0.1				

SDG:	100721-18	Customer:	Entec UK Ltd
Job:	H_ENTEC_SHW-24	Attention:	Steve Dooley
Client Reference:	26999	Order No.:	
Location:	KL056 DSDC Bicester	Report No:	91567

TPH CWG (S)			Customer Sample Ref.	WSC05				
Results Legend		Depth (m) Sample Type Date Sampled Date Received SDG Ref Lab Sample No.(s)						
#	ISO17025 accredited.							
M	mCERTS accredited.							
aq	Aqueous / settled sample.							
diss.filt	Dissolved / filtered sample.							
tot.unfilt	Total / unfiltered sample.							
*	subcontracted test.							
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.							
Component	LOD/Units	Method						
GRO Surrogate % recovery**	%	TM089	41					
GRO >C5-C12	<0.044 mg/kg	TM089	<0.044					
Benzene	<0.01 mg/kg	TM089	<0.01	M				
Ethylbenzene	<0.003 mg/kg	TM089	<0.003	M				
Toluene	<0.002 mg/kg	TM089	<0.002	M				
m,p-Xylene	<0.006 mg/kg	TM089	<0.006	M				
o-Xylene	<0.003 mg/kg	TM089	<0.003	M				
m,p,o-Xylene	<0.01 mg/kg	TM089	<0.01	M				
BTEX, Total	<0.01 mg/kg	TM089	<0.01	M				
Methyl tertiary butyl ether (MTBE)	<0.005 mg/kg	TM089	<0.005	#				
Aliphatics >C5-C6	<0.01 mg/kg	TM089	<0.01					
Aliphatics >C6-C8	<0.01 mg/kg	TM089	<0.01					
Aliphatics >C8-C10	<0.01 mg/kg	TM089	<0.01					
Aliphatics >C10-C12	<0.01 mg/kg	TM089	<0.01					
Aromatics >C6-C7	<0.01 mg/kg	TM089	<0.01					
Aromatics >C7-C8	<0.01 mg/kg	TM089	<0.01					
Aromatics >EC8-EC10	<0.01 mg/kg	TM089	<0.01					
Aromatics >EC10-EC12	<0.01 mg/kg	TM089	<0.01					
Total Aliphatics >C5-C12	<0.01 mg/kg	TM089	<0.01					
Total Aromatics >C6-C12	<0.01 mg/kg	TM089	<0.01					
Aliphatics >C12-C16	<0.1 mg/kg	TM173	5.67					
Aliphatics >C16-C21	<0.1 mg/kg	TM173	8.36					
Aliphatics >C16-C35	<0.1 mg/kg	TM173	74.5					
Aliphatics >C21-C35	<0.1 mg/kg	TM173	66.1					
Aliphatics >C35-C44	<0.1 mg/kg	TM173	23.1					
Aromatics >EC12-EC16	<0.1 mg/kg	TM173	4.86					
Aromatics >EC16-EC21	<0.1 mg/kg	TM173	9.86					
Aromatics >EC21-EC35	<0.1 mg/kg	TM173	48.6					
Aromatics >EC35-EC44	<0.1 mg/kg	TM173	29					
Aromatics >EC40-EC44	<0.1 mg/kg	TM173	13					
Total Aliphatics >C12-C44	<0.1 mg/kg	TM173	103					
Total Aromatics >EC12-EC44	<0.1 mg/kg	TM173	92.3					
Total Aliphatics >C5-35	<0.1 mg/kg	TM173	80.1					
Total Aliphatics >C5-C44	<0.1 mg/kg	TM173	103					
Total Aromatics >C5-35	<0.1 mg/kg	TM173	63.3					
Total Aromatics >C6-C44	<0.1 mg/kg	TM173	92.3					
Total Aliphatics & Aromatics >C5-35	<0.1 mg/kg	TM173	143					
Total Aliphatics & Aromatics >C5-C44	<0.1 mg/kg	TM173	196					

SDG:	100721-18	Customer:	Entec UK Ltd
Job:	H_ENTEC_SHW-24	Attention:	Steve Dooley
Client Reference:	26999	Order No.:	
Location:	KL056 DSDC Bicester	Report No:	91567

VOC MS (S)							
Results Legend		Customer Sample Ref.	WSC05				
#	ISO17025 accredited.						
M	mCERTS accredited.						
aq	Aqueous / settled sample.						
diss.filt	Dissolved / filtered sample.						
tot.unfilt	Total / unfiltered sample.						
*	subcontracted test.						
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.						
Component		LOD/Units	Method				
Dibromofluoromethane**		%	TM116	36.6			
Toluene-d8**		%	TM116	102			
4-Bromofluorobenzene**		%	TM116	124			
Dichlorodifluoromethane		<0.004 mg/kg	TM116	<0.004	M		
Chloromethane		<0.007 mg/kg	TM116	<0.007	#		
Vinyl Chloride		<0.01 mg/kg	TM116	<0.01	#		
Bromomethane		<0.013 mg/kg	TM116	<0.013	M		
Chloroethane		<0.014 mg/kg	TM116	<0.014	M		
Trichlorofluoromethane		<0.006 mg/kg	TM116	<0.006	M		
1.1-Dichloroethene		<0.01 mg/kg	TM116	<0.01	#		
Carbon Disulphide		<0.007 mg/kg	TM116	<0.007	M		
Dichloromethane		<0.01 mg/kg	TM116	<0.01	#		
Methyl Tertiary Butyl Ether		<0.011 mg/kg	TM116	<0.011	M		
trans-1-2-Dichloroethene		<0.011 mg/kg	TM116	<0.011	M		
1.1-Dichloroethane		<0.008 mg/kg	TM116	<0.008	M		
cis-1-2-Dichloroethene		<0.005 mg/kg	TM116	0.00739	M		
2.2-Dichloropropane		<0.012 mg/kg	TM116	<0.012	M		
Bromochloromethane		<0.014 mg/kg	TM116	<0.014	M		
Chloroform		<0.008 mg/kg	TM116	<0.008	M		
1.1.1-Trichloroethane		<0.007 mg/kg	TM116	<0.007	M		
1.1-Dichloropropene		<0.011 mg/kg	TM116	<0.011	M		
Carbontetrachloride		<0.014 mg/kg	TM116	<0.014	M		
1.2-Dichloroethane		<0.005 mg/kg	TM116	<0.005	M		
Benzene		<0.009 mg/kg	TM116	<0.009	M		
Trichloroethene		<0.009 mg/kg	TM116	0.307	M		
1.2-Dichloropropane		<0.012 mg/kg	TM116	<0.012	M		
Dibromomethane		<0.009 mg/kg	TM116	<0.009	M		
Bromodichloromethane		<0.007 mg/kg	TM116	<0.007	M		
cis-1-3-Dichloropropene		<0.014 mg/kg	TM116	<0.014	M		
Toluene		<0.005 mg/kg	TM116	<0.005	M		
trans-1-3-Dichloropropene		<0.014 mg/kg	TM116	<0.014			
1.1.2-Trichloroethane		<0.01 mg/kg	TM116	<0.01	M		
1.3-Dichloropropane		<0.007 mg/kg	TM116	<0.007	#		
Tetrachloroethene		<0.005 mg/kg	TM116	<0.005	M		
Dibromochloromethane		<0.013 mg/kg	TM116	<0.013	M		
1.2-Dibromoethane		<0.012 mg/kg	TM116	<0.012	M		
Chorobenzene		<0.005 mg/kg	TM116	<0.005	M		
1.1.1.2-Tetrachloroethane		<0.01 mg/kg	TM116	<0.01	M		
Ethylbenzene		<0.004 mg/kg	TM116	<0.004	M		

SDG:	100721-18	Customer:	Entec UK Ltd
Job:	H_ENTEC_SHW-24	Attention:	Steve Dooley
Client Reference:	26999	Order No.:	
Location:	KL056 DSDC Bicester	Report No:	91567

ASSOCIATED AQC DATA

Ammonium Soil by Titration

Component	Method Code	QC 17
Exchangeable Ammonium as NH4	TM024	89.60 80.84 : 103.27

Boron Water Soluble

Component	Method Code	QC 17
Water Soluble Boron	TM222	98.00 82.59 : 112.64

EPH CWG (Aliphatic) GC (S)

Component	Method Code	QC 17
Total Aliphatics >C12-C35	TM173	88.27 66.13 : 101.56

EPH CWG (Aromatic) GC (S)

Component	Method Code	QC 17
Total Aromatics >EC12-EC35	TM173	86.85 64.00 : 112.00

Hexavalent Chromium (s)

Component	Method Code	QC 11
Hexavalent Chromium	TM151	104.00 76.40 : 131.80

Metals by iCap-OES (Soil)

Component	Method Code	QC 12
Aluminium	TM181	110.94 95.21 : 133.11
Antimony	TM181	105.34 63.92 : 138.56
Arsenic	TM181	102.41 77.96 : 122.04
Barium	TM181	105.04 90.49 : 117.24
Beryllium	TM181	104.22 77.50 : 122.50
Boron	TM181	105.19 82.46 : 141.11

SDG:	100721-18	Customer:	Entec UK Ltd
Job:	H_ENTEC_SHW-24	Attention:	Steve Dooley
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		QC 12
Cadmium	TM181	101.08 77.50 : 122.50
Chromium	TM181	99.71 82.90 : 117.10
Cobalt	TM181	99.82 78.26 : 121.74
Copper	TM181	102.45 86.52 : 113.48
Iron	TM181	112.09 93.59 : 123.28
Lead	TM181	99.33 81.22 : 118.78
Manganese	TM181	96.35 87.42 : 112.58
Mercury	TM181	105.98 72.27 : 127.73
Molybdenum	TM181	102.24 71.12 : 128.88
Nickel	TM181	98.85 81.27 : 118.73
Phosphorus	TM181	99.55 84.04 : 115.96
Selenium	TM181	102.22 72.61 : 127.39
Strontium	TM181	100.19 80.21 : 119.79
Thallium	TM181	93.39 73.04 : 126.96
Tin	TM181	97.98 71.55 : 128.45
Titanium	TM181	107.78 78.26 : 121.74
Vanadium	TM181	104.68 82.03 : 117.97
Zinc	TM181	95.47 77.50 : 122.50

PAH by GCMS

Component	Method Code	QC 17
Acenaphthene	TM218	96.24 71.41 : 116.50
Acenaphthylene	TM218	84.45 74.28 : 102.70
Anthracene	TM218	91.88 67.40 : 117.21
Benz(a)anthracene	TM218	99.53 66.80 : 125.05
Benzo(a)pyrene	TM218	102.57 69.15 : 119.77
Benzo(b)fluoranthene	TM218	99.08 70.01 : 124.88
Benzo(ghi)perylene	TM218	99.98 81.23 : 116.67
Benzo(k)fluoranthene	TM218	99.49 71.46 : 117.67

SDG:	100721-18	Customer:	Entec UK Ltd
Job:	H_ENTEC_SHW-24	Attention:	Steve Dooley
Client Reference:	26999	Order No.:	
Location:	KL056 DSDC Bicester	Report No:	91567

		QC 17
Chrysene	TM218	97.07 71.32 : 130.95
Dibenzo(ah)anthracene	TM218	99.47 81.17 : 118.65
Fluoranthene	TM218	94.36 69.52 : 118.84
Fluorene	TM218	94.61 71.38 : 111.04
Indeno(123cd)pyrene	TM218	100.72 80.81 : 118.96
Naphthalene	TM218	93.64 81.16 : 104.84
Phenanthrene	TM218	94.56 69.56 : 121.45
Pyrene	TM218	95.17 70.34 : 117.79

PCBs (vs Aroclor 1254)

Component	Method Code	QC 16
PCBs (vs Aroclor 1254)	TM070	102.84 75.18 : 122.16

pH

Component	Method Code	QC 17
pH	TM133	100.75 97.90 : 102.35

Semi Volatile Organic Compounds

Component	Method Code	QC 14
4-Bromophenylphenylether (Soil)	TM157	99.76 12.25 : 162.08
Benzo(a)anthracene (Soil)	TM157	106.21 38.70 : 146.05
Hexachlorobutadiene (Soil)	TM157	100.16 17.33 : 157.33
Naphthalene (Soil)	TM157	101.57 17.33 : 157.33
Nitrobenzene (Soil)	TM157	99.76 19.50 : 154.53
Phenol (Soil)	TM157	100.58 23.40 : 144.15

Total Organic Carbon

Component	Method Code	QC 13
Total Organic Carbon	TM132	95.43 88.75 : 104.70

SDG:	100721-18	Customer:	Entec UK Ltd
Job:	H_ENTEC_SHW-24	Attention:	Steve Dooley
Client Reference:	26999	Order No.:	
Location:	KL056 DSDC Bicester	Report No:	91567

TPH c6-40 Value of soil

Component	Method Code	QC 19
Diesel QC	TM154	94.39 87.23 : 113.71
Lube Oil QC	TM154	101.40 88.71 : 110.56
TPH C6-40 Corrected	TM154	97.90 86.39 : 109.99

Water Soluble Sulphate 2:1

Component	Method Code	QC 14
Soluble SO4	TM098	82.20 76.87 : 120.45

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.

Table of Results - Appendix

SDG Number : 100721-18

Client : Entec UK Ltd

Client Ref : 26999

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
PM001		Preparation of Samples for Metals Analysis	Dry
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material	Wet
TM001	In - house Method	Determination of asbestos containing material by screening on solids	
TM024	Method 4500A & B, AWWA/APHA, 20th Ed., 1999	Determination of Exchangeable Ammonium and Ammoniacal Nitrogen as N by titration on solids	Wet
TM070	Modified: US EPA Method 8250 & 625	Determination of Total Polychlorinated Biphenyls (PCB/Es) as Aroclor 1254 by GC-MS in Soils	Dry
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) and BTEX (MTBE) compounds by Headspace GC-FID (C4-C12)	
TM098	Method 4500E, AWWA/APHA, 20th Ed., 1999	Determination of Sulphate using the Kone Analyser	Dry
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	Dry
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter	Wet
TM151	Method 3500D, AWWA/APHA, 20th Ed., 1999	Determination of Hexavalent Chromium using Kone analyser	Wet
TM154	In - house Method	Determination of Petroleum Hydrocarbons by EZ Flash GC-FID in the Carbon range C6- C40	Wet
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	Wet
TM173	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GC-FID	Dry
TM181	US EPA Method 6010B	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES	Dry
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers	Dry
TM218	Microwave extraction – EPA method 3546	Microwave extraction - EPA method 3546	Wet
TM222	In-House Method	Determination of Hot Water Soluble Boron in Soils (10:1 Water:soil) by IRIS Emission Spectrometer	Dry

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

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 ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

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)	GS 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	SOXTHERM	GRAVIMETRIC
Cyclohexane Ext. Matter	D&C	CYCLOHEXANE	SOXTHERM	GRAVIMETRIC
Thin Layer Chromatography	D&C	DCM	SOXTHERM	IATROSCAN
Elemental Sulphur	D&C	DCM	SOXTHERM	HPLC
Phenols by GCMS	WET	DCM	SOXTHERM	GC-MS
Herbicides	D&C	HEXANE:ACETONE	SOXTHERM	GC-MS
Pesticides	D&C	HEXANE:ACETONE	SOXTHERM	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	-



Entec UK Ltd
Canon Court North
Abbey Lawn
Abbey Foregate
Shrewsbury
Shropshire
SY2 5DE

Attention: Steve Dooley

CERTIFICATE OF ANALYSIS

Date:	29 July 2010	
Customer:	H_ENTEC_SHW-24	
Sample Delivery Group (SDG):	100722-28	Report No.: 91905
Your Reference:	26999	
Location:	KL056 DSDC Bicester	

We received 19 samples on Thursday July 22, 2010 and 12 of these samples were scheduled for analysis which was completed on Thursday July 29, 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

Operations Director - Land UK & Ireland



SDG:	100722-28	Customer:	Entec UK Ltd
Job:	H_ENTEC_SHW-24	Attention:	Steve Dooley
Client Reference:	26999	Order No.:	228113
Location:	KL056 DSDC Bicester	Report No:	91905

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Sampled Date
1854740	WSD1	0.00 - 0.20	20/07/2010
1854741	WSD1	1.60 - 1.80	20/07/2010
1854742	WSD2	0.20 - 0.40	20/07/2010
1854743	WSD2	1.20 - 1.40	20/07/2010
1854744	WSD2	4.00 - 4.20	20/07/2010
1854770	WSE10	0.10 - 0.30	20/07/2010
1854772	WSE10	0.70 - 0.90	20/07/2010
1854773	WSE10	3.00 - 3.30	20/07/2010
1854745	WSE5	0.50 - 0.70	20/07/2010
1854747	WSE5	1.80 - 2.00	20/07/2010
1854748	WSE6	0.30 - 0.50	20/07/2010
1854749	WSE6	2.80 - 3.00	20/07/2010
1854751	WSE7	0.00 - 0.20	20/07/2010
1854754	WSE7	1.70 - 1.90	20/07/2010
1854761	WSE8	0.40 - 0.60	20/07/2010
1854764	WSE8	0.70 - 0.90	20/07/2010
1854765	WSE8	1.60 - 1.80	20/07/2010
1854767	WSE9	0.40 - 0.50	20/07/2010
1854768	WSE9	1.50 - 1.60	20/07/2010

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

SDG: 100722-28
Job: H_ENTEC_SHW-24
Client Reference: 26999
Location: KL056 DSDC Bicester

Customer: Entec UK Ltd
Attention: Steve Dooley
Order No.: 228113
Report No: 91905

SOLID

Results Legend	Total			
	Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Container
	1854773	WSE10	3.00 - 3.30	250g Amber Jar 1kg TUB
	1854770	WSE10	0.10 - 0.30	250g Amber Jar 1kg TUB
	1854768	WSE9	1.50 - 1.60	250g Amber Jar 1kg TUB
1854767	WSE9	0.40 - 0.50	60g VOC 250g Amber Jar 1kg TUB	
1854764	WSE8	0.70 - 0.90	1kg TUB	
1854761	WSE8	0.40 - 0.60	250g Amber Jar 1kg TUB	
1854751	WSE7	0.00 - 0.20	250g Amber Jar 1kg TUB	
1854749	WSE6	2.80 - 3.00	1kg TUB	
1854745	WSE5	0.50 - 0.70	250g Amber Jar 1kg TUB	
1854743	WSD2	1.20 - 1.40	250g Amber Jar 400g Tub	
1854742	WSD2	0.20 - 0.40	400g Tub 250g Amber Jar	
1854740	WSD1	0.00 - 0.20	400g Tub 250g Amber Jar	
Ammonium Soil by Titration	All			
Asbestos Containing Material Screen	All			
Boron Water Soluble	All			
EPH CWG (Aliphatic) GC (S)	All			
EPH CWG (Aromatic) GC (S)	All			
GRO BTEX MTBE GC (S)	All			
Hexavalent Chromium (s)	All			
Metals by iCap-OES (Soil)	Arsenic			
	Cadmium			
	Chromium			
	Copper			
	Lead			
	Mercury			
	Nickel			
	Selenium			
	Zinc			
PAH by GCMS	All			
PCBs (vs Aroclor 1254)	All			
pH	All			
Sample description	All			
Semi Volatile Organic Compounds	All			
Total Organic Carbon	All			
TPH c6-40 Value of soil	All			

Customer: Entec UK Ltd
Attention: Steve Dooley
Order No.: 228113
Report No: 91905

TPH CWG GC (S)
VOC MS (S)
Water Soluble Sulphate 2:1

SDG:	100722-28	Customer:	Entec UK Ltd
Job:	H_ENTEC_SHW-24	Attention:	Steve Dooley
Client Reference:	26999	Order No.:	228113
Location:	KL056 DSDC Bicester	Report No:	91905

Sample Descriptions

Grain Sizes:

<0.063mm very fine,
0.063mm - 0.1mm fine,
0.1mm - 2mm medium,
2mm - 10mm coarse,
>10mm very coarse

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Grain size	Inclusions
1854740	WSD1	0.00 - 0.20	Dark Brown	Clay Loam	0.063 - 0.1 mm	Vegetation
1854742	WSD2	0.20 - 0.40	Light Brown	Clay	<0.063 mm	N/A
1854743	WSD2	1.20 - 1.40	Dark Brown	Silty Clay	<0.063 mm	N/A
1854745	WSE5	0.50 - 0.70	Light Brown	Clay Loam	<0.063 mm	N/A
1854749	WSE6	2.80 - 3.00	Dark Brown	Clay	<0.063 mm	N/A
1854751	WSE7	0.00 - 0.20	Dark Brown	Clay Loam	0.063 - 0.1 mm	Stones
1854761	WSE8	0.40 - 0.60	Light Brown	Sandy Loam	0.1 - 2 mm	Stones
1854764	WSE8	0.70 - 0.90	Light Brown	Silty Clay Loam	0.063 - 0.1 mm	Stones
1854767	WSE9	0.40 - 0.50	Black	Loamy Sand	0.1 - 2 mm	Stones
1854768	WSE9	1.50 - 1.60	Dark Brown	Silty Clay	<0.063 mm	N/A
1854770	WSE10	0.10 - 0.30	Dark Brown	Sandy Clay Loam	0.063 - 0.1 mm	Stones
1854773	WSE10	3.00 - 3.30	Dark Brown	Sand	0.1 - 2 mm	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.

SDG:	100722-28	Customer:	Entec UK Ltd
Job:	H_ENTEC_SHW-24	Attention:	Steve Dooley
Client Reference:	26999	Order No.:	228113
Location:	KL056 DSDC Bicester	Report No:	91905

Test Completion dates

SDG reference: 100722-28

Lab Sample No(s)	1854740	1854742	1854743	1854745	1854749	1854751	1854761	1854764	1854767	1854768	1854770	1854773
Customer Sample Ref.	WSD1	WSD2	WSD2	WSE5	WSE6	WSE7	WSE8	WSE8	WSE9	WSE9	WSE10	WSE10
Depth	0.00 - 0.20	0.20 - 0.40	1.20 - 1.40	0.50 - 0.70	2.80 - 3.00	0.00 - 0.20	0.40 - 0.60	0.70 - 0.90	0.40 - 0.50	1.50 - 1.60	0.10 - 0.30	3.00 - 3.30
Type	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
Ammonium Soil by Titration	23/07/2010	26/07/2010	23/07/2010	26/07/2010	23/07/2010	23/07/2010	27/07/2010	27/07/2010	23/07/2010	23/07/2010	23/07/2010	27/07/2010
Asbestos Containing Material	22/07/2010					22/07/2010					22/07/2010	
Boron Water Soluble	23/07/2010	26/07/2010	26/07/2010	26/07/2010	26/07/2010	23/07/2010	26/07/2010	27/07/2010	23/07/2010	23/07/2010	23/07/2010	26/07/2010
EPH CWG (Aliphatic) GC (S)									26/07/2010			
EPH CWG (Aromatic) GC (S)									26/07/2010			
GRO by GC-FID (S)									29/07/2010			
Hexavalent Chromium (s)	26/07/2010	26/07/2010	26/07/2010	26/07/2010	26/07/2010	26/07/2010	26/07/2010	26/07/2010	26/07/2010	26/07/2010	26/07/2010	26/07/2010
Metals by iCap-OES (Soil)	26/07/2010	26/07/2010	26/07/2010	26/07/2010	26/07/2010	26/07/2010	26/07/2010	27/07/2010	26/07/2010	26/07/2010	26/07/2010	26/07/2010
PAH by GCMS									23/07/2010			
PCBs (vs Aroclor 1254)									23/07/2010			
pH	23/07/2010	23/07/2010	23/07/2010	23/07/2010	23/07/2010	23/07/2010	26/07/2010	26/07/2010	23/07/2010	23/07/2010	23/07/2010	26/07/2010
Sample description	22/07/2010	22/07/2010	22/07/2010	22/07/2010	22/07/2010	22/07/2010	23/07/2010	23/07/2010	22/07/2010	22/07/2010	22/07/2010	23/07/2010
Semi Volatile Organic Compounds									26/07/2010			
Total Organic Carbon			23/07/2010	23/07/2010				27/07/2010	23/07/2010			
TPH c6-40 Value of soil	27/07/2010		27/07/2010	27/07/2010	27/07/2010			29/07/2010		27/07/2010	27/07/2010	29/07/2010
TPH CWG GC (S)									29/07/2010			
VOC MS (S)									23/07/2010			
Water Soluble Sulphate 2:1	26/07/2010	26/07/2010	26/07/2010	26/07/2010	26/07/2010	26/07/2010	27/07/2010	27/07/2010	26/07/2010	26/07/2010	26/07/2010	27/07/2010

SDG:	100722-28
Job:	H_ENTEC_SHW-24
Client Reference:	26999
Location:	KL056 DSDC Bicester

Customer: Entec UK Ltd
Attention: Steve Dooley
Order No.: 228113
Report No: 91905

[illegible]

SDG:	100722-28	Customer:	Entec UK Ltd
Job:	H_ENTEC_SHW-24	Attention:	Steve Dooley
Client Reference:	26999	Order No.:	228113
Location:	KL056 DSDC Bicester	Report No:	91905

Semi Volatile Organic Compounds

Results Legend		Customer Sample Ref.		WSE9				
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Date Received SDG Ref Lab Sample No.(s)	0.40 - 0.50 Soil/Solid 20/07/2010 22/07/2010 100722-28 1854767					
M	mCERTS accredited.							
aq	Aqueous / settled sample.							
diss.filt	Dissolved / filtered sample.							
tot.unfilt	Total / unfiltered sample.							
*	subcontracted test.							
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.							
Component	LOD/Units	Method						
Phenol	<0.1 mg/kg	TM157	2.49					
Pentachlorophenol	<0.1 mg/kg	TM157	<0.1					
n-Nitroso-n-dipropylamine	<0.1 mg/kg	TM157	<0.1					
Nitrobenzene	<0.1 mg/kg	TM157	<0.1					
Isophorone	<0.1 mg/kg	TM157	<0.1					
Hexachloroethane	<0.1 mg/kg	TM157	<0.1					
Hexachlorocyclopentadiene	<0.1 mg/kg	TM157	<0.1					
Hexachlorobutadiene	<0.1 mg/kg	TM157	<0.1					
Hexachlorobenzene	<0.1 mg/kg	TM157	<0.1					
n-Dioctyl phthalate	<0.1 mg/kg	TM157	<0.1					
Dimethyl phthalate	<0.1 mg/kg	TM157	<0.1					
Diethyl phthalate	<0.1 mg/kg	TM157	<0.1					
n-Dibutyl phthalate	<0.1 mg/kg	TM157	<0.1					
Dibenzofuran	<0.1 mg/kg	TM157	<0.1					
Carbazole	<0.1 mg/kg	TM157	0.203					
Butylbenzyl phthalate	<0.1 mg/kg	TM157	<0.1					
bis(2-Ethylhexyl) phthalate	<0.1 mg/kg	TM157	<0.1					
bis(2-Chloroethoxy)methane	<0.1 mg/kg	TM157	<0.1					
bis(2-Chloroethyl)ether	<0.1 mg/kg	TM157	<0.1					
Azobenzene	<0.1 mg/kg	TM157	<0.1					
4-Nitrophenol	<0.1 mg/kg	TM157	<0.1					
4-Nitroaniline	<0.1 mg/kg	TM157	<0.1					
4-Methylphenol	<0.1 mg/kg	TM157	<0.1					
4-Chlorophenylphenylether	<0.1 mg/kg	TM157	<0.1					
4-Chloroaniline	<0.1 mg/kg	TM157	<0.1					
4-Chloro-3-methylphenol	<0.1 mg/kg	TM157	<0.1					
4-Bromophenylphenylether	<0.1 mg/kg	TM157	<0.1					
3-Nitroaniline	<0.1 mg/kg	TM157	<0.1					
2-Nitrophenol	<0.1 mg/kg	TM157	<0.1					
2-Nitroaniline	<0.1 mg/kg	TM157	<0.1					
2-Methylphenol	<0.1 mg/kg	TM157	<0.1					
1,2,4-Trichlorobenzene	<0.1 mg/kg	TM157	<0.1					
2-Chlorophenol	<0.1 mg/kg	TM157	<0.1					
2,6-Dinitrotoluene	<0.1 mg/kg	TM157	<0.1					
2,4-Dinitrotoluene	<0.1 mg/kg	TM157	<0.1					
2,4-Dimethylphenol	<0.1 mg/kg	TM157	<0.1					
2,4-Dichlorophenol	<0.1 mg/kg	TM157	<0.1					
2,4,6-Trichlorophenol	<0.1 mg/kg	TM157	<0.1					
2,4,5-Trichlorophenol	<0.1 mg/kg	TM157	<0.1					

SDG:	100722-28	Customer:	Entec UK Ltd
Job:	H_ENTEC_SHW-24	Attention:	Steve Dooley
Client Reference:	26999	Order No.:	228113
Location:	KL056 DSDC Bicester	Report No:	91905

TPH CWG (S)							
Results Legend		Customer Sample Ref.	WSE9				
#	ISO17025 accredited.						
M	mCERTS accredited.						
aq	Aqueous / settled sample.						
diss.filt	Dissolved / filtered sample.						
tot.unfilt	Total / unfiltered sample.						
*	subcontracted test.						
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.						
Component		LOD/Units	Method				
GRO Surrogate % recovery**		%	TM089	23			
GRO >C5-C12		<0.044 mg/kg	TM089	<0.044			
Benzene		<0.01 mg/kg	TM089	<0.01	M		
Ethylbenzene		<0.003 mg/kg	TM089	<0.003	M		
Toluene		<0.002 mg/kg	TM089	<0.002	M		
m,p-Xylene		<0.006 mg/kg	TM089	<0.006	M		
o-Xylene		<0.003 mg/kg	TM089	<0.003	M		
m,p,o-Xylene		<0.01 mg/kg	TM089	<0.01	M		
BTEX, Total		<0.01 mg/kg	TM089	<0.01	M		
Methyl tertiary butyl ether (MTBE)		<0.005 mg/kg	TM089	<0.005	#		
Aliphatics >C5-C6		<0.01 mg/kg	TM089	<0.01			
Aliphatics >C6-C8		<0.01 mg/kg	TM089	<0.01			
Aliphatics >C8-C10		<0.01 mg/kg	TM089	<0.01			
Aliphatics >C10-C12		<0.01 mg/kg	TM089	<0.01			
Aromatics >C6-C7		<0.01 mg/kg	TM089	<0.01			
Aromatics >C7-C8		<0.01 mg/kg	TM089	<0.01			
Aromatics >EC8-EC10		<0.01 mg/kg	TM089	<0.01			
Aromatics >EC10-EC12		<0.01 mg/kg	TM089	<0.01			
Total Aliphatics >C5-C12		<0.01 mg/kg	TM089	<0.01			
Total Aromatics >C6-C12		<0.01 mg/kg	TM089	<0.01			
Aliphatics >C12-C16		<0.1 mg/kg	TM173	8.31			
Aliphatics >C16-C21		<0.1 mg/kg	TM173	10.9			
Aliphatics >C16-C35		<0.1 mg/kg	TM173	39.2			
Aliphatics >C21-C35		<0.1 mg/kg	TM173	28.3			
Aliphatics >C35-C44		<0.1 mg/kg	TM173	<0.1			
Aromatics >EC12-EC16		<0.1 mg/kg	TM173	7.32			
Aromatics >EC16-EC21		<0.1 mg/kg	TM173	33.8			
Aromatics >EC21-EC35		<0.1 mg/kg	TM173	106			
Aromatics >EC35-EC44		<0.1 mg/kg	TM173	25.1			
Aromatics >EC40-EC44		<0.1 mg/kg	TM173	8.21			
Total Aliphatics >C12-C44		<0.1 mg/kg	TM173	47.5			
Total Aromatics >EC12-EC44		<0.1 mg/kg	TM173	172			
Total Aliphatics >C5-35		<0.1 mg/kg	TM173	47.5			
Total Aliphatics >C5-C44		<0.1 mg/kg	TM173	47.5			
Total Aromatics >C5-35		<0.1 mg/kg	TM173	147			
Total Aromatics >C6-C44		<0.1 mg/kg	TM173	172			
Total Aliphatics & Aromatics >C5-35		<0.1 mg/kg	TM173	194			
Total Aliphatics & Aromatics >C5-C44		<0.1 mg/kg	TM173	219			

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VOC MS (S)		Customer Sample Ref.	WSE9				
Results Legend							
#	ISO17025 accredited.						
M	mCERTS accredited.						
aq	Aqueous / settled sample.						
diss.filt	Dissolved / filtered sample.						
tot.unfilt	Total / unfiltered sample.						
*	subcontracted test.						
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.						
Component		LOD/Units	Method				
Dibromofluoromethane**	%	TM116	104				
Toluene-d8**	%	TM116	103				
4-Bromofluorobenzene**	%	TM116	135				
Dichlorodifluoromethane	<0.004 mg/kg	TM116	<0.004	M			
Chloromethane	<0.007 mg/kg	TM116	<0.007	#			
Vinyl Chloride	<0.01 mg/kg	TM116	<0.01	#			
Bromomethane	<0.013 mg/kg	TM116	<0.013	M			
Chloroethane	<0.014 mg/kg	TM116	<0.014	M			
Trichlorofluorormethane	<0.006 mg/kg	TM116	<0.006	M			
1.1-Dichloroethene	<0.01 mg/kg	TM116	<0.01	#			
Carbon Disulphide	<0.007 mg/kg	TM116	<0.007	M			
Dichloromethane	<0.01 mg/kg	TM116	<0.01	#			
Methyl Tertiary Butyl Ether	<0.011 mg/kg	TM116	<0.011	M			
trans-1-2-Dichloroethene	<0.011 mg/kg	TM116	<0.011	M			
1.1-Dichloroethane	<0.008 mg/kg	TM116	<0.008	M			
cis-1-2-Dichloroethene	<0.005 mg/kg	TM116	<0.005	M			
2.2-Dichloropropane	<0.012 mg/kg	TM116	<0.012	M			
Bromochloromethane	<0.014 mg/kg	TM116	<0.014	M			
Chloroform	<0.008 mg/kg	TM116	<0.008	M			
1.1.1-Trichloroethane	<0.007 mg/kg	TM116	<0.007	M			
1.1-Dichloropropene	<0.011 mg/kg	TM116	<0.011	M			
Carbontetrachloride	<0.014 mg/kg	TM116	<0.014	M			
1.2-Dichloroethane	<0.005 mg/kg	TM116	<0.005	M			
Benzene	<0.009 mg/kg	TM116	<0.009	M			
Trichloroethene	<0.009 mg/kg	TM116	<0.009	M			
1.2-Dichloropropane	<0.012 mg/kg	TM116	<0.012	M			
Dibromomethane	<0.009 mg/kg	TM116	<0.009	M			
Bromodichloromethane	<0.007 mg/kg	TM116	<0.007	M			
cis-1-3-Dichloropropene	<0.014 mg/kg	TM116	<0.014	M			
Toluene	<0.005 mg/kg	TM116	<0.005	M			
trans-1-3-Dichloropropene	<0.014 mg/kg	TM116	<0.014				
1.1.2-Trichloroethane	<0.01 mg/kg	TM116	<0.01	M			
1.3-Dichloropropane	<0.007 mg/kg	TM116	<0.007	#			
Tetrachloroethene	<0.005 mg/kg	TM116	<0.005	M			
Dibromochloromethane	<0.013 mg/kg	TM116	<0.013	M			
1.2-Dibromoethane	<0.012 mg/kg	TM116	<0.012	M			
Chorobenzene	<0.005 mg/kg	TM116	<0.005	M			
1.1.1.2-Tetrachloroethane	<0.01 mg/kg	TM116	<0.01	M			
Ethylbenzene	<0.004 mg/kg	TM116	<0.004	M			

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ASSOCIATED AQC DATA

Ammonium Soil by Titration

Component	Method Code	QC 15	QC 17
Exchangeable Ammonium as NH4	TM024	89.60 80.84 : 103.27	97.42 80.84 : 103.27

Boron Water Soluble

Component	Method Code	QC 11	QC 15	QC 12
Water Soluble Boron	TM222	95.25 82.59 : 112.64	101.55 82.59 : 112.64	99.45 82.59 : 112.64

EPH CWG (Aliphatic) GC (S)

Component	Method Code	QC 10
Total Aliphatics >C12-C35	TM173	83.99 55.20 : 114.58

EPH CWG (Aromatic) GC (S)

Component	Method Code	QC 10
Total Aromatics >EC12-EC35	TM173	81.32 54.00 : 123.00

Hexavalent Chromium (s)

Component	Method Code	QC 18	QC 16
Hexavalent Chromium	TM151	101.20 76.40 : 131.80	101.80 76.40 : 131.80

Metals by iCap-OES (Soil)

Component	Method Code	QC 14	QC 17	QC 14	QC 13	QC 14
Aluminium	TM181	114.93 95.21 : 133.11	105.48 95.21 : 133.11	112.01 95.21 : 133.11	120.29 95.21 : 133.11	109.18 95.21 : 133.11
Antimony	TM181	111.40 63.92 : 138.56	89.75 63.92 : 138.56	94.73 63.92 : 138.56	90.17 63.92 : 138.56	108.11 63.92 : 138.56
Arsenic	TM181	105.94 77.96 : 122.04	95.78 77.96 : 122.04	107.06 77.96 : 122.04	96.12 77.96 : 122.04	97.33 77.96 : 122.04
Barium	TM181	111.31 90.49 : 117.24	98.48 90.49 : 117.24	105.63 90.49 : 117.24	108.86 90.49 : 117.24	103.38 90.49 : 117.24
Beryllium	TM181	105.88 77.50 : 122.50	88.62 77.50 : 122.50	94.67 77.50 : 122.50	91.44 77.50 : 122.50	106.24 77.50 : 122.50
Boron	TM181	104.30 82.46 : 141.11	93.82 82.46 : 141.11	114.68 82.46 : 141.11	126.41 82.46 : 141.11	105.28 82.46 : 141.11

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		QC 14	QC 17	QC 14	QC 13	QC 14
Cadmium	TM181	106.33 77.50 : 122.50	88.04 77.50 : 122.50	93.77 77.50 : 122.50	90.69 77.50 : 122.50	104.80 77.50 : 122.50
Chromium	TM181	97.90 82.90 : 117.10	92.18 82.90 : 117.10	93.13 82.90 : 117.10	98.86 82.90 : 117.10	97.04 82.90 : 117.10
Cobalt	TM181	103.29 78.26 : 121.74	90.41 78.26 : 121.74	94.32 78.26 : 121.74	93.25 78.26 : 121.74	101.07 78.26 : 121.74
Copper	TM181	102.17 86.52 : 113.48	96.93 86.52 : 113.48	97.81 86.52 : 113.48	97.72 86.52 : 113.48	100.16 86.52 : 113.48
Iron	TM181	104.85 93.59 : 123.28	99.79 93.59 : 123.28	101.33 93.59 : 123.28	106.30 93.59 : 123.28	104.13 93.59 : 123.28
Lead	TM181	92.90 81.22 : 118.78	91.18 81.22 : 118.78	90.13 81.22 : 118.78	91.35 81.22 : 118.78	100.39 81.22 : 118.78
Manganese	TM181	92.13 87.42 : 112.58	91.68 87.42 : 112.58	91.15 87.42 : 112.58	94.84 87.42 : 112.58	97.52 87.42 : 112.58
Mercury	TM181	105.18 72.27 : 127.73	96.84 72.27 : 127.73	98.59 72.27 : 127.73	97.72 72.27 : 127.73	106.50 72.27 : 127.73
Molybdenum	TM181	111.35 71.12 : 128.88	84.05 71.12 : 128.88	91.92 71.12 : 128.88	87.38 71.12 : 128.88	106.25 71.12 : 128.88
Nickel	TM181	96.72 81.27 : 118.73	92.14 81.27 : 118.73	92.37 81.27 : 118.73	94.43 81.27 : 118.73	95.80 81.27 : 118.73
Phosphorus	TM181	96.86 84.04 : 115.96	96.06 84.04 : 115.96	99.45 84.04 : 115.96	98.11 84.04 : 115.96	98.06 84.04 : 115.96
Selenium	TM181	106.25 72.61 : 127.39	88.21 72.61 : 127.39	98.01 72.61 : 127.39	92.82 72.61 : 127.39	106.65 72.61 : 127.39
Strontium	TM181	95.22 80.21 : 119.79	99.37 80.21 : 119.79	98.41 80.21 : 119.79	101.64 80.21 : 119.79	97.15 80.21 : 119.79
Thallium	TM181	100.95 73.04 : 126.96	77.87 73.04 : 126.96	85.12 73.04 : 126.96	81.68 73.04 : 126.96	95.91 73.04 : 126.96
Tin	TM181	103.65 71.55 : 128.45	87.11 71.55 : 128.45	91.98 71.55 : 128.45	88.35 71.55 : 128.45	104.61 71.55 : 128.45
Titanium	TM181	105.44 78.26 : 121.74	86.98 78.26 : 121.74	112.29 78.26 : 121.74	125.73 78.26 : 121.74	100.48 78.26 : 121.74
Vanadium	TM181	100.78 82.03 : 117.97	99.57 82.03 : 117.97	99.80 82.03 : 117.97	104.13 82.03 : 117.97	99.10 82.03 : 117.97
Zinc	TM181	92.82 77.50 : 122.50	89.81 77.50 : 122.50	90.92 77.50 : 122.50	90.24 77.50 : 122.50	91.07 77.50 : 122.50

PAH by GCMS

Component	Method Code	QC 10
Acenaphthene	TM218	96.98 71.41 : 116.50
Acenaphthylene	TM218	86.55 74.28 : 102.70
Anthracene	TM218	93.34 67.40 : 117.21
Benz(a)anthracene	TM218	102.85 66.80 : 125.05
Benzo(a)pyrene	TM218	105.50 69.15 : 119.77
Benzo(b)fluoranthene	TM218	103.70 70.01 : 124.88
Benzo(ghi)perylene	TM218	98.48 81.23 : 116.67
Benzo(k)fluoranthene	TM218	100.27 71.46 : 117.67

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		QC 10
Chrysene	TM218	99.48 71.32 : 130.95
Dibenzo(ah)anthracene	TM218	97.11 81.17 : 118.65
Fluoranthene	TM218	102.47 69.52 : 118.84
Fluorene	TM218	95.54 71.38 : 111.04
Indeno(123cd)pyrene	TM218	100.03 80.81 : 118.96
Naphthalene	TM218	93.61 81.16 : 104.84
Phenanthrene	TM218	100.11 69.56 : 121.45
Pyrene	TM218	101.02 70.34 : 117.79

PCBs (vs Aroclor 1254)

Component	Method Code	QC 12
PCBs (vs Aroclor 1254)	TM070	99.04 75.18 : 122.16

pH

Component	Method Code	QC 19	QC 17	QC 15
pH	TM133	101.25 97.90 : 102.35	100.25 97.90 : 102.35	100.38 97.90 : 102.35

Semi Volatile Organic Compounds

Component	Method Code	QC 12
4-Bromophenylphenylether (Soil)	TM157	104.59 12.25 : 162.08
Benzo(a)anthracene (Soil)	TM157	109.99 38.70 : 146.05
Hexachlorobutadiene (Soil)	TM157	105.03 17.33 : 157.33
Naphthalene (Soil)	TM157	106.70 17.33 : 157.33
Nitrobenzene (Soil)	TM157	104.47 19.50 : 154.53
Phenol (Soil)	TM157	105.58 23.40 : 144.15

Total Organic Carbon

Component	Method Code	QC 17	QC 10	QC 10
Total Organic Carbon	TM132	101.29 88.75 : 104.70	103.01 88.75 : 104.70	94.59 88.75 : 104.70

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TPH c6-40 Value of soil

Component	Method Code	QC 16	QC 16
Diesel QC	TM154	104.41 87.23 : 113.71	93.69 87.23 : 113.71
Lube Oil QC	TM154	97.45 88.71 : 110.56	96.08 88.71 : 110.56
TPH C6-40 Corrected	TM154	100.93 86.39 : 109.99	94.89 86.39 : 109.99

Water Soluble Sulphate 2:1

Component	Method Code	QC 15	QC 12
Soluble SO4	TM098	85.83 76.87 : 120.45	101.46 76.87 : 120.45

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.

