



Final Factual Environmental Report for

National Grid Property Holdings Ltd.

Report on Bluelined area on the following plan at:

Maelor, Wrexham

Volume 1 of 1

NGP Site Location Code: 138

Prepared by:

Advisian, in October 2017

From an original letter report entitled:

Final Environmental Assessment Factual Report of Maelor Works, Wrexham Clwyd

Authored By: Komex Clarke Bond, dated 02/1996 Project Reference 50065

Insofar as practicable the factual information contained in the original report named and dated above that is relevant to the bluelined area has been presented in this report. No new information has been included.

National Grid Property Holdings Ltd does not accept any duty of care in respect of the material contained within this report.

	Prepared by:	Reviewed by:
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Date	20/10/2017	10/11/2017
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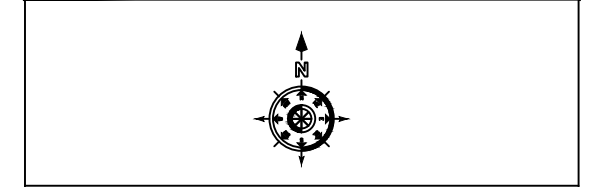
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NATIONAL GRID

SITE ADDRESS: _____

SITE 138
WREXHAM - MAELOR WORKS

DRAWING NAME:	
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Sales Plan Explanatory Notes

The site that is the subject of this report is the blue line area plan shown on the previous page. The site may form just a part of the area considered in the original report. If a former gasworks, the site may form just a part of a former gasworks site.

- The blue line plan on the previous page shows the most probable extent of NGPH land ownership, as provided by NGPH.
 - Original file reference: *Sale Plan_2017.pdf*
- Any bluelined plans within the redacted report indicate current or former National Grid Property land ownership.
- Any redlined plans within the redacted report indicate current Wales and West Utilities Ltd. Land ownership.



KOMEX CLARKE BOND
CONSULTING ENVIRONMENTAL ENGINEERS

W19/1

FINAL ENVIRONMENTAL ASSESSMENT
Factual [REDACTED] REPORT
of
MAELOR WORKS, WREXHAM

Wrexham
Maelor
W19/1

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FINAL ENVIRONMENTAL ASSESSMENT
Factual REPORT
of
MAELOR WORKS, WREXHAM
CLWYD

Prepared for:
British Gas Properties

If difficulties are encountered in understanding the technical content of this report, professional guidance should be sought.

Report 50065

February, 1996

DISCLAIMER

This report is provided only for the benefit of British Gas Properties and their successors in title.

KCB has exercised reasonable skill, care and diligence to assess the desk study information acquired during the preparation of this report but make no guarantees nor warranties as to the accuracy or completeness of this desk study information.

The purpose of a geologic/hydrogeologic/contaminant investigation is to reasonably characterise existing subsurface conditions at the site. In performing such an investigation, it is understood that no investigation is thorough enough to describe all subsurface conditions of interest at a site. If conditions have not been identified during the investigation, such a finding should not, therefore, be construed as a guarantee of the absence of such conditions at the site. Rather the findings are a result of the services performed within the scope, limitations, and cost of the work performed.

With regard to geologic/hydrogeologic/contaminant conditions, our professional opinions are based in part on interpretation of data from discrete sampling locations. It should be noted that actual conditions at unsampled locations may differ from those interpreted from sampled locations.

0.0 EXECUTIVE SUMMARY

Komex Clarke Bond (KCB) was retained by British Gas Properties to conduct an environmental desk study and site investigation of the former gas manufacturing works, Maelor Works, Wrexham. The site operated as a gas manufacturing works from 1953 to 1971. The site is presently used by TransCo as their Regional Office and also houses gas transmission equipment for the North Wales Grid and local gas distribution.

The objectives were to:

- Determine the surficial geology, bedrock geology and hydrogeology of the site and [REDACTED]

- [REDACTED]

Beneath the till lies the carboniferous Coal Measures. On 12, 13, 14 and 19 July, 1995, thirty trial pits and six soil borings were completed at the site. A [REDACTED] groundwater bearing zone was identified beneath the site. Six shallow groundwater monitoring wells were installed within fill material. Regional groundwater exists at considerable depth beneath the site within coal measures. The NRA has classified this as a minor aquifer.

[REDACTED]

[REDACTED]

[REDACTED]