Table of Results - Appendix

SDG Number : 100722-28

Client : Entec UK Ltd

Client Ref : 26999

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
PM001		Preparation of Samples for Metals Analysis	Dry
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material	Wet
TM001	In - house Method	Determination of asbestos containing material by screening on solids	
TM024	Method 4500A & B, AWWA/APHA, 20th Ed., 1999	Determination of Exchangeable Ammonium and Ammoniacal Nitrogen as N by titration on solids	Wet
TM070	Modified: US EPA Method 8250 & 625	Determination of Total Polychlorinated Biphenyls (PCB/Es) as Aroclor 1254 by GC-MS in Soils	Dry
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) and BTEX (MTBE) compounds by Headspace GC-FID (C4-C12)	
TM098	Method 4500E, AWWA/APHA, 20th Ed., 1999	Determination of Sulphate using the Kone Analyser	Dry
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	Dry
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter	Wet
TM151	Method 3500D, AWWA/APHA, 20th Ed., 1999	Determination of Hexavalent Chromium using Kone analyser	Wet
TM154	In - house Method	Determination of Petroleum Hydrocarbons by EZ Flash GC-FID in the Carbon range C6- C40	Wet
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	Wet
TM173	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GC-FID	Dry
TM181	US EPA Method 6010B	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES	Dry
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers	Dry
TM218	Microwave extraction – EPA method 3546	Microwave extraction - EPA method 3546	Wet
TM222	In-House Method	Determination of Hot Water Soluble Boron in Soils (10:1 Water:soil) by IRIS Emission Spectrometer	Dry

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

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 ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

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)	GS 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	SOXTHERM	GRAVIMETRIC
Cyclohexane Ext. Matter	D&C	CYCLOHEXANE	SOXTHERM	GRAVIMETRIC
Thin Layer Chromatography	D&C	DCM	SOXTHERM	IATROSCAN
Elemental Sulphur	D&C	DCM	SOXTHERM	HPLC
Phenols by GCMS	WET	DCM	SOXTHERM	GC-MS
Herbicides	D&C	HEXANE:ACETONE	SOXTHERM	GC-MS
Pesticides	D&C	HEXANE:ACETONE	SOXTHERM	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.

<u>Asbestos Type</u>	<u>Common Name</u>
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-



Entec UK Ltd
Canon Court North
Abbey Lawn
Abbey Foregate
Shrewsbury
Shropshire
SY2 5DE

Attention: Steve Dooley

CERTIFICATE OF ANALYSIS

Date:	02 August 2010	
Customer:	H_ENTEC_SHW-24	
Sample Delivery Group (SDG):	100723-15	Report No.: 91932
Your Reference:	26999	
Location:	KL056 DSDC Bicester	

We received 14 samples on Friday July 23, 2010 and 10 of these samples were scheduled for analysis which was completed on Thursday July 29, 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

Operations Director - Land UK & Ireland



Validated		ALcontrol Laboratories Analytical Services	
SDG:	100723-15	Customer:	Entec UK Ltd
Job:	H_ENTEC_SHW-24	Attention:	Steve Dooley
Client Reference:	26999	Order No.:	228113
Location:	KL056 DSDC Bicester	Report No:	91932

Received Sample Overview



Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Sampled Date
1857891	WSA1	0.50 - 0.70	21/07/2010
1858022	WSA1	1.00 - 1.30	21/07/2010
1858062	WSA2	0.10 - 0.30	21/07/2010
1858288	WSA2	1.25 - 1.35	21/07/2010
1858312	WSA3	0.10 - 0.30	21/07/2010
1858332	WSA3	2.50 - 2.70	21/07/2010
1858380	WSE11	0.10 - 0.30	21/07/2010
1858410	WSE11	0.80 - 1.00	21/07/2010
1858445	WSE12	0.10 - 0.30	21/07/2010
1858493	WSE12	2.00 - 2.30	21/07/2010
1858520	WSE13	0.20 - 0.40	21/07/2010
1858543	WSE13	0.80 - 1.20	21/07/2010
1858555	WSE14	0.40 - 0.70	21/07/2010
1858572	WSE14	2.40 - 2.60	21/07/2010

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

SDG: 100723-15
Job: H_ENTEC_SHW-24
Client Reference: 26999
Location: KL056 DSDC Bicester

Customer: Entec UK Ltd
Attention: Steve Dooley
Order No.: 228113
Report No: 91932

SOLID

Results Legend	Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Container	Total
 Test					
 No Determination Possible					
	1858022	WSA1	1.00 - 1.30	60g VOC 250g Amber Jar 1kg TUB	
	1858288	WSA2	1.25 - 1.35	250g Amber Jar 1kg TUB	
	1858312	WSA3	0.10 - 0.30	250g Amber Jar 1kg TUB	
	1858332	WSA3	2.50 - 2.70	250g Amber Jar 1kg TUB	
	1858380	WSE11	0.10 - 0.30	250g Amber Jar 1kg TUB	
	1858410	WSE11	0.80 - 1.00	250g Amber Jar 1kg TUB	
	1858445	WSE12	0.10 - 0.30	250g Amber Jar 1kg TUB	
	1858493	WSE12	2.00 - 2.30	250g Amber Jar 1kg TUB	
	1858620	WSE13	0.20 - 0.40	250g Amber Jar 1kg TUB	
	1858655	WSE14	0.40 - 0.70	250g Amber Jar 1kg TUB	
Ammonium Soil by Titration	All				0
Asbestos Containing Material Screen	All				9
Asbestos Identification	All				0
Boron Water Soluble	All				1
EPH CWG (Aliphatic) GC (S)	All				0
EPH CWG (Aromatic) GC (S)	All				9
GRO BTEX MTBE GC (S)	All				0
Hexavalent Chromium (s)	All				2
Metals by iCap-OES (Soil)	Arsenic				0
	Cadmium				9
	Chromium				0
	Copper				9
	Lead				0
	Mercury				9
	Nickel				0
	Selenium				9
	Zinc				0
PAH by GCMS	All				9
PCBs (vs Aroclor 1254)	All				0
pH	All				3
Sample description	All				0
Semi Volatile Organic Compounds	All				9
Total Organic Carbon	All				0

SDG:

100723-15

Job:

H_ENTEC_SHW-24

Client Reference:

26999

Location:

KL056 DSDC Bicester

Customer:

Entec UK Ltd

Attention:

Steve Dooley

Order No.:

228113

Report No:

91932

		Total			
TPH c6-40 Value of soil	All	1858555	WSE14	0.40 - 0.70	60g VOC
					250g Amber Jar
					1kg TUB
		1858520	WSE13	0.20 - 0.40	250g Amber Jar
					1kg TUB
		1858493	WSE12	2.00 - 2.30	250g Amber Jar
					1kg TUB
		1858445	WSE12	0.10 - 0.30	60g VOC
					250g Amber Jar
					1kg TUB
TPH CWG GC (S)	All	1858410	WSE11	0.80 - 1.00	250g Amber Jar
					1kg TUB
		1858380	WSE11	0.10 - 0.30	1kg TUB
		1858332	WSA3	2.50 - 2.70	250g Amber Jar
					1kg TUB
		1858312	WSA3	0.10 - 0.30	250g Amber Jar
					1kg TUB
		1858288	WSA2	1.25 - 1.35	250g Amber Jar
					1kg TUB
		1858022	WSA1	1.00 - 1.30	250g Amber Jar
					1kg TUB
VOC MS (S)	All				
Water Soluble Sulphate 2:1	All				

SDG:	100723-15	Customer:	Entec UK Ltd
Job:	H_ENTEC_SHW-24	Attention:	Steve Dooley
Client Reference:	26999	Order No.:	228113
Location:	KL056 DSDC Bicester	Report No:	91932

Sample Descriptions

Grain Sizes:

<0.063mm very fine,
0.063mm - 0.1mm fine,
0.1mm - 2mm medium,
2mm - 10mm coarse,
>10mm very coarse

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Grain size	Inclusions
1858022	WSA1	1.00 - 1.30	Light Brown	Sandy Clay Loam	0.1 - 2 mm	Stones
1858288	WSA2	1.25 - 1.35	Light Brown	Sandy Clay	0.1 - 2 mm	Stones
1858312	WSA3	0.10 - 0.30	Dark Brown	Clay Loam	<0.063 mm	Stones
1858332	WSA3	2.50 - 2.70	Dark Brown	Silty Clay Loam	<0.063 mm	N/A
1858410	WSE11	0.80 - 1.00	Light Brown	Sandy Loam	0.063 - 0.1 mm	N/A
1858445	WSE12	0.10 - 0.30	Light Brown	Sandy Clay	0.1 - 2 mm	Stones
1858493	WSE12	2.00 - 2.30	Dark Brown	Clay	<0.063 mm	None
1858520	WSE13	0.20 - 0.40	Dark Brown	Sandy Loam	0.1 - 2 mm	Stones
1858555	WSE14	0.40 - 0.70	Dark Brown	Loamy Sand	0.1 - 2 mm	Stones

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

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

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

SDG:	100723-15	Customer:	Entec UK Ltd
Job:	H_ENTEC_SHW-24	Attention:	Steve Dooley
Client Reference:	26999	Order No.:	228113
Location:	KL056 DSDC Bicester	Report No:	91932

Test Completion dates

SDG reference: 100723-15

Lab Sample No(s) Customer Sample Ref. Depth Type	1858022	1858288	1858312	1858332	1858380	1858410	1858445	1858493	1858520	1858555
	WSA1	WSA2	WSA3	WSA3	WSE11	WSE11	WSE12	WSE12	WSE13	WSE14
	1.00 - 1.30	1.25 - 1.35	0.10 - 0.30	2.50 - 2.70	0.10 - 0.30	0.80 - 1.00	0.10 - 0.30	2.00 - 2.30	0.20 - 0.40	0.40 - 0.70
	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
Ammonium Soil by Titration	27/07/2010	27/07/2010	27/07/2010	27/07/2010		27/07/2010	27/07/2010	27/07/2010	27/07/2010	27/07/2010
Asbestos Containing Material Screen					23/07/2010		23/07/2010			23/07/2010
Asbestos Identification					26/07/2010					
Boron Water Soluble	27/07/2010	27/07/2010	27/07/2010	27/07/2010		27/07/2010	27/07/2010	27/07/2010	27/07/2010	27/07/2010
EPH CWG (Aliphatic) GC (S)							27/07/2010			27/07/2010
EPH CWG (Aromatic) GC (S)							27/07/2010			27/07/2010
GRO by GC-FID (S)							29/07/2010			29/07/2010
Hexavalent Chromium (s)	27/07/2010	27/07/2010	27/07/2010	27/07/2010		27/07/2010	27/07/2010	27/07/2010	27/07/2010	27/07/2010
Metals by iCap-OES (Soil)	27/07/2010	27/07/2010	27/07/2010	27/07/2010		27/07/2010	27/07/2010	27/07/2010	27/07/2010	27/07/2010
PAH by GCMS	27/07/2010						27/07/2010			28/07/2010
PCBs (vs Aroclor 1254)							29/07/2010			29/07/2010
pH	27/07/2010	27/07/2010	27/07/2010	27/07/2010		27/07/2010	27/07/2010	27/07/2010	27/07/2010	27/07/2010
Sample description	26/07/2010	23/07/2010	23/07/2010	23/07/2010		23/07/2010	26/07/2010	26/07/2010	26/07/2010	23/07/2010
Semi Volatile Organic Compounds							27/07/2010			27/07/2010
Total Organic Carbon	27/07/2010		27/07/2010	27/07/2010						
TPH c6-40 Value of soil		29/07/2010		29/07/2010				28/07/2010		
TPH CWG GC (S)							29/07/2010			29/07/2010
VOC MS (S)							27/07/2010			27/07/2010
Water Soluble Sulphate 2:1	27/07/2010	27/07/2010	28/07/2010	28/07/2010		28/07/2010	27/07/2010	27/07/2010	27/07/2010	28/07/2010

Customer: Entec UK Ltd
Attention: Steve Dooley
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Customer: Entec UK Ltd
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[illegible]

Validated		ALcontrol Laboratories Analytical Services						
SDG		100723-15			Customer:		Entec UK Ltd	
Job:		H_ENTEC_SHW-24			Attention:		Steve Dooley	
Client Reference:		26999			Order No.:		228113	
Location:		KL056 DSDC Bicester			Report No:		91932	
Semi Volatile Organic Compounds								
<div>Results Legend</div> <div>#ISO17025 accredited.</div> <div>MmCERTS accredited.</div> <div>aqAqueous / settled sample.</div> <div>diss.filtDissolved / filtered sample.</div> <div>tot.unfiltTotal / unfiltered sample.</div> <div>*subcontracted test.</div> <div>**% 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.</div>		Customer Sample Ref.		WSE12		WSE14		
		Depth (m)		0.10 - 0.30		0.40 - 0.70		
		Sample Type		Soil/Solid		Soil/Solid		
		Date Sampled		21/07/2010		21/07/2010		
		Date Received		23/07/2010		23/07/2010		
		SDG Ref		100723-15		100723-15		
		Lab Sample No.(s)		1858445		1858555		
Component		LOD/Units	Method					
Phenol		<0.1 mg/kg	TM157	<0.1		<0.1		
Pentachlorophenol		<0.1 mg/kg	TM157	<0.1		<0.1		
n-Nitroso-n-dipropylamine		<0.1 mg/kg	TM157	<0.1		<0.1		
Nitrobenzene		<0.1 mg/kg	TM157	<0.1		<0.1		
Isophorone		<0.1 mg/kg	TM157	<0.1		<0.1		
Hexachloroethane		<0.1 mg/kg	TM157	<0.1		<0.1		
Hexachlorocyclopentadiene		<0.1 mg/kg	TM157	<0.1		<0.1		
Hexachlorobutadiene		<0.1 mg/kg	TM157	<0.1		<0.1		
Hexachlorobenzene		<0.1 mg/kg	TM157	<0.1		<0.1		
n-Dioctyl phthalate		<0.1 mg/kg	TM157	<0.1		<0.1		
Dimethyl phthalate		<0.1 mg/kg	TM157	<0.1		<0.1		
Diethyl phthalate		<0.1 mg/kg	TM157	<0.1		<0.1		
n-Dibutyl phthalate		<0.1 mg/kg	TM157	<0.1		<0.1		
Dibenzofuran		<0.1 mg/kg	TM157	<0.1		<0.1		
Carbazole		<0.1 mg/kg	TM157	<0.1		<0.1		
Butylbenzyl phthalate		<0.1 mg/kg	TM157	<0.1		<0.1		
bis(2-Ethylhexyl) phthalate		<0.1 mg/kg	TM157	<0.1		<0.1		
bis(2-Chloroethoxy)methane		<0.1 mg/kg	TM157	<0.1		<0.1		
bis(2-Chloroethyl)ether		<0.1 mg/kg	TM157	<0.1		<0.1		
Azobenzene		<0.1 mg/kg	TM157	<0.1		<0.1		
4-Nitrophenol		<0.1 mg/kg	TM157	<0.1		<0.1		
4-Nitroaniline		<0.1 mg/kg	TM157	<0.1		<0.1		
4-Methylphenol		<0.1 mg/kg	TM157	<0.1		<0.1		
4-Chlorophenylphenylether		<0.1 mg/kg	TM157	<0.1		<0.1		
4-Chloroaniline		<0.1 mg/kg	TM157	<0.1		<0.1		
4-Chloro-3-methylphenol		<0.1 mg/kg	TM157	<0.1		<0.1		
4-Bromophenylphenylether		<0.1 mg/kg	TM157	<0.1		<0.1		
3-Nitroaniline		<0.1 mg/kg	TM157	<0.1		<0.1		
2-Nitrophenol		<0.1 mg/kg	TM157	<0.1		<0.1		
2-Nitroaniline		<0.1 mg/kg	TM157	<0.1		<0.1		
2-Methylphenol		<0.1 mg/kg	TM157	<0.1		<0.1		
1,2,4-Trichlorobenzene		<0.1 mg/kg	TM157	<0.1		<0.1		
2-Chlorophenol		<0.1 mg/kg	TM157	<0.1		<0.1		
2,6-Dinitrotoluene		<0.1 mg/kg	TM157	<0.1		<0.1		
2,4-Dinitrotoluene		<0.1 mg/kg	TM157	<0.1		<0.1		
2,4-Dimethylphenol		<0.1 mg/kg	TM157	<0.1		<0.1		
2,4-Dichlorophenol		<0.1 mg/kg	TM157	<0.1		<0.1		
2,4,6-Trichlorophenol		<0.1 mg/kg	TM157	<0.1		<0.1		
2,4,5-Trichlorophenol		<0.1 mg/kg	TM157	<0.1		<0.1		

Customer: Entec UK Ltd
Attention: Steve Dooley
Order No.: 228113
Report No: 91932

[illegible]

Validated		ALcontrol Laboratories Analytical Services						
SDG		100723-15			Customer:		Entec UK Ltd	
Job:		H_ENTEC_SHW-24			Attention:		Steve Dooley	
Client Reference:		26999			Order No.:		228113	
Location:		KL056 DSDC Bicester			Report No:		91932	
TPH CWG (S)								
<div>Results Legend</div> <div>#ISO17025 accredited. MmCERTS accredited. aqAqueous / settled sample. diss.filtDissolved / filtered sample. tot.unfiltTotal / 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.</div>		Customer Sample Ref.		WSE12		WSE14		
		Depth (m)		0.10 - 0.30		0.40 - 0.70		
		Sample Type		Soil/Solid		Soil/Solid		
		Date Sampled		21/07/2010		21/07/2010		
		Date Received		23/07/2010		23/07/2010		
		SDG Ref		100723-15		100723-15		
		Lab Sample No.(s)		1858445		1858555		
Component		LOD/Units	Method					
GRO Surrogate % recovery**		%	TM089	47		34		
GRO >C5-C12		<0.044 mg/kg	TM089	<0.044		<0.044		
Benzene		<0.01 mg/kg	TM089	<0.01		<0.01		
Ethylbenzene		<0.003 mg/kg	TM089	<0.003		<0.003		
Toluene		<0.002 mg/kg	TM089	<0.002		<0.002		
m,p-Xylene		<0.006 mg/kg	TM089	<0.006		<0.006		
o-Xylene		<0.003 mg/kg	TM089	<0.003		<0.003		
m,p,o-Xylene		<0.01 mg/kg	TM089	<0.01		<0.01		
BTEX, Total		<0.01 mg/kg	TM089	<0.01		<0.01		
Methyl tertiary butyl ether (MTBE)		<0.005 mg/kg	TM089	<0.005		<0.005		
Aliphatics >C5-C6		<0.01 mg/kg	TM089	<0.01		<0.01		
Aliphatics >C6-C8		<0.01 mg/kg	TM089	<0.01		<0.01		
Aliphatics >C8-C10		<0.01 mg/kg	TM089	<0.01		<0.01		
Aliphatics >C10-C12		<0.01 mg/kg	TM089	<0.01		<0.01		
Aromatics >C6-C7		<0.01 mg/kg	TM089	<0.01		<0.01		
Aromatics >C7-C8		<0.01 mg/kg	TM089	<0.01		<0.01		
Aromatics >EC8-EC10		<0.01 mg/kg	TM089	<0.01		<0.01		
Aromatics >EC10-EC12		<0.01 mg/kg	TM089	<0.01		<0.01		
Total Aliphatics >C5-C12		<0.01 mg/kg	TM089	<0.01		<0.01		
Total Aromatics >C6-C12		<0.01 mg/kg	TM089	<0.01		<0.01		
Aliphatics >C12-C16		<0.1 mg/kg	TM173	12.5		18.1		
Aliphatics >C16-C21		<0.1 mg/kg	TM173	8.54		5.96		
Aliphatics >C16-C35		<0.1 mg/kg	TM173	44.6		19.5		
Aliphatics >C21-C35		<0.1 mg/kg	TM173	36.1		13.6		
Aliphatics >C35-C44		<0.1 mg/kg	TM173	10.4		<0.1		
Aromatics >EC12-EC16		<0.1 mg/kg	TM173	24.4		6.1		
Aromatics >EC16-EC21		<0.1 mg/kg	TM173	40.7		6.32		
Aromatics >EC21-EC35		<0.1 mg/kg	TM173	97		11.4		
Aromatics >EC35-EC44		<0.1 mg/kg	TM173	31.7		5.96		
Aromatics >EC40-EC44		<0.1 mg/kg	TM173	11.9		1.94		
Total Aliphatics >C12-C44		<0.1 mg/kg	TM173	67.5		37.6		
Total Aromatics >EC12-EC44		<0.1 mg/kg	TM173	194		29.8		
Total Aliphatics >C5-35		<0.1 mg/kg	TM173	57.2		37.6		
Total Aliphatics >C5-C44		<0.1 mg/kg	TM173	67.5		37.6		
Total Aromatics >C5-35		<0.1 mg/kg	TM173	162		23.8		
Total Aromatics >C6-C44		<0.1 mg/kg	TM173	194		29.8		
Total Aliphatics & Aromatics >C5-35		<0.1 mg/kg	TM173	219		61.4		
Total Aliphatics & Aromatics >C5-C44		<0.1 mg/kg	TM173	261		67.4		

Validated		ALcontrol Laboratories Analytical Services						
SDG		100723-15			Customer:		Entec UK Ltd	
Job:		H_ENTEC_SHW-24			Attention:		Steve Dooley	
Client Reference:		26999			Order No.:		228113	
Location:		KL056 DSDC Bicester			Report No:		91932	
VOC MS (S)								
<div><div>Results Legend</div><div>#ISO17025 accredited. mCERTS accredited. aqAqueous / settled sample. diss.filtDissolved / filtered sample. tot.unfiltTotal / 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.</div></div>		Customer Sample Ref.		WSE12		WSE14		
		Depth (m)		0.10 - 0.30		0.40 - 0.70		
		Sample Type		Soil/Solid		Soil/Solid		
		Date Sampled		21/07/2010		21/07/2010		
		Date Received		23/07/2010		23/07/2010		
		SDG Ref		100723-15		100723-15		
		Lab Sample No.(s)		1858445		1858555		
Component		LOD/Units	Method					
Dibromofluoromethane**		%	TM116	86.2		104		
Toluene-d8**		%	TM116	99.6		98.6		
4-Bromofluorobenzene**		%	TM116	119		114		
Dichlorodifluoromethane		<0.004 mg/kg	TM116	<0.004 M		<0.004 M		
Chloromethane		<0.007 mg/kg	TM116	<0.007 #		<0.007 #		
Vinyl Chloride		<0.01 mg/kg	TM116	<0.01 #		<0.01 #		
Bromomethane		<0.013 mg/kg	TM116	<0.013 M		<0.013 M		
Chloroethane		<0.014 mg/kg	TM116	<0.014 M		<0.014 M		
Trichlorofluoromethane		<0.006 mg/kg	TM116	<0.006 M		<0.006 M		
1.1-Dichloroethene		<0.01 mg/kg	TM116	<0.01 #		<0.01 #		
Carbon Disulphide		<0.007 mg/kg	TM116	<0.007 M		<0.007 M		
Dichloromethane		<0.01 mg/kg	TM116	<0.01 #		<0.01 #		
Methyl Tertiary Butyl Ether		<0.011 mg/kg	TM116	<0.011 M		<0.011 M		
trans-1-2-Dichloroethene		<0.011 mg/kg	TM116	<0.011 M		<0.011 M		
1.1-Dichloroethane		<0.008 mg/kg	TM116	<0.008 M		<0.008 M		
cis-1-2-Dichloroethene		<0.005 mg/kg	TM116	<0.005 M		<0.005 M		
2.2-Dichloropropane		<0.012 mg/kg	TM116	<0.012 M		<0.012 M		
Bromochloromethane		<0.014 mg/kg	TM116	<0.014 M		<0.014 M		
Chloroform		<0.008 mg/kg	TM116	<0.008 M		<0.008 M		
1.1.1-Trichloroethane		<0.007 mg/kg	TM116	<0.007 M		<0.007 M		
1.1-Dichloropropene		<0.011 mg/kg	TM116	<0.011 M		<0.011 M		
Carbontetrachloride		<0.014 mg/kg	TM116	<0.014 M		<0.014 M		
1.2-Dichloroethane		<0.005 mg/kg	TM116	<0.005 M		<0.005 M		
Benzene		<0.009 mg/kg	TM116	<0.009 M		<0.009 M		
Trichloroethene		<0.009 mg/kg	TM116	<0.009 M		<0.009 M		
1.2-Dichloropropane		<0.012 mg/kg	TM116	<0.012 M		<0.012 M		
Dibromomethane		<0.009 mg/kg	TM116	<0.009 M		<0.009 M		
Bromodichloromethane		<0.007 mg/kg	TM116	<0.007 M		<0.007 M		
cis-1-3-Dichloropropene		<0.014 mg/kg	TM116	<0.014 M		<0.014 M		
Toluene		<0.005 mg/kg	TM116	<0.005 M		<0.005 M		
trans-1-3-Dichloropropene		<0.014 mg/kg	TM116	<0.014		<0.014		
1.1.2-Trichloroethane		<0.01 mg/kg	TM116	<0.01 M		<0.01 M		
1.3-Dichloropropane		<0.007 mg/kg	TM116	<0.007 #		<0.007 #		
Tetrachloroethene		<0.005 mg/kg	TM116	<0.005 M		<0.005 M		
Dibromochloromethane		<0.013 mg/kg	TM116	<0.013 M		<0.013 M		
1.2-Dibromoethane		<0.012 mg/kg	TM116	<0.012 M		<0.012 M		
Chorobenzene		<0.005 mg/kg	TM116	<0.005 M		<0.005 M		
1.1.1.2-Tetrachloroethane		<0.01 mg/kg	TM116	<0.01 M		<0.01 M		
Ethylbenzene		<0.004 mg/kg	TM116	<0.004 M		<0.004 M		

Validated		ALcontrol Laboratories Analytical Services	
SDG	100723-15	Customer:	Entec UK Ltd
Job:	H_ENTEC_SHW-24	Attention:	Steve Dooley
Client Reference:	26999	Order No.:	228113
Location:	KL056 DSDC Bicester	Report No:	91932

ASSOCIATED AQC DATA

Ammonium Soil by Titration

Component	Method Code	QC 17
Exchangeable Ammonium as NH4	TM024	97.42 80.84 : 103.27

Boron Water Soluble

Component	Method Code	QC 12	QC 16	QC 12
Water Soluble Boron	TM222	99.45 82.59 : 112.64	97.70 82.59 : 112.64	95.75 82.59 : 112.64

EPH CWG (Aliphatic) GC (S)

Component	Method Code	QC 11	QC 19
Total Aliphatics >C12-C35	TM173	78.74 66.13 : 101.56	68.23 60.00 : 116.88

EPH CWG (Aromatic) GC (S)

Component	Method Code	QC 11	QC 19
Total Aromatics >EC12-EC35	TM173	83.11 64.00 : 112.00	104.50 64.98 : 117.66

Hexavalent Chromium (s)

Component	Method Code	QC 10
Hexavalent Chromium	TM151	109.00 76.40 : 131.80

Metals by iCap-OES (Soil)

Component	Method Code	QC 19	QC 14	QC 10
Aluminium	TM181	107.24 95.21 : 133.11	109.18 95.21 : 133.11	115.51 95.21 : 133.11
Antimony	TM181	108.62 63.92 : 138.56	108.11 63.92 : 138.56	91.90 63.92 : 138.56
Arsenic	TM181	109.04 77.96 : 122.04	97.33 77.96 : 122.04	95.52 77.96 : 122.04
Barium	TM181	101.71 90.49 : 117.24	103.38 90.49 : 117.24	111.11 90.49 : 117.24
Beryllium	TM181	107.07 77.50 : 122.50	106.24 77.50 : 122.50	93.48 77.50 : 122.50
Boron	TM181	105.37 82.46 : 141.11	105.28 82.46 : 141.11	114.95 82.46 : 141.11

		QC 19	QC 14	QC 10
Cadmium	TM181	106.22 77.50 : 122.50	104.80 77.50 : 122.50	90.62 77.50 : 122.50
Chromium	TM181	93.80 82.90 : 117.10	97.04 82.90 : 117.10	97.28 82.90 : 117.10
Cobalt	TM181	103.11 78.26 : 121.74	101.07 78.26 : 121.74	93.69 78.26 : 121.74
Copper	TM181	96.99 86.52 : 113.48	100.16 86.52 : 113.48	101.08 86.52 : 113.48
Iron	TM181	101.33 93.59 : 123.28	104.13 93.59 : 123.28	104.49 93.59 : 123.28
Lead	TM181	91.96 81.22 : 118.78	100.39 81.22 : 118.78	92.46 81.22 : 118.78
Manganese	TM181	91.22 87.42 : 112.58	97.52 87.42 : 112.58	95.89 87.42 : 112.58
Mercury	TM181	101.93 72.27 : 127.73	106.50 72.27 : 127.73	97.98 72.27 : 127.73
Molybdenum	TM181	105.31 71.12 : 128.88	106.25 71.12 : 128.88	91.26 71.12 : 128.88
Nickel	TM181	90.53 81.27 : 118.73	95.80 81.27 : 118.73	96.11 81.27 : 118.73
Phosphorus	TM181	97.05 84.04 : 115.96	98.06 84.04 : 115.96	98.28 84.04 : 115.96
Selenium	TM181	104.74 72.61 : 127.39	106.65 72.61 : 127.39	101.61 72.61 : 127.39
Strontium	TM181	95.99 80.21 : 119.79	97.15 80.21 : 119.79	99.03 80.21 : 119.79
Thallium	TM181	99.88 73.04 : 126.96	95.91 73.04 : 126.96	85.02 73.04 : 126.96
Tin	TM181	103.65 71.55 : 128.45	104.61 71.55 : 128.45	89.70 71.55 : 128.45
Titanium	TM181	100.75 78.26 : 121.74	100.48 78.26 : 121.74	109.68 78.26 : 121.74
Vanadium	TM181	98.21 82.03 : 117.97	99.10 82.03 : 117.97	99.10 82.03 : 117.97
Zinc	TM181	88.38 77.50 : 122.50	91.07 77.50 : 122.50	91.91 77.50 : 122.50

PAH by GCMS

Component	Method Code	QC 16	QC 19
Acenaphthene	TM218	98.41 72.57 : 113.17	100.84 72.57 : 113.17
Acenaphthylene	TM218	88.37 71.02 : 96.03	93.67 71.02 : 96.03
Anthracene	TM218	92.49 76.12 : 108.98	96.94 76.12 : 108.98
Benz(a)anthracene	TM218	110.38 78.66 : 118.62	104.40 78.66 : 118.62
Benzo(a)pyrene	TM218	112.38 80.21 : 117.00	105.16 80.21 : 117.00
Benzo(b)fluoranthene	TM218	112.70 81.65 : 115.86	103.50 81.65 : 115.86
Benzo(ghi)perylene	TM218	107.93 76.98 : 113.58	98.49 76.98 : 113.58
Benzo(k)fluoranthene	TM218	108.07 79.33 : 114.91	95.24 79.33 : 114.91

Validated		ALcontrol Laboratories Analytical Services	
SDG	100723-15	Customer:	Entec UK Ltd
Job:	H_ENTEC_SHW-24	Attention:	Steve Dooley
Client Reference:	26999	Order No.:	228113
Location:	KL056 DSDC Bicester	Report No:	91932

		QC 16	QC 19
Chrysene	TM218	111.82 79.48 : 114.86	94.65 79.48 : 114.86
Dibenzo(ah)anthracene	TM218	109.02 78.93 : 113.23	97.86 78.93 : 113.23
Fluoranthene	TM218	98.80 77.73 : 113.38	97.21 77.73 : 113.38
Fluorene	TM218	97.99 71.81 : 113.08	101.36 71.81 : 113.08
Indeno(123cd)pyrene	TM218	112.42 79.11 : 114.44	99.02 79.11 : 114.44
Naphthalene	TM218	96.75 74.81 : 102.18	88.05 74.81 : 102.18
Phenanthrene	TM218	97.38 78.74 : 112.18	99.27 78.74 : 112.18
Pyrene	TM218	96.97 77.72 : 113.01	95.77 77.72 : 113.01

PCBs (vs Aroclor 1254)		
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Component	Method Code	QC 19
PCBs (vs Aroclor 1254)	TM070	105.20 75.18 : 122.16

pH		
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Component	Method Code	QC 13
pH	TM133	100.00 97.90 : 102.35

Semi Volatile Organic Compounds			
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Component	Method Code	QC 11	QC 14
4-Bromophenylphenylether (Soil)	TM157	89.39 12.25 : 162.08	89.80 30.30 : 139.75
Benzo(a)anthracene (Soil)	TM157	94.89 38.70 : 146.05	94.88 27.20 : 137.40
Hexachlorobutadiene (Soil)	TM157	90.24 17.33 : 157.33	91.91 28.70 : 141.30
Naphthalene (Soil)	TM157	92.01 17.33 : 157.33	93.80 39.23 : 145.41
Nitrobenzene (Soil)	TM157	89.65 19.50 : 154.53	91.73 41.78 : 147.15
Phenol (Soil)	TM157	92.68 23.40 : 144.15	93.40 51.88 : 150.83

Total Organic Carbon			
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Component	Method Code	QC 16	QC 10
Total Organic Carbon	TM132	96.01 88.75 : 104.70	94.59 88.75 : 104.70

SDG	100723-15	Customer:	Entec UK Ltd
Job:	H_ENTEC_SHW-24	Attention:	Steve Dooley
Client Reference:	26999	Order No.:	228113
Location:	KL056 DSDC Bicester	Report No:	91932

TPH c6-40 Value of soil

Component	Method Code	QC 16	QC 16
Diesel QC	TM154	92.68 87.23 : 113.71	93.69 87.23 : 113.71
Lube Oil QC	TM154	94.93 88.71 : 110.56	96.08 88.71 : 110.56
TPH C6-40 Corrected	TM154	93.80 86.39 : 109.99	94.89 86.39 : 109.99

Water Soluble Sulphate 2:1

Component	Method Code	QC 12	QC 15
Soluble SO4	TM098	101.46 76.87 : 120.45	85.91 76.87 : 120.45

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.

SDG:	100723-15	Customer:	Entec UK Ltd
Job:	H_ENTEC_SHW-24	Attention:	Steve Dooley
Client Reference:	26999	Order No.:	228113
Location:	KL056 DSDC Bicester	Report No:	91932

Asbestos Identification

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Fibrous Actinolite	Fibrous Anthophyllite	Fibrous Tremolite	Non-Asbestos Fibre
Customer Sample Ref. Depth (m) Sample Type Date Sampled Date Received SDG Original Sample Method Number	WSE11 NS Z 0.10 - 0.30 SOLID 21/07/2010 00:00:00 23/07/2010 08:21:28 100723-15 1,858,380 TM048	26/7/10	Rhodri Williams	Typical of asbestos cement	Not Detected	Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected

Table of Results - Appendix

SDG Number : 100723-15

Client : Entec UK Ltd

Client Ref : 26999

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
PM001		Preparation of Samples for Metals Analysis	Dry
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material	Wet
TM001	In - house Method	Determination of asbestos containing material by screening on solids	
TM024	Method 4500A & B, AWWA/APHA, 20th Ed., 1999	Determination of Exchangeable Ammonium and Ammoniacal Nitrogen as N by titration on solids	Wet
TM048	HSG 248, Asbestos: The analysts' guide for sampling, analysis and clearance procedures	Identification of Asbestos in Bulk Material	
TM070	Modified: US EPA Method 8250 & 625	Determination of Total Polychlorinated Biphenyls (PCB/Es) as Aroclor 1254 by GC-MS in Soils	Dry
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) and BTEX (MTBE) compounds by Headspace GC-FID (C4-C12)	
TM098	Method 4500E, AWWA/APHA, 20th Ed., 1999	Determination of Sulphate using the Kone Analyser	Dry
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	Dry
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter	Wet
TM151	Method 3500D, AWWA/APHA, 20th Ed., 1999	Determination of Hexavalent Chromium using Kone analyser	Wet
TM154	In - house Method	Determination of Petroleum Hydrocarbons by EZ Flash GC-FID in the Carbon range C6- C40	Wet
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	Wet
TM173	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GC-FID	Dry
TM181	US EPA Method 6010B	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES	Dry
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers	Dry
TM218	Microwave extraction – EPA method 3546	Microwave extraction - EPA method 3546	Wet
TM222	In-House Method	Determination of Hot Water Soluble Boron in Soils (10:1 Water:soil) by IRIS Emission Spectrometer	Dry

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

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)	GS 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	SOXTHERM	GRAVIMETRIC
Cyclohexane Ext. Matter	D&C	CYCLOHEXANE	SOXTHERM	GRAVIMETRIC
Thin Layer Chromatography	D&C	DCM	SOXTHERM	IATROSCAN
Elemental Sulphur	D&C	DCM	SOXTHERM	HPLC
Phenols by GCMS	WET	DCM	SOXTHERM	GC-MS
Herbicides	D&C	HEXANE:ACETONE	SOXTHERM	GC-MS
Pesticides	D&C	HEXANE:ACETONE	SOXTHERM	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.

<u>Asbestos Type</u>	<u>Common Name</u>
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-



Entec UK Ltd
Canon Court North
Abbey Lawn
Abbey Foregate
Shrewsbury
Shropshire
SY2 5DE

Attention: Steve Dooley

CERTIFICATE OF ANALYSIS

Date:	28 July 2010	
Customer:	H_ENTEC_SHW-24	
Sample Delivery Group (SDG):	100723-33	Report No.: 91741
Your Reference:	26999	
Location:	KL056 DSDC Bicester	

We received 10 samples on Friday July 23, 2010 and 10 of these samples were scheduled for analysis which was completed on Wednesday July 28, 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

Operations Director - Land UK & Ireland



SDG:	100723-33	Customer:	Entec UK Ltd
Job:	H_ENTEC_SHW-24	Attention:	Steve Dooley
Client Reference:	26999	Order No.:	
Location:	KL056 DSDC Bicester	Report No:	91741

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Sampled Date
1858925	SWA1		21/07/2010
1858966	SWC1		21/07/2010
1858994	SWC2		21/07/2010
1859051	SWC4		21/07/2010
1859368	SWC5		21/07/2010
1859388	SWC8		21/07/2010
1859442	SWD6		21/07/2010
1859457	SWD9		21/07/2010
1859405	SWE1		21/07/2010
1859421	SWE5		21/07/2010

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

SDG: 100723-33
Job: H_ENTEC_SHW-24
Client Reference: 26999
Location: KL056 DSDC Bicester

Customer: Entec UK Ltd
Attention: Steve Dooley
Order No.:
Report No: 91741

LIQUID

Results Legend										Total
<div><div>X</div> Test</div> <div><div>N</div> No Determination Possible</div>										
Lab Sample No(s)		Customer Sample Ref.		Depth (m)		Container				
1859457		SWD9				H2SO4 500ml Plastic 11 green glass bottle				
1859442		SWD6				H2SO4 500ml Plastic 11 green glass bottle				
1859421		SWE5				H2SO4 500ml Plastic 11 green glass bottle				
1859405		SWE1				H2SO4 500ml Plastic 11 green glass bottle				
1859388		SWC8				H2SO4 500ml Plastic 11 green glass bottle				
1859368		SWC5				H2SO4 500ml Plastic 11 green glass bottle				
1859051		SWC4				H2SO4 500ml Plastic 11 green glass bottle				
1858994		SWC2				H2SO4 500ml Plastic 11 green glass bottle				
1858966		SWC1				H2SO4 500ml Plastic 11 green glass bottle				
1858925		SWA1				H2SO4 500ml Plastic 11 green glass bottle				
Alkalinity as CaCO3		All				X				0 10
Ammonium		All				X				0 10
Anions by Kone (w)		All				X				0 10
Conductivity (at 20 deg.C)		All				X				0 10
Dissolved Metals by ICP-MS		All				X				0 10
EPH (DRO) (C10-C40) Aqueous (W)		All				X				0 10
Mercury Dissolved		All				X				0 10
pH Value		All				X				0 10

SDG:	100723-33	Customer:	Entec UK Ltd
Job:	H_ENTEC_SHW-24	Attention:	Steve Dooley
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Test Completion dates

SDG reference: 100723-33

Lab Sample No(s)	1858925	1858966	1858994	1859051	1859368	1859388	1859405	1859421	1859442	1859457
Customer Sample Ref.	SWA1	SWC1	SWC2	SWC4	SWC5	SWC8	SWE1	SWE5	SWD6	SWD9
Depth										
Type	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID
Alkalinity as CaCO ₃	27/07/2010	27/07/2010	27/07/2010	27/07/2010	27/07/2010	27/07/2010	27/07/2010	27/07/2010	27/07/2010	27/07/2010
Ammonium	26/07/2010	26/07/2010	26/07/2010	26/07/2010	26/07/2010	26/07/2010	26/07/2010	26/07/2010	26/07/2010	26/07/2010
Anions by Kone (w)	26/07/2010	26/07/2010	26/07/2010	26/07/2010	26/07/2010	26/07/2010	26/07/2010	26/07/2010	26/07/2010	26/07/2010
Conductivity (at 20 deg.C)	27/07/2010	27/07/2010	27/07/2010	27/07/2010	27/07/2010	27/07/2010	27/07/2010	27/07/2010	27/07/2010	27/07/2010
Dissolved Metals by ICP-MS	27/07/2010	27/07/2010	27/07/2010	27/07/2010	27/07/2010	28/07/2010	28/07/2010	28/07/2010	28/07/2010	28/07/2010
EPH (DRO) (C10-C40) Aqueous (W)	27/07/2010	27/07/2010	27/07/2010	27/07/2010	27/07/2010	27/07/2010	27/07/2010	27/07/2010	27/07/2010	27/07/2010
Mercury Dissolved	26/07/2010	26/07/2010	26/07/2010	26/07/2010	26/07/2010	26/07/2010	26/07/2010	26/07/2010	26/07/2010	26/07/2010
pH Value	26/07/2010	26/07/2010	26/07/2010	26/07/2010	26/07/2010	26/07/2010	26/07/2010	26/07/2010	26/07/2010	26/07/2010

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[illegible]

SDG:	100723-33	Customer:	Entec UK Ltd
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ASSOCIATED AQC DATA

Alkalinity as CaCO3

Component	Method Code	QC 10
Total Alkalinity as CaCO3	TM043	100.00 95.50 : 104.50

Ammonium

Component	Method Code	QC 15	QC 11
Ammoniacal Nitrogen as N	TM099	101.42 98.81 : 106.69	101.28 98.81 : 106.69

Anions by Kone (w)

Component	Method Code	QC 18	QC 14
Chloride	TM184	98.40 92.01 : 104.18	98.70 92.01 : 104.18
Nitrite as NO2	TM184	98.40 92.92 : 105.47	98.60 92.92 : 105.47
Phosphate (Ortho as PO4)	TM184	99.32 94.22 : 106.12	99.80 94.22 : 106.12
Sulphate (soluble)	TM184	102.64 95.09 : 105.03	101.08 95.09 : 105.03
TON as NO3	TM184	102.35 94.35 : 105.63	102.51 94.35 : 105.63

Conductivity (at 20 deg.C)

Component	Method Code	QC 16
Conductivity (at 20 deg.C)	TM120	98.98 97.19 : 102.36

Dissolved Metals by ICP-MS

Component	Method Code	QC 10	QC 18
Aluminium	TM152	103.09 85.00 : 115.00	107.12 85.00 : 115.00
Antimony	TM152	105.95 85.00 : 115.00	104.67 85.00 : 115.00
Arsenic	TM152	106.11 85.00 : 115.00	99.44 85.00 : 115.00
Barium	TM152	102.76 85.00 : 115.00	102.61 85.00 : 115.00
Beryllium	TM152	109.48 85.00 : 115.00	100.05 85.00 : 115.00
Bismuth	TM152	105.55 85.00 : 115.00	105.29 85.00 : 115.00
Boron	TM152	96.16 77.43 : 112.32	106.57 77.43 : 112.32

SDG:	100723-33	Customer:	Entec UK Ltd
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		QC 10	QC 18
Cadmium	TM152	104.45 85.00 : 115.00	103.20 85.00 : 115.00
Chromium	TM152	107.41 85.00 : 115.00	103.71 85.00 : 115.00
Cobalt	TM152	104.28 85.00 : 115.00	100.35 85.00 : 115.00
Copper	TM152	109.44 85.00 : 115.00	100.25 85.00 : 115.00
Lead	TM152	104.48 85.00 : 115.00	104.80 85.00 : 115.00
Lithium	TM152	104.76 85.00 : 115.00	105.73 85.00 : 115.00
Manganese	TM152	104.33 85.00 : 115.00	104.45 85.00 : 115.00
Molybdenum	TM152	102.37 85.00 : 115.00	97.16 85.00 : 115.00
Nickel	TM152	106.53 85.00 : 115.00	107.44 85.00 : 115.00
Niobium	TM152	98.99 85.00 : 115.00	132.52 85.00 : 115.00
Phosphorus	TM152	100.75 85.00 : 115.00	107.23 85.00 : 115.00
Selenium	TM152	105.96 85.00 : 115.00	102.24 85.00 : 115.00
Silver	TM152	102.91 85.00 : 115.00	101.83 85.00 : 115.00
Strontium	TM152	103.44 85.00 : 115.00	105.93 85.00 : 115.00
Tellurium	TM152	104.48 85.00 : 115.00	99.56 85.00 : 115.00
Thallium	TM152	101.25 85.00 : 115.00	101.43 85.00 : 115.00
Tin	TM152	118.37 85.00 : 115.00	110.88 85.00 : 115.00
Titanium	TM152	104.87 85.00 : 115.00	104.53 85.00 : 115.00
Tungsten	TM152	98.72 85.00 : 115.00	95.37 85.00 : 115.00
Uranium	TM152	104.04 85.00 : 115.00	106.12 85.00 : 115.00
Vanadium	TM152	105.11 85.00 : 115.00	103.60 85.00 : 115.00
Zinc	TM152	107.41 85.00 : 115.00	102.32 85.00 : 115.00
Zirconium	TM152	105.44 85.00 : 115.00	103.41 85.00 : 115.00

EPH (DRO) (C10-C40) Aqueous (W)

Component	Method Code	QC 16	QC 13
EPH (DRO) (C10-C40)	TM172	88.37 38.00 : 127.50	61.40 38.50 : 139.00

SDG:	100723-33	Customer:	Entec UK Ltd
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Component	Method Code	QC 11	QC 12
Mercury Dissolved (CVAF)	TM183	87.80 79.41 : 116.68	87.80 79.41 : 116.68

pH Value

Component	Method Code	QC 13	QC 18
pH	TM256	99.86 95.71 : 104.28	99.71 95.71 : 104.28

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.

Table of Results - Appendix

SDG Number : 100723-33

Client : Entec UK Ltd

Client Ref : 26999

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
TM043	Method 2320B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part109 1984	Determination of alkalinity in aqueous samples	
TM061	Method for the Determination of EPH,Massachusetts Dept.of EP, 1998	Determination of Extractable Petroleum Hydrocarbons by GC-FID (C10-C40)	
TM099	BS 2690: Part 7:1968 / BS 6068: Part2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser	
TM120	Method 2510B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part 9:1970	Determination of Electrical Conductivity using a Conductivity Meter	
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS	
TM172	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	EPH in Waters	
TM183	BS EN 23506:2002, (BS 6068-2.74:2002) ISBN 0 580 38924 3	Determination of Trace Level Mercury in Waters and Leachates by PSA Cold Vapour Atomic Fluorescence Spectrometry	
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers	
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.

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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 ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

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)	GS 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	SOXTHERM	GRAVIMETRIC
Cyclohexane Ext. Matter	D&C	CYCLOHEXANE	SOXTHERM	GRAVIMETRIC
Thin Layer Chromatography	D&C	DCM	SOXTHERM	IATROSCAN
Elemental Sulphur	D&C	DCM	SOXTHERM	HPLC
Phenols by GCMS	WET	DCM	SOXTHERM	GC-MS
Herbicides	D&C	HEXANE:ACETONE	SOXTHERM	GC-MS
Pesticides	D&C	HEXANE:ACETONE	SOXTHERM	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	-



Entec UK Ltd
Canon Court North
Abbey Lawn
Abbey Foregate
Shrewsbury
Shropshire
SY2 5DE

Attention: Steve Dooley

CERTIFICATE OF ANALYSIS

Date:	03 August 2010	
Customer:	H_ENTEC_SHW-24	
Sample Delivery Group (SDG):	100726-8	Report No.: 92286
Your Reference:	26999	
Location:	KL056 DSDC Bicester	

We received 30 samples on Saturday July 24, 2010 and 23 of these samples were scheduled for analysis which was completed on Tuesday August 03, 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

Operations Director - Land UK & Ireland



SDG:	100726-8	Customer:	Entec UK Ltd
Job:	H_ENTEC_SHW-24	Attention:	Steve Dooley
Client Reference:	26999	Order No.:	228113
Location:	KL056 DSDC Bicester	Report No:	92286

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Sampled Date
1864569	WSE 1	0.40 - 0.60	22/07/2010
1864515	WSE 1	2.80 - 3.00	22/07/2010
1864750	WSE 16	0.20 - 0.40	22/07/2010
1865961	WSE 16	0.50 - 0.70	22/07/2010
1865960	WSE 16	1.40 - 1.60	22/07/2010
1865962	WSE 17	0.10 - 0.30	22/07/2010
1865964	WSE 17	2.80 - 3.00	22/07/2010
1864709	WSE 19	0.30 - 0.50	22/07/2010
1864700	WSE 19	0.60 - 0.70	22/07/2010
1864848	WSE 19	3.30 - 3.50	22/07/2010
1864588	WSE 2	0.50 - 0.70	22/07/2010
1864517	WSE 2	2.10 - 2.30	22/07/2010
1864714	WSE 20	0.20 - 0.40	22/07/2010
1864829	WSE 20	3.40 - 3.60	22/07/2010
1864863	WSE 21	0.85 - 0.95	22/07/2010
1864857	WSE 21	1.60 - 1.90	22/07/2010
1864989	WSE 22	0.40 - 0.60	23/07/2010
1864953	WSE 22	2.40 - 2.60	23/07/2010
1864982	WSE 23	0.70 - 1.00	23/07/2010
1864968	WSE 23	1.20 - 1.40	23/07/2010
1864945	WSE 24	0.30 - 0.50	23/07/2010
1864958	WSE 24	4.40 - 4.60	23/07/2010
1865056	WSE 25	0.20 - 0.50	23/07/2010
1864974	WSE 25	1.30 - 1.60	23/07/2010
1865078	WSE 26	0.10 - 0.30	23/07/2010
1864965	WSE 26	2.00 - 2.30	23/07/2010
1864601	WSE 3	0.30 - 0.40	21/07/2010
1864503	WSE 3	2.30 - 2.50	22/07/2010
1864528	WSE 4	0.20 - 0.40	21/07/2010
1864626	WSE 4	1.60 - 1.80	22/07/2010

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

SDG: 100726-8
Job: H_ENTEC_SHW-24
Client Reference: 26999
Location: KL056 DSDC Bicester

Customer: Entec UK Ltd
Attention: Steve Dooley
Order No.: 228113
Report No.: 92286

SOLID

Results Legend	Lab Sample No(s)		Customer Sample Ref.		Depth (m)		Container	
	1865078		WSE 26		0.10 - 0.30		250g Amber Jar	
	1865056		WSE 25		0.20 - 0.50		250g Amber Jar	
	1864989		WSE 22		0.40 - 0.60		250g Amber Jar	
	1864982		WSE 23		0.70 - 1.00		250g Amber Jar	
<div>X</div> Test <div>N</div> No Determination Possible	1864968		WSE 23		1.20 - 1.40		250g Amber Jar	
	1864965		WSE 26		2.00 - 2.30		250g Amber Jar	
	1864958		WSE 24		4.40 - 4.60		250g Amber Jar	
	1864945		WSE 24		0.30 - 0.50		250g Amber Jar	
	1864863		WSE 21		0.85 - 0.95		250g Amber Jar	
	1864829		WSE 20		3.40 - 3.60		250g Amber Jar	
	1864750		WSE 16		0.20 - 0.40		250g Amber Jar	
	1864714		WSE 20		0.20 - 0.40		250g Amber Jar	
	1864709		WSE 19		0.30 - 0.50		250g Amber Jar	
	1864700		WSE 19		0.60 - 0.70		250g Amber Jar	
	1864626		WSE 4		1.60 - 1.80		250g Amber Jar	
	1864588		WSE 2		0.50 - 0.70		250g Amber Jar	
	1864569		WSE 1		0.40 - 0.60		250g Amber Jar	
	1864528		WSE 4		0.20 - 0.40		250g Amber Jar	
	1864517		WSE 2		2.10 - 2.30		250g Amber Jar	
	1864503		WSE 3		2.30 - 2.50		250g Amber Jar	
Ammonium Soil by Titration	All							
Asbestos Containing Material Screen	All							
Boron Water Soluble	All							
EPH CWG (Aliphatic) GC (S)	All							
EPH CWG (Aromatic) GC (S)	All							
GRO BTEX MTBE GC (S)	All							
Hexavalent Chromium (s)	All							
Metals by iCap-OES (Soil)	Arsenic							
	Cadmium							
	Chromium							
	Copper							
	Lead							
	Mercury							
	Nickel							
	Selenium							
	Zinc							
PAH by GCMS	All							
PCBs (vs Aroclor 1254)	All							
pH	All							
Sample description	All							
Semi Volatile Organic Compounds	All							
Total Organic Carbon	All							
TPH c6-40 Value of soil	All							

Total			0	23	0	4	0	23	0	4	0	4	0	4	0	23	0	23	0	23	0	23	0	4	0	4	0	23	0	23	0	4	0	5	0	12
1865964	WSE 17	2.80 - 3.00		X			X								X																					
1865961	WSE 16	0.50 - 0.70	250g Amber Jar																																	
			1kg TUB																																	
			60g VOC																																	
			250g Amber Jar																																	
1865960	WSE 16	1.40 - 1.60	1kg TUB																																	
			250g Amber Jar																																	
			1kg TUB																																	
			250g Amber Jar																																	

SDG:	100726-8	Customer:	Entec UK Ltd
Job:	H_ENTEC_SHW-24	Attention:	Steve Dooley
Client Reference:	26999	Order No.:	228113
Location:	KL056 DSDC Bicester	Report No:	92286

	1865078	WSE 26	0.10 - 0.30	250g Amber Jar kg TUB			X
	1865056	WSE 25	0.20 - 0.50	250g Amber Jar kg TUB			X
	1864989	WSE 22	0.40 - 0.60	250g Amber Jar kg TUB			X
	1864982	WSE 23	0.70 - 1.00	60g VOC 250g Amber Jar kg TUB	X	X	
	1864968	WSE 23	1.20 - 1.40	250g Amber Jar kg TUB			X
	1864965	WSE 26	2.00 - 2.30	250g Amber Jar kg TUB			X
	1864958	WSE 24	4.40 - 4.60	250g Amber Jar kg TUB			X
	1864945	WSE 24	0.30 - 0.50	250g Amber Jar kg TUB			X
	1864863	WSE 21	0.85 - 0.95	60g VOC 250g Amber Jar kg TUB	X	X	X
	1864829	WSE 20	3.40 - 3.60	250g Amber Jar kg TUB			X
	1864750	WSE 16	0.20 - 0.40	250g Amber Jar kg TUB			X
	1864714	WSE 20	0.20 - 0.40	250g Amber Jar kg TUB			X
	1864709	WSE 19	0.30 - 0.50	250g Amber Jar kg TUB			X
	1864700	WSE 19	0.60 - 0.70	60g VOC 250g Amber Jar kg TUB		X	X
	1864626	WSE 4	1.60 - 1.80	250g Amber Jar kg TUB			X
	1864588	WSE 2	0.50 - 0.70	250g Amber Jar kg TUB			X
	1864569	WSE 1	0.40 - 0.60	250g Amber Jar kg TUB			X
	1864528	WSE 4	0.20 - 0.40	250g Amber Jar kg TUB			X
	1864517	WSE 2	2.10 - 2.30	250g Amber Jar kg TUB			X
	1864503	WSE 3	2.30 - 2.50	250g Amber Jar kg TUB			X
TPH CWG GC (S)	All						
VOC MS (S)	All						
Water Soluble Sulphate 2:1	All						

Total					0	0	0	23
1865964	WSE 17	2.80 - 3.00	250g Amber Jar	Kg TUB				X
1865961	WSE 16	0.50 - 0.70	60g VOC			X		X
			250g Amber Jar		X			X
			Kg TUB					
			250g Amber Jar					
1865960	WSE 16	1.40 - 1.60	Kg TUB					X

SDG:	100726-8	Customer:	Entec UK Ltd
Job:	H_ENTEC_SHW-24	Attention:	Steve Dooley
Client Reference:	26999	Order No.:	228113
Location:	KL056 DSDC Bicester	Report No:	92286

Sample Descriptions

Grain Sizes:

<0.063mm very fine,
0.063mm - 0.1mm fine,
0.1mm - 2mm medium,
2mm - 10mm coarse,
>10mm very coarse

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Grain size	Inclusions
1864503	WSE 3	2.30 - 2.50	Light Brown	Silty Clay Loam	0.063 - 0.1 mm	Stones
1864517	WSE 2	2.10 - 2.30	Light Brown	Clay	<0.063 mm	Stones
1864528	WSE 4	0.20 - 0.40	Dark Brown	Silt Loam	0.063 - 0.1 mm	Vegetation
1864569	WSE 1	0.40 - 0.60	Dark Brown	Sandy Clay	0.1 - 2 mm	Stones
1864588	WSE 2	0.50 - 0.70	Dark Brown	Silt Loam	0.063 - 0.1 mm	Vegetation
1864626	WSE 4	1.60 - 1.80	Light Brown	Clay	<0.063 mm	None
1864700	WSE 19	0.60 - 0.70	Dark Brown	Clay Loam	0.063 - 0.1 mm	Metal
1864709	WSE 19	0.30 - 0.50	Light Brown	Silt Loam	0.063 - 0.1 mm	Stones
1864714	WSE 20	0.20 - 0.40	Dark Brown	Clay	<0.063 mm	N/A
1864750	WSE 16	0.20 - 0.40	Dark Brown	Clay Loam	0.063 - 0.1 mm	Stones
1864829	WSE 20	3.40 - 3.60	Light Brown	Sand	0.1 - 2 mm	Stones
1864863	WSE 21	0.85 - 0.95	Dark Brown	Sand	0.1 - 2 mm	Vegetation
1864945	WSE 24	0.30 - 0.50	Light Brown	Sandy Loam	0.1 - 2 mm	Stones
1864958	WSE 24	4.40 - 4.60	Grey	Sand	0.1 - 2 mm	N/A
1864965	WSE 26	2.00 - 2.30	Dark Brown	Clay	<0.063 mm	N/A
1864968	WSE 23	1.20 - 1.40	Dark Brown	Clay	<0.063 mm	N/A
1864982	WSE 23	0.70 - 1.00	Dark Brown	Clay Loam	0.063 - 0.1 mm	N/A
1864989	WSE 22	0.40 - 0.60	Dark Brown	Sandy Loam	0.1 - 2 mm	Stones
1865056	WSE 25	0.20 - 0.50	Light Brown	Silty Clay	0.063 - 0.1 mm	None
1865078	WSE 26	0.10 - 0.30	Dark Brown	Silt Loam	0.063 - 0.1 mm	Vegetation
1865960	WSE 16	1.40 - 1.60	Light Brown	Silty Clay	0.063 - 0.1 mm	Stones
1865961	WSE 16	0.50 - 0.70	Dark Brown	Sandy Clay	0.1 - 2 mm	Stones
1865964	WSE 17	2.80 - 3.00	Dark Brown	Silty Clay	0.063 - 0.1 mm	Stones

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

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

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

SDG:	100726-8	Customer:	Entec UK Ltd
Job:	H_ENTEC_SHW-24	Attention:	Steve Dooley
Client Reference:	26999	Order No.:	228113
Location:	KL056 DSDC Bicester	Report No:	92286

Test Completion dates

SDG reference: 100726-8

Lab Sample No(s)	1864503	1864517	1864528	1864569	1864588	1864626	1864700	1864709	1864714	1864750	1864829	1864863
Customer Sample Ref.	WSE 3	WSE 2	WSE 4	WSE 1	WSE 2	WSE 4	WSE 19	WSE 19	WSE 20	WSE 16	WSE 20	WSE 21
Depth	2.30 - 2.50	2.10 - 2.30	0.20 - 0.40	0.40 - 0.60	0.50 - 0.70	1.60 - 1.80	0.60 - 0.70	0.30 - 0.50	0.20 - 0.40	0.20 - 0.40	3.40 - 3.60	0.85 - 0.95
Type	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
Ammonium Soil by Titration	27/07/2010	27/07/2010	27/07/2010	27/07/2010	27/07/2010	28/07/2010	27/07/2010	28/07/2010	27/07/2010	27/07/2010	27/07/2010	27/07/2010
Asbestos Containing Material								26/07/2010	26/07/2010			
Boron Water Soluble	28/07/2010	28/07/2010	27/07/2010	27/07/2010	27/07/2010	28/07/2010	27/07/2010	27/07/2010	27/07/2010	27/07/2010	27/07/2010	27/07/2010
EPH CWG (Aliphatic) GC (S)							29/07/2010					28/07/2010
EPH CWG (Aromatic) GC (S)							29/07/2010					28/07/2010
GRO by GC-FID (S)							30/07/2010					30/07/2010
Hexavalent Chromium (s)	28/07/2010	27/07/2010	27/07/2010	27/07/2010	27/07/2010	27/07/2010	27/07/2010	27/07/2010	28/07/2010	28/07/2010	28/07/2010	28/07/2010
Metals by iCap-OES (Soil)	28/07/2010	28/07/2010	28/07/2010	28/07/2010	28/07/2010	28/07/2010	28/07/2010	28/07/2010	28/07/2010	28/07/2010	28/07/2010	28/07/2010
PAH by GCMS							30/07/2010					30/07/2010
PCBs (vs Aroclor 1254)							29/07/2010					29/07/2010
pH	26/07/2010	27/07/2010	26/07/2010	26/07/2010	26/07/2010	26/07/2010	26/07/2010	26/07/2010	28/07/2010	26/07/2010	26/07/2010	26/07/2010
Sample description	26/07/2010	26/07/2010	26/07/2010	26/07/2010	26/07/2010	26/07/2010	26/07/2010	26/07/2010	26/07/2010	26/07/2010	26/07/2010	26/07/2010
Semi Volatile Organic Compounds							27/07/2010					27/07/2010
Total Organic Carbon												
TPH c6-40 Value of soil	28/07/2010	28/07/2010			28/07/2010	28/07/2010			28/07/2010			
TPH CWG GC (S)							30/07/2010					30/07/2010
VOC MS (S)							03/08/2010					03/08/2010
Water Soluble Sulphate 2:1	27/07/2010	27/07/2010	27/07/2010	27/07/2010	27/07/2010	27/07/2010	28/07/2010	28/07/2010	28/07/2010	28/07/2010	27/07/2010	27/07/2010

1864945	1864958	1864965	1864968	1864982	1864989	1865056	1865078	1865960	1865961	1865964
WSE 24	WSE 24	WSE 26	WSE 23	WSE 23	WSE 22	WSE 25	WSE 26	WSE 16	WSE 16	WSE 17
0.30 - 0.50	4.40 - 4.60	2.00 - 2.30	1.20 - 1.40	0.70 - 1.00	0.40 - 0.60	0.20 - 0.50	0.10 - 0.30	1.40 - 1.60	0.50 - 0.70	2.80 - 3.00
SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
27/07/2010	27/07/2010	27/07/2010	27/07/2010	27/07/2010	27/07/2010	28/07/2010	27/07/2010	27/07/2010	27/07/2010	27/07/2010
				26/07/2010	26/07/2010					
27/07/2010	27/07/2010	27/07/2010	27/07/2010	27/07/2010	27/07/2010	27/07/2010	27/07/2010	27/07/2010	27/07/2010	27/07/2010
				28/07/2010					28/07/2010	
				28/07/2010					28/07/2010	
				30/07/2010					30/07/2010	
28/07/2010	28/07/2010	28/07/2010	28/07/2010	28/07/2010	28/07/2010	28/07/2010	28/07/2010	28/07/2010	28/07/2010	28/07/2010
27/07/2010	28/07/2010	28/07/2010	28/07/2010	28/07/2010	28/07/2010	27/07/2010	28/07/2010	28/07/2010	28/07/2010	28/07/2010
				30/07/2010					27/07/2010	
				29/07/2010					29/07/2010	
26/07/2010	28/07/2010	28/07/2010	28/07/2010	28/07/2010	28/07/2010	28/07/2010	28/07/2010	28/07/2010	26/07/2010	28/07/2010
26/07/2010	26/07/2010	26/07/2010	26/07/2010	26/07/2010	26/07/2010	26/07/2010	26/07/2010	26/07/2010	26/07/2010	26/07/2010
				27/07/2010					28/07/2010	
		28/07/2010	28/07/2010			28/07/2010			28/07/2010	28/07/2010
28/07/2010	28/07/2010	28/07/2010	28/07/2010		28/07/2010		28/07/2010	28/07/2010		
				30/07/2010					30/07/2010	
				30/07/2010					30/07/2010	
27/07/2010	27/07/2010	28/07/2010	28/07/2010	28/07/2010	27/07/2010	27/07/2010	28/07/2010	27/07/2010	27/07/2010	27/07/2010

SDG:	100726-8	Customer:	Entec UK Ltd
Job:	H_ENTEC_SHW-24	Attention:	Steve Dooley
Client Reference:	26999	Order No.:	228113
Location:	KL056 DSDC Bicester	Report No:	92286

Semi Volatile Organic Compounds							
Results Legend		Customer Sample Ref.	WSE 16				
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Date Received SDG Ref Lab Sample No.(s)					
M	mCERTS accredited.						
aq	Aqueous / settled sample.						
diss.filt	Dissolved / filtered sample.						
tot.unfilt	Total / unfiltered sample.						
*	subcontracted test.						
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.						
Component	LOD/Units	Method					
Phenol	<0.1 mg/kg	TM157	<0.1				
Pentachlorophenol	<0.1 mg/kg	TM157	<0.1				
n-Nitroso-n-dipropylamine	<0.1 mg/kg	TM157	<0.1				
Nitrobenzene	<0.1 mg/kg	TM157	<0.1				
Isophorone	<0.1 mg/kg	TM157	<0.1				
Hexachloroethane	<0.1 mg/kg	TM157	<0.1				
Hexachlorocyclopentadiene	<0.1 mg/kg	TM157	<0.1				
Hexachlorobutadiene	<0.1 mg/kg	TM157	<0.1				
Hexachlorobenzene	<0.1 mg/kg	TM157	<0.1				
n-Dioctyl phthalate	<0.1 mg/kg	TM157	<0.1				
Dimethyl phthalate	<0.1 mg/kg	TM157	<0.1				
Diethyl phthalate	<0.1 mg/kg	TM157	<0.1				
n-Dibutyl phthalate	<0.1 mg/kg	TM157	<0.1				
Dibenzofuran	<0.1 mg/kg	TM157	<0.1				
Carbazole	<0.1 mg/kg	TM157	<0.1				
Butylbenzyl phthalate	<0.1 mg/kg	TM157	<0.1				
bis(2-Ethylhexyl) phthalate	<0.1 mg/kg	TM157	<0.1				
bis(2-Chloroethoxy)methane	<0.1 mg/kg	TM157	<0.1				
bis(2-Chloroethyl)ether	<0.1 mg/kg	TM157	<0.1				
Azobenzene	<0.1 mg/kg	TM157	<0.1				
4-Nitrophenol	<0.1 mg/kg	TM157	<0.1				
4-Nitroaniline	<0.1 mg/kg	TM157	<0.1				
4-Methylphenol	<0.1 mg/kg	TM157	<0.1				
4-Chlorophenylphenylether	<0.1 mg/kg	TM157	<0.1				
4-Chloroaniline	<0.1 mg/kg	TM157	<0.1				
4-Chloro-3-methylphenol	<0.1 mg/kg	TM157	<0.1				
4-Bromophenylphenylether	<0.1 mg/kg	TM157	<0.1				
3-Nitroaniline	<0.1 mg/kg	TM157	<0.1				
2-Nitrophenol	<0.1 mg/kg	TM157	<0.1				
2-Nitroaniline	<0.1 mg/kg	TM157	<0.1				
2-Methylphenol	<0.1 mg/kg	TM157	<0.1				
1,2,4-Trichlorobenzene	<0.1 mg/kg	TM157	<0.1				
2-Chlorophenol	<0.1 mg/kg	TM157	<0.1				
2,6-Dinitrotoluene	<0.1 mg/kg	TM157	<0.1				
2,4-Dinitrotoluene	<0.1 mg/kg	TM157	<0.1				
2,4-Dimethylphenol	<0.1 mg/kg	TM157	<0.1				
2,4-Dichlorophenol	<0.1 mg/kg	TM157	<0.1				
2,4,6-Trichlorophenol	<0.1 mg/kg	TM157	<0.1				
2,4,5-Trichlorophenol	<0.1 mg/kg	TM157	<0.1				

SDG:	100726-8	Customer:	Entec UK Ltd
Job:	H_ENTEC_SHW-24	Attention:	Steve Dooley
Client Reference:	26999	Order No.:	228113
Location:	KL056 DSDC Bicester	Report No:	92286

TPH CWG (S)

Results Legend		Customer Sample Ref.		WSE 16				
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Date Received SDG Ref Lab Sample No.(s)	0.50 - 0.70 Soil/Solid 22/07/2010 24/07/2010 100726-8 1865961					
M	mCERTS accredited.							
aq	Aqueous / settled sample.							
diss.filt	Dissolved / filtered sample.							
tot.unfilt	Total / unfiltered sample.							
*	subcontracted test.							
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.							
Component		LOD/Units	Method					
GRO Surrogate % recovery**		%	TM089	101				
GRO >C5-C12		<0.044 mg/kg	TM089	<0.044				
Benzene		<0.01 mg/kg	TM089	<0.01				
Ethylbenzene		<0.003 mg/kg	TM089	<0.003				
Toluene		<0.002 mg/kg	TM089	<0.002				
m,p-Xylene		<0.006 mg/kg	TM089	<0.006				
o-Xylene		<0.003 mg/kg	TM089	<0.003				
m,p,o-Xylene		<0.01 mg/kg	TM089	<0.01				
BTEX, Total		<0.01 mg/kg	TM089	<0.01				
Methyl tertiary butyl ether (MTBE)		<0.005 mg/kg	TM089	<0.005				
Aliphatics >C5-C6		<0.01 mg/kg	TM089	<0.01				
Aliphatics >C6-C8		<0.01 mg/kg	TM089	<0.01				
Aliphatics >C8-C10		<0.01 mg/kg	TM089	<0.01				
Aliphatics >C10-C12		<0.01 mg/kg	TM089	<0.01				
Aromatics >C6-C7		<0.01 mg/kg	TM089	<0.01				
Aromatics >C7-C8		<0.01 mg/kg	TM089	<0.01				
Aromatics >EC8-EC10		<0.01 mg/kg	TM089	<0.01				
Aromatics >EC10-EC12		<0.01 mg/kg	TM089	<0.01				
Total Aliphatics >C5-C12		<0.01 mg/kg	TM089	<0.01				
Total Aromatics >C6-C12		<0.01 mg/kg	TM089	<0.01				
Aliphatics >C12-C16		<0.1 mg/kg	TM173	<0.1				
Aliphatics >C16-C21		<0.1 mg/kg	TM173	<0.1				
Aliphatics >C16-C35		<0.1 mg/kg	TM173	2.08				
Aliphatics >C21-C35		<0.1 mg/kg	TM173	2.08				
Aliphatics >C35-C44		<0.1 mg/kg	TM173	<0.1				
Aromatics >EC12-EC16		<0.1 mg/kg	TM173	<0.1				
Aromatics >EC16-EC21		<0.1 mg/kg	TM173	0.406				
Aromatics >EC21-EC35		<0.1 mg/kg	TM173	20				
Aromatics >EC35-EC44		<0.1 mg/kg	TM173	4.4				
Aromatics >EC40-EC44		<0.1 mg/kg	TM173	<0.1				
Total Aliphatics >C12-C44		<0.1 mg/kg	TM173	2.08				
Total Aromatics >EC12-EC44		<0.1 mg/kg	TM173	24.8				
Total Aliphatics >C5-35		<0.1 mg/kg	TM173	2.08				
Total Aliphatics >C5-C44		<0.1 mg/kg	TM173	2.08				
Total Aromatics >C5-35		<0.1 mg/kg	TM173	20.4				
Total Aromatics >C6-C44		<0.1 mg/kg	TM173	24.8				
Total Aliphatics & Aromatics >C5-35		<0.1 mg/kg	TM173	22.5				
Total Aliphatics & Aromatics >C5-C44		<0.1 mg/kg	TM173	26.9				

SDG:	100726-8	Customer:	Entec UK Ltd
Job:	H_ENTEC_SHW-24	Attention:	Steve Dooley
Client Reference:	26999	Order No.:	228113
Location:	KL056 DSDC Bicester	Report No:	92286

VOC MS (S)							
Results Legend		Customer Sample Ref.	WSE 16				
#	ISO17025 accredited.						
M	mCERTS accredited.						
aq	Aqueous / settled sample.						
diss.filt	Dissolved / filtered sample.						
tot.unfilt	Total / unfiltered sample.						
*	subcontracted test.						
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.						
Component		LOD/Units	Method				
Dibromofluoromethane**		%	TM116	102			
Toluene-d8**		%	TM116	98.7			
4-Bromofluorobenzene**		%	TM116	126			
Dichlorodifluoromethane		<0.004 mg/kg	TM116	<0.004	M		
Chloromethane		<0.007 mg/kg	TM116	<0.007	#		
Vinyl Chloride		<0.01 mg/kg	TM116	<0.01	#		
Bromomethane		<0.013 mg/kg	TM116	<0.013	M		
Chloroethane		<0.014 mg/kg	TM116	<0.014	M		
Trichlorofluoromethane		<0.006 mg/kg	TM116	<0.006	M		
1.1-Dichloroethene		<0.01 mg/kg	TM116	<0.01	#		
Carbon Disulphide		<0.007 mg/kg	TM116	0.0312	M		
Dichloromethane		<0.01 mg/kg	TM116	<0.01	#		
Methyl Tertiary Butyl Ether		<0.011 mg/kg	TM116	<0.011	M		
trans-1-2-Dichloroethene		<0.011 mg/kg	TM116	<0.011	M		
1.1-Dichloroethane		<0.008 mg/kg	TM116	<0.008	M		
cis-1-2-Dichloroethene		<0.005 mg/kg	TM116	<0.005	M		
2.2-Dichloropropane		<0.012 mg/kg	TM116	<0.012	M		
Bromochloromethane		<0.014 mg/kg	TM116	<0.014	M		
Chloroform		<0.008 mg/kg	TM116	<0.008	M		
1.1.1-Trichloroethane		<0.007 mg/kg	TM116	<0.007	M		
1.1-Dichloropropene		<0.011 mg/kg	TM116	<0.011	M		
Carbontetrachloride		<0.014 mg/kg	TM116	<0.014	M		
1.2-Dichloroethane		<0.005 mg/kg	TM116	<0.005	M		
Benzene		<0.009 mg/kg	TM116	<0.009	M		
Trichloroethene		<0.009 mg/kg	TM116	<0.009	M		
1.2-Dichloropropane		<0.012 mg/kg	TM116	<0.012	M		
Dibromomethane		<0.009 mg/kg	TM116	<0.009	M		
Bromodichloromethane		<0.007 mg/kg	TM116	<0.007	M		
cis-1-3-Dichloropropene		<0.014 mg/kg	TM116	<0.014	M		
Toluene		<0.005 mg/kg	TM116	<0.005	M		
trans-1-3-Dichloropropene		<0.014 mg/kg	TM116	<0.014			
1.1.2-Trichloroethane		<0.01 mg/kg	TM116	<0.01	M		
1.3-Dichloropropane		<0.007 mg/kg	TM116	<0.007	#		
Tetrachloroethene		<0.005 mg/kg	TM116	<0.005	M		
Dibromochloromethane		<0.013 mg/kg	TM116	<0.013	M		
1.2-Dibromoethane		<0.012 mg/kg	TM116	<0.012	M		
Chorobenzene		<0.005 mg/kg	TM116	<0.005	M		
1.1.1.2-Tetrachloroethane		<0.01 mg/kg	TM116	<0.01	M		
Ethylbenzene		<0.004 mg/kg	TM116	<0.004	M		

SDG:	100726-8	Customer:	Entec UK Ltd
Job:	H_ENTEC_SHW-24	Attention:	Steve Dooley
Client Reference:	26999	Order No.:	228113
Location:	KL056 DSDC Bicester	Report No:	92286

Results Legend		Customer Sample Ref.	WSE 19	WSE 2	WSE 2	WSE 20	WSE 20	WSE 21	
#	ISO17025 accredited.								
M	mCERTS accredited.								
aq	Aqueous / settled sample.								
diss.filt	Dissolved / filtered sample.								
tot.unfilt	Total / unfiltered sample.								
*	subcontracted test.								
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.								
		Depth (m)	0.60 - 0.70	0.50 - 0.70	2.10 - 2.30	0.20 - 0.40	3.40 - 3.60	0.85 - 0.95	
		Sample Type	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	
		Date Sampled	22/07/2010	22/07/2010	22/07/2010	22/07/2010	22/07/2010	22/07/2010	
		Date Received	24/07/2010	24/07/2010	24/07/2010	24/07/2010	24/07/2010	24/07/2010	
		SDG Ref	100726-8	100726-8	100726-8	100726-8	100726-8	100726-8	
		Lab Sample No.(s)	1864700	1864588	1864517	1864714	1864829	1864863	
Component		LOD/Units	Method						
Asbestos Containing Material Screen		-	TM001	No ACM Detected					
Ammoniacal Nitrogen, exchangeable as NH4		<15 mg/kg	TM024	<15		<15		<15	
Sulphate, 2:1 water soluble		<0.003 g/l	TM098	0.654		0.036		1.67	
pH		1 pH Units	TM133	7.51		7.83		6.06	
Chromium, Hexavalent		<0.6 mg/kg	TM151	2.55		<0.6		<0.6	
TPH >C6-C8		<10 mg/kg	TM154			<10		<10	
TPH >C8-C10		<10 mg/kg	TM154			<10		<10	
TPH >C10-C12		<10 mg/kg	TM154			<10		<10	
TPH >C12-C16		<10 mg/kg	TM154			<10		<10	
TPH >C16-C21		<10 mg/kg	TM154			<10		<10	
TPH >C21-C40		<10 mg/kg	TM154			92.3		13.3	
TPH >C6-C40		<10 mg/kg	TM154			105		13.3	
Arsenic		<0.6 mg/kg	TM181	50.3		10.3		5.81	
Cadmium		<0.02 mg/kg	TM181	5.99		0.458		0.508	
Chromium		<0.9 mg/kg	TM181	92		29.2		35.4	
Copper		<1.4 mg/kg	TM181	36200		12.5		16.2	
Lead		<0.7 mg/kg	TM181	589		12.9		9.08	
Mercury		<0.14 mg/kg	TM181	<1.4		<0.14		<0.14	
Nickel		<0.2 mg/kg	TM181	913		24.4		32	
Selenium		<1 mg/kg	TM181	<10		<1		1.54	
Zinc		<1.9 mg/kg	TM181	24200		59.8		122	
Boron, water soluble		<1 mg/kg	TM222	3.09		1.02		3.38	

SDG:	100726-8	Customer:	Entec UK Ltd
Job:	H_ENTEC_SHW-24	Attention:	Steve Dooley
Client Reference:	26999	Order No.:	228113
Location:	KL056 DSDC Bicester	Report No:	92286

Semi Volatile Organic Compounds								
Results Legend		Customer Sample Ref.	WSE 19	WSE 21				
#	ISO17025 accredited.							
M	mCERTS accredited.							
aq	Aqueous / settled sample.							
diss.filt	Dissolved / filtered sample.							
tot.unfilt	Total / unfiltered sample.							
*	subcontracted test.							
**	% recovery of the surrogate standard to check the efficiency of the method. The results of 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			
Pentachlorophenol		<0.1 mg/kg	TM157	<0.1	<0.1			
n-Nitroso-n-dipropylamine		<0.1 mg/kg	TM157	<0.1	<0.1			
Nitrobenzene		<0.1 mg/kg	TM157	<0.1	<0.1			
Isophorone		<0.1 mg/kg	TM157	<0.1	<0.1			
Hexachloroethane		<0.1 mg/kg	TM157	<0.1	<0.1			
Hexachlorocyclopentadiene		<0.1 mg/kg	TM157	<0.1	<0.1			
Hexachlorobutadiene		<0.1 mg/kg	TM157	<0.1	<0.1			
Hexachlorobenzene		<0.1 mg/kg	TM157	<0.1	<0.1			
n-Dioctyl phthalate		<0.1 mg/kg	TM157	<0.1	<0.1			
Dimethyl phthalate		<0.1 mg/kg	TM157	<0.1	<0.1			
Diethyl phthalate		<0.1 mg/kg	TM157	<0.1	<0.1			
n-Dibutyl phthalate		<0.1 mg/kg	TM157	<0.1	<0.1			
Dibenzofuran		<0.1 mg/kg	TM157	<0.1	<0.1			
Carbazole		<0.1 mg/kg	TM157	0.218	<0.1			
Butylbenzyl phthalate		<0.1 mg/kg	TM157	<0.1	<0.1			
bis(2-Ethylhexyl) phthalate		<0.1 mg/kg	TM157	<0.1	<0.1			
bis(2-Chloroethoxy)methane		<0.1 mg/kg	TM157	<0.1	<0.1			
bis(2-Chloroethyl)ether		<0.1 mg/kg	TM157	<0.1	<0.1			
Azobenzene		<0.1 mg/kg	TM157	<0.1	<0.1			
4-Nitrophenol		<0.1 mg/kg	TM157	<0.1	<0.1			
4-Nitroaniline		<0.1 mg/kg	TM157	<0.1	<0.1			
4-Methylphenol		<0.1 mg/kg	TM157	<0.1	<0.1			
4-Chlorophenylphenylether		<0.1 mg/kg	TM157	<0.1	<0.1			
4-Chloroaniline		<0.1 mg/kg	TM157	<0.1	<0.1			
4-Chloro-3-methylphenol		<0.1 mg/kg	TM157	<0.1	<0.1			
4-Bromophenylphenylether		<0.1 mg/kg	TM157	<0.1	<0.1			
3-Nitroaniline		<0.1 mg/kg	TM157	<0.1	<0.1			
2-Nitrophenol		<0.1 mg/kg	TM157	<0.1	<0.1			
2-Nitroaniline		<0.1 mg/kg	TM157	<0.1	<0.1			
2-Methylphenol		<0.1 mg/kg	TM157	<0.1	<0.1			
1,2,4-Trichlorobenzene		<0.1 mg/kg	TM157	<0.1	<0.1			
2-Chlorophenol		<0.1 mg/kg	TM157	<0.1	<0.1			
2,6-Dinitrotoluene		<0.1 mg/kg	TM157	<0.1	<0.1			
2,4-Dinitrotoluene		<0.1 mg/kg	TM157	<0.1	<0.1			
2,4-Dimethylphenol		<0.1 mg/kg	TM157	<0.1	<0.1			
2,4-Dichlorophenol		<0.1 mg/kg	TM157	<0.1	<0.1			
2,4,6-Trichlorophenol		<0.1 mg/kg	TM157	<0.1	<0.1			
2,4,5-Trichlorophenol		<0.1 mg/kg	TM157	<0.1	<0.1			

SDG:	100726-8	Customer:	Entec UK Ltd
Job:	H_ENTEC_SHW-24	Attention:	Steve Dooley
Client Reference:	26999	Order No.:	228113
Location:	KL056 DSDC Bicester	Report No:	92286

TPH CWG (S)								
Results Legend		Customer Sample Ref.	WSE 19	WSE 21				
#	ISO17025 accredited.							
M	mCERTS accredited.							
aq	Aqueous / settled sample.							
diss.filt	Dissolved / filtered sample.							
tot.unfilt	Total / unfiltered sample.							
*	subcontracted test.							
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.							
Component		LOD/Units	Method					
GRO Surrogate % recovery**		%	TM089	24	6			
GRO >C5-C12		<0.044 mg/kg	TM089	0.655	0.131			
Benzene		<0.01 mg/kg	TM089	<0.01	<0.01			
Ethylbenzene		<0.003 mg/kg	TM089	<0.003	<0.003			
Toluene		<0.002 mg/kg	TM089	<0.002	<0.002			
m,p-Xylene		<0.006 mg/kg	TM089	<0.006	<0.006			
o-Xylene		<0.003 mg/kg	TM089	<0.003	<0.003			
m,p,o-Xylene		<0.01 mg/kg	TM089	<0.01	<0.01			
BTEX, Total		<0.01 mg/kg	TM089	<0.01	<0.01			
Methyl tertiary butyl ether (MTBE)		<0.005 mg/kg	TM089	<0.005	<0.005			
Aliphatics >C5-C6		<0.01 mg/kg	TM089	<0.01	<0.01			
Aliphatics >C6-C8		<0.01 mg/kg	TM089	0.0524	0.0158			
Aliphatics >C8-C10		<0.01 mg/kg	TM089	0.0241	<0.01			
Aliphatics >C10-C12		<0.01 mg/kg	TM089	0.209	0.0332			
Aromatics >C6-C7		<0.01 mg/kg	TM089	<0.01	<0.01			
Aromatics >C7-C8		<0.01 mg/kg	TM089	<0.01	<0.01			
Aromatics >EC8-EC10		<0.01 mg/kg	TM089	0.0362	<0.01			
Aromatics >EC10-EC12		<0.01 mg/kg	TM089	0.313	0.0498			
Total Aliphatics >C5-C12		<0.01 mg/kg	TM089	0.285	0.049			
Total Aromatics >C6-C12		<0.01 mg/kg	TM089	0.349	0.0498			
Aliphatics >C12-C16		<0.1 mg/kg	TM173	5.07	4.55			
Aliphatics >C16-C21		<0.1 mg/kg	TM173	4.57	6.79			
Aliphatics >C16-C35		<0.1 mg/kg	TM173	40.4	44.9			
Aliphatics >C21-C35		<0.1 mg/kg	TM173	35.8	38.1			
Aliphatics >C35-C44		<0.1 mg/kg	TM173	30.7	21.2			
Aromatics >EC12-EC16		<0.1 mg/kg	TM173	4.23	<0.1			
Aromatics >EC16-EC21		<0.1 mg/kg	TM173	8.03	7.1			
Aromatics >EC21-EC35		<0.1 mg/kg	TM173	66.2	62.3			
Aromatics >EC35-EC44		<0.1 mg/kg	TM173	51.3	62.8			
Aromatics >EC40-EC44		<0.1 mg/kg	TM173	25.9	28.4			
Total Aliphatics >C12-C44		<0.1 mg/kg	TM173	76.2	70.7			
Total Aromatics >EC12-EC44		<0.1 mg/kg	TM173	130	132			
Total Aliphatics >C5-35		<0.1 mg/kg	TM173	45.7	49.5			
Total Aliphatics >C5-C44		<0.1 mg/kg	TM173	76.5	70.7			
Total Aromatics >C5-35		<0.1 mg/kg	TM173	78.8	69.4			
Total Aromatics >C6-C44		<0.1 mg/kg	TM173	130	132			
Total Aliphatics & Aromatics >C5-35		<0.1 mg/kg	TM173	125	119			
Total Aliphatics & Aromatics >C5-C44		<0.1 mg/kg	TM173	207	203			

SDG:	100726-8	Customer:	Entec UK Ltd
Job:	H_ENTEC_SHW-24	Attention:	Steve Dooley
Client Reference:	26999	Order No.:	228113
Location:	KL056 DSDC Bicester	Report No:	92286

VOC MS (S)							
Results Legend		Customer Sample Ref.	WSE 19		WSE 21		
#	ISO17025 accredited.						
M	mCERTS accredited.						
aq	Aqueous / settled sample.						
diss.filt	Dissolved / filtered sample.						
tot.unfilt	Total / unfiltered sample.						
*	subcontracted test.						
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.						
Component		LOD/Units	Method	Depth (m)		Sample Type	
Dibromofluoromethane**		%	TM116	0.60 - 0.70		0.85 - 0.95	
Toluene-d8**		%	TM116	Soil/Solid		Soil/Solid	
4-Bromofluorobenzene**		%	TM116	22/07/2010		22/07/2010	
Dichlorodifluoromethane		<0.004 mg/kg	TM116	24/07/2010		24/07/2010	
Chloromethane		<0.007 mg/kg	TM116	100726-8		100726-8	
Vinyl Chloride		<0.01 mg/kg	TM116	1864700		1864863	
Bromomethane		<0.013 mg/kg	TM116				
Chloroethane		<0.014 mg/kg	TM116				
Trichlorofluoromethane		<0.006 mg/kg	TM116				
1.1-Dichloroethene		<0.01 mg/kg	TM116				
Carbon Disulphide		<0.007 mg/kg	TM116				
Dichloromethane		<0.01 mg/kg	TM116				
Methyl Tertiary Butyl Ether		<0.011 mg/kg	TM116				
trans-1-2-Dichloroethene		<0.011 mg/kg	TM116				
1.1-Dichloroethane		<0.008 mg/kg	TM116				
cis-1-2-Dichloroethene		<0.005 mg/kg	TM116				
2.2-Dichloropropane		<0.012 mg/kg	TM116				
Bromochloromethane		<0.014 mg/kg	TM116				
Chloroform		<0.008 mg/kg	TM116				
1.1.1-Trichloroethane		<0.007 mg/kg	TM116				
1.1-Dichloropropene		<0.011 mg/kg	TM116				
Carbontetrachloride		<0.014 mg/kg	TM116				
1.2-Dichloroethane		<0.005 mg/kg	TM116				
Benzene		<0.009 mg/kg	TM116				
Trichloroethene		<0.009 mg/kg	TM116				
1.2-Dichloropropane		<0.012 mg/kg	TM116				
Dibromomethane		<0.009 mg/kg	TM116				
Bromodichloromethane		<0.007 mg/kg	TM116				
cis-1-3-Dichloropropene		<0.014 mg/kg	TM116				
Toluene		<0.005 mg/kg	TM116				
trans-1-3-Dichloropropene		<0.014 mg/kg	TM116				
1.1.2-Trichloroethane		<0.01 mg/kg	TM116				
1.3-Dichloropropane		<0.007 mg/kg	TM116				
Tetrachloroethene		<0.005 mg/kg	TM116				
Dibromochloromethane		<0.013 mg/kg	TM116				
1.2-Dibromoethane		<0.012 mg/kg	TM116				
Chorobenzene		<0.005 mg/kg	TM116				
1.1.1.2-Tetrachloroethane		<0.01 mg/kg	TM116				
Ethylbenzene		<0.004 mg/kg	TM116				

SDG:	100726-8	Customer:	Entec UK Ltd
Job:	H_ENTEC_SHW-24	Attention:	Steve Dooley
Client Reference:	26999	Order No.:	228113
Location:	KL056 DSDC Bicester	Report No:	92286

Semi Volatile Organic Compounds

Results Legend		Customer Sample Ref.		WSE 23				
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Date Received SDG Ref Lab Sample No.(s)	0.70 - 1.00 Soil/Solid 23/07/2010 24/07/2010 100726-8 1864982					
M	mCERTS accredited.							
aq	Aqueous / settled sample.							
diss.filt	Dissolved / filtered sample.							
tot.unfilt	Total / unfiltered sample.							
*	subcontracted test.							
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.							
Component		LOD/Units	Method					
Phenol		<0.1 mg/kg	TM157	<0.1				
Pentachlorophenol		<0.1 mg/kg	TM157	<0.1				
n-Nitroso-n-dipropylamine		<0.1 mg/kg	TM157	<0.1				
Nitrobenzene		<0.1 mg/kg	TM157	<0.1				
Isophorone		<0.1 mg/kg	TM157	<0.1				
Hexachloroethane		<0.1 mg/kg	TM157	<0.1				
Hexachlorocyclopentadiene		<0.1 mg/kg	TM157	<0.1				
Hexachlorobutadiene		<0.1 mg/kg	TM157	<0.1				
Hexachlorobenzene		<0.1 mg/kg	TM157	<0.1				
n-Dioctyl phthalate		<0.1 mg/kg	TM157	<0.1				
Dimethyl phthalate		<0.1 mg/kg	TM157	<0.1				
Diethyl phthalate		<0.1 mg/kg	TM157	<0.1				
n-Dibutyl phthalate		<0.1 mg/kg	TM157	<0.1				
Dibenzofuran		<0.1 mg/kg	TM157	<0.1				
Carbazole		<0.1 mg/kg	TM157	0.19				
Butylbenzyl phthalate		<0.1 mg/kg	TM157	<0.1				
bis(2-Ethylhexyl) phthalate		<0.1 mg/kg	TM157	<0.1				
bis(2-Chloroethoxy)methane		<0.1 mg/kg	TM157	<0.1				
bis(2-Chloroethyl)ether		<0.1 mg/kg	TM157	<0.1				
Azobenzene		<0.1 mg/kg	TM157	<0.1				
4-Nitrophenol		<0.1 mg/kg	TM157	<0.1				
4-Nitroaniline		<0.1 mg/kg	TM157	<0.1				
4-Methylphenol		<0.1 mg/kg	TM157	<0.1				
4-Chlorophenylphenylether		<0.1 mg/kg	TM157	<0.1				
4-Chloroaniline		<0.1 mg/kg	TM157	<0.1				
4-Chloro-3-methylphenol		<0.1 mg/kg	TM157	<0.1				
4-Bromophenylphenylether		<0.1 mg/kg	TM157	<0.1				
3-Nitroaniline		<0.1 mg/kg	TM157	<0.1				
2-Nitrophenol		<0.1 mg/kg	TM157	<0.1				
2-Nitroaniline		<0.1 mg/kg	TM157	<0.1				
2-Methylphenol		<0.1 mg/kg	TM157	<0.1				
1,2,4-Trichlorobenzene		<0.1 mg/kg	TM157	<0.1				
2-Chlorophenol		<0.1 mg/kg	TM157	<0.1				
2,6-Dinitrotoluene		<0.1 mg/kg	TM157	<0.1				
2,4-Dinitrotoluene		<0.1 mg/kg	TM157	<0.1				
2,4-Dimethylphenol		<0.1 mg/kg	TM157	<0.1				
2,4-Dichlorophenol		<0.1 mg/kg	TM157	<0.1				
2,4,6-Trichlorophenol		<0.1 mg/kg	TM157	<0.1				
2,4,5-Trichlorophenol		<0.1 mg/kg	TM157	<0.1				

SDG:	100726-8	Customer:	Entec UK Ltd
Job:	H_ENTEC_SHW-24	Attention:	Steve Dooley
Client Reference:	26999	Order No.:	228113
Location:	KL056 DSDC Bicester	Report No:	92286

TPH CWG (S)			Customer Sample Ref.	WSE 23				
Results Legend		Depth (m) Sample Type Date Sampled Date Received SDG Ref Lab Sample No.(s)						
#	ISO17025 accredited.							
M	mCERTS accredited.							
aq	Aqueous / settled sample.							
diss.filt	Dissolved / filtered sample.							
tot.unfilt	Total / unfiltered sample.							
*	subcontracted test.							
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.							
Component								
GRO Surrogate % recovery**		%	TM089	34				
GRO >C5-C12		<0.044 mg/kg	TM089	0.0943				
Benzene		<0.01 mg/kg	TM089	<0.01	M			
Ethylbenzene		<0.003 mg/kg	TM089	<0.003	M			
Toluene		<0.002 mg/kg	TM089	<0.002	M			
m,p-Xylene		<0.006 mg/kg	TM089	<0.006	M			
o-Xylene		<0.003 mg/kg	TM089	<0.003	M			
m,p,o-Xylene		<0.01 mg/kg	TM089	<0.01	M			
BTX, Total		<0.01 mg/kg	TM089	<0.01	M			
Methyl tertiary butyl ether (MTBE)		<0.005 mg/kg	TM089	<0.005	#			
Aliphatics >C5-C6		<0.01 mg/kg	TM089	0.0117				
Aliphatics >C6-C8		<0.01 mg/kg	TM089	0.0115				
Aliphatics >C8-C10		<0.01 mg/kg	TM089	<0.01				
Aliphatics >C10-C12		<0.01 mg/kg	TM089	0.0198				
Aromatics >C6-C7		<0.01 mg/kg	TM089	<0.01				
Aromatics >C7-C8		<0.01 mg/kg	TM089	<0.01				
Aromatics >EC8-EC10		<0.01 mg/kg	TM089	<0.01				
Aromatics >EC10-EC12		<0.01 mg/kg	TM089	0.0297				
Total Aliphatics >C5-C12		<0.01 mg/kg	TM089	0.0431				
Total Aromatics >C6-C12		<0.01 mg/kg	TM089	0.0297				
Aliphatics >C12-C16		<0.1 mg/kg	TM173	6.36				
Aliphatics >C16-C21		<0.1 mg/kg	TM173	8.16				
Aliphatics >C16-C35		<0.1 mg/kg	TM173	69.9				
Aliphatics >C21-C35		<0.1 mg/kg	TM173	61.8				
Aliphatics >C35-C44		<0.1 mg/kg	TM173	24.3				
Aromatics >EC12-EC16		<0.1 mg/kg	TM173	5.36				
Aromatics >EC16-EC21		<0.1 mg/kg	TM173	31.9				
Aromatics >EC21-EC35		<0.1 mg/kg	TM173	196				
Aromatics >EC35-EC44		<0.1 mg/kg	TM173	92				
Aromatics >EC40-EC44		<0.1 mg/kg	TM173	35.6				
Total Aliphatics >C12-C44		<0.1 mg/kg	TM173	101				
Total Aromatics >EC12-EC44		<0.1 mg/kg	TM173	326				
Total Aliphatics >C5-35		<0.1 mg/kg	TM173	76.3				
Total Aliphatics >C5-C44		<0.1 mg/kg	TM173	101				
Total Aromatics >C5-35		<0.1 mg/kg	TM173	234				
Total Aromatics >C6-C44		<0.1 mg/kg	TM173	326				
Total Aliphatics & Aromatics >C5-35		<0.1 mg/kg	TM173	310				
Total Aliphatics & Aromatics >C5-C44		<0.1 mg/kg	TM173	426				

SDG:	100726-8	Customer:	Entec UK Ltd
Job:	H_ENTEC_SHW-24	Attention:	Steve Dooley
Client Reference:	26999	Order No.:	228113
Location:	KL056 DSDC Bicester	Report No:	92286

VOC MS (S)		Customer Sample Ref.		WSE 23				
Results Legend								
#	ISO17025 accredited.							
M	mCERTS accredited.							
aq	Aqueous / settled sample.							
diss.filt	Dissolved / filtered sample.							
tot.unfilt	Total / unfiltered sample.							
*	subcontracted test.							
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.							
Component		LOD/Units	Method					
Dibromofluoromethane**		%	TM116	109				
Toluene-d8**		%	TM116	101				
4-Bromofluorobenzene**		%	TM116	112				
Dichlorodifluoromethane		<0.004 mg/kg	TM116	<0.08				
Chloromethane		<0.007 mg/kg	TM116	<0.14				
Vinyl Chloride		<0.01 mg/kg	TM116	<0.2				
Bromomethane		<0.013 mg/kg	TM116	<0.26				
Chloroethane		<0.014 mg/kg	TM116	<0.28				
Trichlorofluorormethane		<0.006 mg/kg	TM116	<0.12				
1.1-Dichloroethene		<0.01 mg/kg	TM116	<0.2				
Carbon Disulphide		<0.007 mg/kg	TM116	<0.14				
Dichloromethane		<0.01 mg/kg	TM116	<0.2				
Methyl Tertiary Butyl Ether		<0.011 mg/kg	TM116	<0.22				
trans-1-2-Dichloroethene		<0.011 mg/kg	TM116	<0.22				
1.1-Dichloroethane		<0.008 mg/kg	TM116	<0.16				
cis-1-2-Dichloroethene		<0.005 mg/kg	TM116	<0.1				
2.2-Dichloropropane		<0.012 mg/kg	TM116	<0.24				
Bromochloromethane		<0.014 mg/kg	TM116	<0.28				
Chloroform		<0.008 mg/kg	TM116	<0.16				
1.1.1-Trichloroethane		<0.007 mg/kg	TM116	<0.14				
1.1-Dichloropropene		<0.011 mg/kg	TM116	<0.22				
Carbontetrachloride		<0.014 mg/kg	TM116	<0.28				
1.2-Dichloroethane		<0.005 mg/kg	TM116	<0.1				
Benzene		<0.009 mg/kg	TM116	<0.18				
Trichloroethene		<0.009 mg/kg	TM116	<0.18				
1.2-Dichloropropane		<0.012 mg/kg	TM116	<0.24				
Dibromomethane		<0.009 mg/kg	TM116	<0.18				
Bromodichloromethane		<0.007 mg/kg	TM116	<0.14				
cis-1-3-Dichloropropene		<0.014 mg/kg	TM116	<0.28				
Toluene		<0.005 mg/kg	TM116	<0.1				
trans-1-3-Dichloropropene		<0.014 mg/kg	TM116	<0.28				
1.1.2-Trichloroethane		<0.01 mg/kg	TM116	<0.2				
1.3-Dichloropropane		<0.007 mg/kg	TM116	<0.14				
Tetrachloroethene		<0.005 mg/kg	TM116	<0.1				
Dibromochloromethane		<0.013 mg/kg	TM116	<0.26				
1.2-Dibromoethane		<0.012 mg/kg	TM116	<0.24				
Chorobenzene		<0.005 mg/kg	TM116	<0.1				
1.1.1.2-Tetrachloroethane		<0.01 mg/kg	TM116	<0.2				
Ethylbenzene		<0.004 mg/kg	TM116	0.111				

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Client Reference:	26999	Order No.:	228113
Location:	KL056 DSDC Bicester	Report No:	92286

ASSOCIATED AQC DATA

Ammonium Soil by Titration

Component	Method Code	QC 17	QC 16	QC 15
Exchangeable Ammonium as NH4	TM024	97.42 80.84 : 103.27	92.29 80.84 : 103.27	82.43 80.84 : 103.27

Boron Water Soluble

Component	Method Code	QC 15	QC 11	QC 14	QC 15
Water Soluble Boron	TM222	94.30 82.59 : 112.64	103.60 82.59 : 112.64	100.80 82.59 : 112.64	105.00 82.59 : 112.64

EPH CWG (Aliphatic) GC (S)

Component	Method Code	QC 15	QC 14
Total Aliphatics >C12-C35	TM173	78.41 66.13 : 101.56	76.43 58.96 : 117.71

EPH CWG (Aromatic) GC (S)

Component	Method Code	QC 15	QC 14
Total Aromatics >EC12-EC35	TM173	101.74 64.00 : 112.00	90.60 58.79 : 118.66

Hexavalent Chromium (s)

Component	Method Code	QC 15	QC 19	QC 12	QC 14
Hexavalent Chromium	TM151	104.40 76.40 : 131.80	101.40 76.40 : 131.80	108.00 76.40 : 131.80	102.20 76.40 : 131.80

Metals by iCap-OES (Soil)

Component	Method Code	QC 13	QC 10	QC 18	QC 15	QC 15
Aluminium	TM181	113.27 95.21 : 133.11	121.36 95.21 : 133.11	114.25 95.21 : 133.11	105.19 95.21 : 133.11	108.60 95.21 : 133.11
Antimony	TM181	102.38 63.92 : 138.56	101.68 63.92 : 138.56	103.70 63.92 : 138.56	100.29 63.92 : 138.56	100.04 63.92 : 138.56
Arsenic	TM181	104.48 77.96 : 122.04	105.00 77.96 : 122.04	98.62 77.96 : 122.04	103.70 77.96 : 122.04	96.47 77.96 : 122.04
Barium	TM181	103.28 90.49 : 117.24	107.78 90.49 : 117.24	105.63 90.49 : 117.24	99.07 90.49 : 117.24	101.52 90.49 : 117.24
Beryllium	TM181	100.28 77.50 : 122.50	97.43 77.50 : 122.50	100.28 77.50 : 122.50	94.86 77.50 : 122.50	94.40 77.50 : 122.50
Boron	TM181	118.17 82.46 : 141.11	121.75 82.46 : 141.11	108.06 82.46 : 141.11	102.33 82.46 : 141.11	99.37 82.46 : 141.11

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		QC 13	QC 10	QC 18	QC 15	QC 15
Cadmium	TM181	98.81 77.50 : 122.50	96.33 77.50 : 122.50	100.88 77.50 : 122.50	96.53 77.50 : 122.50	96.73 77.50 : 122.50
Chromium	TM181	98.43 82.90 : 117.10	101.48 82.90 : 117.10	98.14 82.90 : 117.10	95.28 82.90 : 117.10	94.37 82.90 : 117.10
Cobalt	TM181	99.02 78.26 : 121.74	97.69 78.26 : 121.74	98.67 78.26 : 121.74	95.56 78.26 : 121.74	95.65 78.26 : 121.74
Copper	TM181	99.54 86.52 : 113.48	102.28 86.52 : 113.48	100.64 86.52 : 113.48	99.20 86.52 : 113.48	100.49 86.52 : 113.48
Iron	TM181	106.93 93.59 : 123.28	106.21 93.59 : 123.28	102.68 93.59 : 123.28	101.14 93.59 : 123.28	101.05 93.59 : 123.28
Lead	TM181	104.33 81.22 : 118.78	98.34 81.22 : 118.78	93.84 81.22 : 118.78	99.00 81.22 : 118.78	94.45 81.22 : 118.78
Manganese	TM181	109.75 87.42 : 112.58	103.52 87.42 : 112.58	92.25 87.42 : 112.58	97.35 87.42 : 112.58	92.43 87.42 : 112.58
Mercury	TM181	104.31 72.27 : 127.73	105.54 72.27 : 127.73	103.08 72.27 : 127.73	102.02 72.27 : 127.73	105.18 72.27 : 127.73
Molybdenum	TM181	99.73 71.12 : 128.88	97.48 71.12 : 128.88	101.32 71.12 : 128.88	98.05 71.12 : 128.88	96.47 71.12 : 128.88
Nickel	TM181	96.03 81.27 : 118.73	100.31 81.27 : 118.73	95.95 81.27 : 118.73	96.56 81.27 : 118.73	95.27 81.27 : 118.73
Phosphorus	TM181	96.92 84.04 : 115.96	99.68 84.04 : 115.96	96.98 84.04 : 115.96	98.78 84.04 : 115.96	96.12 84.04 : 115.96
Selenium	TM181	97.20 72.61 : 127.39	92.89 72.61 : 127.39	102.02 72.61 : 127.39	92.34 72.61 : 127.39	95.70 72.61 : 127.39
Strontium	TM181	102.80 80.21 : 119.79	105.98 80.21 : 119.79	99.18 80.21 : 119.79	97.92 80.21 : 119.79	94.74 80.21 : 119.79
Thallium	TM181	92.08 73.04 : 126.96	90.73 73.04 : 126.96	94.04 73.04 : 126.96	89.94 73.04 : 126.96	88.09 73.04 : 126.96
Tin	TM181	105.28 71.55 : 128.45	95.09 71.55 : 128.45	100.19 71.55 : 128.45	96.16 71.55 : 128.45	93.15 71.55 : 128.45
Titanium	TM181	107.15 78.26 : 121.74	105.35 78.26 : 121.74	95.25 78.26 : 121.74	97.95 78.26 : 121.74	95.43 78.26 : 121.74
Vanadium	TM181	110.34 82.03 : 117.97	106.05 82.03 : 117.97	98.99 82.03 : 117.97	99.41 82.03 : 117.97	97.54 82.03 : 117.97
Zinc	TM181	90.70 77.50 : 122.50	93.94 77.50 : 122.50	90.44 77.50 : 122.50	91.57 77.50 : 122.50	90.72 77.50 : 122.50

PAH by GCMS

Component	Method Code	QC 11	QC 19	QC 18
Acenaphthene	TM218	95.44 68.10 : 128.67	95.87 74.10 : 124.54	100.53 68.10 : 128.67
Acenaphthylene	TM218	86.91 68.11 : 109.28	88.33 63.62 : 117.79	90.77 68.11 : 109.28
Anthracene	TM218	87.06 61.75 : 122.01	92.09 65.03 : 113.03	93.02 61.75 : 122.01
Benz(a)anthracene	TM218	91.81 79.35 : 115.30	98.97 54.51 : 124.77	97.78 79.35 : 115.30
Benzo(a)pyrene	TM218	93.93 79.80 : 116.48	97.91 63.77 : 127.33	98.88 79.80 : 116.48
Benzo(b)fluoranthene	TM218	95.14 79.51 : 116.19	100.92 65.41 : 130.80	99.82 79.51 : 116.19
Benzo(ghi)perylene	TM218	89.83 80.08 : 114.22	93.73 64.55 : 135.03	97.62 80.08 : 114.22
Benzo(k)fluoranthene	TM218	92.18 65.05 : 129.07	95.96 65.91 : 125.08	93.73 65.05 : 129.07

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		QC 11	QC 19	QC 18
Chrysene	TM218	91.90 80.14 : 113.92	94.82 64.16 : 127.26	95.01 80.14 : 113.92
Dibenzo(ah)anthracene	TM218	89.88 59.79 : 136.56	92.85 67.86 : 121.75	97.03 59.79 : 136.56
Fluoranthene	TM218	89.78 74.35 : 115.70	94.21 66.40 : 120.99	92.94 74.35 : 115.70
Fluorene	TM218	92.86 75.68 : 111.55	94.28 68.44 : 116.96	98.32 75.68 : 111.55
Indeno(123cd)pyrene	TM218	87.39 74.42 : 114.62	96.66 67.20 : 121.68	98.48 74.42 : 114.62
Naphthalene	TM218	94.10 73.21 : 108.15	92.28 70.10 : 115.11	96.40 73.21 : 108.15
Phenanthrene	TM218	92.76 66.61 : 129.12	95.07 68.54 : 116.99	97.30 66.61 : 129.12
Pyrene	TM218	88.85 74.35 : 111.75	93.68 66.64 : 121.60	92.55 74.35 : 111.75

PCBs (vs Aroclor 1254)

Component	Method Code	QC 19
PCBs (vs Aroclor 1254)	TM070	105.20 75.18 : 122.16

pH

Component	Method Code	QC 13	QC 15	QC 13	QC 13	QC 11	QC 17
pH	TM133	99.87 97.90 : 102.35	100.38 97.90 : 102.35	100.00 97.90 : 102.35	100.50 97.90 : 102.35	99.37 97.42 : 102.50	100.13 97.90 : 102.35

Component	Method Code	QC 14
pH	TM133	99.87 97.42 : 102.50

Semi Volatile Organic Compounds

Component	Method Code	QC 14	QC 10
4-Bromophenylphenylether (Soil)	TM157	89.80 30.30 : 139.75	88.42 30.30 : 139.75
Benzo(a)anthracene (Soil)	TM157	94.88 27.20 : 137.40	96.42 27.20 : 137.40
Hexachlorobutadiene (Soil)	TM157	91.91 28.70 : 141.30	89.64 28.70 : 141.30
Naphthalene (Soil)	TM157	93.80 39.23 : 145.41	91.97 39.23 : 145.41
Nitrobenzene (Soil)	TM157	91.73 41.78 : 147.15	88.95 41.78 : 147.15
Phenol (Soil)	TM157	93.40 51.88 : 150.83	92.20 51.88 : 150.83

Total Organic Carbon

SDG:	100726-8	Customer:	Entec UK Ltd
Job:	H_ENTEC_SHW-24	Attention:	Steve Dooley
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Location:	KL056 DSDC Bicester	Report No:	92286

Component	Method Code	QC 16
Total Organic Carbon	TM132	97.07 88.75 : 104.70

TPH c6-40 Value of soil

Component	Method Code	QC 16	QC 19
Diesel QC	TM154	92.68 87.23 : 113.71	92.36 87.23 : 113.71
Lube Oil QC	TM154	94.93 88.71 : 110.56	94.43 88.71 : 110.56
TPH C6-40 Corrected	TM154	93.80 86.39 : 109.99	93.40 86.39 : 109.99

Water Soluble Sulphate 2:1

Component	Method Code	QC 17	QC 19	QC 15
Soluble SO4	TM098	105.20 76.87 : 120.45	85.12 76.87 : 120.45	85.91 76.87 : 120.45

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.

Table of Results - Appendix

SDG Number : 100726-8

Client : Entec UK Ltd

Client Ref : 26999

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
PM001		Preparation of Samples for Metals Analysis	Dry
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material	Wet
TM001	In - house Method	Determination of asbestos containing material by screening on solids	
TM024	Method 4500A & B, AWWA/APHA, 20th Ed., 1999	Determination of Exchangeable Ammonium and Ammoniacal Nitrogen as N by titration on solids	Wet
TM070	Modified: US EPA Method 8250 & 625	Determination of Total Polychlorinated Biphenyls (PCB/Es) as Aroclor 1254 by GC-MS in Soils	Dry
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) and BTEX (MTBE) compounds by Headspace GC-FID (C4-C12)	
TM098	Method 4500E, AWWA/APHA, 20th Ed., 1999	Determination of Sulphate using the Kone Analyser	Dry
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	Dry
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter	Wet
TM151	Method 3500D, AWWA/APHA, 20th Ed., 1999	Determination of Hexavalent Chromium using Kone analyser	Wet
TM154	In - house Method	Determination of Petroleum Hydrocarbons by EZ Flash GC-FID in the Carbon range C6- C40	Wet
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	Wet
TM173	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GC-FID	Dry
TM181	US EPA Method 6010B	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES	Dry
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers	Dry
TM218	Microwave extraction – EPA method 3546	Microwave extraction - EPA method 3546	Wet
TM222	In-House Method	Determination of Hot Water Soluble Boron in Soils (10:1 Water:soil) by IRIS Emission Spectrometer	Dry

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

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 ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

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)	GS 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	SOXTHERM	GRAVIMETRIC
Cyclohexane Ext. Matter	D&C	CYCLOHEXANE	SOXTHERM	GRAVIMETRIC
Thin Layer Chromatography	D&C	DCM	SOXTHERM	IATROSCAN
Elemental Sulphur	D&C	DCM	SOXTHERM	HPLC
Phenols by GCMS	WET	DCM	SOXTHERM	GC-MS
Herbicides	D&C	HEXANE:ACETONE	SOXTHERM	GC-MS
Pesticides	D&C	HEXANE:ACETONE	SOXTHERM	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.

<u>Asbestos Type</u>	<u>Common Name</u>
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-



Attention: Simon Howard

CERTIFICATE OF ANALYSIS

Date: 09 August 2010
Customer: H_ENTEC_MOD-11
Sample Delivery Group (SDG): 100802-15 **Report No.:** 92974
Your Reference:
Location: KL056 BICESTER

We received 9 samples on Saturday July 31, 2010 and 9 of these samples were scheduled for analysis which was completed on Monday August 09, 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

Operations Director - Land UK & Ireland



SDG:	100802-15	Customer:	Entec UK - MOD Ltd
Job:	H_ENTEC_MOD-11	Attention:	Simon Howard
Client Reference:		Order No.:	228113
Location:	KL056 BICESTER	Report No:	92974

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
1896317	SWA1			29/07/2010
1896305	SWC1			29/07/2010
1896283	SWC2			29/07/2010
1896287	SWC4			29/07/2010
1896313	SWC5			29/07/2010
1896290	SWC8			29/07/2010
1896308	SWD6			29/07/2010
1896296	SWE1			29/07/2010
1896298	SWE5			29/07/2010

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

SDG: 100802-15
Job: H_ENTEC_MOD-11
Client Reference:
Location: KL056 BICESTER

Customer: Entec UK - MOD Ltd
Attention: Simon Howard
Order No.: 228113
Report No: 92974

LIQUID

Results Legend	Lab Sample No(s)		Customer Sample Ref.		AGS Ref.		Depth (m)		Container		Total
	1896317		SWA1						Vial		
									H2SO4		
									500ml Plastic		
									1l green glass bottle		
									H2SO4		
		1896313		SWC5						H2SO4	
										500ml Plastic	
										1l green glass bottle	
										Vial	
		1896308		SWD6						H2SO4	
										500ml Plastic	
										1l green glass bottle	
										Vial	
		1896305		SWC1						H2SO4	
										500ml Plastic	
										1l green glass bottle	
										H2SO4	
		1896298		SWE5						H2SO4	
										500ml Plastic	
										1l green glass bottle	
										Vial	
		1896296		SWE1						H2SO4	
										500ml Plastic	
										1l green glass bottle	
										Vial	
		1896290		SWC8						H2SO4	
										500ml Plastic	
										1l green glass bottle	
										H2SO4	
		1896287		SWC4						H2SO4	
										500ml Plastic	
										1l green glass bottle	
										H2SO4	
		1896283		SWC2						H2SO4	
										500ml Plastic	
										1l green glass bottle	

SDG:	100802-15	Customer:	Entec UK - MOD Ltd
Job:	H_ENTEC_MOD-11	Attention:	Simon Howard
Client Reference:		Order No.:	228113
Location:	KL056 BICESTER	Report No:	92974

Test Completion dates

SDG reference: 100802-15

Lab Sample No(s)	1896283	1896287	1896290	1896296	1896298	1896305	1896308	1896313	1896317
Customer Sample Ref.	SWC2	SWC4	SWC8	SWE1	SWE5	SWC1	SWD6	SWC5	SWA1
Depth									
Type	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID
Ammonium	04/08/2010	04/08/2010	03/08/2010	03/08/2010	04/08/2010	04/08/2010	04/08/2010	04/08/2010	04/08/2010
Anions by Kone (w)	04/08/2010	04/08/2010	04/08/2010	04/08/2010	04/08/2010	04/08/2010	04/08/2010	04/08/2010	04/08/2010
Dissolved Metals by ICP-MS	04/08/2010	04/08/2010	04/08/2010	04/08/2010	04/08/2010	04/08/2010	04/08/2010	04/08/2010	04/08/2010
EPH (DRO) (C10-C40) Aqueous (W)			04/08/2010	04/08/2010		04/08/2010	04/08/2010		09/08/2010
EPH CWG (Aliphatic) Aqueous GC				05/08/2010		05/08/2010			
EPH CWG (Aromatic) Aqueous GC				05/08/2010		05/08/2010			
GRO by GC-FID (W)			05/08/2010	05/08/2010		05/08/2010	05/08/2010		05/08/2010
Mercury Dissolved	03/08/2010	03/08/2010	03/08/2010	03/08/2010	03/08/2010	03/08/2010	03/08/2010	03/08/2010	03/08/2010
PAH Spec MS - Aqueous (W)						04/08/2010		04/08/2010	
pH Value	03/08/2010	03/08/2010	03/08/2010	03/08/2010	03/08/2010	03/08/2010	04/08/2010	04/08/2010	03/08/2010
SVOC MS (W) - Aqueous				06/08/2010		06/08/2010			
TPH CWG (W)				06/08/2010		06/08/2010			
VOC MS (W)				04/08/2010		04/08/2010			

SDG:	100802-15	Customer:	Entec UK - MOD Ltd
Job:	H_ENTEC_MOD-11	Attention:	Nick Huyg
Client Reference:		Order No.:	228113
Location:	KL056 BICESTER	Report No:	92974

SVOC MS (W) - Aqueous								
Results Legend		Customer Sample Ref.	SWC1	Water(GW/SW)	29/07/2010	31/07/2010	100802-15	1896305
#	ISO17025 accredited.							
M	mCERTS accredited.							
aq	Aqueous / settled sample.							
diss.filt	Dissolved / filtered sample.							
tot.unfilt	Total / unfiltered sample.							
*	subcontracted test.							
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.							
Component		LOD/Units	Method					
1,2,4-Trichlorobenzene (aq)		<0.001 mg/l	TM176	<0.001				
1,2-Dichlorobenzene (aq)		<0.001 mg/l	TM176	<0.001				
1,3-Dichlorobenzene (aq)		<0.001 mg/l	TM176	<0.001				
1,4-Dichlorobenzene (aq)		<0.001 mg/l	TM176	<0.001				
2,4,5-Trichlorophenol (aq)		<0.001 mg/l	TM176	<0.001				
2,4,6-Trichlorophenol (aq)		<0.001 mg/l	TM176	<0.001				
2,4-Dichlorophenol (aq)		<0.001 mg/l	TM176	<0.001				
2,4-Dimethylphenol (aq)		<0.001 mg/l	TM176	<0.001				
2,4-Dinitrotoluene (aq)		<0.001 mg/l	TM176	<0.001				
2,6-Dinitrotoluene (aq)		<0.001 mg/l	TM176	<0.001				
2-Chloronaphthalene (aq)		<0.001 mg/l	TM176	<0.001				
2-Chlorophenol (aq)		<0.001 mg/l	TM176	<0.001				
2-Methylnaphthalene (aq)		<0.001 mg/l	TM176	<0.001				
2-Methylphenol (aq)		<0.001 mg/l	TM176	<0.001				
2-Nitroaniline (aq)		<0.001 mg/l	TM176	<0.001				
2-Nitrophenol (aq)		<0.001 mg/l	TM176	<0.001				
3-Nitroaniline (aq)		<0.001 mg/l	TM176	<0.001				
4-Bromophenylphenylether (aq)		<0.001 mg/l	TM176	<0.001				
4-Chloro-3-methylphenol (aq)		<0.001 mg/l	TM176	<0.001				
4-Chloroaniline (aq)		<0.001 mg/l	TM176	<0.001				
4-Chlorophenylphenylether (aq)		<0.001 mg/l	TM176	<0.001				
4-Methylphenol (aq)		<0.001 mg/l	TM176	<0.001				
4-Nitrophenol (aq)		<0.001 mg/l	TM176	<0.001				
4-Nitroaniline (aq)		<0.001 mg/l	TM176	<0.001				
Azobenzene (aq)		<0.001 mg/l	TM176	<0.001				
Acenaphthylene (aq)		<0.001 mg/l	TM176	<0.001				
Acenaphthene (aq)		<0.001 mg/l	TM176	<0.001				
Anthracene (aq)		<0.001 mg/l	TM176	<0.001				
bis(2-Chloroethyl)ether (aq)		<0.001 mg/l	TM176	<0.001				
bis(2-Chloroethoxy)methane (aq)		<0.001 mg/l	TM176	<0.001				
bis(2-Ethylhexyl) phthalate (aq)		<0.002 mg/l	TM176	<0.002				
Benzo(a)anthracene (aq)		<0.001 mg/l	TM176	<0.001				
Butylbenzyl phthalate (aq)		<0.001 mg/l	TM176	<0.001				
Benzo(b)fluoranthene (aq)		<0.001 mg/l	TM176	<0.001				
Benzo(k)fluoranthene (aq)		<0.001 mg/l	TM176	<0.001				
Benzo(a)pyrene (aq)		<0.001 mg/l	TM176	<0.001				
Benzo(g,h,i)perylene (aq)		<0.001 mg/l	TM176	<0.001				
Carbazole (aq)		<0.001 mg/l	TM176	<0.001				
Chrysene (aq)		<0.001 mg/l	TM176	<0.001				

SDG:	100802-15	Customer:	Entec UK - MOD Ltd
Job:	H_ENTEC_MOD-11	Attention:	Nick Huyg
Client Reference:		Order No.:	228113
Location:	KL056 BICESTER	Report No:	92974

VOC MS (W)

Results Legend		Customer Sample Ref.	SWC1	Water(GW/SW)			
#	ISO17025 accredited.						
M	mCERTS accredited.						
aq	Aqueous / settled sample.						
diss.filt	Dissolved / filtered sample.						
tot.unfilt	Total / unfiltered sample.						
*	subcontracted test.						
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.						
Component		LOD/Units	Method				
Dibromofluoromethane**		%	TM208	99.3			
Toluene-d8**		%	TM208	98.1			
4-Bromofluorobenzene**		%	TM208	96.4			
Dichlorodifluoromethane		<0.007 mg/l	TM208	<0.007			
Chloromethane		<0.009 mg/l	TM208	<0.009			
Vinyl chloride		<0.0012 mg/l	TM208	<0.0012			
Bromomethane		<0.002 mg/l	TM208	<0.002			
Chloroethane		<0.0025 mg/l	TM208	<0.0025			
Trichlorofluoromethane		<0.0013 mg/l	TM208	<0.0013			
1,1-Dichloroethene		<0.0012 mg/l	TM208	<0.0012			
Carbon disulphide		<0.0013 mg/l	TM208	<0.0013			
Dichloromethane		<0.0037 mg/l	TM208	<0.0037			
Methyl tertiary butyl ether (MTBE)		<0.0016 mg/l	TM208	<0.0016			
trans-1,2-Dichloroethene		<0.0019 mg/l	TM208	<0.0019			
1,1-Dichloroethane		<0.0012 mg/l	TM208	<0.0012			
cis-1,2-Dichloroethene		<0.0023 mg/l	TM208	<0.0023			
2,2-Dichloropropane		<0.0038 mg/l	TM208	<0.0038			
Bromochloromethane		<0.0019 mg/l	TM208	<0.0019			
Chloroform		<0.0018 mg/l	TM208	<0.0018			
1,1,1-Trichloroethane		<0.0013 mg/l	TM208	<0.0013			
1,1-Dichloropropene		<0.0013 mg/l	TM208	<0.0013			
Carbontetrachloride		<0.0014 mg/l	TM208	<0.0014			
1,2-Dichloroethane		<0.0033 mg/l	TM208	<0.0033			
Benzene		<0.0013 mg/l	TM208	<0.0013			
Trichloroethene		<0.0025 mg/l	TM208	<0.0025			
1,2-Dichloropropane		<0.003 mg/l	TM208	<0.003			
Dibromomethane		<0.0027 mg/l	TM208	<0.0027			
Bromodichloromethane		<0.0009 mg/l	TM208	<0.0009			
cis-1,3-Dichloropropene		<0.0019 mg/l	TM208	<0.0019			
Toluene		<0.0014 mg/l	TM208	<0.0014			
trans-1,3-Dichloropropene		<0.0035 mg/l	TM208	<0.0035			
1,1,2-Trichloroethane		<0.0022 mg/l	TM208	<0.0022			
1,3-Dichloropropane		<0.0022 mg/l	TM208	<0.0022			
Tetrachloroethene		<0.0015 mg/l	TM208	<0.0015			
Dibromochloromethane		<0.0017 mg/l	TM208	<0.0017			
1,2-Dibromoethane		<0.0023 mg/l	TM208	<0.0023			
Chlorobenzene		<0.0035 mg/l	TM208	<0.0035			
1,1,1,2-Tetrachloroethane		<0.0013 mg/l	TM208	<0.0013			
Ethylbenzene		<0.0025 mg/l	TM208	<0.0025			

SDG:	100802-15	Customer:	Entec UK - MOD Ltd
Job:	H_ENTEC_MOD-11	Attention:	Nick Huyg
Client Reference:		Order No.:	228113
Location:	KL056 BICESTER	Report No:	92974

SVOC MS (W) - Aqueous							
Results Legend		Customer Sample Ref.	SWE1	Water(GW/SW)			
#	ISO17025 accredited.						
M	mCERTS accredited.						
aq	Aqueous / settled sample.						
diss.filt	Dissolved / filtered sample.						
tot.unfilt	Total / unfiltered sample.						
*	subcontracted test.						
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.						
Component		LOD/Units	Method				
1,2,4-Trichlorobenzene (aq)		<0.001 mg/l	TM176	<0.001			
1,2-Dichlorobenzene (aq)		<0.001 mg/l	TM176	<0.001			
1,3-Dichlorobenzene (aq)		<0.001 mg/l	TM176	<0.001			
1,4-Dichlorobenzene (aq)		<0.001 mg/l	TM176	<0.001			
2,4,5-Trichlorophenol (aq)		<0.001 mg/l	TM176	<0.001			
2,4,6-Trichlorophenol (aq)		<0.001 mg/l	TM176	<0.001			
2,4-Dichlorophenol (aq)		<0.001 mg/l	TM176	<0.001			
2,4-Dimethylphenol (aq)		<0.001 mg/l	TM176	<0.001			
2,4-Dinitrotoluene (aq)		<0.001 mg/l	TM176	<0.001			
2,6-Dinitrotoluene (aq)		<0.001 mg/l	TM176	<0.001			
2-Chloronaphthalene (aq)		<0.001 mg/l	TM176	<0.001			
2-Chlorophenol (aq)		<0.001 mg/l	TM176	<0.001			
2-Methylnaphthalene (aq)		<0.001 mg/l	TM176	<0.001			
2-Methylphenol (aq)		<0.001 mg/l	TM176	<0.001			
2-Nitroaniline (aq)		<0.001 mg/l	TM176	<0.001			
2-Nitrophenol (aq)		<0.001 mg/l	TM176	<0.001			
3-Nitroaniline (aq)		<0.001 mg/l	TM176	<0.001			
4-Bromophenylphenylether (aq)		<0.001 mg/l	TM176	<0.001			
4-Chloro-3-methylphenol (aq)		<0.001 mg/l	TM176	<0.001			
4-Chloroaniline (aq)		<0.001 mg/l	TM176	<0.001			
4-Chlorophenylphenylether (aq)		<0.001 mg/l	TM176	<0.001			
4-Methylphenol (aq)		<0.001 mg/l	TM176	<0.001			
4-Nitrophenol (aq)		<0.001 mg/l	TM176	<0.001			
4-Nitroaniline (aq)		<0.001 mg/l	TM176	<0.001			
Azobenzene (aq)		<0.001 mg/l	TM176	<0.001			
Acenaphthylene (aq)		<0.001 mg/l	TM176	<0.001			
Acenaphthene (aq)		<0.001 mg/l	TM176	<0.001			
Anthracene (aq)		<0.001 mg/l	TM176	<0.001			
bis(2-Chloroethyl)ether (aq)		<0.001 mg/l	TM176	<0.001			
bis(2-Chloroethoxy)methane (aq)		<0.001 mg/l	TM176	<0.001			
bis(2-Ethylhexyl) phthalate (aq)		<0.002 mg/l	TM176	<0.002			
Benzo(a)anthracene (aq)		<0.001 mg/l	TM176	<0.001			
Butylbenzyl phthalate (aq)		<0.001 mg/l	TM176	<0.001			
Benzo(b)fluoranthene (aq)		<0.001 mg/l	TM176	<0.001			
Benzo(k)fluoranthene (aq)		<0.001 mg/l	TM176	<0.001			
Benzo(a)pyrene (aq)		<0.001 mg/l	TM176	<0.001			
Benzo(g,h,i)perylene (aq)		<0.001 mg/l	TM176	<0.001			
Carbazole (aq)		<0.001 mg/l	TM176	<0.001			
Chrysene (aq)		<0.001 mg/l	TM176	<0.001			

SDG:	100802-15	Customer:	Entec UK - MOD Ltd
Job:	H_ENTEC_MOD-11	Attention:	Nick Huyg
Client Reference:		Order No.:	228113
Location:	KL056 BICESTER	Report No:	92974

VOC MS (W)								
Results Legend		Customer Sample Ref.	SWE1	Water(GW/SW)	29/07/2010	31/07/2010	100802-15	1896296
#	ISO17025 accredited.							
M	mCERTS accredited.							
aq	Aqueous / settled sample.							
diss.filt	Dissolved / filtered sample.							
tot.unfilt	Total / unfiltered sample.							
*	subcontracted test.							
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.							
Component		LOD/Units	Method					
Dibromofluoromethane**		%	TM208	102				
Toluene-d8**		%	TM208	98.7				
4-Bromofluorobenzene**		%	TM208	95.2				
Dichlorodifluoromethane		<0.007 mg/l	TM208	<0.007				
Chloromethane		<0.009 mg/l	TM208	<0.009				
Vinyl chloride		<0.0012 mg/l	TM208	<0.0012				
Bromomethane		<0.002 mg/l	TM208	<0.002				
Chloroethane		<0.0025 mg/l	TM208	<0.0025				
Trichlorofluoromethane		<0.0013 mg/l	TM208	<0.0013				
1,1-Dichloroethene		<0.0012 mg/l	TM208	<0.0012				
Carbon disulphide		<0.0013 mg/l	TM208	<0.0013				
Dichloromethane		<0.0037 mg/l	TM208	<0.0037				
Methyl tertiary butyl ether (MTBE)		<0.0016 mg/l	TM208	<0.0016				
trans-1,2-Dichloroethene		<0.0019 mg/l	TM208	<0.0019				
1,1-Dichloroethane		<0.0012 mg/l	TM208	<0.0012				
cis-1,2-Dichloroethene		<0.0023 mg/l	TM208	<0.0023				
2,2-Dichloropropane		<0.0038 mg/l	TM208	<0.0038				
Bromochloromethane		<0.0019 mg/l	TM208	<0.0019				
Chloroform		<0.0018 mg/l	TM208	<0.0018				
1,1,1-Trichloroethane		<0.0013 mg/l	TM208	<0.0013				
1,1-Dichloropropene		<0.0013 mg/l	TM208	<0.0013				
Carbontetrachloride		<0.0014 mg/l	TM208	<0.0014				
1,2-Dichloroethane		<0.0033 mg/l	TM208	<0.0033				
Benzene		<0.0013 mg/l	TM208	<0.0013				
Trichloroethene		<0.0025 mg/l	TM208	<0.0025				
1,2-Dichloropropane		<0.003 mg/l	TM208	<0.003				
Dibromomethane		<0.0027 mg/l	TM208	<0.0027				
Bromodichloromethane		<0.0009 mg/l	TM208	<0.0009				
cis-1,3-Dichloropropene		<0.0019 mg/l	TM208	<0.0019				
Toluene		<0.0014 mg/l	TM208	<0.0014				
trans-1,3-Dichloropropene		<0.0035 mg/l	TM208	<0.0035				
1,1,2-Trichloroethane		<0.0022 mg/l	TM208	<0.0022				
1,3-Dichloropropane		<0.0022 mg/l	TM208	<0.0022				
Tetrachloroethene		<0.0015 mg/l	TM208	<0.0015				
Dibromochloromethane		<0.0017 mg/l	TM208	<0.0017				
1,2-Dibromoethane		<0.0023 mg/l	TM208	<0.0023				
Chlorobenzene		<0.0035 mg/l	TM208	<0.0035				
1,1,1,2-Tetrachloroethane		<0.0013 mg/l	TM208	<0.0013				
Ethylbenzene		<0.0025 mg/l	TM208	<0.0025				

Table of Results - Appendix

SDG Number : 100802-15

Client : Entec UK - MOD Ltd

Client Ref :

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
TM061	Method for the Determination of EPH, Massachusetts Dept. of EP, 1998	Determination of Extractable Petroleum Hydrocarbons by GC-FID (C10-C40)	
TM099	BS 2690: Part 7:1968 / BS 6068: Part 2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser	
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS	
TM172	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	EPH in Waters	
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	
TM178	Modified: US EPA Method 8100	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS in Waters	
TM183	BS EN 23506:2002, (BS 6068-2.74:2002) ISBN 0 580 38924 3	Determination of Trace Level Mercury in Waters and Leachates by PSA Cold Vapour Atomic Fluorescence Spectrometry	
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers	
TM208	Modified: US EPA Method 8260b & 624	Determination of Volatile Organic Compounds by Headspace / GC-MS in Waters	
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.

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 ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

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)	GS 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	SOXTHERM	GRAVIMETRIC
Cyclohexane Ext. Matter	D&C	CYCLOHEXANE	SOXTHERM	GRAVIMETRIC
Thin Layer Chromatography	D&C	DCM	SOXTHERM	IATROSCAN
Elemental Sulphur	D&C	DCM	SOXTHERM	HPLC
Phenols by GCMS	WET	DCM	SOXTHERM	GC-MS
Herbicides	D&C	HEXANE:ACETONE	SOXTHERM	GC-MS
Pesticides	D&C	HEXANE:ACETONE	SOXTHERM	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.

<u>Asbestos Type</u>	<u>Common Name</u>
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-



Attention: Simon Howard

CERTIFICATE OF ANALYSIS

Date: 13 August 2010
Customer: H_ENTEC_MOD-12
Sample Delivery Group (SDG): 100809-24
Your Reference: 26999
Location:
Report No.: 93535

We received 24 samples on Saturday August 07, 2010 and 24 of these samples were scheduled for analysis which was completed on Friday August 13, 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

Operations Director - Land UK & Ireland



SDG:	100809-24	Customer:	Entec UK - MOD Ltd
Job:	H_ENTEC_MOD-12	Attention:	Simon Howard
Client Reference:	26999	Order No.:	228113
Location:		Report No:	93535

Received Sample Overview



Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
1924902	BHC 3			04/08/2010
1925483	BHD 01			05/08/2010
1925026	SWA 01			04/08/2010
1925083	SWC 1			04/08/2010
1925514	SWC 2			04/08/2010
1924965	SWC 4			04/08/2010
1924991	SWC 5			04/08/2010
1924938	SWC 8			04/08/2010
1925346	SWD 06			04/08/2010
1925307	SWD 09			05/08/2010
1924811	SWE 1			04/08/2010
1924861	SWE 5			04/08/2010
1925590	WSA 01			04/08/2010
1925581	WSA 03			04/08/2010
1924763	WSC 04			04/08/2010
1925540	WSC 08			04/08/2010
1925192	WSD 03			05/08/2010
1925289	WSD 07			05/08/2010
1925384	WSD 09			05/08/2010
1925610	WSD 10			05/08/2010
1925633	WSE 10			04/08/2010
1924790	WSE 17			04/08/2010
1925602	WSE 25			04/08/2010
1925110	WSE 26			04/08/2010

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

SDG: 100809-24
Job: H_ENTEC_MOD-12
Client Reference: 26999
Location:

Customer: Entec UK - MOD Ltd
Attention: Simon Howard
Order No.: 228113
Report No: 93535

LIQUID

Results Legend	Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Container
 Test					
 No Determination Possible					
Ammonium	All				
Anions by Kone (w)	All				
Dissolved Metals by ICP-MS	All				
EPH (DRO) (C10-C40) Aqueous (W)	All				
EPH CWG (Aliphatic) Aqueous GC (W)	All				
EPH CWG (Aromatic) Aqueous GC (W)	All				
GRO by GC-FID (W)	All				
Mercury Dissolved	All				
PAH Spec MS - Aqueous (W)	All				
pH Value	All				
SVOC MS (W) - Aqueous	All				
TPH CWG (W)	All				
VOC MS (W)	All				

SDG:	100809-24	Customer:	Entec UK - MOD Ltd
Job:	H_ENTEC_MOD-12	Attention:	Simon Howard
Client Reference:	26999	Order No.:	228113
Location:		Report No:	93535

Test Completion dates

SDG reference: 100809-24

Lab Sample No(s)	1924763	1924790	1924811	1924861	1924902	1924938	1924965	1924991	1925026	1925083	1925110	1925192
Customer Sample Ref.	WSC 04	WSE 17	SWE 1	SWE 5	BHC 3	SWC 8	SWC 4	SWC 5	SWA 01	SWC 1	WSE 26	WSD 03
Depth												
Type	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID
Ammonium	11/08/2010	11/08/2010	11/08/2010	11/08/2010	11/08/2010	11/08/2010	11/08/2010	11/08/2010	11/08/2010	11/08/2010	11/08/2010	11/08/2010
Anions by Kone (w)	11/08/2010	11/08/2010	11/08/2010	11/08/2010	11/08/2010	11/08/2010	11/08/2010	11/08/2010	11/08/2010	11/08/2010	11/08/2010	11/08/2010
Dissolved Metals by ICP-MS	11/08/2010	11/08/2010	12/08/2010	11/08/2010	11/08/2010	12/08/2010	11/08/2010	11/08/2010	11/08/2010	11/08/2010	11/08/2010	11/08/2010
EPH (DRO) (C10-C40) Aqueous (W)	12/08/2010					12/08/2010			12/08/2010			
EPH CWG (Aliphatic) Aqueous GC		12/08/2010	12/08/2010		12/08/2010					12/08/2010	12/08/2010	12/08/2010
EPH CWG (Aromatic) Aqueous GC		12/08/2010	12/08/2010		12/08/2010					12/08/2010	12/08/2010	12/08/2010
GRO by GC-FID (W)	11/08/2010	11/08/2010	11/08/2010		11/08/2010	11/08/2010			11/08/2010	11/08/2010	11/08/2010	11/08/2010
Mercury Dissolved	11/08/2010	11/08/2010	11/08/2010	11/08/2010	11/08/2010	11/08/2010	11/08/2010	11/08/2010	11/08/2010	11/08/2010	11/08/2010	11/08/2010
PAH Spec MS - Aqueous (W)		12/08/2010	12/08/2010		12/08/2010			12/08/2010		12/08/2010	12/08/2010	12/08/2010
pH Value	11/08/2010	11/08/2010	11/08/2010	11/08/2010	11/08/2010	11/08/2010	11/08/2010	11/08/2010	11/08/2010	11/08/2010	11/08/2010	11/08/2010
SVOC MS (W) - Aqueous		12/08/2010	12/08/2010		12/08/2010					12/08/2010	12/08/2010	12/08/2010
TPH CWG (W)		13/08/2010	13/08/2010		13/08/2010					13/08/2010	13/08/2010	13/08/2010
VOC MS (W)		11/08/2010	11/08/2010		11/08/2010					11/08/2010	11/08/2010	11/08/2010

1925289	1925307	1925346	1925384	1925483	1925514	1925540	1925581	1925590	1925602	1925610	1925633
WSD 07	SWD 09	SWD 06	WSD 09	BHD 01	SWC 2	WSC 08	WSA 03	WSA 01	WSE 25	WSD 10	WSE 10
LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID
11/08/2010	11/08/2010	11/08/2010	11/08/2010	11/08/2010	11/08/2010	11/08/2010	11/08/2010	11/08/2010	11/08/2010	11/08/2010	11/08/2010
11/08/2010	11/08/2010	11/08/2010	11/08/2010	11/08/2010	11/08/2010	11/08/2010	11/08/2010	11/08/2010	11/08/2010	11/08/2010	11/08/2010
11/08/2010	11/08/2010	12/08/2010	11/08/2010	13/08/2010	13/08/2010	13/08/2010	13/08/2010	12/08/2010	11/08/2010	13/08/2010	12/08/2010
11/08/2010		12/08/2010	12/08/2010								12/08/2010
	12/08/2010			12/08/2010		12/08/2010					
	12/08/2010			12/08/2010		12/08/2010					
11/08/2010	11/08/2010	11/08/2010	11/08/2010	11/08/2010		11/08/2010					11/08/2010
10/08/2010	11/08/2010	11/08/2010	11/08/2010	10/08/2010	10/08/2010	10/08/2010	10/08/2010	11/08/2010	11/08/2010	10/08/2010	11/08/2010
	12/08/2010			11/08/2010		11/08/2010					
11/08/2010	11/08/2010	11/08/2010	11/08/2010	11/08/2010	11/08/2010	10/08/2010	11/08/2010	11/08/2010	11/08/2010	10/08/2010	11/08/2010
	12/08/2010			12/08/2010		12/08/2010					
	13/08/2010			13/08/2010		13/08/2010					
	11/08/2010			11/08/2010		11/08/2010					

SDG:	100809-24
Job:	H_ENTEC_MOD-12
Client Reference:	26999
Location:	

Customer: Entec UK - MOD Ltd
Attention: Simon Howard
Order No.: 228113
Report No: 93535

[illegible]

SDG:	100809-24	Customer:	Entec UK - MOD Ltd
Job:	H_ENTEC_MOD-12	Attention:	Simon Howard
Client Reference:	26999	Order No.:	228113
Location:		Report No:	93535

SVOC MS (W) - Aqueous								
<div>Results Legend</div> <div># ISO17025 accredited.</div> <div>M mCERTS accredited.</div> <div>aq Aqueous / settled sample.</div> <div>diss.filt Dissolved / filtered sample.</div> <div>tot.unfilt Total / unfiltered sample.</div> <div>* subcontracted test.</div> <div>** % 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.</div>		Customer Sample Ref.		BHC 3	BHD 01	SWC 1		
			Depth (m)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)		
			Sample Type	04/08/2010	05/08/2010	04/08/2010		
			Date Sampled	07/08/2010	07/08/2010	07/08/2010		
			Date Received	100809-24	100809-24	100809-24		
			SDG Ref	1924902	1925483	1925083		
			Lab Sample No.(s)					
			AGS Reference					
Component		LOD/Units	Method					
1,2,4-Trichlorobenzene (aq)		<0.001 mg/l	TM176	<0.001	<0.001	<0.001		
1,2-Dichlorobenzene (aq)		<0.001 mg/l	TM176	<0.001	<0.001	<0.001		
1,3-Dichlorobenzene (aq)		<0.001 mg/l	TM176	<0.001	<0.001	<0.001		
1,4-Dichlorobenzene (aq)		<0.001 mg/l	TM176	<0.001	<0.001	<0.001		
2,4,5-Trichlorophenol (aq)		<0.001 mg/l	TM176	<0.001	<0.001	<0.001		
2,4,6-Trichlorophenol (aq)		<0.001 mg/l	TM176	<0.001	<0.001	<0.001		
2,4-Dichlorophenol (aq)		<0.001 mg/l	TM176	<0.001	<0.001	<0.001		
2,4-Dimethylphenol (aq)		<0.001 mg/l	TM176	<0.001	<0.001	<0.001		
2,4-Dinitrotoluene (aq)		<0.001 mg/l	TM176	<0.001	<0.001	<0.001		
2,6-Dinitrotoluene (aq)		<0.001 mg/l	TM176	<0.001	<0.001	<0.001		
2-Chloronaphthalene (aq)		<0.001 mg/l	TM176	<0.001	<0.001	<0.001		
2-Chlorophenol (aq)		<0.001 mg/l	TM176	<0.001	<0.001	<0.001		
2-Methylnaphthalene (aq)		<0.001 mg/l	TM176	<0.001	<0.001	<0.001		
2-Methylphenol (aq)		<0.001 mg/l	TM176	<0.001	<0.001	<0.001		
2-Nitroaniline (aq)		<0.001 mg/l	TM176	<0.001	<0.001	<0.001		
2-Nitrophenol (aq)		<0.001 mg/l	TM176	<0.001	<0.001	<0.001		
3-Nitroaniline (aq)		<0.001 mg/l	TM176	<0.001	<0.001	<0.001		
4-Bromophenylphenylether (aq)		<0.001 mg/l	TM176	<0.001	<0.001	<0.001		
4-Chloro-3-methylphenol (aq)		<0.001 mg/l	TM176	<0.001	<0.001	<0.001		
4-Chloroaniline (aq)		<0.001 mg/l	TM176	<0.001	<0.001	<0.001		
4-Chlorophenylphenylether (aq)		<0.001 mg/l	TM176	<0.001	<0.001	<0.001		
4-Methylphenol (aq)		<0.001 mg/l	TM176	<0.001	<0.001	<0.001		
4-Nitrophenol (aq)		<0.001 mg/l	TM176	<0.001	<0.001	<0.001		
4-Nitroaniline (aq)		<0.001 mg/l	TM176	<0.001	<0.001	<0.001		
Azobenzene (aq)		<0.001 mg/l	TM176	<0.001	<0.001	<0.001		
bis(2-Chloroethyl)ether (aq)		<0.001 mg/l	TM176	<0.001	<0.001	<0.001		
bis(2-Chloroethoxy)methane (aq)		<0.001 mg/l	TM176	<0.001	<0.001	<0.001		
bis(2-Ethylhexyl) phthalate (aq)		<0.002 mg/l	TM176	<0.002	<0.002	<0.002		
Butylbenzyl phthalate (aq)		<0.001 mg/l	TM176	<0.001	<0.001	<0.001		
Carbazole (aq)		<0.001 mg/l	TM176	<0.001	<0.001	<0.001		
Dibenzofuran (aq)		<0.001 mg/l	TM176	<0.001	<0.001	<0.001		
n-Dibutyl phthalate (aq)		<0.001 mg/l	TM176	<0.001	<0.001	<0.001		
Diethyl phthalate (aq)		<0.001 mg/l	TM176	<0.001	<0.001	<0.001		
Dimethyl phthalate (aq)		<0.001 mg/l	TM176	<0.001	<0.001	<0.001		
n-Dioctyl phthalate (aq)		<0.005 mg/l	TM176	<0.005	<0.005	<0.005		
Hexachlorobenzene (aq)		<0.001 mg/l	TM176	<0.001	<0.001	<0.001		
Hexachlorobutadiene (aq)		<0.001 mg/l	TM176	<0.001	<0.001	<0.001		
Pentachlorophenol (aq)		<0.001 mg/l	TM176	<0.001	<0.001	<0.001		
Phenol (aq)		<0.001 mg/l	TM176	<0.001	<0.001	<0.001		

SDG:	100809-24	Customer:	Entec UK - MOD Ltd
Job:	H_ENTEC_MOD-12	Attention:	Simon Howard
Client Reference:	26999	Order No.:	228113
Location:		Report No:	93535

VOC MS (W)								
Results Legend		Customer Sample Ref.	BHC 3	BHD 01	SWC 1			
#	ISO17025 accredited.							
M	mCERTS accredited.							
aq	Aqueous / settled sample.							
diss.filt	Dissolved / filtered sample.							
tot.unfilt	Total / unfiltered sample.							
*	subcontracted test.							
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.							
Depth (m)		Sample Type	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)			
Date Sampled								
Date Received								
SDG Ref								
Lab Sample No.(s)								
AGS Reference								
Component	LOD/Units	Method						
Dibromofluoromethane**	%	TM208	93.8	96.4	96			
Toluene-d8**	%	TM208	97.3	96.9	97.3			
4-Bromofluorobenzene**	%	TM208	95	95.3	95.7			
Dichlorodifluoromethane	<0.007 mg/l	TM208	<0.007	<0.007	<0.007			
Chloromethane	<0.009 mg/l	TM208	<0.009	<0.009	<0.009			
Vinyl chloride	<0.0012 mg/l	TM208	0.028	<0.0012	<0.0012			
Bromomethane	<0.002 mg/l	TM208	<0.002	<0.002	<0.002			
Chloroethane	<0.0025 mg/l	TM208	<0.0025	<0.0025	<0.0025			
Trichlorofluoromethane	<0.0013 mg/l	TM208	<0.0013	<0.0013	<0.0013			
1,1-Dichloroethene	<0.0012 mg/l	TM208	<0.0012	<0.0012	<0.0012			
Carbon disulphide	<0.0013 mg/l	TM208	<0.0013	<0.0013	<0.0013			
Dichloromethane	<0.0037 mg/l	TM208	<0.0037	<0.0037	<0.0037			
Methyl tertiary butyl ether (MTBE)	<0.0016 mg/l	TM208	0.0241	<0.0016	<0.0016			
trans-1,2-Dichloroethene	<0.0019 mg/l	TM208	0.00744	<0.0019	<0.0019			
1,1-Dichloroethane	<0.0012 mg/l	TM208	<0.0012	<0.0012	<0.0012			
cis-1,2-Dichloroethene	<0.0023 mg/l	TM208	0.523	<0.0023	<0.0023			
2,2-Dichloropropane	<0.0038 mg/l	TM208	<0.0038	<0.0038	<0.0038			
Bromochloromethane	<0.0019 mg/l	TM208	<0.0019	<0.0019	<0.0019			
Chloroform	<0.0018 mg/l	TM208	<0.0018	<0.0018	<0.0018			
1,1,1-Trichloroethane	<0.0013 mg/l	TM208	<0.0013	<0.0013	<0.0013			
1,1-Dichloropropene	<0.0013 mg/l	TM208	<0.0013	<0.0013	<0.0013			
Carbontetrachloride	<0.0014 mg/l	TM208	<0.0014	<0.0014	<0.0014			
1,2-Dichloroethane	<0.0033 mg/l	TM208	<0.0033	<0.0033	<0.0033			
Benzene	<0.0013 mg/l	TM208	<0.0013	<0.0013	<0.0013			
Trichloroethene	<0.0025 mg/l	TM208	0.00318	<0.0025	<0.0025			
1,2-Dichloropropane	<0.003 mg/l	TM208	<0.003	<0.003	<0.003			
Dibromomethane	<0.0027 mg/l	TM208	<0.0027	<0.0027	<0.0027			
Bromodichloromethane	<0.0009 mg/l	TM208	<0.0009	<0.0009	<0.0009			
cis-1,3-Dichloropropene	<0.0019 mg/l	TM208	<0.0019	<0.0019	<0.0019			
Toluene	<0.0014 mg/l	TM208	<0.0014	<0.0014	<0.0014			
trans-1,3-Dichloropropene	<0.0035 mg/l	TM208	<0.0035	<0.0035	<0.0035			
1,1,2-Trichloroethane	<0.0022 mg/l	TM208	<0.0022	<0.0022	<0.0022			
1,3-Dichloropropane	<0.0022 mg/l	TM208	<0.0022	<0.0022	<0.0022			
Tetrachloroethene	<0.0015 mg/l	TM208	<0.0015	<0.0015	<0.0015			
Dibromochloromethane	<0.0017 mg/l	TM208	<0.0017	<0.0017	<0.0017			
1,2-Dibromoethane	<0.0023 mg/l	TM208	<0.0023	<0.0023	<0.0023			
Chlorobenzene	<0.0035 mg/l	TM208	<0.0035	<0.0035	<0.0035			
1,1,1,2-Tetrachloroethane	<0.0013 mg/l	TM208	<0.0013	<0.0013	<0.0013			
Ethylbenzene	<0.0025 mg/l	TM208	<0.0025	<0.0025	<0.0025			

SDG:	100809-24
Job:	H_ENTEC_MOD-12
Client Reference:	26999
Location:	

Customer: Entec UK - MOD Ltd
Attention: Simon Howard
Order No.: 228113
Report No: 93535

[illegible]

SDG:	100809-24
Job:	H_ENTEC_MOD-12
Client Reference:	26999
Location:	

Customer: Entec UK - MOD Ltd
Attention: Simon Howard
Order No.: 228113
Report No: 93535

PAH Spec MS - Aqueous (W)

[illegible]

SDG:	100809-24	Customer:	Entec UK - MOD Ltd
Job:	H_ENTEC_MOD-12	Attention:	Simon Howard
Client Reference:	26999	Order No.:	228113
Location:		Report No:	93535

SVOC MS (W) - Aqueous			Customer Sample Ref.	SWD 09 Water(GW/SW) 05/08/2010 07/08/2010 100809-24 1925307	SWE 1 Water(GW/SW) 04/08/2010 07/08/2010 100809-24 1924811			
Results Legend		Depth (m) Sample Type Date Sampled Date Received SDG Ref Lab Sample No.(s) AGS Reference						
#	ISO17025 accredited.							
M	mCERTS accredited.							
aq	Aqueous / settled sample.							
diss.filt	Dissolved / filtered sample.							
tot.unfilt	Total / unfiltered sample.							
*	subcontracted test.							
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.							
Component			LOD/Units	Method				
1,2,4-Trichlorobenzene (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
1,2-Dichlorobenzene (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
1,3-Dichlorobenzene (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
1,4-Dichlorobenzene (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
2,4,5-Trichlorophenol (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
2,4,6-Trichlorophenol (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
2,4-Dichlorophenol (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
2,4-Dimethylphenol (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
2,4-Dinitrotoluene (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
2,6-Dinitrotoluene (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
2-Chloronaphthalene (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
2-Chlorophenol (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
2-Methylnaphthalene (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
2-Methylphenol (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
2-Nitroaniline (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
2-Nitrophenol (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
3-Nitroaniline (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
4-Bromophenylphenylether (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
4-Chloro-3-methylphenol (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
4-Chloroaniline (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
4-Chlorophenylphenylether (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
4-Methylphenol (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
4-Nitrophenol (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
4-Nitroaniline (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
Azobenzene (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
bis(2-Chloroethyl)ether (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
bis(2-Chloroethoxy)methane (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
bis(2-Ethylhexyl) phthalate (aq)		<0.002 mg/l	TM176	<0.002	<0.002			
Butylbenzyl phthalate (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
Carbazole (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
Dibenzofuran (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
n-Dibutyl phthalate (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
Diethyl phthalate (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
Dimethyl phthalate (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
n-Dioctyl phthalate (aq)		<0.005 mg/l	TM176	<0.005	<0.005			
Hexachlorobenzene (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
Hexachlorobutadiene (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
Pentachlorophenol (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
Phenol (aq)		<0.001 mg/l	TM176	<0.001	<0.001			

SDG:	100809-24	Customer:	Entec UK - MOD Ltd
Job:	H_ENTEC_MOD-12	Attention:	Simon Howard
Client Reference:	26999	Order No.:	228113
Location:		Report No:	93535

TPH CWG (W)							
Results Legend		Customer Sample Ref.	SWD 09	SWE 1			
#	ISO17025 accredited.						
M	mCERTS accredited.						
aq	Aqueous / settled sample.						
diss.filt	Dissolved / filtered sample.						
tot.unfilt	Total / unfiltered sample.						
*	subcontracted test.						
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.						
Component		LOD/Units	Method				
Total Aliphatics >C5-C35 (aq)		<0.01 mg/l	TM174	0.012	0.016		
Total Aromatics >C6-C35 (aq)		<0.01 mg/l	TM174	0.018	0.052		
Total Aliphatics & Aromatics >C5-35 (aq)		<0.01 mg/l	TM174	0.03	0.068		
Aliphatics >C12-C16 (aq)		<0.01 mg/l	TM174	<0.01	<0.01		
Aromatics >EC12-EC16 (aq)		<0.01 mg/l	TM174	<0.01	<0.01		
Aliphatics >C16-C21 (aq)		<0.01 mg/l	TM174	<0.01	<0.01		
Aromatics >EC16-EC21 (aq)		<0.01 mg/l	TM174	<0.01	<0.01		
Aliphatics >C21-C35 (aq)		<0.01 mg/l	TM174	0.012	0.016		
Aromatics >EC21-EC35 (aq)		<0.01 mg/l	TM174	0.018	0.052		
Total Aliphatics >C12-C35 (aq)		<0.01 mg/l	TM174	0.012	0.016		
Total Aromatics >EC12-EC35 (aq)		<0.01 mg/l	TM174	0.018	0.052		
Total Aliphatics & Aromatics >C12-C35 (Aqueous)		<0.01 mg/l	TM174	0.03	0.068		
GRO Surrogate % recovery**		%	TM245	113	97		
Benzene		<0.007 mg/l	TM245	<0.007	<0.007		
Toluene		<0.004 mg/l	TM245	<0.004	<0.004		
Ethylbenzene		<0.005 mg/l	TM245	<0.005	<0.005		
m,p-Xylene		<0.008 mg/l	TM245	<0.008	<0.008		
o-Xylene		<0.003 mg/l	TM245	<0.003	<0.003		
m,p,o-Xylene		<0.01 mg/l	TM245	<0.01	<0.01		
BTEX, Total		<0.01 mg/l	TM245	<0.01	<0.01		
Methyl tertiary butyl ether (MTBE)		<0.003 mg/l	TM245	<0.003	<0.003		
GRO >C5-C12		<0.05 mg/l	TM245	<0.05	<0.05		
Aliphatics >C5-C6		<0.01 mg/l	TM245	<0.01	<0.01		
Aliphatics >C6-C8		<0.01 mg/l	TM245	<0.01	<0.01		
Aliphatics >C8-C10		<0.01 mg/l	TM245	<0.01	<0.01		
Aliphatics >C10-C12		<0.01 mg/l	TM245	<0.01	<0.01		
Total Aliphatics >C5-C12		<0.01 mg/l	TM245	<0.01	<0.01		
Aromatics >C6-C7		<0.01 mg/l	TM245	<0.01	<0.01		
Aromatics >C7-C8		<0.01 mg/l	TM245	<0.01	<0.01		
Aromatics >EC8-EC10		<0.01 mg/l	TM245	<0.01	<0.01		
Aromatics >EC10-EC12		<0.01 mg/l	TM245	<0.01	<0.01		
Total Aromatics >C6-C12		<0.01 mg/l	TM245	<0.01	<0.01		

SDG:	100809-24	Customer:	Entec UK - MOD Ltd
Job:	H_ENTEC_MOD-12	Attention:	Simon Howard
Client Reference:	26999	Order No.:	228113
Location:		Report No:	93535

VOC MS (W)								
Results Legend		Customer Sample Ref.	SWD 09	SWE 1				
#	ISO17025 accredited.							
M	mCERTS accredited.							
aq	Aqueous / settled sample.							
diss.filt	Dissolved / filtered sample.							
tot.unfilt	Total / unfiltered sample.							
*	subcontracted test.							
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.							

SDG:	100809-24
Job:	H_ENTEC_MOD-12
Client Reference:	26999
Location:	

Customer: Entec UK - MOD Ltd
Attention: Simon Howard
Order No.: 228113
Report No: 93535

[illegible]

SDG:	100809-24	Customer:	Entec UK - MOD Ltd
Job:	H_ENTEC_MOD-12	Attention:	Simon Howard
Client Reference:	26999	Order No.:	228113
Location:		Report No:	93535

SVOC MS (W) - Aqueous

Results Legend		Customer Sample Ref.	WSC 08	WSD 03				
#	ISO17025 accredited.							
M	mCERTS accredited.							
aq	Aqueous / settled sample.							
diss.filt	Dissolved / filtered sample.							
tot.unfilt	Total / unfiltered sample.							
*	subcontracted test.							
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.							
Component		LOD/Units	Method					
1,2,4-Trichlorobenzene (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
1,2-Dichlorobenzene (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
1,3-Dichlorobenzene (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
1,4-Dichlorobenzene (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
2,4,5-Trichlorophenol (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
2,4,6-Trichlorophenol (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
2,4-Dichlorophenol (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
2,4-Dimethylphenol (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
2,4-Dinitrotoluene (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
2,6-Dinitrotoluene (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
2-Chloronaphthalene (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
2-Chlorophenol (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
2-Methylnaphthalene (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
2-Methylphenol (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
2-Nitroaniline (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
2-Nitrophenol (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
3-Nitroaniline (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
4-Bromophenylphenylether (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
4-Chloro-3-methylphenol (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
4-Chloroaniline (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
4-Chlorophenylphenylether (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
4-Methylphenol (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
4-Nitrophenol (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
4-Nitroaniline (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
Azobenzene (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
bis(2-Chloroethyl)ether (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
bis(2-Chloroethoxy)methane (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
bis(2-Ethylhexyl) phthalate (aq)		<0.002 mg/l	TM176	<0.002	<0.002			
Butylbenzyl phthalate (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
Carbazole (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
Dibenzofuran (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
n-Dibutyl phthalate (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
Diethyl phthalate (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
Dimethyl phthalate (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
n-Dioctyl phthalate (aq)		<0.005 mg/l	TM176	<0.005	<0.005			
Hexachlorobenzene (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
Hexachlorobutadiene (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
Pentachlorophenol (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
Phenol (aq)		<0.001 mg/l	TM176	<0.001	<0.001			

SDG:	100809-24	Customer:	Entec UK - MOD Ltd
Job:	H_ENTEC_MOD-12	Attention:	Simon Howard
Client Reference:	26999	Order No.:	228113
Location:		Report No:	93535

TPH CWG (W)								
Results Legend		Customer Sample Ref.	WSC 08	WSD 03				
#	ISO17025 accredited.							
M	mCERTS accredited.							
aq	Aqueous / settled sample.							
diss.filt	Dissolved / filtered sample.							
tot.unfilt	Total / unfiltered sample.							
*	subcontracted test.							
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.							
Component								
Total Aliphatics >C5-C35 (aq)		<0.01 mg/l	TM174	<0.01				
Total Aromatics >C6-C35 (aq)		<0.01 mg/l	TM174	<0.01	<0.01			
Total Aliphatics & Aromatics >C5-35 (aq)		<0.01 mg/l	TM174	<0.01	<0.01			
Aliphatics >C12-C16 (aq)		<0.01 mg/l	TM174	<0.01	<0.01			
Aromatics >EC12-EC16 (aq)		<0.01 mg/l	TM174	<0.01	<0.01			
Aliphatics >C16-C21 (aq)		<0.01 mg/l	TM174	<0.01	<0.01			
Aromatics >EC16-EC21 (aq)		<0.01 mg/l	TM174	<0.01	<0.01			
Aliphatics >C21-C35 (aq)		<0.01 mg/l	TM174	<0.01	<0.01			
Aromatics >EC21-EC35 (aq)		<0.01 mg/l	TM174	<0.01	<0.01			
Total Aliphatics >C12-C35 (aq)		<0.01 mg/l	TM174	<0.01	<0.01			
Total Aromatics >EC12-EC35 (aq)		<0.01 mg/l	TM174	<0.01	<0.01			
Total Aliphatics & Aromatics >C12-C35 (Aqueous)		<0.01 mg/l	TM174	<0.01	<0.01			
GRO Surrogate % recovery**		%	TM245	110	96			
Benzene		<0.007 mg/l	TM245	<0.007	<0.007			
Toluene		<0.004 mg/l	TM245	<0.004	<0.004			
Ethylbenzene		<0.005 mg/l	TM245	<0.005	<0.005			
m,p-Xylene		<0.008 mg/l	TM245	<0.008	<0.008			
o-Xylene		<0.003 mg/l	TM245	<0.003	<0.003			
m,p,o-Xylene		<0.01 mg/l	TM245	<0.01	<0.01			
BTEX, Total		<0.01 mg/l	TM245	<0.01	<0.01			
Methyl tertiary butyl ether (MTBE)		<0.003 mg/l	TM245	<0.003	<0.003			
GRO >C5-C12		<0.05 mg/l	TM245	<0.05	<0.05			
Aliphatics >C5-C6		<0.01 mg/l	TM245	<0.01	<0.01			
Aliphatics >C6-C8		<0.01 mg/l	TM245	<0.01	<0.01			
Aliphatics >C8-C10		<0.01 mg/l	TM245	<0.01	<0.01			
Aliphatics >C10-C12		<0.01 mg/l	TM245	<0.01	<0.01			
Total Aliphatics >C5-C12		<0.01 mg/l	TM245	<0.01	<0.01			
Aromatics >C6-C7		<0.01 mg/l	TM245	<0.01	<0.01			
Aromatics >C7-C8		<0.01 mg/l	TM245	<0.01	<0.01			
Aromatics >EC8-EC10		<0.01 mg/l	TM245	<0.01	<0.01			
Aromatics >EC10-EC12		<0.01 mg/l	TM245	<0.01	<0.01			
Total Aromatics >C6-C12		<0.01 mg/l	TM245	<0.01	<0.01			

SDG:	100809-24	Customer:	Entec UK - MOD Ltd
Job:	H_ENTEC_MOD-12	Attention:	Simon Howard
Client Reference:	26999	Order No.:	228113
Location:		Report No:	93535

VOC MS (W)

Results Legend		Customer Sample Ref.	WSC 08	WSD 03				
#	ISO17025 accredited.							
M	mCERTS accredited.							
aq	Aqueous / settled sample.							
diss.filt	Dissolved / filtered sample.							
tot.unfilt	Total / unfiltered sample.							
*	subcontracted test.							
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.							
Component		LOD/Units	Method					
Dibromofluoromethane**		%	TM208	96.1	96			
Toluene-d8**		%	TM208	96.8	96.3			
4-Bromofluorobenzene**		%	TM208	96.3	95.8			
Dichlorodifluoromethane		<0.007 mg/l	TM208	<0.007	<0.007			
Chloromethane		<0.009 mg/l	TM208	<0.009	<0.009			
Vinyl chloride		<0.0012 mg/l	TM208	<0.0012	<0.0012			
Bromomethane		<0.002 mg/l	TM208	<0.002	<0.002			
Chloroethane		<0.0025 mg/l	TM208	<0.0025	<0.0025			
Trichlorofluoromethane		<0.0013 mg/l	TM208	<0.0013	<0.0013			
1,1-Dichloroethene		<0.0012 mg/l	TM208	<0.0012	<0.0012			
Carbon disulphide		<0.0013 mg/l	TM208	<0.0013	<0.0013			
Dichloromethane		<0.0037 mg/l	TM208	<0.0037	<0.0037			
Methyl tertiary butyl ether (MTBE)		<0.0016 mg/l	TM208	<0.0016	<0.0016			
trans-1,2-Dichloroethene		<0.0019 mg/l	TM208	<0.0019	<0.0019			
1,1-Dichloroethane		<0.0012 mg/l	TM208	<0.0012	<0.0012			
cis-1,2-Dichloroethene		<0.0023 mg/l	TM208	<0.0023	<0.0023			
2,2-Dichloropropane		<0.0038 mg/l	TM208	<0.0038	<0.0038			
Bromochloromethane		<0.0019 mg/l	TM208	<0.0019	<0.0019			
Chloroform		<0.0018 mg/l	TM208	<0.0018	<0.0018			
1,1,1-Trichloroethane		<0.0013 mg/l	TM208	<0.0013	<0.0013			
1,1-Dichloropropene		<0.0013 mg/l	TM208	<0.0013	<0.0013			
Carbontetrachloride		<0.0014 mg/l	TM208	<0.0014	<0.0014			
1,2-Dichloroethane		<0.0033 mg/l	TM208	<0.0033	<0.0033			
Benzene		<0.0013 mg/l	TM208	<0.0013	<0.0013			
Trichloroethene		<0.0025 mg/l	TM208	<0.0025	<0.0025			
1,2-Dichloropropane		<0.003 mg/l	TM208	<0.003	<0.003			
Dibromomethane		<0.0027 mg/l	TM208	<0.0027	<0.0027			
Bromodichloromethane		<0.0009 mg/l	TM208	<0.0009	<0.0009			
cis-1,3-Dichloropropene		<0.0019 mg/l	TM208	<0.0019	<0.0019			
Toluene		<0.0014 mg/l	TM208	<0.0014	<0.0014			
trans-1,3-Dichloropropene		<0.0035 mg/l	TM208	<0.0035	<0.0035			
1,1,2-Trichloroethane		<0.0022 mg/l	TM208	<0.0022	<0.0022			
1,3-Dichloropropane		<0.0022 mg/l	TM208	<0.0022	<0.0022			
Tetrachloroethene		<0.0015 mg/l	TM208	<0.0015	<0.0015			
Dibromochloromethane		<0.0017 mg/l	TM208	<0.0017	<0.0017			
1,2-Dibromoethane		<0.0023 mg/l	TM208	<0.0023	<0.0023			
Chlorobenzene		<0.0035 mg/l	TM208	<0.0035	<0.0035			
1,1,1,2-Tetrachloroethane		<0.0013 mg/l	TM208	<0.0013	<0.0013			
Ethylbenzene		<0.0025 mg/l	TM208	<0.0025	<0.0025			

SDG:	100809-24	Customer:	Entec UK - MOD Ltd
Job:	H_ENTEC_MOD-12	Attention:	Simon Howard
Client Reference:	26999	Order No.:	228113
Location:		Report No:	93535

SVOC MS (W) - Aqueous								
Results Legend		Customer Sample Ref.	WSE 17		WSE 26			
#	ISO17025 accredited.		Depth (m)		Date Sampled			
M	mCERTS accredited.		Sample Type		Date Received			
aq	Aqueous / settled sample.		Water(GW/SW)		Water(GW/SW)			
diss.filt	Dissolved / filtered sample.		04/08/2010		04/08/2010			
tot.unfilt	Total / unfiltered sample.		07/08/2010		07/08/2010			
*	subcontracted test.		100809-24		100809-24			
**	% 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)	1924790		1925110			
		AGS Reference						
Component		LOD/Units	Method					
1,2,4-Trichlorobenzene (aq)		<0.001 mg/l	TM176	<0.001		<0.001		
1,2-Dichlorobenzene (aq)		<0.001 mg/l	TM176	<0.001		<0.001		
1,3-Dichlorobenzene (aq)		<0.001 mg/l	TM176	<0.001		<0.001		
1,4-Dichlorobenzene (aq)		<0.001 mg/l	TM176	<0.001		<0.001		
2,4,5-Trichlorophenol (aq)		<0.001 mg/l	TM176	<0.001		<0.001		
2,4,6-Trichlorophenol (aq)		<0.001 mg/l	TM176	<0.001		<0.001		
2,4-Dichlorophenol (aq)		<0.001 mg/l	TM176	<0.001		<0.001		
2,4-Dimethylphenol (aq)		<0.001 mg/l	TM176	<0.001		<0.001		
2,4-Dinitrotoluene (aq)		<0.001 mg/l	TM176	<0.001		<0.001		
2,6-Dinitrotoluene (aq)		<0.001 mg/l	TM176	<0.001		<0.001		
2-Chloronaphthalene (aq)		<0.001 mg/l	TM176	<0.001		<0.001		
2-Chlorophenol (aq)		<0.001 mg/l	TM176	<0.001		<0.001		
2-Methylnaphthalene (aq)		<0.001 mg/l	TM176	<0.001		<0.001		
2-Methylphenol (aq)		<0.001 mg/l	TM176	<0.001		<0.001		
2-Nitroaniline (aq)		<0.001 mg/l	TM176	<0.001		<0.001		
2-Nitrophenol (aq)		<0.001 mg/l	TM176	<0.001		<0.001		
3-Nitroaniline (aq)		<0.001 mg/l	TM176	<0.001		<0.001		
4-Bromophenylphenylether (aq)		<0.001 mg/l	TM176	<0.001		<0.001		
4-Chloro-3-methylphenol (aq)		<0.001 mg/l	TM176	<0.001		<0.001		
4-Chloroaniline (aq)		<0.001 mg/l	TM176	<0.001		<0.001		
4-Chlorophenylphenylether (aq)		<0.001 mg/l	TM176	<0.001		<0.001		
4-Methylphenol (aq)		<0.001 mg/l	TM176	<0.001		<0.001		
4-Nitrophenol (aq)		<0.001 mg/l	TM176	<0.001		<0.001		
4-Nitroaniline (aq)		<0.001 mg/l	TM176	<0.001		<0.001		
Azobenzene (aq)		<0.001 mg/l	TM176	<0.001		<0.001		
bis(2-Chloroethyl)ether (aq)		<0.001 mg/l	TM176	<0.001		<0.001		
bis(2-Chloroethoxy)methane (aq)		<0.001 mg/l	TM176	<0.001		<0.001		
bis(2-Ethylhexyl) phthalate (aq)		<0.002 mg/l	TM176	<0.002		<0.002		
Butylbenzyl phthalate (aq)		<0.001 mg/l	TM176	<0.001		<0.001		
Carbazole (aq)		<0.001 mg/l	TM176	<0.001		<0.001		
Dibenzofuran (aq)		<0.001 mg/l	TM176	<0.001		<0.001		
n-Dibutyl phthalate (aq)		<0.001 mg/l	TM176	<0.001		<0.001		
Diethyl phthalate (aq)		<0.001 mg/l	TM176	<0.001		<0.001		
Dimethyl phthalate (aq)		<0.001 mg/l	TM176	<0.001		<0.001		
n-Dioctyl phthalate (aq)		<0.005 mg/l	TM176	<0.005		<0.005		
Hexachlorobenzene (aq)		<0.001 mg/l	TM176	<0.001		<0.001		
Hexachlorobutadiene (aq)		<0.001 mg/l	TM176	<0.001		<0.001		
Pentachlorophenol (aq)		<0.001 mg/l	TM176	<0.001		<0.001		
Phenol (aq)		<0.001 mg/l	TM176	<0.001		<0.001		

SDG:	100809-24	Customer:	Entec UK - MOD Ltd
Job:	H_ENTEC_MOD-12	Attention:	Simon Howard
Client Reference:	26999	Order No.:	228113
Location:		Report No:	93535

TPH CWG (W)							
Results Legend		Customer Sample Ref.	WSE 17	WSE 26			
#	ISO17025 accredited.						
M	mCERTS accredited.						
aq	Aqueous / settled sample.						
diss.filt	Dissolved / filtered sample.						
tot.unfilt	Total / unfiltered sample.						
*	subcontracted test.						
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.						
Component		LOD/Units	Method				
Total Aliphatics >C5-C35 (aq)		<0.01 mg/l	TM174	0.021	0.071		
Total Aromatics >C6-C35 (aq)		<0.01 mg/l	TM174	<0.01	<0.01		
Total Aliphatics & Aromatics >C5-35 (aq)		<0.01 mg/l	TM174	0.021	0.071		
Aliphatics >C12-C16 (aq)		<0.01 mg/l	TM174	<0.01	<0.01		
Aromatics >EC12-EC16 (aq)		<0.01 mg/l	TM174	<0.01	<0.01		
Aliphatics >C16-C21 (aq)		<0.01 mg/l	TM174	0.021	0.059		
Aromatics >EC16-EC21 (aq)		<0.01 mg/l	TM174	<0.01	<0.01		
Aliphatics >C21-C35 (aq)		<0.01 mg/l	TM174	<0.01	0.012		
Aromatics >EC21-EC35 (aq)		<0.01 mg/l	TM174	<0.01	<0.01		
Total Aliphatics >C12-C35 (aq)		<0.01 mg/l	TM174	0.021	0.071		
Total Aromatics >EC12-EC35 (aq)		<0.01 mg/l	TM174	<0.01	<0.01		
Total Aliphatics & Aromatics >C12-C35 (Aqueous)		<0.01 mg/l	TM174	0.021	0.071		
GRO Surrogate % recovery**		%	TM245	98	98		
Benzene		<0.007 mg/l	TM245	<0.007	<0.007		
Toluene		<0.004 mg/l	TM245	<0.004	<0.004		
Ethylbenzene		<0.005 mg/l	TM245	<0.005	<0.005		
m,p-Xylene		<0.008 mg/l	TM245	<0.008	<0.008		
o-Xylene		<0.003 mg/l	TM245	<0.003	<0.003		
m,p,o-Xylene		<0.01 mg/l	TM245	<0.01	<0.01		
BTEX, Total		<0.01 mg/l	TM245	<0.01	<0.01		
Methyl tertiary butyl ether (MTBE)		<0.003 mg/l	TM245	<0.003	<0.003		
GRO >C5-C12		<0.05 mg/l	TM245	<0.05	<0.05		
Aliphatics >C5-C6		<0.01 mg/l	TM245	<0.01	<0.01		
Aliphatics >C6-C8		<0.01 mg/l	TM245	<0.01	<0.01		
Aliphatics >C8-C10		<0.01 mg/l	TM245	<0.01	<0.01		
Aliphatics >C10-C12		<0.01 mg/l	TM245	<0.01	<0.01		
Total Aliphatics >C5-C12		<0.01 mg/l	TM245	<0.01	<0.01		
Aromatics >C6-C7		<0.01 mg/l	TM245	<0.01	<0.01		
Aromatics >C7-C8		<0.01 mg/l	TM245	<0.01	<0.01		
Aromatics >EC8-EC10		<0.01 mg/l	TM245	<0.01	<0.01		
Aromatics >EC10-EC12		<0.01 mg/l	TM245	<0.01	<0.01		
Total Aromatics >C6-C12		<0.01 mg/l	TM245	<0.01	<0.01		

SDG:	100809-24	Customer:	Entec UK - MOD Ltd
Job:	H_ENTEC_MOD-12	Attention:	Simon Howard
Client Reference:	26999	Order No.:	228113
Location:		Report No:	93535

VOC MS (W)								
Results Legend		Customer Sample Ref.	WSE 17		WSE 26			
#	ISO17025 accredited.							
M	mCERTS accredited.							
aq	Aqueous / settled sample.							
diss.filt	Dissolved / filtered sample.							
tot.unfilt	Total / unfiltered sample.							
*	subcontracted test.							
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.							
Component		LOD/Units	Method	Water(GW/SW)		Water(GW/SW)		
Dibromofluoromethane**		%	TM208	95.4		95.6		
Toluene-d8**		%	TM208	97		97.1		
4-Bromofluorobenzene**		%	TM208	95.6		95.9		
Dichlorodifluoromethane		<0.007 mg/l	TM208	<0.007	#	<0.007	#	
Chloromethane		<0.009 mg/l	TM208	<0.009	#	<0.009	#	
Vinyl chloride		<0.0012 mg/l	TM208	<0.0012	#	<0.0012	#	
Bromomethane		<0.002 mg/l	TM208	<0.002	#	<0.002	#	
Chloroethane		<0.0025 mg/l	TM208	<0.0025	#	<0.0025	#	
Trichlorofluoromethane		<0.0013 mg/l	TM208	<0.0013	#	<0.0013	#	
1,1-Dichloroethene		<0.0012 mg/l	TM208	<0.0012	#	<0.0012	#	
Carbon disulphide		<0.0013 mg/l	TM208	<0.0013	#	<0.0013	#	
Dichloromethane		<0.0037 mg/l	TM208	<0.0037	#	<0.0037	#	
Methyl tertiary butyl ether (MTBE)		<0.0016 mg/l	TM208	<0.0016	#	<0.0016	#	
trans-1,2-Dichloroethene		<0.0019 mg/l	TM208	<0.0019	#	<0.0019	#	
1,1-Dichloroethane		<0.0012 mg/l	TM208	<0.0012	#	<0.0012	#	
cis-1,2-Dichloroethene		<0.0023 mg/l	TM208	<0.0023	#	<0.0023	#	
2,2-Dichloropropane		<0.0038 mg/l	TM208	<0.0038	#	<0.0038	#	
Bromochloromethane		<0.0019 mg/l	TM208	<0.0019	#	<0.0019	#	
Chloroform		<0.0018 mg/l	TM208	<0.0018	#	<0.0018	#	
1,1,1-Trichloroethane		<0.0013 mg/l	TM208	<0.0013	#	<0.0013	#	
1,1-Dichloropropene		<0.0013 mg/l	TM208	<0.0013	#	<0.0013	#	
Carbontetrachloride		<0.0014 mg/l	TM208	<0.0014	#	<0.0014	#	
1,2-Dichloroethane		<0.0033 mg/l	TM208	<0.0033		<0.0033		
Benzene		<0.0013 mg/l	TM208	<0.0013	#	<0.0013	#	
Trichloroethene		<0.0025 mg/l	TM208	<0.0025	#	<0.0025	#	
1,2-Dichloropropane		<0.003 mg/l	TM208	<0.003	#	<0.003	#	
Dibromomethane		<0.0027 mg/l	TM208	<0.0027	#	<0.0027	#	
Bromodichloromethane		<0.0009 mg/l	TM208	<0.0009	#	<0.0009	#	
cis-1,3-Dichloropropene		<0.0019 mg/l	TM208	<0.0019	#	<0.0019	#	
Toluene		<0.0014 mg/l	TM208	<0.0014	#	<0.0014	#	
trans-1,3-Dichloropropene		<0.0035 mg/l	TM208	<0.0035	#	<0.0035	#	
1,1,2-Trichloroethane		<0.0022 mg/l	TM208	<0.0022	#	<0.0022	#	
1,3-Dichloropropane		<0.0022 mg/l	TM208	<0.0022	#	<0.0022	#	
Tetrachloroethene		<0.0015 mg/l	TM208	<0.0015	#	<0.0015	#	
Dibromochloromethane		<0.0017 mg/l	TM208	<0.0017	#	<0.0017	#	
1,2-Dibromoethane		<0.0023 mg/l	TM208	<0.0023	#	<0.0023	#	
Chlorobenzene		<0.0035 mg/l	TM208	<0.0035	#	<0.0035	#	
1,1,1,2-Tetrachloroethane		<0.0013 mg/l	TM208	<0.0013	#	<0.0013	#	
Ethylbenzene		<0.0025 mg/l	TM208	<0.0025	#	<0.0025	#	

Table of Results - Appendix

SDG Number : 100809-24

Client : Entec UK - MOD Ltd

Client Ref : 26999

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
TM061	Method for the Determination of EPH, Massachusetts Dept. of EP, 1998	Determination of Extractable Petroleum Hydrocarbons by GC-FID (C10-C40)	
TM099	BS 2690: Part 7:1968 / BS 6068: Part 2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser	
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS	
TM172	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	EPH in Waters	
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	
TM178	Modified: US EPA Method 8100	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS in Waters	
TM183	BS EN 23506:2002, (BS 6068-2.74:2002) ISBN 0 580 38924 3	Determination of Trace Level Mercury in Waters and Leachates by PSA Cold Vapour Atomic Fluorescence Spectrometry	
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers	
TM208	Modified: US EPA Method 8260b & 624	Determination of Volatile Organic Compounds by Headspace / GC-MS in Waters	
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.

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 ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

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)	GS 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	SOXTHERM	GRAVIMETRIC
Cyclohexane Ext. Matter	D&C	CYCLOHEXANE	SOXTHERM	GRAVIMETRIC
Thin Layer Chromatography	D&C	DCM	SOXTHERM	IATROSCAN
Elemental Sulphur	D&C	DCM	SOXTHERM	HPLC
Phenols by GCMS	WET	DCM	SOXTHERM	GC-MS
Herbicides	D&C	HEXANE:ACETONE	SOXTHERM	GC-MS
Pesticides	D&C	HEXANE:ACETONE	SOXTHERM	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	-



Attention: Simon Howard

CERTIFICATE OF ANALYSIS

Date: 21 August 2010
Customer: H_ENTEC_MOD-12
Sample Delivery Group (SDG): 100815-12 **Report No.:** 94296
Your Reference: 26999
Location:

We received 2 samples on Saturday August 14, 2010 and 2 of these samples were scheduled for analysis which was completed on Saturday August 21, 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

Operations Director - Land UK & Ireland



SDG:	100815-12	Customer:	Entec UK - MOD Ltd
Job:	H_ENTEC_MOD-12	Attention:	Simon Howard
Client Reference:	26999	Order No.:	228113
Location:		Report No:	94296

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
1953190	BHE02			13/08/2010
1953188	WSE24			13/08/2010

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

SDG:	100815-12	Customer:	Entec UK - MOD Ltd
Job:	H_ENTEC_MOD-12	Attention:	Simon Howard
Client Reference:	26999	Order No.:	228113
Location:		Report No:	94296

LIQUID

Results Legend	Lab Sample No(s)	1953188	1953190	Total
	Customer Sample Ref.	WSE24	BHE02	
	AGS Ref.			
	Depth (m)			
	Container	1l green glass bottle	500ml Plastic H2SO4 Vial	
		500ml Plastic H2SO4 Vial	1l green glass bottle	
Ammonium	All	X	X	0 2
Anions by Kone (w)	All	X	X	0 2
Conductivity (at 20 deg.C)	All	X	X	0 2
Dissolved Metals by ICP-MS	All	X	X	0 2
EPH CWG (Aliphatic) Aqueous GC (W)	All	X	X	0 2
EPH CWG (Aromatic) Aqueous GC (W)	All	X	X	0 2
GRO by GC-FID (W)	All		X	0 2
Mercury Dissolved	All	X	X	0 2
PAH Spec MS - Aqueous (W)	All		X	0 1
pH Value	All	X	X	0 2
SVOC MS (W) - Aqueous	All		X	0 1
TPH CWG (W)	All	X	X	0 2
VOC MS (W)	All		X	0 1

SDG:	100815-12	Customer:	Entec UK - MOD Ltd
Job:	H_ENTEC_MOD-12	Attention:	Simon Howard
Client Reference:	26999	Order No.:	228113
Location:		Report No:	94296

Test Completion dates

SDG reference: 100815-12

Lab Sample No(s)	1953188	1953190
Customer Sample Ref.	WSE24	BHE02
Depth		
Type	LIQUID	LIQUID
Ammonium	16/08/2010	16/08/2010
Anions by Kone (w)	17/08/2010	17/08/2010
Conductivity (at 20 deg.C)	17/08/2010	17/08/2010
Dissolved Metals by ICP-MS	18/08/2010	18/08/2010
EPH CWG (Aliphatic) Aqueous GC	19/08/2010	18/08/2010
EPH CWG (Aromatic) Aqueous GC	19/08/2010	18/08/2010
GRO by GC-FID (W)	21/08/2010	20/08/2010
Mercury Dissolved	17/08/2010	17/08/2010
PAH Spec MS - Aqueous (W)		17/08/2010
pH Value	16/08/2010	16/08/2010
SVOC MS (W) - Aqueous		18/08/2010
TPH CWG (W)	21/08/2010	20/08/2010
VOC MS (W)		19/08/2010

SDG:	100815-12	Customer:	Entec UK - MOD Ltd
Job:	H_ENTEC_MOD-12	Attention:	Simon Howard
Client Reference:	26999	Order No.:	228113
Location:		Report No:	94296

SVOC MS (W) - Aqueous							
<div>Results Legend</div> <div># ISO17025 accredited.</div> <div>M mCERTS accredited.</div> <div>aq Aqueous / settled sample.</div> <div>diss.filt Dissolved / filtered sample.</div> <div>tot.unfilt Total / unfiltered sample.</div> <div>* subcontracted test.</div> <div>** % 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.</div>		Customer Sample Ref.	BHE02				
		Depth (m)	Water(GW/SW)				
		Sample Type	13/08/2010				
		Date Sampled	14/08/2010				
		Date Received	100815-12				
		SDG Ref	1953190				
		Lab Sample No.(s)					
		AGS Reference					
Component	LOD/Units	Method					
1,2,4-Trichlorobenzene (aq)	<0.001 mg/l	TM176	<0.001				
1,2-Dichlorobenzene (aq)	<0.001 mg/l	TM176	<0.001				
1,3-Dichlorobenzene (aq)	<0.001 mg/l	TM176	<0.001				
1,4-Dichlorobenzene (aq)	<0.001 mg/l	TM176	<0.001				
2,4,5-Trichlorophenol (aq)	<0.001 mg/l	TM176	<0.001				
2,4,6-Trichlorophenol (aq)	<0.001 mg/l	TM176	<0.001				
2,4-Dichlorophenol (aq)	<0.001 mg/l	TM176	<0.001				
2,4-Dimethylphenol (aq)	<0.001 mg/l	TM176	<0.001				
2,4-Dinitrotoluene (aq)	<0.001 mg/l	TM176	<0.001				
2,6-Dinitrotoluene (aq)	<0.001 mg/l	TM176	<0.001				
2-Chloronaphthalene (aq)	<0.001 mg/l	TM176	<0.001				
2-Chlorophenol (aq)	<0.001 mg/l	TM176	<0.001				
2-Methylnaphthalene (aq)	<0.001 mg/l	TM176	<0.001				
2-Methylphenol (aq)	<0.001 mg/l	TM176	<0.001				
2-Nitroaniline (aq)	<0.001 mg/l	TM176	<0.001				
2-Nitrophenol (aq)	<0.001 mg/l	TM176	<0.001				
3-Nitroaniline (aq)	<0.001 mg/l	TM176	<0.001				
4-Bromophenylphenylether (aq)	<0.001 mg/l	TM176	<0.001				
4-Chloro-3-methylphenol (aq)	<0.001 mg/l	TM176	<0.001				
4-Chloroaniline (aq)	<0.001 mg/l	TM176	<0.001				
4-Chlorophenylphenylether (aq)	<0.001 mg/l	TM176	<0.001				
4-Methylphenol (aq)	<0.001 mg/l	TM176	<0.001				
4-Nitrophenol (aq)	<0.001 mg/l	TM176	<0.001				
4-Nitroaniline (aq)	<0.001 mg/l	TM176	<0.001				
Azobenzene (aq)	<0.001 mg/l	TM176	<0.001				
Acenaphthylene (aq)	<0.001 mg/l	TM176	<0.001				
Acenaphthene (aq)	<0.001 mg/l	TM176	<0.001				
Anthracene (aq)	<0.001 mg/l	TM176	<0.001				
bis(2-Chloroethyl)ether (aq)	<0.001 mg/l	TM176	<0.001				
bis(2-Chloroethoxy)methane (aq)	<0.001 mg/l	TM176	<0.001				
bis(2-Ethylhexyl) phthalate (aq)	<0.002 mg/l	TM176	<0.002				
Benzo(a)anthracene (aq)	<0.001 mg/l	TM176	<0.001				
Butylbenzyl phthalate (aq)	<0.001 mg/l	TM176	<0.001				
Benzo(b)fluoranthene (aq)	<0.001 mg/l	TM176	<0.001				
Benzo(k)fluoranthene (aq)	<0.001 mg/l	TM176	<0.001				
Benzo(a)pyrene (aq)	<0.001 mg/l	TM176	<0.001				
Benzo(g,h,i)perylene (aq)	<0.001 mg/l	TM176	<0.001				
Carbazole (aq)	<0.001 mg/l	TM176	<0.001				
Chrysene (aq)	<0.001 mg/l	TM176	<0.001				

SDG:	100815-12	Customer:	Entec UK - MOD Ltd
Job:	H_ENTEC_MOD-12	Attention:	Simon Howard
Client Reference:	26999	Order No.:	228113
Location:		Report No:	94296

TPH CWG (W)			Customer Sample Ref.	BHE02 Water(GW/SW) 13/08/2010 14/08/2010 100815-12 1953190	WSE24 Water(GW/SW) 13/08/2010 14/08/2010 100815-12 1953188			
Results Legend		Depth (m) Sample Type Date Sampled Date Received SDG Ref Lab Sample No.(s) AGS Reference						
#	ISO17025 accredited.							
M	mCERTS accredited.							
aq	Aqueous / settled sample.							
diss.filt	Dissolved / filtered sample.							
tot.unfilt	Total / unfiltered sample.							
*	subcontracted test.							
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.							
Component								
Total Aliphatics >C5-C35 (aq)			<0.01 mg/l	TM174	1.23	0.07		
Total Aromatics >C6-C35 (aq)		<0.01 mg/l	TM174	0.427	<0.01			
Total Aliphatics & Aromatics >C5-35 (aq)		<0.01 mg/l	TM174	1.65	0.07			
Aliphatics >C12-C16 (aq)		<0.01 mg/l	TM174	0.255	<0.01			
Aromatics >EC12-EC16 (aq)		<0.01 mg/l	TM174	0.028	<0.01			
Aliphatics >C16-C21 (aq)		<0.01 mg/l	TM174	0.569	0.053			
Aromatics >EC16-EC21 (aq)		<0.01 mg/l	TM174	0.131	<0.01			
Aliphatics >C21-C35 (aq)		<0.01 mg/l	TM174	0.401	0.017			
Aromatics >EC21-EC35 (aq)		<0.01 mg/l	TM174	0.268	<0.01			
Total Aliphatics >C12-C35 (aq)		<0.01 mg/l	TM174	1.23	0.07			
Total Aromatics >EC12-EC35 (aq)		<0.01 mg/l	TM174	0.427	<0.01			
Total Aliphatics & Aromatics >C12-C35 (Aqueous)		<0.01 mg/l	TM174	1.65	0.07			
GRO Surrogate % recovery**		%	TM245	78	96			
Benzene		<0.007 mg/l	TM245	<0.007	<0.007			
Toluene		<0.004 mg/l	TM245	<0.004	<0.004			
Ethylbenzene		<0.005 mg/l	TM245	<0.005	<0.005			
m,p-Xylene		<0.008 mg/l	TM245	<0.008	<0.008			
o-Xylene		<0.003 mg/l	TM245	<0.003	<0.003			
m,p,o-Xylene		<0.01 mg/l	TM245	<0.01	<0.01			
BTEX, Total		<0.01 mg/l	TM245	<0.01	<0.01			
Methyl tertiary butyl ether (MTBE)		<0.003 mg/l	TM245	<0.003	<0.003			
GRO >C5-C12		<0.05 mg/l	TM245	<0.05	<0.05			
Aliphatics >C5-C6		<0.01 mg/l	TM245	<0.01	<0.01			
Aliphatics >C6-C8		<0.01 mg/l	TM245	<0.01	<0.01			
Aliphatics >C8-C10		<0.01 mg/l	TM245	<0.01	<0.01			
Aliphatics >C10-C12		<0.01 mg/l	TM245	<0.01	<0.01			
Total Aliphatics >C5-C12		<0.01 mg/l	TM245	<0.01	<0.01			
Aromatics >C6-C7		<0.01 mg/l	TM245	<0.01	<0.01			
Aromatics >C7-C8		<0.01 mg/l	TM245	<0.01	<0.01			
Aromatics >EC8-EC10		<0.01 mg/l	TM245	<0.01	<0.01			
Aromatics >EC10-EC12		<0.01 mg/l	TM245	<0.01	<0.01			
Total Aromatics >C6-C12		<0.01 mg/l	TM245	<0.01	<0.01			

SDG:	100815-12	Customer:	Entec UK - MOD Ltd
Job:	H_ENTEC_MOD-12	Attention:	Simon Howard
Client Reference:	26999	Order No.:	228113
Location:		Report No:	94296

VOC MS (W)							
Results Legend		Customer Sample Ref.		BHE02			
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Date Received SDG Ref Lab Sample No.(s) AGS Reference	Water(GW/SW) 13/08/2010 14/08/2010 100815-12 1953190				
M	mCERTS accredited.						
aq	Aqueous / settled sample.						
diss.filt	Dissolved / filtered sample.						
tot.unfilt	Total / unfiltered sample.						
*	subcontracted test.						
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.						
Component				LOD/Units	Method		
Dibromofluoromethane**		%	TM208	104			
Toluene-d8**		%	TM208	99.1			
4-Bromofluorobenzene**		%	TM208	97.5			
Dichlorodifluoromethane		<0.007 mg/l	TM208	<0.007	#		
Chloromethane		<0.009 mg/l	TM208	<0.009	#		
Vinyl chloride		<0.0012 mg/l	TM208	<0.0012	#		
Bromomethane		<0.002 mg/l	TM208	<0.002	#		
Chloroethane		<0.0025 mg/l	TM208	<0.0025	#		
Trichlorofluoromethane		<0.0013 mg/l	TM208	<0.0013	#		
1,1-Dichloroethene		<0.0012 mg/l	TM208	0.00919	#		
Carbon disulphide		<0.0013 mg/l	TM208	<0.0013	#		
Dichloromethane		<0.0037 mg/l	TM208	<0.0037	#		
Methyl tertiary butyl ether (MTBE)		<0.0016 mg/l	TM208	<0.0016	#		
trans-1,2-Dichloroethene		<0.0019 mg/l	TM208	<0.0019	#		
1,1-Dichloroethane		<0.0012 mg/l	TM208	0.0126	#		
cis-1,2-Dichloroethene		<0.0023 mg/l	TM208	<0.0023	#		
2,2-Dichloropropane		<0.0038 mg/l	TM208	<0.0038	#		
Bromochloromethane		<0.0019 mg/l	TM208	<0.0019	#		
Chloroform		<0.0018 mg/l	TM208	<0.0018	#		
1,1,1-Trichloroethane		<0.0013 mg/l	TM208	0.021	#		
1,1-Dichloropropene		<0.0013 mg/l	TM208	<0.0013	#		
Carbontetrachloride		<0.0014 mg/l	TM208	<0.0014	#		
1,2-Dichloroethane		<0.0033 mg/l	TM208	<0.0033	#		
Benzene		<0.0013 mg/l	TM208	<0.0013	#		
Trichloroethene		<0.0025 mg/l	TM208	<0.0025	#		
1,2-Dichloropropane		<0.003 mg/l	TM208	<0.003	#		
Dibromomethane		<0.0027 mg/l	TM208	<0.0027	#		
Bromodichloromethane		<0.0009 mg/l	TM208	<0.0009	#		
cis-1,3-Dichloropropene		<0.0019 mg/l	TM208	<0.0019	#		
Toluene		<0.0014 mg/l	TM208	<0.0014	#		
trans-1,3-Dichloropropene		<0.0035 mg/l	TM208	<0.0035	#		
1,1,2-Trichloroethane		<0.0022 mg/l	TM208	<0.0022	#		
1,3-Dichloropropane		<0.0022 mg/l	TM208	<0.0022	#		
Tetrachloroethene		<0.0015 mg/l	TM208	<0.0015	#		
Dibromochloromethane		<0.0017 mg/l	TM208	<0.0017	#		
1,2-Dibromoethane		<0.0023 mg/l	TM208	<0.0023	#		
Chlorobenzene		<0.0035 mg/l	TM208	<0.0035	#		
1,1,1,2-Tetrachloroethane		<0.0013 mg/l	TM208	<0.0013	#		
Ethylbenzene		<0.0025 mg/l	TM208	<0.0025	#		

Table of Results - Appendix

SDG Number : 100815-12

Client : Entec UK - MOD Ltd

Client Ref : 26999

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
TM061	Method for the Determination of EPH, Massachusetts Dept. of EP, 1998	Determination of Extractable Petroleum Hydrocarbons by GC-FID (C10-C40)	
TM099	BS 2690: Part 7:1968 / BS 6068: Part 2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser	
TM120	Method 2510B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part 9:1970	Determination of Electrical Conductivity using a Conductivity Meter	
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS	
TM174	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Waters by GC-FID	
TM176	EPA 8270D Semi-Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)	Determination of SVOCs in Water by GCMS	
TM178	Modified: US EPA Method 8100	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS in Waters	
TM183	BS EN 23506:2002, (BS 6068-2.74:2002) ISBN 0 580 38924 3	Determination of Trace Level Mercury in Waters and Leachates by PSA Cold Vapour Atomic Fluorescence Spectrometry	
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers	
TM208	Modified: US EPA Method 8260b & 624	Determination of Volatile Organic Compounds by Headspace / GC-MS in Waters	
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.

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 ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

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)	GS 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	SOXTHERM	GRAVIMETRIC
Cyclohexane Ext. Matter	D&C	CYCLOHEXANE	SOXTHERM	GRAVIMETRIC
Thin Layer Chromatography	D&C	DCM	SOXTHERM	IATROSCAN
Elemental Sulphur	D&C	DCM	SOXTHERM	HPLC
Phenols by GCMS	WET	DCM	SOXTHERM	GC-MS
Herbicides	D&C	HEXANE:ACETONE	SOXTHERM	GC-MS
Pesticides	D&C	HEXANE:ACETONE	SOXTHERM	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.

<u>Asbestos Type</u>	<u>Common Name</u>
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-



Attention: Simon Howard

CERTIFICATE OF ANALYSIS

Date: 27 August 2010
Customer: H_ENTEC_MOD-12
Sample Delivery Group (SDG): 100820-109 **Report No.:** 94926
Your Reference: 26999
Location:

We received 12 samples on Friday August 20, 2010 and 12 of these samples were scheduled for analysis which was completed on Friday August 27, 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

Operations Director - Land UK & Ireland



SDG:	100820-109	Customer:	Entec UK - MOD Ltd
Job:	H_ENTEC_MOD-12	Attention:	Simon Howard
Client Reference:	26999	Order No.:	228113
Location:		Report No:	94926

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
1985110	BHD01			18/08/2010
1985163	BHE02			18/08/2010
1985072	SWA05			18/08/2010
1984979	SWD08			18/08/2010
1985045	SWD09			18/08/2010
1984939	SWE10			18/08/2010
1985060	WSC04			18/08/2010
1985144	WSC08			18/08/2010
1985024	WSD09			18/08/2010
1984999	WSE10			18/08/2010
1985185	WSE17			18/08/2010
1984905	WSE26			18/08/2010

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

SDG: 100820-109
Job: H_ENTEC_MOD-12
Client Reference: 26999
Location:

Customer: Entec UK - MOD Ltd
Attention: Simon Howard
Order No.: 228113
Report No: 94926

LIQUID

Results Legend	Lab Sample No(s)	1984905	1984939	1984979	1984999	1985024	1985045	1985060	1985072	1985110	1985144	1985163	1985185
	Customer Sample Ref.	WSE26	SWE10	SWD08	WSE10	WSD09	SWD09	WSC04	SMA05	BHD01	WSC08	BHE02	WSE17
	AGS Ref.												
	Depth (m)												
	Container	1l green glass bottle 500ml Plastic H2SO4	1l green glass bottle 500ml Plastic H2SO4 Vial	1l green glass bottle 500ml Plastic H2SO4	1l green glass bottle 500ml Plastic H2SO4	1l green glass bottle 500ml Plastic H2SO4	1l green glass bottle 500ml Plastic H2SO4	1l green glass bottle 500ml Plastic H2SO4 Vial	1l green glass bottle 500ml Plastic H2SO4	1l green glass bottle 500ml Plastic H2SO4 Vial	1l green glass bottle 500ml Plastic H2SO4	1l green glass bottle 500ml Plastic H2SO4 Vial	1l green glass bottle 500ml Plastic H2SO4 Vial
Ammonium	All	X	X	X	X	X	X	X	X	X	X	X	X
Anions by ion Chromatography	All									X			
Anions by Kone (w)	All	X	X	X	X	X	X	X	X		X	X	X
Dissolved Metals by ICP-MS	All	X	X	X	X	X	X	X	X	X	X	X	X
EPH (DRO) (C10-C40) Aqueous (W)	All	X	X	X	X	X		X	X	X			
EPH CWG (Aliphatic) Aqueous GC (W)	All		X				X				X	X	
EPH CWG (Aromatic) Aqueous GC (W)	All		X				X				X	X	
GRO by GC-FID (W)	All		X					X		X		X	X
Mercury Dissolved	All	X	X	X	X	X	X	X	X	X	X	X	
PAH Spec MS - Aqueous (W)	All	X	X				X		X	X	X	X	
pH Value	All	X	X	X	X	X	X	X	X	X	X	X	X
SVOC MS (W) - Aqueous	All	X	X	X	X	X	X	X	X	X	X	X	X
TPH CWG (W)	All		X				X				X	X	
VOC MS (W)	All		X					X			X	X	

SDG:	100820-109	Customer:	Entec UK - MOD Ltd
Job:	H_ENTEC_MOD-12	Attention:	Simon Howard
Client Reference:	26999	Order No.:	228113
Location:		Report No:	94926

Test Completion dates

SDG reference: 100820-109

Lab Sample No(s)	1984905	1984939	1984979	1984999	1985024	1985045	1985060	1985072	1985110	1985144	1985163	1985185
Customer Sample Ref.	WSE26	SWE10	SWD08	WSE10	WSD09	SWD09	WSC04	SWA05	BHD01	WSC08	BHE02	WSE17
Depth												
Type	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID
Ammonium	24/08/2010	24/08/2010	24/08/2010	24/08/2010	24/08/2010	24/08/2010	24/08/2010	24/08/2010	25/08/2010	25/08/2010	24/08/2010	25/08/2010
Anions by ion Chromatography									25/08/2010			
Anions by Kone (w)	25/08/2010	25/08/2010	25/08/2010	25/08/2010	25/08/2010	25/08/2010	25/08/2010	25/08/2010		25/08/2010	25/08/2010	25/08/2010
Dissolved Metals by ICP-MS	24/08/2010	24/08/2010	24/08/2010	24/08/2010	24/08/2010	24/08/2010	24/08/2010	24/08/2010	24/08/2010	24/08/2010	24/08/2010	24/08/2010
EPH (DRO) (C10-C40) Aqueous (W)	25/08/2010		25/08/2010	25/08/2010	25/08/2010	25/08/2010		25/08/2010	25/08/2010	25/08/2010		
EPH CWG (Aliphatic) Aqueous GC		25/08/2010					25/08/2010				25/08/2010	25/08/2010
EPH CWG (Aromatic) Aqueous GC		25/08/2010					25/08/2010				25/08/2010	25/08/2010
GRO by GC-FID (W)		26/08/2010					27/08/2010		26/08/2010		27/08/2010	26/08/2010
Mercury Dissolved	25/08/2010	25/08/2010	24/08/2010	24/08/2010	25/08/2010	25/08/2010	25/08/2010	24/08/2010	25/08/2010	24/08/2010	24/08/2010	25/08/2010
PAH Spec MS - Aqueous (W)	26/08/2010	26/08/2010					26/08/2010		26/08/2010	26/08/2010	26/08/2010	26/08/2010
pH Value	24/08/2010	24/08/2010	24/08/2010	24/08/2010	24/08/2010	24/08/2010	24/08/2010	24/08/2010	24/08/2010	24/08/2010	24/08/2010	24/08/2010
SVOC MS (W) - Aqueous		25/08/2010					25/08/2010			25/08/2010	25/08/2010	
TPH CWG (W)		26/08/2010					27/08/2010				27/08/2010	26/08/2010
VOC MS (W)		24/08/2010					25/08/2010			24/08/2010	24/08/2010	

SDG:	100820-109
Job:	H_ENTEC_MOD-12
Client Reference:	26999
Location:	

Customer: Entec UK - MOD Ltd
Attention: Simon Howard
Order No.: 228113
Report No: 94926

[illegible]

SDG:	100820-109
Job:	H_ENTEC_MOD-12
Client Reference:	26999
Location:	

Customer: Entec UK - MOD Ltd
Attention: Simon Howard
Order No.: 228113
Report No: 94926

PAH Spec MS - Aqueous (W)

[illegible]

SDG:	100820-109	Customer:	Entec UK - MOD Ltd
Job:	H_ENTEC_MOD-12	Attention:	Simon Howard
Client Reference:	26999	Order No.:	228113
Location:		Report No:	94926

SVOC MS (W) - Aqueous								
Results Legend		Customer Sample Ref.	BHE02	SWE10				
#	ISO17025 accredited.							
M	mCERTS accredited.	Depth (m) Sample Type Date Sampled Date Received SDG Ref Lab Sample No.(s) AGS Reference	Water(GW/SW) 18/08/2010 20/08/2010 100820-109 1985163	Water(GW/SW) 18/08/2010 20/08/2010 100820-109 1984939				
aq	Aqueous / settled sample.							
diss.filt	Dissolved / filtered sample.							
tot.unfilt	Total / unfiltered sample.							
*	subcontracted test.							
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.							
Component		LOD/Units	Method					
1,2,4-Trichlorobenzene (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
1,2-Dichlorobenzene (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
1,3-Dichlorobenzene (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
1,4-Dichlorobenzene (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
2,4,5-Trichlorophenol (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
2,4,6-Trichlorophenol (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
2,4-Dichlorophenol (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
2,4-Dimethylphenol (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
2,4-Dinitrotoluene (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
2,6-Dinitrotoluene (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
2-Chloronaphthalene (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
2-Chlorophenol (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
2-Methylnaphthalene (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
2-Methylphenol (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
2-Nitroaniline (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
2-Nitrophenol (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
3-Nitroaniline (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
4-Bromophenylphenylether (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
4-Chloro-3-methylphenol (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
4-Chloroaniline (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
4-Chlorophenylphenylether (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
4-Methylphenol (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
4-Nitrophenol (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
4-Nitroaniline (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
Azobenzene (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
Acenaphthylene (aq)		<0.001 mg/l	TM176	0.00127	<0.001			
Acenaphthene (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
Anthracene (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
bis(2-Chloroethyl)ether (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
bis(2-Chloroethoxy)methane (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
bis(2-Ethylhexyl) phthalate (aq)		<0.002 mg/l	TM176	<0.002	<0.002			
Benzo(a)anthracene (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
Butylbenzyl phthalate (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
Benzo(b)fluoranthene (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
Benzo(k)fluoranthene (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
Benzo(a)pyrene (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
Benzo(g,h,i)perylene (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
Carbazole (aq)		<0.001 mg/l	TM176	<0.001	<0.001			
Chrysene (aq)		<0.001 mg/l	TM176	<0.001	<0.001			

SDG:	100820-109	Customer:	Entec UK - MOD Ltd
Job:	H_ENTEC_MOD-12	Attention:	Simon Howard
Client Reference:	26999	Order No.:	228113
Location:		Report No:	94926

TPH CWG (W)								
Results Legend		Customer Sample Ref.	BHE02	SWE10				
#	ISO17025 accredited.							
M	mCERTS accredited.							
aq	Aqueous / settled sample.							
diss.filt	Dissolved / filtered sample.							
tot.unfilt	Total / unfiltered sample.							
*	subcontracted test.							
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.							
		Sample Type						
		Date Sampled	18/08/2010	18/08/2010				
		Date Received	20/08/2010	20/08/2010				
		SDG Ref	100820-109	100820-109				
		Lab Sample No.(s)	1985163	1984939				
		AGS Reference						
Component		LOD/Units	Method					
Total Aliphatics >C5-C35 (aq)		<0.01 mg/l	TM174	0.566	<0.01			
Total Aromatics >C6-C35 (aq)		<0.01 mg/l	TM174	0.172	<0.01			
Total Aliphatics & Aromatics >C5-35 (aq)		<0.01 mg/l	TM174	0.738	<0.01			
Aliphatics >C12-C16 (aq)		<0.01 mg/l	TM174	0.127	<0.01			
Aromatics >EC12-EC16 (aq)		<0.01 mg/l	TM174	<0.01	<0.01			
Aliphatics >C16-C21 (aq)		<0.01 mg/l	TM174	0.26	<0.01			
Aromatics >EC16-EC21 (aq)		<0.01 mg/l	TM174	0.055	<0.01			
Aliphatics >C21-C35 (aq)		<0.01 mg/l	TM174	0.179	<0.01			
Aromatics >EC21-EC35 (aq)		<0.01 mg/l	TM174	0.117	<0.01			
Total Aliphatics >C12-C35 (aq)		<0.01 mg/l	TM174	0.566	<0.01			
Total Aromatics >EC12-EC35 (aq)		<0.01 mg/l	TM174	0.172	<0.01			
Total Aliphatics & Aromatics >C12-C35 (Aqueous)		<0.01 mg/l	TM174	0.738	<0.01			
GRO Surrogate % recovery**		%	TM245	101	106			
Benzene		<0.007 mg/l	TM245	<0.007	<0.007			
Toluene		<0.004 mg/l	TM245	<0.004	<0.004			
Ethylbenzene		<0.005 mg/l	TM245	<0.005	<0.005			
m,p-Xylene		<0.008 mg/l	TM245	<0.008	<0.008			
o-Xylene		<0.003 mg/l	TM245	<0.003	<0.003			
m,p,o-Xylene		<0.01 mg/l	TM245	<0.01	<0.01			
BTEx, Total		<0.01 mg/l	TM245	<0.01	<0.01			
Methyl tertiary butyl ether (MTBE)		<0.003 mg/l	TM245	<0.003	<0.003			
GRO >C5-C12		<0.05 mg/l	TM245	<0.05	<0.05			
Aliphatics >C5-C6		<0.01 mg/l	TM245	<0.01	<0.01			
Aliphatics >C6-C8		<0.01 mg/l	TM245	<0.01	<0.01			
Aliphatics >C8-C10		<0.01 mg/l	TM245	<0.01	<0.01			
Aliphatics >C10-C12		<0.01 mg/l	TM245	<0.01	<0.01			
Total Aliphatics >C5-C12		<0.01 mg/l	TM245	<0.01	<0.01			
Aromatics >C6-C7		<0.01 mg/l	TM245	<0.01	<0.01			
Aromatics >C7-C8		<0.01 mg/l	TM245	<0.01	<0.01			
Aromatics >EC8-EC10		<0.01 mg/l	TM245	<0.01	<0.01			
Aromatics >EC10-EC12		<0.01 mg/l	TM245	<0.01	<0.01			
Total Aromatics >C6-C12		<0.01 mg/l	TM245	<0.01	<0.01			

SDG:	100820-109	Customer:	Entec UK - MOD Ltd
Job:	H_ENTEC_MOD-12	Attention:	Simon Howard
Client Reference:	26999	Order No.:	228113
Location:		Report No:	94926

VOC MS (W)								
Results Legend		Customer Sample Ref.	BHE02	SWE10				
#	ISO17025 accredited.							
M	mCERTS accredited.							
aq	Aqueous / settled sample.							
diss.filt	Dissolved / filtered sample.							
tot.unfilt	Total / unfiltered sample.							
*	subcontracted test.							
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.							
Component		LOD/Units	Method					
Dibromofluoromethane**		%	TM208	111	109			
Toluene-d8**		%	TM208	101	99.6			
4-Bromofluorobenzene**		%	TM208	101	102			
Dichlorodifluoromethane		<0.007 mg/l	TM208	<0.007	<0.007			
Chloromethane		<0.009 mg/l	TM208	<0.009	<0.009			
Vinyl chloride		<0.0012 mg/l	TM208	<0.0012	<0.0012			
Bromomethane		<0.002 mg/l	TM208	<0.002	<0.002			
Chloroethane		<0.0025 mg/l	TM208	<0.0025	<0.0025			
Trichlorofluoromethane		<0.0013 mg/l	TM208	<0.0013	<0.0013			
1,1-Dichloroethene		<0.0012 mg/l	TM208	0.00648	<0.0012			
Carbon disulphide		<0.0013 mg/l	TM208	<0.0013	<0.0013			
Dichloromethane		<0.0037 mg/l	TM208	<0.0037	<0.0037			
Methyl tertiary butyl ether (MTBE)		<0.0016 mg/l	TM208	<0.0016	<0.0016			
trans-1,2-Dichloroethene		<0.0019 mg/l	TM208	<0.0019	<0.0019			
1,1-Dichloroethane		<0.0012 mg/l	TM208	0.00998	<0.0012			
cis-1,2-Dichloroethene		<0.0023 mg/l	TM208	<0.0023	<0.0023			
2,2-Dichloropropane		<0.0038 mg/l	TM208	<0.0038	<0.0038			
Bromochloromethane		<0.0019 mg/l	TM208	<0.0019	<0.0019			
Chloroform		<0.0018 mg/l	TM208	<0.0018	<0.0018			
1,1,1-Trichloroethane		<0.0013 mg/l	TM208	0.0147	<0.0013			
1,1-Dichloropropene		<0.0013 mg/l	TM208	<0.0013	<0.0013			
Carbontetrachloride		<0.0014 mg/l	TM208	<0.0014	<0.0014			
1,2-Dichloroethane		<0.0033 mg/l	TM208	<0.0033	<0.0033			
Benzene		<0.0013 mg/l	TM208	<0.0013	<0.0013			
Trichloroethene		<0.0025 mg/l	TM208	<0.0025	<0.0025			
1,2-Dichloropropane		<0.003 mg/l	TM208	<0.003	<0.003			
Dibromomethane		<0.0027 mg/l	TM208	<0.0027	<0.0027			
Bromodichloromethane		<0.0009 mg/l	TM208	<0.0009	<0.0009			
cis-1,3-Dichloropropene		<0.0019 mg/l	TM208	<0.0019	<0.0019			
Toluene		<0.0014 mg/l	TM208	<0.0014	<0.0014			
trans-1,3-Dichloropropene		<0.0035 mg/l	TM208	<0.0035	<0.0035			
1,1,2-Trichloroethane		<0.0022 mg/l	TM208	<0.0022	<0.0022			
1,3-Dichloropropane		<0.0022 mg/l	TM208	<0.0022	<0.0022			
Tetrachloroethene		<0.0015 mg/l	TM208	<0.0015	<0.0015			
Dibromochloromethane		<0.0017 mg/l	TM208	<0.0017	<0.0017			
1,2-Dibromoethane		<0.0023 mg/l	TM208	<0.0023	<0.0023			
Chlorobenzene		<0.0035 mg/l	TM208	<0.0035	<0.0035			
1,1,1,2-Tetrachloroethane		<0.0013 mg/l	TM208	<0.0013	<0.0013			
Ethylbenzene		<0.0025 mg/l	TM208	<0.0025	<0.0025			

SDG:	100820-109	Customer:	Entec UK - MOD Ltd
Job:	H_ENTEC_MOD-12	Attention:	Simon Howard
Client Reference:	26999	Order No.:	228113
Location:		Report No:	94926

VOC MS (W)

#	Results Legend		Customer Sample Ref.	BHE02	SWE10			
	M	ISO17025 accredited.						
	aq	mCERTS accredited.						
	diss.filt	Aqueous / settled sample.						
	tot.unfilt	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.							
Component		LOD/Units	Method					
m,p-Xylene		<0.0025 mg/l	TM208	<0.0025	#	<0.0025	#	
o-Xylene		<0.0017 mg/l	TM208	<0.0017	#	<0.0017	#	
Styrene		<0.0012 mg/l	TM208	<0.0012	#	<0.0012	#	
Bromoform		<0.003 mg/l	TM208	<0.003	#	<0.003	#	
Isopropylbenzene		<0.0014 mg/l	TM208	<0.0014	#	<0.0014	#	
1,1,2,2-Tetrachloroethane		<0.0052 mg/l	TM208	<0.0052		<0.0052		
1,2,3-Trichloropropane		<0.0078 mg/l	TM208	<0.0078	#	<0.0078	#	
Bromobenzene		<0.002 mg/l	TM208	<0.002	#	<0.002	#	
Propylbenzene		<0.0026 mg/l	TM208	<0.0026	#	<0.0026	#	
2-Chlorotoluene		<0.0019 mg/l	TM208	<0.0019	#	<0.0019	#	
1,3,5-Trimethylbenzene		<0.0018 mg/l	TM208	<0.0018	#	<0.0018	#	
4-Chlorotoluene		<0.0019 mg/l	TM208	<0.0019	#	<0.0019	#	
tert-Butylbenzene		<0.002 mg/l	TM208	<0.002	#	<0.002	#	
1,2,4-Trimethylbenzene		<0.0017 mg/l	TM208	<0.0017	#	<0.0017	#	
sec-Butylbenzene		<0.0017 mg/l	TM208	<0.0017	#	<0.0017	#	
4-iso-Propyltoluene		<0.0026 mg/l	TM208	<0.0026	#	<0.0026	#	
1,3-Dichlorobenzene		<0.0022 mg/l	TM208	<0.0022	#	<0.0022	#	
1,4-Dichlorobenzene		<0.0027 mg/l	TM208	<0.0027	#	<0.0027	#	
n-Butylbenzene		<0.002 mg/l	TM208	<0.002	#	<0.002	#	
1,2-Dichlorobenzene		<0.0037 mg/l	TM208	<0.0037		<0.0037		
1,2-Dibromo-3-chloropropane		<0.0098 mg/l	TM208	<0.0098		<0.0098		
1,2,4-Trichlorobenzene		<0.0023 mg/l	TM208	<0.0023	#	<0.0023	#	
Hexachlorobutadiene		<0.0025 mg/l	TM208	<0.0025	#	<0.0025	#	
tert-Amyl methyl ether (TAME)		<0.001 mg/l	TM208	<0.001	#	<0.001	#	
Naphthalene		<0.0035 mg/l	TM208	<0.0035	#	<0.0035	#	
1,2,3-Trichlorobenzene		<0.0031 mg/l	TM208	<0.0031	#	<0.0031	#	
1,3,5-Trichlorobenzene		<0.01 mg/l	TM208	<0.01		<0.01		

SDG:	100820-109	Customer:	Entec UK - MOD Ltd
Job:	H_ENTEC_MOD-12	Attention:	Simon Howard
Client Reference:	26999	Order No.:	228113
Location:		Report No:	94926

SVOC MS (W) - Aqueous								
Results Legend		Customer Sample Ref.	WSC04	WSC08				
#	ISO17025 accredited.							
M	mCERTS accredited.							
aq	Aqueous / settled sample.							
diss.filt	Dissolved / filtered sample.							
tot.unfilt	Total / unfiltered sample.							
*	subcontracted test.							
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.							

SDG:	100820-109	Customer:	Entec UK - MOD Ltd
Job:	H_ENTEC_MOD-12	Attention:	Simon Howard
Client Reference:	26999	Order No.:	228113
Location:		Report No:	94926

VOC MS (W)

Results Legend		Customer Sample Ref.	WSC04	WSC08				
#	ISO17025 accredited.							
M	mCERTS accredited.							
aq	Aqueous / settled sample.							
diss.filt	Dissolved / filtered sample.							
tot.unfilt	Total / unfiltered sample.							
*	subcontracted test.							
**	% recovery of the surrogate standard to check the efficiency of the method. The results of the individual compounds within the samples are not corrected for this recovery.							
		Depth (m)						
		Sample Type						
		Date Sampled	18/08/2010	18/08/2010				
		Date Received	20/08/2010	20/08/2010				
		SDG Ref	100820-109	100820-109				
		Lab Sample No.(s)	1985060	1985144				
		AGS Reference						
Component		LOD/Units	Method					
Dibromofluoromethane**		%	TM208	109	109			
Toluene-d8**		%	TM208	99.9	99.5			
4-Bromofluorobenzene**		%	TM208	103	103			
Dichlorodifluoromethane		<0.007 mg/l	TM208	<0.007	<0.007			
Chloromethane		<0.009 mg/l	TM208	<0.009	<0.009			
Vinyl chloride		<0.0012 mg/l	TM208	0.126	<0.0012			
Bromomethane		<0.002 mg/l	TM208	<0.002	<0.002			
Chloroethane		<0.0025 mg/l	TM208	<0.0025	<0.0025			
Trichlorofluoromethane		<0.0013 mg/l	TM208	<0.0013	<0.0013			
1,1-Dichloroethene		<0.0012 mg/l	TM208	0.00674	<0.0012			
Carbon disulphide		<0.0013 mg/l	TM208	<0.0013	<0.0013			
Dichloromethane		<0.0037 mg/l	TM208	<0.0037	<0.0037			
Methyl tertiary butyl ether (MTBE)		<0.0016 mg/l	TM208	0.0308	<0.0016			
trans-1,2-Dichloroethene		<0.0019 mg/l	TM208	0.046	<0.0019			
1,1-Dichloroethane		<0.0012 mg/l	TM208	<0.0012	<0.0012			
cis-1,2-Dichloroethene		<0.0023 mg/l	TM208	2.36	<0.0023			
2,2-Dichloropropane		<0.0038 mg/l	TM208	<0.0038	<0.0038			
Bromochloromethane		<0.0019 mg/l	TM208	<0.0019	<0.0019			
Chloroform		<0.0018 mg/l	TM208	<0.0018	<0.0018			
1,1,1-Trichloroethane		<0.0013 mg/l	TM208	<0.0013	<0.0013			
1,1-Dichloropropene		<0.0013 mg/l	TM208	<0.0013	<0.0013			
Carbontetrachloride		<0.0014 mg/l	TM208	<0.0014	<0.0014			
1,2-Dichloroethane		<0.0033 mg/l	TM208	<0.0033	<0.0033			
Benzene		<0.0013 mg/l	TM208	<0.0013	<0.0013			
Trichloroethene		<0.0025 mg/l	TM208	0.682	<0.0025			
1,2-Dichloropropane		<0.003 mg/l	TM208	<0.003	<0.003			
Dibromomethane		<0.0027 mg/l	TM208	<0.0027	<0.0027			
Bromodichloromethane		<0.0009 mg/l	TM208	<0.0009	<0.0009			
cis-1,3-Dichloropropene		<0.0019 mg/l	TM208	<0.0019	<0.0019			
Toluene		<0.0014 mg/l	TM208	<0.0014	<0.0014			
trans-1,3-Dichloropropene		<0.0035 mg/l	TM208	<0.0035	<0.0035			
1,1,2-Trichloroethane		<0.0022 mg/l	TM208	<0.0022	<0.0022			
1,3-Dichloropropane		<0.0022 mg/l	TM208	<0.0022	<0.0022			
Tetrachloroethene		<0.0015 mg/l	TM208	<0.0015	<0.0015			
Dibromochloromethane		<0.0017 mg/l	TM208	<0.0017	<0.0017			
1,2-Dibromoethane		<0.0023 mg/l	TM208	<0.0023	<0.0023			
Chlorobenzene		<0.0035 mg/l	TM208	<0.0035	<0.0035			
1,1,1,2-Tetrachloroethane		<0.0013 mg/l	TM208	<0.0013	<0.0013			
Ethylbenzene		<0.0025 mg/l	TM208	<0.0025	<0.0025			

Table of Results - Appendix

SDG Number : 100820-109

Client : Entec UK - MOD Ltd

Client Ref : 26999

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
TM061	Method for the Determination of EPH, Massachusetts Dept. of EP, 1998	Determination of Extractable Petroleum Hydrocarbons by GC-FID (C10-C40)	
TM099	BS 2690: Part 7:1968 / BS 6068: Part 2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser	
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS	
TM172	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	EPH in Waters	
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	
TM178	Modified: US EPA Method 8100	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS in Waters	
TM183	BS EN 23506:2002, (BS 6068-2.74:2002) ISBN 0 580 38924 3	Determination of Trace Level Mercury in Waters and Leachates by PSA Cold Vapour Atomic Fluorescence Spectrometry	
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers	
TM208	Modified: US EPA Method 8260b & 624	Determination of Volatile Organic Compounds by Headspace / GC-MS in Waters	
TM226	In-House Method	Determination of Anions in Waters using Ion Chromatography	
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.

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 ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

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)	GS 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	SOXTHERM	GRAVIMETRIC
Cyclohexane Ext. Matter	D&C	CYCLOHEXANE	SOXTHERM	GRAVIMETRIC
Thin Layer Chromatography	D&C	DCM	SOXTHERM	IATROSCAN
Elemental Sulphur	D&C	DCM	SOXTHERM	HPLC
Phenols by GCMS	WET	DCM	SOXTHERM	GC-MS
Herbicides	D&C	HEXANE:ACETONE	SOXTHERM	GC-MS
Pesticides	D&C	HEXANE:ACETONE	SOXTHERM	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.

<u>Asbestos Type</u>	<u>Common Name</u>
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Annex E

Radiological Trial Pits

Entec

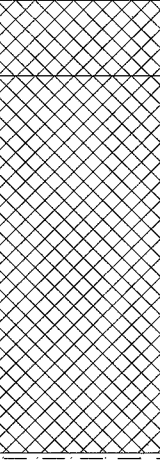
Trial Pit

HDPCR1Project: **DSDC Bicester**Client: **Defence Estates**Project No: **26999**Sheet **1** of **1**

Ground Level m AOD

Contractor :

Excavator : **Spade**Dimensions : **0.3m x 0.3m**Co-Ordinates: E **460368.0**
N **217198.0**Date Excavated: **15/07/2010**

Depth mbgl	Trial Pit Log	Legend	(Thick -ness)	m AOD	Water Strikes	Sample	
	Strata Description					Type	Data
	MADE GROUND: Thin grass over topsoil with a little brick and concrete and rootlets.		(0.05)				
-0.1	MADE GROUND: Light grey slightly ashy sand and gravel. Gravel is fine, medium and coarse of brick, concrete, limestone, tarmac and stone with some wood fragments and corroded metal pieces. Elevated activity is from ashy material between 0.2 and 0.3m bgl. Excavated material readings = 1000cps Max down hole reading = 5500cps		(0.25)				
-0.2							
-0.3	Brown sandy CLAY.		(0.01)				
-0.4	Hand dug pit completed at 0.3m bgl.						
-0.5							
-0.6							
-0.7							
-0.8							
-0.9							
1							

General Remarks: **Surface readings = 1000cps****All count readings from 3" NaI detector****Approximate grid coordinates**Logged By: **MIFFL**

All Dimensions in Metres

Scale: **1:5**

Annex F

Environmental Risk Assessment Tables

Annex F - Table F.1: Environmental Risk Assessment Tables

Item No.	Area/ Building	Potential Pollutant (Source)	Potential Receptor	Potential Pathway to Receptor	Associated Hazard	Potential Consequence of S-R Link	Likelihood of Source-Receptor Linkage	Significance: Risk Classification	Comment
1	Former vehicle fuelling areas (A13, SW of C3 and C19/C19A)	Hydrocarbons (fuels, lubricants and PAHs)	Site Visitors/Users (Commercial/Industrial)	Dermal contact Ingestion Inhalation	Toxic: chronic toxicity	Medium	Unlikely	Low	Not assessed as part of Phase Two LQA therefore comment remains as follows: The hardstanding for the two former fuelling areas areas at C Site currently remain and are not close to buildings decreasing the likelihood of this pollutant linkage (PL). Location of A13 is not known but as A Site is not inhabited (outside of a few people in building A1) the potential of a PL is unlikely.
2	Former vehicle fuelling areas (A13, SW of C3 and C19/C19A)	Hydrocarbons (fuels, lubricants and PAHs)	Construction and Maintenance Workers	Dermal contact Ingestion Inhalation	Toxic: chronic toxicity	Medium	Low	Moderate / Low	Not assessed as part of Phase Two LQA therefore comment remains as follows: The risk to construction/maintenance workers from ground contamination is greater due to direct contact with potentially contaminated material. The risk may be mitigated through use of appropriate PPE and control measures.
3	Former vehicle fuelling areas (A13, SW of C3 and C19/C19A)	Hydrocarbons (fuels, lubricants and PAHs)	Future Site Users (Commercial/Industrial)	Dermal contact Ingestion Inhalation	Toxic: chronic toxicity	Medium	Unlikely	Low	Not assessed as part of Phase Two LQA therefore comment remains as follows: The hardstanding for the two former fuelling areas areas at C Site currently remain and are not close to buildings decreasing the likelihood of this pollutant linkage (PL). Location of A13 is not known but as A Site is not inhabited (outside of a few people in building A1) the potential of a PL is unlikely.
4	Former vehicle fuelling areas (A13, SW of C3 and C19/C19A)	Hydrocarbons (fuels, lubricants and PAHs)	Neighbouring Site Users	Dermal contact Ingestion Inhalation	Toxic: chronic toxicity	Medium	Unlikely	Low	Not assessed as part of Phase Two LQA therefore comment remains as follows: Migration of contaminants associated with this potential source to neighbouring site users is unlikely, given the surface cover, distance involved and the low permeability of the underlying geology.
5	Former vehicle fuelling areas (A13, SW of C3 and C19/C19A)	Hydrocarbons (fuels, lubricants and PAHs)	Groundwater (secondary aquifer and unproductive strata)	Leaching Migration	Groundwater contamination Toxic: chronic toxicity	Medium	Low	Moderate / Low	Not assessed as part of Phase Two LQA therefore comment remains as follows: Potential sources in C Site located on negligible permeability strata. The former location of A13 is not known so could potentially be over a secondary aquifer. Given the age of any spillage and the absence of an ongoing source term and the overlying geology there is less likelihood of a PL.

Annex F - Table F.1: Environmental Risk Assessment Tables

Item No.	Area/ Building	Potential Pollutant (Source)	Potential Receptor	Potential Pathway to Receptor	Associated Hazard	Potential Consequence of S-R Link	Likelihood of Source-Receptor Linkage	Significance: Risk Classification	Comment
6	Former vehicle fuelling areas (A13, SW of C3 and C19/C19A)	Hydrocarbons (fuels, lubricants and PAHs)	Surface Water (site drainage ditches, unnamed on-site ponds, brook to east of A Site)	Leaching Migration Runoff	Water pollution Toxic: chronic toxicity	Medium	Low	Moderate / Low	Not assessed as part of Phase Two LQA therefore comment remains as follows: Potential sources are located (SW of C3) close to drainage ditches however run-off is not possible and given the overlying geology lateral migration to local ditches and surface water receptors is of a low likelihood limiting this pollutant linkage.
7	Former vehicle fuelling areas (A13, SW of C3 and C19/C19A)	Hydrocarbons (fuels, lubricants and PAHs)	Ecological Receptors	Uptake Direct contact	Phytotoxicity Toxic: chronic toxicity	Mild	Unlikely	Negligible	Not assessed as part of Phase Two LQA therefore comment remains as follows: Migration of contaminants associated with this potential source to nearby receptors is unlikely, given the surface cover, distance involved and the low permeability of the underlying geology.
8	Former vehicle fuelling areas (A13, SW of C3 and C19/C19A)	Hydrocarbons (fuels, lubricants and PAHs)	Agricultural Receptors	Uptake Direct contact	Phytotoxicity Toxic: chronic toxicity	Mild	Unlikely	Negligible	Not assessed as part of Phase Two LQA therefore comment remains as follows: Migration of contaminants associated with this potential source to nearby receptors is unlikely, given the surface cover, distance involved and the low permeability of the underlying geology.
9	Former vehicle fuelling areas (A13, SW of C3 and C19/C19A)	Hydrocarbons (fuels, lubricants and PAHs)	Buildings and Buried Services (current and future)	Direct contact Vapour Migration	Degradation Toxic: chronic toxicity	Mild	Low	Low	Not assessed as part of Phase Two LQA therefore comment remains as follows: No buildings in vicinity and location of services in these areas is not known. Design of new structures in this area may need to consider this potential contaminant source.
10	Former demolished buildings (A6, C8 and C26)	Hydrocarbons (fuels, lubricants, PAHs), solvents, hazardous chemicals, asbestos and metals	Site Visitors/Users (Commercial/Industrial)	Dermal contact Ingestion Inhalation	Toxic: chronic toxicity	Medium	Unlikely	Low	Not assessed as part of Phase Two LQA therefore comment remains as follows: The hardstanding for the three former buildings at A and C Site currently remain and are not close to buildings decreasing the likelihood of this pollutant linkage (PL). Potential of a PL is unlikely.
11	Former demolished buildings (A6, C8 and C26)	Hydrocarbons (fuels, lubricants, PAHs), solvents, hazardous chemicals, asbestos and metals	Construction and Maintenance Workers	Dermal contact Ingestion Inhalation	Toxic: chronic toxicity	Medium	Low	Moderate / Low	Not assessed as part of Phase Two LQA therefore comment remains as follows: The risk to construction/maintenance workers from ground contamination is greater due to direct contact with potentially contaminated material. The risk may be mitigated through use of appropriate PPE and control measures.

Annex F - Table F.1: Environmental Risk Assessment Tables

Item No.	Area/ Building	Potential Pollutant (Source)	Potential Receptor	Potential Pathway to Receptor	Associated Hazard	Potential Consequence of S-R Link	Likelihood of Source-Receptor Linkage	Significance: Risk Classification	Comment
12	Former demolished buildings (A6, C8 and C26)	Hydrocarbons (fuels, lubricants, PAHs), solvents, hazardous chemicals, asbestos and metals	Future Site Users (Commercial/Industrial)	Dermal contact Ingestion Inhalation	Toxic: chronic toxicity	Medium	Unlikely	Low	Not assessed as part of Phase Two LQA therefore comment remains as follows: If redevelopment to a commercial/industrial end use occurs in the area of these sources then there is higher likelihood of impact from residual contamination. Due to the age and potential volume of any potential contamination, the risk from volatiles/vapours is less due to the weathered nature of the contamination and the risk from asbestos would be mitigated from the hardstanding expected within a commercial/industrial development. There is still considered to be a unlikely likelihood of a PL.
13	Former demolished buildings (A6, C8 and C26)	Hydrocarbons (fuels, lubricants, PAHs), solvents, hazardous chemicals, asbestos and metals	Neighbouring Site Users	Dermal contact Ingestion Inhalation	Toxic: chronic toxicity	Medium	Unlikely	Low	Not assessed as part of Phase Two LQA therefore comment remains as follows: Migration of contaminants associated with this potential source to neighbouring site users is unlikely, given the surface cover, distance involved and the low permeability of the underlying geology.
14	Former demolished buildings (A6, C8 and C26)	Hydrocarbons (fuels, lubricants, PAHs), solvents, hazardous chemicals, asbestos and metals	Groundwater (secondary aquifer and unproductive strata)	Leaching Migration	Groundwater contamination Toxic: chronic toxicity	Mild	Unlikely	Negligible	Not assessed as part of Phase Two LQA therefore comment remains as follows: Potential sources at C Site located on negligible permeability strata. A6 is on the fringes of the Secondary aquifer but given the expect contaminant volumes, age, hardstanding and geology a PL is considered to be of a low likelihood.
15	Former demolished buildings (A6, C8 and C26)	Hydrocarbons (fuels, lubricants, PAHs), solvents, hazardous chemicals, asbestos and metals	Surface Water (site drainage ditches, unnamed on-site ponds, brook to east of A Site)	Leaching Migration Runoff	Water pollution Toxic: chronic toxicity	Medium	Unlikely	Low	Not assessed as part of Phase Two LQA therefore comment remains as follows: Potential sources are located close to drainage ditches however run-off is no longer credible and given the overlying geology lateral migration to local ditches and surface water receptors is of a low likelihood limiting this pollutant linkage.

Annex F - Table F.1: Environmental Risk Assessment Tables

Item No.	Area/ Building	Potential Pollutant (Source)	Potential Receptor	Potential Pathway to Receptor	Associated Hazard	Potential Consequence of S-R Link	Likelihood of Source-Receptor Linkage	Significance: Risk Classification	Comment
16	Former demolished buildings (A6, C8 and C26)	Hydrocarbons (fuels, lubricants, PAHs), solvents, hazardous chemicals, asbestos and metals	Ecological Receptors	Uptake Direct contact	Phytotoxicity Toxic: chronic toxicity	Mild	Unlikely	Negligible	Not assessed as part of Phase Two LQA therefore comment remains as follows: Migration of contaminants associated with this potential source to nearby receptors is unlikely, given the surface cover, distance involved and the low permeability of the underlying geology.
17	Former demolished buildings (A6, C8 and C26)	Hydrocarbons (fuels, lubricants, PAHs), solvents, hazardous chemicals, asbestos and metals	Agricultural Receptors	Uptake Direct contact	Phytotoxicity Toxic: chronic toxicity	Mild	Unlikely	Negligible	Not assessed as part of Phase Two LQA therefore comment remains as follows: Migration of contaminants associated with this potential source to nearby receptors is unlikely, given the surface cover, distance involved and the low permeability of the underlying geology.
18	Former demolished buildings (A6, C8 and C26)	Hydrocarbons (fuels, lubricants, PAHs), solvents, hazardous chemicals, asbestos and metals	Buildings and Buried Services (current and future)	Direct contact Vapour Migration	Degradation Toxic: chronic toxicity	Mild	Low	Low	Not assessed as part of Phase Two LQA therefore comment remains as follows: No buildings in vicinity and location of services in these areas is not known. Design of new structures in this area may need to consider this potential contaminant source.
19	Former burning grounds and landfill (C32 [see items 112-120], C33 [see items 121-129] and A33)	Hydrocarbons (fuels, lubricants, PAHs), solvents, metals, asbestos	Site Visitors/Users (Commercial/Industrial)	Dermal contact Ingestion Inhalation	Toxic: chronic toxicity	Medium	Unlikely	Low	This potential pollutant not assessed for A33 as part of Phase Two LQA. Risks in the area of C32 burning ground assessed as items 112-120. Risks in the area of C33 landfill assessed as items 121-129. Therefore comment remains as follows for A33 only: These three areas at A and C Site are not located that close to buildings (especially offices) decreasing the likelihood of this pollutant linkage (PL). Potential of a PL is unlikely unless site staff undertake intrusive works or continue operations in the areas.

Annex F - Table F.1: Environmental Risk Assessment Tables

Item No.	Area/ Building	Potential Pollutant (Source)	Potential Receptor	Potential Pathway to Receptor	Associated Hazard	Potential Consequence of S-R Link	Likelihood of Source-Receptor Linkage	Significance: Risk Classification	Comment
20	Former burning grounds and landfill (C32 [see items 112-120], C33 [see items 121-129] and A33)	Hydrocarbons (fuels, lubricants, PAHs), solvents, metals, asbestos	Construction and Maintenance Workers	Dermal contact Ingestion Inhalation	Toxic: chronic toxicity	Medium	Low	Moderate / Low	This potential pollutant not assessed for A33 as part of Phase Two LQA. Risks in the area of C32 burning ground assessed as items 112-120. Risks in the area of C33 landfill assessed as items 121-129. Therefore comment remains as follows for A33 only: Elevated levels of contaminants have been detected within Phase 2 works in the area and the risk to construction/maintenance workers from ground contamination is greater due to direct contact with potentially contaminated material. The risk may be mitigated through use of appropriate PPE and control measures.
21	Former burning grounds and landfill (C32 [see items 112-120], C33 [see items 121-129] and A33)	Hydrocarbons (fuels, lubricants, PAHs), solvents, metals, asbestos	Future Site Users (Commercial/Industrial)	Dermal contact Ingestion Inhalation	Toxic: chronic toxicity	Medium	Unlikely	Low	This potential pollutant not assessed for A33 as part of Phase Two LQA. Risks in the area of C32 burning ground assessed as items 112-120. Risks in the area of C33 landfill assessed as items 121-129. Therefore comment remains as follows for A33 only: If redevelopment to a commercial/industrial end use occurs in the area of these sources then there is higher likelihood of impact from residual contamination. Due to the age and potential volume of any potential contamination, the risk from volatiles/vapours is less due to the weathered nature (and the results of the Enviro P2) of the contamination and any risk from asbestos would be mitigated from the hardstanding expected within a commercial/industrial development. There is considered to be a unlikely likelihood of a PL with this receptor.
22	Former burning grounds and landfill (C32 [see items 112-120], C33 [see items 121-129] and A33)	Hydrocarbons (fuels, lubricants, PAHs), solvents, metals, asbestos	Neighbouring Site Users	Dermal contact Ingestion Inhalation	Toxic: chronic toxicity	Medium	Unlikely	Low	This potential pollutant not assessed for A33 as part of Phase Two LQA. Risks in the area of C32 burning ground assessed as items 112-120. Risks in the area of C33 landfill assessed as items 121-129. Therefore comment remains as follows for A33 only: Migration of contaminants associated with this potential source to neighbouring site users (track users and agricultural land) is unlikely, given the vegetated surface cover and the low permeability of the underlying geology.

Annex F - Table F.1: Environmental Risk Assessment Tables

Item No.	Area/ Building	Potential Pollutant (Source)	Potential Receptor	Potential Pathway to Receptor	Associated Hazard	Potential Consequence of S-R Link	Likelihood of Source-Receptor Linkage	Significance: Risk Classification	Comment
23	Former burning grounds and landfill (C32 [see items 112-120], C33 [see items 121-129] and A33)	Hydrocarbons (fuels, lubricants, PAHs), solvents, metals, asbestos	Groundwater (secondary aquifer and unproductive strata)	Leaching Migration	Groundwater contamination Toxic: chronic toxicity	Mild	Unlikely	Negligible	This potential pollutant not assessed for A33 as part of Phase Two LQA. Risks in the area of C32 burning ground assessed as items 112-120. Risks in the area of C33 landfill assessed as items 121-129. Therefore comment remains as follows for A33 only: Potential sources located on unproductive low permeability strata.
24	Former burning grounds and landfill (C32 [see items 112-120], C33 [see items 121-129] and A33)	Hydrocarbons (fuels, lubricants, PAHs), solvents, metals, asbestos	Surface Water (site drainage ditches, unnamed on-site ponds, brook to east of A Site)	Leaching Migration Runoff	Water pollution Toxic: chronic toxicity	Medium	Likely	Moderate	This potential pollutant not assessed for A33 as part of Phase Two LQA. Risks in the area of C32 burning ground assessed as items 112-120. Risks in the area of C33 landfill assessed as items 121-129. Therefore comment remains as follows for A33 only: Run-off entering ditch from this source area is possible as it neighbours a drainage ditch. Likelihood of this pollutant linkage is assessed to be likely given the identification of TPH within surface waters. Risks could be reduced if shown to be a slight, localised elevation.
25	Former burning grounds and landfill (C32 [see items 112-120], C33 [see items 121-129] and A33)	Hydrocarbons (fuels, lubricants, PAHs), solvents, metals, asbestos	Ecological Receptors	Uptake Direct contact	Phytotoxicity Toxic: chronic toxicity	Mild	Low	Low	This potential pollutant not assessed for A33 as part of Phase Two LQA. Risks in the area of C32 burning ground assessed as items 112-120. Risks in the area of C33 landfill assessed as items 121-129. Therefore comment remains as follows for A33 only: Likelihood of migration of contaminants associated with this potential source to nearby receptors is low.
26	Former burning grounds and landfill (C32 [see items 112-120], C33 [see items 121-129] and A33)	Hydrocarbons (fuels, lubricants, PAHs), solvents, metals, asbestos	Agricultural Receptors	Uptake Direct contact	Phytotoxicity Toxic: chronic toxicity	Mild	Unlikely	Negligible	This potential pollutant not assessed for A33 as part of Phase Two LQA. Risks in the area of C32 burning ground assessed as items 112-120. Risks in the area of C33 landfill assessed as items 121-129. Therefore comment remains as follows for A33 only: Likelihood of migration of contaminants associated with this potential source to nearby receptors is low.

Annex F - Table F.1: Environmental Risk Assessment Tables

Item No.	Area/ Building	Potential Pollutant (Source)	Potential Receptor	Potential Pathway to Receptor	Associated Hazard	Potential Consequence of S-R Link	Likelihood of Source-Receptor Linkage	Significance: Risk Classification	Comment
27	Former burning grounds and landfill (C32 [see items 112-120], C33 [see items 121-129] and A33)	Hydrocarbons (fuels, lubricants, PAHs), solvents, metals, asbestos	Buildings and Buried Services (current and future)	Direct contact Vapour Migration	Degradation Toxic: chronic toxicity Explosion	Mild	Low	Low	This potential pollutant not assessed for A33 as part of Phase Two LQA. Risks in the area of C32 burning ground assessed as items 112-120. Risks in the area of C33 landfill assessed as items 121-129. Therefore comment remains as follows for A33 only: No buildings in vicinity and location of services in these areas is not known. A lack of positive hydrocarbon results from Enviros Phase 2 works mitigates risk to any current buried services. Design of new structures in this area may need to consider this potential contaminant source.
28	Former burning grounds and landfill (C32, C33 and A33)	Radiological Contamination	Site Visitors/Users (Commercial/Industrial)	Ingestion Inhalation Irradiation	Toxic: acute toxicity Toxic: chronic toxicity	Medium	Unlikely	Low	These three areas at A and C Site are not located that close to buildings (especially offices) decreasing the likelihood of this pollutant linkage (PL). Potential of a PL is unlikely unless site staff undertake intrusive works or continue operations in the areas. Radiological contamination has been identified during Phase Two LQA and previous investigation works. Nature and activity of radiological contamination deemed to present a medium consequence and hence Low risk.
29	Former burning grounds and landfill (C32, C33 and A33)	Radiological Contamination	Construction and Maintenance Workers	Ingestion Inhalation Irradiation	Toxic: acute toxicity Toxic: chronic toxicity	Medium	Low	Moderate / Low	Radiological contamination has been identified during Phase Two LQA and previous investigation works. The risk to construction/maintenance workers from ground contamination is greater due to direct contact with potentially contaminated material. The risk is assessed as Moderate/Low and may be mitigated further through use of appropriate PPE and control measures.
30	Former burning grounds and landfill (C32, C33 and A33)	Radiological Contamination	Future Site Users (Commercial/Industrial)	Ingestion Inhalation Irradiation	Toxic: acute toxicity Toxic: chronic toxicity	Medium	Low	Moderate / Low	If redevelopment to a commercial/industrial end use occurs in the area of these sources then there is higher likelihood of impact from residual contamination. On the basis of results from the Phase Two LQA there is considered to be a low likelihood of a PL with this receptor. Nature and activity of radiological contamination deemed to present a medium consequence and hence Low risk.

Annex F - Table F.1: Environmental Risk Assessment Tables

Item No.	Area/ Building	Potential Pollutant (Source)	Potential Receptor	Potential Pathway to Receptor	Associated Hazard	Potential Consequence of S-R Link	Likelihood of Source-Receptor Linkage	Significance: Risk Classification	Comment
31	Former burning grounds and landfill (C32, C33 and A33)	Radiological Contamination	Neighbouring Site Users	Ingestion Inhalation Irradiation	Toxic: acute toxicity Toxic: chronic toxicity	Medium	Unlikely	Low	Minor amounts of radiological contamination has been identified during Phase Two LQA and previous investigation works. Migration of radiological contamination or radiation associated with this potential source to neighbouring site users (track users and agricultural land) is unlikely, given the nature and activity of radiological contamination identified, vegetated surface cover, distance and the low permeability of the underlying geology.
32	Former burning grounds and landfill (C32, C33 and A33)	Radiological Contamination	Groundwater (secondary aquifer and unproductive strata)	Ingestion Inhalation Irradiation	Groundwater contamination Toxic: chronic toxicity	Mild	Unlikely	Negligible	The potential source areas of C32 and C33 are located on unproductive low permeability strata. A33 is likely to be over a secondary aquifer but given the nature of the overlying soils is unlikely to impact the groundwater. Given the nature and activity of radiological contamination identified a Negligible risk to Groundwater is assessed.
33	Former burning grounds and landfill (C32, C33 and A33)	Radiological Contamination	Surface Water (site drainage ditches, unnamed on-site ponds, brook to east of A Site)	Ingestion Inhalation Irradiation	Water pollution Toxic: chronic toxicity	Medium	Unlikely	Low	Given the nature and activity of radiological contamination identified in the areas of A33, C32 and C33, the potential of run-off entering ditches from these source areas is unlikely.
34	Former burning grounds and landfill (C32, C33 and A33)	Radiological Contamination	Ecological Receptors	Ingestion Inhalation Irradiation	Phytotoxicity Toxic: chronic toxicity	Mild	Unlikely	Negligible	The likelihood of a PL from the identified radiological contamination in the potential source areas around A33, C32 and C33 to nearby receptors is unlikely therefore negligible risk assessed.
35	Former burning grounds and landfill (C32, C33 and A33)	Radiological Contamination	Agricultural Receptors	Ingestion Inhalation Irradiation	Phytotoxicity Toxic: chronic toxicity	Mild	Unlikely	Negligible	The likelihood of a PL from the identified radiological contamination in the potential source areas around A33, C32 and C33 to nearby receptors is unlikely therefore negligible risk assessed.
36	Former burning grounds and landfill (C32, C33 and A33)	Landfill gas	Site Visitors/Users (Commercial/Industrial)	Dermal contact Ingestion Inhalation	Toxic: chronic toxicity	Severe	Unlikely	Moderate / Low	Not assessed as part of Phase Two LQA therefore comment remains as follows: The nature and expected volume of the waste disposed and location with respect to site users means the likelihood of PL is unlikely.

Annex F - Table F.1: Environmental Risk Assessment Tables

Item No.	Area/ Building	Potential Pollutant (Source)	Potential Receptor	Potential Pathway to Receptor	Associated Hazard	Potential Consequence of S-R Link	Likelihood of Source-Receptor Linkage	Significance: Risk Classification	Comment
37	Former burning grounds and landfill (C32, C33 and A33)	Landfill gas	Construction and Maintenance Workers	Dermal contact Ingestion Inhalation	Toxic: chronic toxicity	Severe	Unlikely	Moderate / Low	Not assessed as part of Phase Two LQA therefore comment remains as follows: The nature and expected volume of the waste disposed and location with respect to site users means the likelihood of PL is unlikely. Risk could be reduced by mitigation measures and working methods.
38	Former burning grounds and landfill (C32, C33 and A33)	Landfill gas	Future Site Users (Commercial/Industrial)	Dermal contact Ingestion Inhalation	Toxic: chronic toxicity	Severe	Unlikely	Moderate / Low	Not assessed as part of Phase Two LQA therefore comment remains as follows: The nature and expected volume of the waste disposed and location with respect to site users means the likelihood of PL is unlikely.
39	Former burning grounds and landfill (C32, C33 and A33)	Landfill gas	Neighbouring Site Users	Dermal contact Ingestion Inhalation	Toxic: chronic toxicity	Severe	Unlikely	Moderate / Low	Not assessed as part of Phase Two LQA therefore comment remains as follows: The nature and expected volume of the waste disposed and location with respect to site users means the likelihood of PL is unlikely.
40	Former burning grounds and landfill (C32, C33 and A33)	Landfill gas	Groundwater (secondary aquifer and unproductive strata)	Leaching Migration	Groundwater contamination Toxic: chronic toxicity	Minor	Unlikely	Negligible	Not assessed as part of Phase Two LQA therefore comment remains as follows: Source area is located on negligibly permeable, unproductive strata. Likelihood of PL with significant groundwater is unlikely.
41	Former burning grounds and landfill (C32, C33 and A33)	Landfill gas	Surface Water (site drainage ditches, unnamed on-site ponds, brook to east of A Site)	Leaching Migration Runoff	Water pollution Toxic: chronic toxicity	Minor	Unlikely	Negligible	Not assessed as part of Phase Two LQA therefore comment remains as follows: Drainage ditches run close to both these areas but impact from this contaminant is unlikely.
42	Former burning grounds and landfill (C32, C33 and A33)	Landfill gas	Ecological Receptors	Uptake Direct contact	Phytotoxicity Toxic: chronic toxicity	Mild	Unlikely	Negligible	Not assessed as part of Phase Two LQA therefore comment remains as follows: The nature and expected volume of the waste disposed and distance to this receptor means the likelihood of PL is unlikely.
43	Former burning grounds and landfill (C32, C33 and A33)	Landfill gas	Agricultural Receptors	Uptake Direct contact	Phytotoxicity Toxic: chronic toxicity	Mild	Unlikely	Negligible	Not assessed as part of Phase Two LQA therefore comment remains as follows: The nature and expected volume of the waste disposed and distance to this receptor means the likelihood of PL is unlikely.
44	Former burning grounds and landfill (C32, C33 and A33)	Landfill gas	Buildings and Buried Services (current and future)	Direct contact Vapour Migration	Degradation Toxic: chronic toxicity	Medium	Unlikely	Low	Not assessed as part of Phase Two LQA therefore comment remains as follows: The nature and expected volume of the waste disposed and location with respect to services, manholes and building basements etc. means the likelihood of PL is unlikely.

Annex F - Table F.1: Environmental Risk Assessment Tables

Item No.	Area/ Building	Potential Pollutant (Source)	Potential Receptor	Potential Pathway to Receptor	Associated Hazard	Potential Consequence of S-R Link	Likelihood of Source-Receptor Linkage	Significance: Risk Classification	Comment
45	Railway lines and associated infrastructure (site wide)	Hydrocarbons (fuels, lubricants, PAHs), metals	Site Visitors/Users (Commercial/Industrial)	Dermal contact Ingestion Inhalation	Toxic: chronic toxicity	Medium	Unlikely	Low	Not assessed as part of Phase Two LQA therefore comment remains as follows: Presence of limestone dust (to reduce water permeability), grassed over surface cover, a low level exposure scenario and the negligible permeability of the soils encountered across the majority of A and C Sites have been considered to give an unlikely likelihood to this receptor.
46	Railway lines and associated infrastructure (site wide)	Hydrocarbons (fuels, lubricants, PAHs), metals	Construction and Maintenance Workers	Dermal contact Ingestion Inhalation	Toxic: chronic toxicity	Medium	Low	Moderate / Low	Not assessed as part of Phase Two LQA therefore comment remains as follows: The risk to construction/maintenance workers from ground contamination is greater due to direct contact with potentially contaminated material. The risk may be mitigated through use of appropriate PPE and control measures.
47	Railway lines and associated infrastructure (site wide)	Hydrocarbons (fuels, lubricants, PAHs), metals	Future Site Users (Commercial/Industrial)	Dermal contact Ingestion Inhalation	Toxic: chronic toxicity	Medium	Unlikely	Low	Not assessed as part of Phase Two LQA therefore comment remains as follows: If redevelopment to a commercial/industrial end use occurs in the area of former track or rail infrastructure, there will be a higher likelihood of impact from any residual contamination. There is currently considered to be a unlikely likelihood of a PL with this receptor.
48	Railway lines and associated infrastructure (site wide)	Hydrocarbons (fuels, lubricants, PAHs), metals	Neighbouring Site Users	Dermal contact Ingestion Inhalation	Toxic: chronic toxicity	Medium	Unlikely	Low	Not assessed as part of Phase Two LQA therefore comment remains as follows: Migration of contaminants associated with this potential source to neighbouring site users is unlikely, given the distance involved, surface cover and the low permeability of the underlying material and geology.
49	Railway lines and associated infrastructure (site wide)	Hydrocarbons (fuels, lubricants, PAHs), metals	Groundwater (secondary aquifer and unproductive strata)	Leaching Migration	Groundwater contamination Toxic: chronic toxicity	Mild	Unlikely	Negligible	Not assessed as part of Phase Two LQA therefore comment remains as follows: Presence of limestone dust (to reduce water permeability) and the negligible permeability of the soils encountered across the majority of A and C Sites have been considered to give an unlikely likelihood to this receptor.
50	Railway lines and associated infrastructure (site wide)	Hydrocarbons (fuels, lubricants, PAHs), metals	Surface Water (site drainage ditches, unnamed on-site ponds, brook to east of A Site)	Leaching Migration Runoff	Water pollution Toxic: chronic toxicity	Medium	Low	Moderate / Low	Not assessed as part of Phase Two LQA therefore comment remains as follows: The rail infrastructure is located close to the drainage ditches in many locations. Minor run-off is expected from the tracks but is unlikely to reach the ditches at concentrations that are significant. Dilution would also mitigate any impact.

Annex F - Table F.1: Environmental Risk Assessment Tables

Item No.	Area/ Building	Potential Pollutant (Source)	Potential Receptor	Potential Pathway to Receptor	Associated Hazard	Potential Consequence of S-R Link	Likelihood of Source-Receptor Linkage	Significance: Risk Classification	Comment
51	Railway lines and associated infrastructure (site wide)	Hydrocarbons (fuels, lubricants, PAHs), metals	Ecological Receptors	Uptake Direct contact	Phytotoxicity Toxic: chronic toxicity	Mild	Low	Low	Not assessed as part of Phase Two LQA therefore comment remains as follows: Migration of contaminants associated with this potential source to nearby receptors is unlikely, given the surface cover, distance involved and the low permeability of the underlying geology.
52	Railway lines and associated infrastructure (site wide)	Hydrocarbons (fuels, lubricants, PAHs), metals	Agricultural Receptors	Uptake Direct contact	Phytotoxicity Toxic: chronic toxicity	Mild	Unlikely	Negligible	Not assessed as part of Phase Two LQA therefore comment remains as follows: Migration of contaminants associated with this potential source to nearby receptors is unlikely, given the surface cover, distance involved and the low permeability of the underlying geology.
53	Railway lines and associated infrastructure (site wide)	Hydrocarbons (fuels, lubricants, PAHs), metals	Buildings and Buried Services (current and future)	Direct contact Vapour Migration	Degradation Toxic: chronic toxicity	Mild	Unlikely	Negligible	Not assessed as part of Phase Two LQA therefore comment remains as follows: It is unlikely that buildings and services would be impacted from any contamination arising from this source. Design of new structures and services in this area may need to consider this potential contaminant source.
54	POL Point (C61)	Hydrocarbons (fuels, lubricants and PAHs)	Site Visitors/Users (Commercial/Industrial)	Dermal contact Ingestion Inhalation	Toxic: chronic toxicity	Medium	Unlikely	Low	Previous Phase 2 investigation works have identified hydrocarbon in these areas from minor spillages (C60) . However no exceedences of appropriate GAC found during Phase 2 LQA investigation.
55	POL Point (C61)	Hydrocarbons (fuels, lubricants and PAHs)	Construction and Maintenance Workers	Dermal contact Ingestion Inhalation	Toxic: chronic toxicity	Medium	Low	Moderate / Low	The risk to construction/maintenance workers from ground contamination is greater due to direct contact with potentially contaminated material. The risk may be mitigated through use of appropriate PPE and control measures.
56	POL Point (C61)	Hydrocarbons (fuels, lubricants and PAHs)	Future Site Users (Commercial/Industrial)	Dermal contact Ingestion Inhalation	Toxic: chronic toxicity	Medium	Unlikely	Low	Previous Phase 2 investigation works have identified hydrocarbon in these areas from minor spillages (C60) . However no exceedences of appropriate GAC found during Phase 2 LQA investigation.
57	POL Point (C61)	Hydrocarbons (fuels, lubricants and PAHs)	Neighbouring Site Users	Dermal contact Ingestion Inhalation	Toxic: chronic toxicity	Medium	Unlikely	Low	Migration of contaminants associated with this potential source to neighbouring site users is unlikely, given the surface cover, distance involved and the low permeability of the underlying geology.
58	POL Point (C61)	Hydrocarbons (fuels, lubricants and PAHs)	Groundwater (secondary aquifer and unproductive strata)	Leaching Migration	Groundwater contamination	Mild	Unlikely	Negligible	C60 sources are located on negligibly permeable, unproductive strata. Likelihood of PL with significant groundwater is low. Only marginal exceedence of EQS recorded for ammonium (WSC8), which is not considered likely to be significant

Annex F - Table F.1: Environmental Risk Assessment Tables

Item No.	Area/ Building	Potential Pollutant (Source)	Potential Receptor	Potential Pathway to Receptor	Associated Hazard	Potential Consequence of S-R Link	Likelihood of Source-Receptor Linkage	Significance: Risk Classification	Comment
59	POL Point (C61)	Hydrocarbons (fuels, lubricants and PAHs)	Surface Water (site drainage ditches, unnamed on-site ponds, River Ray)	Leaching Migration Runoff	Water pollution	Medium	Unlikely	Low	Drainage ditches run very close to both these areas and the potential for run-off is considered to be likely even given the mitigation/protection afforded by the gullies that lead to OWIs located close to these source areas. Minimal impact of surface waters on site and ground water as discussed above however.
60	POL Point (C61)	Hydrocarbons (fuels, lubricants and PAHs)	Ecological Receptors	Vapour Migration Inhalation Uptake	Phytotoxicity Explosion Toxic	Mild	Unlikely	Negligible	Migration of contaminants associated with this potential source to nearby receptors is unlikely, given the surface cover, distance involved and the low permeability of the underlying geology.
61	POL Point (C61)	Hydrocarbons (fuels, lubricants and PAHs)	Agricultural Receptors	Vapour Migration Inhalation Uptake	Phytotoxicity Explosion Toxic	Mild	Unlikely	Negligible	Migration of contaminants associated with this potential source to nearby receptors is unlikely, given the surface cover, distance involved and the low permeability of the underlying geology.
62	POL Point (C61)	Hydrocarbons (fuels, lubricants and PAHs)	Buildings and Buried Services (current and future)	Direct contact Vapour Migration	Degradation	Mild	Unlikely	Negligible	Elevated concentrations of sulphate suggests that BRE concrete classifications would have to be considered for potential future inground structures.
63	Current site heating oil tanks (site wide)	Hydrocarbons (fuels, lubricants, PAHs), solvents and metals	Site Visitors/Users (Commercial/Industrial)	Dermal contact Ingestion Inhalation	Toxic: chronic toxicity	Medium	Unlikely	Low	Not assessed as part of Phase Two LQA therefore comment remains as follows: Given that they are all relatively new, double skinned fuels tanks for which no signs of staining were observed (around the tanks or interconnecting pipework) their recent installation and design suggest that leakage is unlikely but spillage through refilling or leaking connections could be possible. Most are located close to offices but it unlikely that there is a current PL with this receptor.
64	Current site heating oil tanks (site wide)	Hydrocarbons (fuels, lubricants, PAHs), solvents and metals	Construction and Maintenance Workers	Dermal contact Ingestion Inhalation	Toxic: chronic toxicity	Medium	Low	Moderate / Low	Not assessed as part of Phase Two LQA therefore comment remains as follows: The risk to construction/maintenance workers from ground contamination is greater due to direct contact with potentially contaminated material. The risk may be mitigated through use of appropriate PPE and control measures.

Annex F - Table F.1: Environmental Risk Assessment Tables

Item No.	Area/ Building	Potential Pollutant (Source)	Potential Receptor	Potential Pathway to Receptor	Associated Hazard	Potential Consequence of S-R Link	Likelihood of Source-Receptor Linkage	Significance: Risk Classification	Comment
65	Current site heating oil tanks (site wide)	Hydrocarbons (fuels, lubricants, PAHs), solvents and metals	Future Site Users (Commercial/Industrial)	Dermal contact Ingestion Inhalation	Toxic: chronic toxicity	Medium	Unlikely	Low	Not assessed as part of Phase Two LQA therefore comment remains as follows: Given that they are all relatively new, double skinned fuels tanks for which no signs of staining were observed (around the tanks or interconnecting pipework) their recent installation and design suggest that leakage is unlikely but spillage through refilling or leaking connections could be possible. Most are located close to offices but it unlikely that there is a current PL and it is likely that future commercial use may use this infrastructure. However, in the case of redevelopment then there could be a higher likelihood (depending on the time elapsed) of a PL if leakage has occurred.
66	Current site heating oil tanks (site wide)	Hydrocarbons (fuels, lubricants, PAHs), solvents and metals	Neighbouring Site Users	Dermal contact Ingestion Inhalation	Toxic: chronic toxicity	Medium	Unlikely	Low	Not assessed as part of Phase Two LQA therefore comment remains as follows: Migration of contaminants associated with this potential source to neighbouring site users is unlikely, given the surface cover, distance involved and the low permeability of the underlying geology.
67	Current site heating oil tanks (site wide)	Hydrocarbons (fuels, lubricants, PAHs), solvents and metals	Groundwater (secondary aquifer and unproductive strata)	Leaching Migration	Groundwater contamination	Mild	Unlikely	Negligible	Not assessed as part of Phase Two LQA therefore comment remains as follows: These tanks are only located at C Site and all are located on negligibly permeable, unproductive strata. Likelihood of PL with significant groundwater is low.
68	Current site heating oil tanks (site wide)	Hydrocarbons (fuels, lubricants, PAHs), solvents and metals	Surface Water (site drainage ditches, unnamed on-site ponds, River Ray)	Leaching Migration Runoff	Water pollution	Mild	Unlikely	Negligible	Not assessed as part of Phase Two LQA therefore comment remains as follows: Drainage ditches run very close to both these areas and the potential for run-off is considered to be low even given the mitigation/protection afforded by the gullies that lead to OWIs located close to these source areas.
69	Current site heating oil tanks (site wide)	Hydrocarbons (fuels, lubricants, PAHs), solvents and metals	Ecological Receptors	Uptake Direct contact	Phytotoxicity Toxic	Mild	Unlikely	Negligible	Not assessed as part of Phase Two LQA therefore comment remains as follows: Migration of contaminants associated with this potential source to nearby receptors is unlikely, given the surface cover, distance involved and the low permeability of the underlying geology.

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Item No.	Area/ Building	Potential Pollutant (Source)	Potential Receptor	Potential Pathway to Receptor	Associated Hazard	Potential Consequence of S-R Link	Likelihood of Source-Receptor Linkage	Significance: Risk Classification	Comment
70	Current site heating oil tanks (site wide)	Hydrocarbons (fuels, lubricants, PAHs), solvents and metals	Agricultural Receptors	Uptake Direct contact	Phytotoxicity Toxic	Mild	Unlikely	Negligible	Not assessed as part of Phase Two LQA therefore comment remains as follows: Migration of contaminants associated with this potential source to nearby receptors is unlikely, given the surface cover, distance involved and the low permeability of the underlying geology.
71	Current site heating oil tanks (site wide)	Hydrocarbons (fuels, lubricants, PAHs), solvents and metals	Buildings and Buried Services (current and future)	Direct contact Vapour Migration	Degradation Vapour Accumulation	Mild	Low	Low	Not assessed as part of Phase Two LQA therefore comment remains as follows: It is possible that buildings and services would be impacted from any contamination arising from this source. Design of new structures and services in this area may need to consider any potential contaminant sources identified from intrusive investigation.
72	Defence Fire service (A7)	Hydrocarbons (fuels, lubricants, PAHs), solvents, metals, asbestos	Site Visitors/Users (Commercial/Industrial)	Dermal contact Ingestion Inhalation	Toxic: chronic toxicity	Medium	Unlikely	Low	Not assessed as part of Phase Two LQA therefore comment remains as follows: Inspection during the site walkover suggested that A7 was used for general storage. Historically, this is highlighted as an MT Store and due to the potential for fire training involving the use of fuels. This building is not believed to be inhabited and so the likelihood of a PL to this receptor is assessed to be unlikely.
73	Defence Fire service (A7)	Hydrocarbons (fuels, lubricants, PAHs), solvents, metals, asbestos	Construction and Maintenance Workers	Dermal contact Ingestion Inhalation	Toxic: chronic toxicity	Medium	Low	Moderate / Low	Not assessed as part of Phase Two LQA therefore comment remains as follows: The risk to construction/maintenance workers from ground contamination is greater due to direct contact with potentially contaminated material. The risk may be mitigated through use of appropriate PPE and control measures.
74	Defence Fire service (A7)	Hydrocarbons (fuels, lubricants, PAHs), solvents, metals, asbestos	Future Site Users (Commercial/Industrial)	Dermal contact Ingestion Inhalation	Toxic: chronic toxicity	Medium	Unlikely	Low	Not assessed as part of Phase Two LQA therefore comment remains as follows: If redevelopment to a commercial/industrial end use occurs in the area of these sources then there is higher likelihood of impact from residual contamination. Due to the age of any potential contamination, the risk from volatiles/vapours is less due to the weathered nature of the contamination and there is considered to be an unlikely likelihood of a PL with this receptor.
75	Defence Fire service (A7)	Hydrocarbons (fuels, lubricants, PAHs), solvents, metals, asbestos	Neighbouring Site Users	Dermal contact Ingestion Inhalation	Toxic: chronic toxicity	Medium	Unlikely	Low	Not assessed as part of Phase Two LQA therefore comment remains as follows: Migration of contaminants associated with this potential source to neighbouring site users is unlikely, given the surface cover, distance involved and the low permeability of the underlying geology.

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Item No.	Area/ Building	Potential Pollutant (Source)	Potential Receptor	Potential Pathway to Receptor	Associated Hazard	Potential Consequence of S-R Link	Likelihood of Source-Receptor Linkage	Significance: Risk Classification	Comment
76	Defence Fire service (A7)	Hydrocarbons (fuels, lubricants and PAHs)	Groundwater (secondary aquifer and unproductive strata)	Leaching Migration	Groundwater contamination	Medium	Low	Moderate / Low	Not assessed as part of Phase Two LQA therefore comment remains as follows: A7 is on the fringes of the Secondary aquifer but given the expect contaminant volumes, age, hardstanding and geology a PL is considered to be of a low likelihood.
77	Defence Fire service (A7)	Hydrocarbons (fuels, lubricants and PAHs)	Surface Water (site drainage ditches and brook to east of A Site)	Leaching Migration Runoff	Water pollution	Medium	Low	Moderate / Low	Not assessed as part of Phase Two LQA therefore comment remains as follows: A7 is located such that a drainage ditches runs along the rear side of the building.
78	Defence Fire service (A7)	Hydrocarbons (fuels, lubricants and PAHs)	Ecological Receptors	Uptake Direct contact	Phytotoxicity Toxic	Mild	Unlikely	Negligible	Not assessed as part of Phase Two LQA therefore comment remains as follows: Migration of contaminants associated with this potential source to nearby receptors is unlikely, given the surface cover, distance involved and the low permeability of the underlying geology.
79	Defence Fire service (A7)	Hydrocarbons (fuels, lubricants and PAHs)	Agricultural Receptors	Uptake Direct contact	Phytotoxicity Toxic	Mild	Unlikely	Negligible	Not assessed as part of Phase Two LQA therefore comment remains as follows: Migration of contaminants associated with this potential source to nearby receptors is unlikely, given the surface cover, distance involved and the low permeability of the underlying geology.
80	Defence Fire service (A7)	Hydrocarbons (fuels, lubricants and PAHs)	Buildings and Buried Services (current and future)	Direct contact Vapour Migration	Degradation Vapour Accumulation	Medium	Low	Moderate / Low	Not assessed as part of Phase Two LQA therefore comment remains as follows: It is possible but considered unlikely that buildings and services would be impacted from any contamination arising from this source.
81	Oil/water interceptors (site wide)	Hydrocarbons (fuels and lubricants)	Site Visitors/Users (Commercial/Industrial)	Dermal contact Ingestion Inhalation	Toxic: chronic toxicity	Medium	Unlikely	Low	Not assessed as part of Phase Two LQA therefore comment remains as follows: On the basis that there was no evidence of leakage and interceptors are understood to be regularly maintained, the likelihood of an impact to this receptor is unlikely.
82	Oil/water interceptors (site wide)	Hydrocarbons (fuels and lubricants)	Construction and Maintenance Workers	Dermal contact Ingestion Inhalation	Toxic: chronic toxicity	Medium	Low	Moderate / Low	Not assessed as part of Phase Two LQA therefore comment remains as follows: The risk to construction/maintenance workers from ground contamination is greater due to direct contact with potentially contaminated material. The risk may be mitigated through use of appropriate PPE and control measures.

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Item No.	Area/ Building	Potential Pollutant (Source)	Potential Receptor	Potential Pathway to Receptor	Associated Hazard	Potential Consequence of S-R Link	Likelihood of Source-Receptor Linkage	Significance: Risk Classification	Comment
83	Oil/water interceptors (site wide)	Hydrocarbons (fuels and lubricants)	Future Site Users (Commercial/Industrial)	Dermal contact Ingestion Inhalation	Toxic: chronic toxicity	Medium	Unlikely	Low	Not assessed as part of Phase Two LQA therefore comment remains as follows: If redevelopment to a commercial/industrial end use occurs in the area of these sources then there is a higher likelihood of impact from any residual contamination arising from the OWIs. Due to the age and potential volume of any potential contamination, the risk from volatiles/vapours is less due to the weathered nature (and the results of the Enviro P2) of the contamination would be mitigated from the hardstanding expected within a commercial/industrial development. There is considered to be a unlikely likelihood of a PL with this receptor.
84	Oil/water interceptors (site wide)	Hydrocarbons (fuels and lubricants)	Neighbouring Site Users	Dermal contact Ingestion Inhalation	Toxic: chronic toxicity	Medium	Unlikely	Low	Not assessed as part of Phase Two LQA therefore comment remains as follows: Migration of contaminants from the OWIs to neighbouring site users is unlikely, given the surface cover, distance involved and the low permeability of the underlying geology.
85	Oil/water interceptors (site wide)	Hydrocarbons (fuels and lubricants)	Groundwater (secondary aquifer and unproductive strata)	Leaching Migration	Groundwater contamination	Mild	Unlikely	Negligible	Not assessed as part of Phase Two LQA therefore comment remains as follows: The OWIs are located on negligibly permeable, unproductive strata. Likelihood of PL with significant groundwater is low.
86	Oil/water interceptors (site wide)	Hydrocarbons (fuels and lubricants)	Surface Water (site drainage ditches, unnamed on-site ponds, River Ray)	Leaching Migration Runoff	Water pollution	Medium	Unlikely	Low	Not assessed as part of Phase Two LQA therefore comment remains as follows: Drainage ditches run very close to some of the OWIs. The likelihood of contaminants passing through the OWI to drainage ditches is considered to be low.
87	Oil/water interceptors (site wide)	Hydrocarbons (fuels and lubricants)	Ecological Receptors	Uptake Direct contact	Phytotoxicity Toxic	Mild	Low	Low	Not assessed as part of Phase Two LQA therefore comment remains as follows: Migration of contaminants associated with this potential source to nearby receptors is low, given the surface cover, distance involved and the low permeability of the underlying geology.
88	Oil/water interceptors (site wide)	Hydrocarbons (fuels and lubricants)	Agricultural Receptors	Uptake Direct contact	Phytotoxicity Toxic	Mild	Low	Low	Not assessed as part of Phase Two LQA therefore comment remains as follows: Migration of contaminants associated with this potential source to nearby receptors is low given the surface cover, distance involved and the low permeability of the underlying geology.

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Item No.	Area/ Building	Potential Pollutant (Source)	Potential Receptor	Potential Pathway to Receptor	Associated Hazard	Potential Consequence of S-R Link	Likelihood of Source-Receptor Linkage	Significance: Risk Classification	Comment
89	Oil/water interceptors (site wide)	Hydrocarbons (fuels and lubricants)	Buildings and Buried Services (current and future)	Direct contact Vapour Migration	Degradation Vapour Accumulation	Mild	Low	Low	Not assessed as part of Phase Two LQA therefore comment remains as follows: It is possible that buildings and services would be impacted from any contamination arising from sources via an OWI. Design of new structures and services in this area may need to consider any potential contaminant that may reside close to OWIs.
90	Disturbed ground around buildings (Crane Area A Site, C2, C5, C33, C7, C8 and C32)	Hydrocarbons (PAHs), metals, asbestos	Site Visitors/Users (Commercial/Industrial)	Dermal contact Ingestion Inhalation	Toxic: chronic toxicity	Medium	Unlikely	Low	Not assessed as part of Phase Two LQA therefore comment remains as follows: Anecdotal information from site staff says this is likely to be surplus 'inert' fill material from site levelling activities when the depot warehouses were originally built, service trenching or ditching spoil. Given the surface cover, geology and location away from buildings, these areas are unlikely to impact this receptor.
91	Disturbed ground around buildings (Crane Area A Site, C2, C5, C33, C7, C8 and C32)	Hydrocarbons (PAHs), metals, asbestos	Construction and Maintenance Workers	Dermal contact Ingestion Inhalation	Toxic: chronic toxicity	Medium	Low	Moderate / Low	Not assessed as part of Phase Two LQA therefore comment remains as follows: The risk to construction/maintenance workers from ground contamination is greater due to direct contact with potentially contaminated material. The risk may be mitigated through use of appropriate PPE and control measures.
92	Disturbed ground around buildings (Crane Area A Site, C2, C5, C33, C7, C8 and C32)	Hydrocarbons (PAHs), metals, asbestos	Future Site Users (Commercial/Industrial)	Dermal contact Ingestion Inhalation	Toxic: chronic toxicity	Medium	Unlikely	Low	Not assessed as part of Phase Two LQA therefore comment remains as follows: Given the surface cover if this area remained following any redevelopment to commercial/industrial end use and the likelihood that any contamination would be addressed during redevelopment in that area, it is unlikely that this receptor would be impacted by residual contamination considering the nature of commercial/industrial developments.
93	Disturbed ground around buildings (Crane Area A Site, C2, C5, C33, C7, C8 and C32)	Hydrocarbons (PAHs), metals, asbestos	Neighbouring Site Users	Dermal contact Ingestion Inhalation	Toxic: chronic toxicity	Medium	Unlikely	Low	Not assessed as part of Phase Two LQA therefore comment remains as follows: Migration of potential contaminants associated with this area to neighbouring site users is unlikely, given the surface cover, distance involved and the low permeability of the underlying geology.

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Item No.	Area/ Building	Potential Pollutant (Source)	Potential Receptor	Potential Pathway to Receptor	Associated Hazard	Potential Consequence of S-R Link	Likelihood of Source-Receptor Linkage	Significance: Risk Classification	Comment
94	Disturbed ground around buildings (Crane Area A Site, C2, C5, C33, C7, C8 and C32)	Hydrocarbons (PAHs), metals, asbestos	Groundwater (secondary aquifer and unproductive strata)	Leaching Migration	Groundwater contamination	Mild	Unlikely	Negligible	Not assessed as part of Phase Two LQA therefore comment remains as follows: Potential sources are located on negligibly permeable, unproductive strata. It is considered unlikely that a PL exists. A Site source is assessed to present a mild consequence that is unlikely to occur.
95	Disturbed ground around buildings (Crane Area A Site, C2, C5, C33, C7, C8 and C32)	Hydrocarbons (PAHs), metals, asbestos	Surface Water (site drainage ditches, unnamed on-site ponds, brook to east of A Site)	Leaching Migration Runoff	Water pollution	Medium	Low	Moderate / Low	Not assessed as part of Phase Two LQA therefore comment remains as follows: Some of the identified areas are located close to drainage ditches however significantly contaminated run-off to drainage ditches is considered unlikely.
96	Disturbed ground around buildings (Crane Area A Site, C2, C5, C33, C7, C8 and C32)	Hydrocarbons (PAHs), metals, asbestos	Ecological Receptors	Uptake Direct contact	Phytotoxicity Toxic	Mild	Unlikely	Negligible	Not assessed as part of Phase Two LQA therefore comment remains as follows: Migration of contaminants associated with this potential source to nearby receptors is unlikely, given the surface cover, distance involved and the low permeability of the underlying geology.
97	Disturbed ground around buildings (Crane Area A Site, C2, C5, C33, C7, C8 and C32)	Hydrocarbons (PAHs), metals, asbestos	Agricultural Receptors	Uptake Direct contact	Phytotoxicity Toxic	Mild	Unlikely	Negligible	Not assessed as part of Phase Two LQA therefore comment remains as follows: Migration of contaminants associated with this potential source to nearby receptors is unlikely, given the surface cover, distance involved and the low permeability of the underlying geology.
98	Disturbed ground around buildings (Crane Area A Site, C2, C5, C33, C7, C8 and C32)	Hydrocarbons (PAHs), metals, asbestos	Buildings and Buried Services (current and future)	Direct contact Vapour Migration	Degradation Vapour Accumulation	Mild	Unlikely	Negligible	Not assessed as part of Phase Two LQA therefore comment remains as follows: It is possible but considered unlikely that buildings and services would be impacted from any contamination arising from this source.

Annex F - Table F.1: Environmental Risk Assessment Tables

Item No.	Area/ Building	Potential Pollutant (Source)	Potential Receptor	Potential Pathway to Receptor	Associated Hazard	Potential Consequence of S-R Link	Likelihood of Source-Receptor Linkage	Significance: Risk Classification	Comment
99	ACM around buildings and spoil from former buildings (including ARSs)	Asbestos	Site Visitors/Users (Commercial/Industrial)	Dermal contact Ingestion Inhalation	Toxic: chronic toxicity	Medium	Unlikely	Low	Not assessed as part of Phase Two LQA therefore comment remains as follows: Some buildings contain substantial amount of ACM which is labelled and managed using individual building asbestos registers. An asbestos survey is understood to be currently in progress. The risk from this contaminant appears to be managed by the site although fragments of cement-bonded ACM was observed around the sides of some buildings at both A and C Site. Given its location, form and management it is considered that this presents a Moderate/Low risk to this receptor.
100	ACM around buildings and spoil from former buildings (including ARSs)	Asbestos	Construction and Maintenance Workers	Dermal contact Ingestion Inhalation	Toxic: chronic toxicity	Medium	Low	Moderate / Low	Not assessed as part of Phase Two LQA therefore comment remains as follows: The risk to construction/maintenance workers from ground contamination is greater due to direct contact with potentially contaminated material. The risk may be mitigated through use of appropriate PPE and control measures.
101	ACM around buildings and spoil from former buildings (including ARSs)	Asbestos	Future Site Users (Commercial/Industrial)	Dermal contact Ingestion Inhalation	Toxic: chronic toxicity	Medium	Unlikely	Low	Not assessed as part of Phase Two LQA therefore comment remains as follows: Given the nature of a commercial/industrial redevelopment and the increased likelihood of hardstanding it is considered that an unlikely likelihood of contact with any residual contamination.
102	ACM around buildings and spoil from former buildings (including ARSs)	Asbestos	Neighbouring Site Users	Dermal contact Ingestion Inhalation	Toxic: chronic toxicity	Medium	Unlikely	Low	Not assessed as part of Phase Two LQA therefore comment remains as follows: Migration of ACM fibres to neighbouring site users is unlikely given the form, amount and distance involved.
103	Site A NW Boundary	Hydrocarbons (PAHs), metals, asbestos	Site Visitors/Users (Commercial/Industrial)	Dermal contact Ingestion Inhalation	Toxic: chronic toxicity	Medium	Unlikely	Low	No exceedences of GAC, therefore risk in this immediate area likely to be low.
104	Site A NW Boundary	Hydrocarbons (PAHs), metals, asbestos	Construction and Maintenance Workers	Dermal contact Ingestion Inhalation	Toxic: chronic toxicity	Medium	Unlikely	Low	No exceedences of GAC & limited contamination.
105	Site A NW Boundary	Hydrocarbons (PAHs), metals, asbestos	Future Site Users (Commercial/Industrial)	Dermal contact Ingestion Inhalation	Toxic: chronic toxicity	Medium	Unlikely	Low	No exceedences of GAC, therefore risk in this immediate area likely to be low.

Annex F - Table F.1: Environmental Risk Assessment Tables

Item No.	Area/ Building	Potential Pollutant (Source)	Potential Receptor	Potential Pathway to Receptor	Associated Hazard	Potential Consequence of S-R Link	Likelihood of Source-Receptor Linkage	Significance: Risk Classification	Comment
106	Site A NW Boundary	Hydrocarbons (PAHs), metals, asbestos	Neighbouring Site Users	Dermal contact Ingestion Inhalation	Toxic: chronic toxicity	Medium	Unlikely	Low	Little contamination observed
107	Site A NW Boundary	Hydrocarbons (PAHs), metals, asbestos	Groundwater (secondary aquifer and unproductive strata)	Leaching Migration	Groundwater contamination	Mild	Unlikely	Negligible	Levels of TPH marginally above LoD in surface waters. No applicable EQS .
108	Site A NW Boundary	Hydrocarbons (PAHs), metals, asbestos	Surface Water (site drainage ditches, unnamed on-site ponds, brook to east of A Site)	Leaching Migration Runoff	Water pollution	Medium	Low	Moderate / Low	Levels of TPH marginally above LoD in surface waters. No applicable EQS .
109	Site A NW Boundary	Hydrocarbons (PAHs), metals, asbestos	Ecological Receptors	Uptake Direct contact	Phytotoxicity Toxic	Mild	Unlikely	Negligible	Migration of contaminants associated with this potential source to nearby receptors is unlikely, given the surface cover, distance involved and the low permeability of the underlying geology.
110	Site A NW Boundary	Hydrocarbons (PAHs), metals, asbestos	Agricultural Receptors	Uptake Direct contact	Phytotoxicity Toxic	Mild	Unlikely	Negligible	Migration of contaminants associated with this potential source to nearby receptors is unlikely, given the surface cover, distance involved and the low permeability of the underlying geology.
111	Site A NW Boundary	Hydrocarbons (PAHs), metals, asbestos	Buildings and Buried Services (current and future)	Vapour Migration Direct contact	Degradation Vapour Accumulation	Mild	Unlikely	Negligible	Elevated concentrations of sulphate suggests that BRE concrete classifications would have to be considered for potential future inground structures.
112	Former burning ground C32	Hydrocarbons (fuels, lubricants, PAHs), solvents, metals, asbestos	Site Visitors/Users (Commercial/Industrial)	Dermal contact Ingestion Inhalation	Toxic: chronic toxicity	Medium	Unlikely	Low	No exceedences of GAC, therefore risk in this immediate area likely to be low.
113	Former burning ground C32	Hydrocarbons (fuels, lubricants, PAHs), solvents, metals, asbestos	Construction and Maintenance Workers	Dermal contact Ingestion Inhalation	Toxic: chronic toxicity	Medium	Unlikely	Low	No exceedences of GAC & limited contamination.

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Item No.	Area/ Building	Potential Pollutant (Source)	Potential Receptor	Potential Pathway to Receptor	Associated Hazard	Potential Consequence of S-R Link	Likelihood of Source-Receptor Linkage	Significance: Risk Classification	Comment
114	Former burning ground C32	Hydrocarbons (fuels, lubricants, PAHs), solvents, metals, asbestos	Future Site Users (Commercial/Industrial)	Dermal contact Ingestion Inhalation	Toxic: chronic toxicity	Medium	Unlikely	Low	No exceedences of GAC, therefore risk in this immediate area likely to be low.
115	Former burning ground C32	Hydrocarbons (fuels, lubricants, PAHs), solvents, metals, asbestos	Neighbouring Site Users	Dermal contact Ingestion Inhalation	Toxic: chronic toxicity	Medium	Unlikely	Low	Little contamination observed
116	Former burning ground C32	Hydrocarbons (fuels, lubricants, PAHs), solvents, metals, asbestos	Groundwater (secondary aquifer and unproductive strata)	Leaching Migration	Groundwater contamination	Mild	Unlikely	Negligible	No groundwater samples taken from area however little evidence of contamination above EQS evident on wider site or in surface water samples
117	Former burning ground C32	Hydrocarbons (fuels, lubricants, PAHs), solvents, metals, asbestos	Surface Water (site drainage ditches, unnamed on-site ponds, brook to east of A Site)	Leaching Migration Runoff	Water pollution	Medium	Unlikely	Low	No evidence of contamination above EQS evident in surface water samples
118	Former burning ground C32	Hydrocarbons (fuels, lubricants, PAHs), solvents, metals, asbestos	Ecological Receptors	Uptake Direct contact	Phytotoxicity Toxic	Mild	Unlikely	Negligible	Migration of contaminants associated with this potential source to nearby receptors is unlikely, given the surface cover, distance involved and the low permeability of the underlying geology.
119	Former burning ground C32	Hydrocarbons (fuels, lubricants, PAHs), solvents, metals, asbestos	Agricultural Receptors	Uptake Direct contact	Phytotoxicity Toxic	Mild	Unlikely	Negligible	Migration of contaminants associated with this potential source to nearby receptors is unlikely, given the surface cover, distance involved and the low permeability of the underlying geology.

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Item No.	Area/ Building	Potential Pollutant (Source)	Potential Receptor	Potential Pathway to Receptor	Associated Hazard	Potential Consequence of S-R Link	Likelihood of Source-Receptor Linkage	Significance: Risk Classification	Comment
120	Former burning ground C32	Hydrocarbons (fuels, lubricants, PAHs), solvents, metals, asbestos	Buildings and Buried Services (current and future)	Direct contact Vapour Migration	Degradation Vapour Accumulation Explosion	Mild	Unlikely	Negligible	Little organic contamination observed and sulphate within lowest BRE classification.
121	Former Landfill C33	Hydrocarbons (fuels, lubricants, PAHs), solvents, metals, asbestos	Site Visitors/Users (Commercial/Industrial)	Dermal contact Ingestion Inhalation	Toxic: chronic toxicity	Medium	Low	Moderate / Low	No exceedences of GAC except lead. It is likely any site visitors will not come into contact with site soils.
122	Former Landfill C33	Hydrocarbons (fuels, lubricants, PAHs), solvents, metals, asbestos	Construction and Maintenance Workers	Dermal contact Ingestion Inhalation	Toxic: chronic toxicity	Medium	Likely	Moderate	Elevated lead may be an issue from direct contact with groundworkers.
123	Former Landfill C33	Hydrocarbons (fuels, lubricants, PAHs), solvents, metals, asbestos	Future Site Users (Commercial/Industrial)	Dermal contact Ingestion Inhalation	Toxic: chronic toxicity	Medium	Low	Moderate / Low	No exceedences of GAC except lead. It is likely any future site development will employ cover systems which would negate risks posed by non-volatile contaminants.
124	Former Landfill C33	Hydrocarbons (fuels, lubricants, PAHs), solvents, metals, asbestos	Neighbouring Site Users	Dermal contact Ingestion Inhalation	Toxic: chronic toxicity	Medium	Unlikely	Low	Little contamination observed & generation of dusts or other mechanism by which contaminants could be carried off site is not considered likely.
125	Former Landfill C33	Hydrocarbons (fuels, lubricants, PAHs), solvents, metals, asbestos	Groundwater (secondary aquifer and unproductive strata)	Leaching Migration	Groundwater contamination	Mild	Unlikely	Negligible	No groundwater samples taken from area however little evidence of contamination above EQS evident on wider site or in surface water samples.

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Item No.	Area/ Building	Potential Pollutant (Source)	Potential Receptor	Potential Pathway to Receptor	Associated Hazard	Potential Consequence of S-R Link	Likelihood of Source-Receptor Linkage	Significance: Risk Classification	Comment
126	Former Landfill C33	Hydrocarbons (fuels, lubricants, PAHs), solvents, metals, asbestos	Surface Water (site drainage ditches, unnamed on-site ponds, brook to east of A Site)	Leaching Migration Runoff	Water pollution	Medium	Unlikely	Low	No evidence of contamination above EQS evident in surface water samples.
127	Former Landfill C33	Hydrocarbons (fuels, lubricants, PAHs), solvents, metals, asbestos	Ecological Receptors	Uptake Direct contact	Phytotoxicity Toxic	Mild	Unlikely	Negligible	Migration of contaminants associated with this potential source to nearby receptors is unlikely, given the surface cover, distance involved and the low permeability of the underlying geology.
128	Former Landfill C33	Hydrocarbons (fuels, lubricants, PAHs), solvents, metals, asbestos	Agricultural Receptors	Uptake Direct contact	Phytotoxicity Toxic	Mild	Unlikely	Negligible	Migration of contaminants associated with this potential source to nearby receptors is unlikely, given the surface cover, distance involved and the low permeability of the underlying geology.
129	Former Landfill C33	Hydrocarbons (fuels, lubricants, PAHs), solvents, metals, asbestos	Buildings and Buried Services (current and future)	Direct contact Vapour Migration	Degradation Vapour Accumulation Explosion	Mild	Unlikely	Negligible	Little organic contamination observed and sulphate within lowest BRE classification.
130	FFO Tank Area C33	Hydrocarbons (fuels, lubricants and PAHs)	Site Visitors/Users (Commercial/Industrial)	Dermal contact Ingestion Inhalation	Toxic: chronic toxicity	Medium	Unlikely	Low	Although previous Phase 2 investigation works have identified hydrocarbon in these areas from significant leakages from interconnecting pipework (C33), little evidence of contamination was observed in the recent Phase 2 LQA investigation.. Given the levels and condition of hardstanding present and the distance between the tanks and occupied buildings, along with the results of the recent SI it is considered unlikely that a viable pollutant linkage exists.
131	FFO Tank Area C33	Hydrocarbons (fuels, lubricants and PAHs)	Construction and Maintenance Workers	Dermal contact Ingestion Inhalation	Toxic: chronic toxicity	Medium	Low	Moderate / Low	The risk to construction/maintenance workers from ground contamination is greater due to direct contact with potentially contaminated material. The risk may be mitigated through use of appropriate PPE and control measures.

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Item No.	Area/ Building	Potential Pollutant (Source)	Potential Receptor	Potential Pathway to Receptor	Associated Hazard	Potential Consequence of S-R Link	Likelihood of Source-Receptor Linkage	Significance: Risk Classification	Comment
132	FFO Tank Area C33	Hydrocarbons (fuels, lubricants and PAHs)	Future Site Users (Commercial/Industrial)	Dermal contact Ingestion Inhalation	Toxic: chronic toxicity	Medium	Unlikely	Low	Although previous Phase 2 investigation works have identified hydrocarbon in these areas from significant leakages from interconnecting pipework (C33), little evidence of contamination was observed in the recent Phase 2 LQA investigation.. Given the levels and condition of hardstanding present and the distance between the tanks and occupied buildings, along with the results of the recent SI it is considered unlikely that a viable pollutant linkage exists..
133	FFO Tank Area C33	Hydrocarbons (fuels, lubricants and PAHs)	Neighbouring Site Users	Dermal contact Ingestion Inhalation	Toxic: chronic toxicity	Medium	Unlikely	Low	Migration of contaminants associated with this potential source to neighbouring site users is unlikely, given the surface cover, distance involved and the low permeability of the underlying geology.
134	FFO Tank Area C33	Hydrocarbons (fuels, lubricants and PAHs)	Groundwater (secondary aquifer and unproductive strata)	Leaching Migration	Groundwater contamination	Mild	Unlikely	Negligible	C33 sources are located on negligibly permeable, unproductive strata. Considering this and negligible contamination observed in analysis it is considered unlikely that PL is significant.
135	FFO Tank Area C33	Hydrocarbons (fuels, lubricants and PAHs)	Surface Water (site drainage ditches, unnamed on-site ponds, River Ray)	Leaching Migration Runoff	Water pollution	Medium	Unlikely	Low	Drainage ditches run very close to both these areas and the potential for run-off is considered to be likely even given the mitigation/protection afforded by the gullies that lead to OWIs located close to these source areas. However Considering this and negligible contamination observed in analysis it is considered unlikely that PL is significant.
136	FFO Tank Area C33	Hydrocarbons (fuels, lubricants and PAHs)	Ecological Receptors	Vapour Migration Inhalation Uptake	Phytotoxicity Explosion Toxic	Mild	Unlikely	Negligible	Migration of contaminants associated with this potential source to nearby receptors is unlikely, given the surface cover, distance involved and the low permeability of the underlying geology.
137	FFO Tank Area C33	Hydrocarbons (fuels, lubricants and PAHs)	Agricultural Receptors	Vapour Migration Inhalation Uptake	Phytotoxicity Explosion Toxic	Mild	Unlikely	Negligible	Migration of contaminants associated with this potential source to nearby receptors is unlikely, given the surface cover, distance involved and the low permeability of the underlying geology.
138	FFO Tank Area C33	Hydrocarbons (fuels, lubricants and PAHs)	Buildings and Buried Services (current and future)	Vapour Migration Direct contact	Degradation Vapour Accumulation	Mild	Unlikely	Negligible	Elevated concentrations of sulphate suggests that BRE concrete classifications would have to be considered for potential future inground structures.