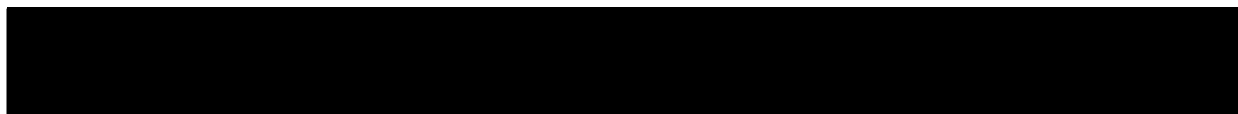


TABLE OF CONTENTS

0.0 EXECUTIVE SUMMARY

1. INTRODUCTION	3
1.1 GENERAL	3
1.2 REPORT FORMAT	3
1.3 SOURCES OF INFORMATION AND PREVIOUS WORK	3
2. SITE AREA	5
2.1 SITE LOCATION	5
2.2 SITE DESCRIPTION	5
2.3 UNDERGROUND SERVICES	5
2.4 LOCAL AND REGIONAL AUTHORITY INFORMATION	6
2.4.1 HER MAJESTY'S INSPECTORATE OF POLLUTION (HMIP)	6
2.4.2 NATIONAL RIVERS AUTHORITY (NRA) WELSH REGION	6
2.4.3 WREXHAM BOROUGH COUNCIL ENVIRONMENTAL HEALTH OFFICE	6
2.5 GEOLOGY	6
2.5.1 REGIONAL GEOLOGY	6
2.5.2 SITE GEOLOGY	7
2.6 HYDROGEOLOGY	7
2.6.1 REGIONAL HYDROGEOLOGY	7
2.6.2 SITE HYDROGEOLOGY	7
2.6.3 GROUNDWATER SUPPLY WELLS AND GROUNDWATER QUALITY	8
2.7 HYDROLOGY	8
2.8 SURFACE WATER QUALITY	8
2.9 SITE HISTORY	8
2.9.1 PRE 1940 SITE USE	8
2.9.2 1940 THE ROYAL ORDNANCE FACTORY MARCHWIEL	8
2.9.3 1953 THE MAELOR GASWORKS	9
2.9.4 1968 OIL GAS	9
2.9.5 1971 NATURAL GAS	9
2.10 PREVIOUS ONSITE OR OFFSITE INVESTIGATIONS	10
3. ENVIRONMENTAL ASSESSMENT	11
3.1	11
3.2	12
3.3	12
3.4	14
3.5	14
3.6	14
4. SITE INVESTIGATION FIELD WORK	18
4.1 SOILS INVESTIGATION	18
4.1.1 TRIAL PITS	18
4.1.2 SOIL BOREHOLES AND MONITORING WELL CONSTRUCTION	18
4.2 FIELD SAMPLES	19
4.2.1 SOIL SAMPLES	19
4.2.2 GROUNDWATER SAMPLES	20
4.2.3 SURFACE WATER AND DRAIN WATER SAMPLES	20
5. SITE INVESTIGATION RESULTS	22

5.1 SUBSURFACE STRUCTURES	22
5.2 GEOLOGICAL CONDITIONS	22
5.3 HYDROGEOLOGIC CONDITIONS.....	22
5.4 SOIL [REDACTED] CONDITIONS	23
5.5 GROUNDWATER [REDACTED] CONDITIONS	26
5.5.2 POSSIBLE OFF-SITE CONTAMINATION.....	26
6. SUMMARY /	28
6.1 SUMMARY.....	28
8. REFERENCES	33

LIST OF FIGURES

FIGURE 1	SITE LOCATION PLAN
FIGURE 2	LAYOUT OF FORMER GAS WORKS STRUCTURE AND TRIAL PIT/BOREHOLE LOCATIONS

LIST OF TABLES

TABLE 1	ANALYTICAL LABORATORY RESULTS - SOIL
TABLE 2	ANALYTICAL LABORATORY RESULTS - GROUNDWATER
TABLE 3	GROUNDWATER MONITORING WELL SUMMARY

LIST OF PLATES

PLATE 1	AERIAL VIEW OF MAELOR WORKS SITE IN 1983.
PLATE 2	AERIAL VIEW OF MAELOR WORKS UNDER CONSTRUCTION IN 1951.
PLATE 3	CONDENSERS WITH SCRUBBERS IN THE BACKGROUND.
PLATE 4	DETARRER AND SCRUBBERS MOUNTED ABOVE THE TAR AND LIQUOR WELLS, 1952.
PLATE 5	LOOKING SOUTH FROM THE PURIFIERS.
PLATE 6	FORMER LOCATION OF THE CWG PLANT AND BOILER HOUSE.
PLATE 7	VIEW LOOKING FROM THE WEST TO THE EAST SHOWING THE FORMER LOCATION OF THE WET PURIFICATION PLANT, COMPRISING THE DETARRER AND STATIC SCRUBBERS.
PLATE 8	VIEW FROM THE WEST TO THE EAST SHOWING THE FORMER LOCATION OF THE CONCENTRATED LIQUOR AND BENZOL PLANT.
PLATE 9	A COKE FILTERED LOCATED IN THE AREA OF THE FORMER BENZOL PLANT.
PLATE 10	VIEW FROM THE SOUTH EAST TO THE NORTH WEST SHOWING THE FORMER LOCATION OF THE RETORT HOUSE.
PLATE 11	VIEW LOOKING FROM THE EAST TO THE WEST SHOWING THE FORMER LOCATION OF THE LDF STORAGE TANKS.
PLATE 12	INTERCEPTOR PIT AT THE END OF THE FRENCH DRAIN ALONG THE WESTERN BOUNDARY OF THE SITE.
PLATE 13	THE OLD PAINT STORE, IN THE NORTH OF THE SITE. IRON STAINING IS EVIDENT ALL AROUND THE BUILDING.
PLATE 14	VIEW FROM THE NORTH WEST TO THE SOUTH EAST SHOWING BUILDINGS WITHIN WHICH RADIOACTIVE CATALYST WAS PREVIOUSLY STORED.
PLATE 15	SPHERICAL OBJECTS FOUND LYING ON THE SURFACE IN THE VICINITY OF THE BUILDING SHOWN IN PLATE 14.
PLATE 16	SPHERICAL AND CYLINDRICAL OBJECTS IN THE VICINITY OF A ROYAL ORDNANCE FACTORY BUILDING.
PLATE 17	DECAYING DRUMS OF WHAT ARE BELIEVED TO BE CERAMIC SPACERS.
PLATE 18	TRIAL PIT 3.

PLATE 19	TRIAL PIT 5.
PLATE 20	SPENT OXIDE CONTAMINATION FROM TRIAL PIT 5.
PLATE 21	TRIAL PIT 8. ADJACENT TO THE REVIVING YARD. THE BLUE MATERIAL APPEARS TO BE SPENT OXIDE, BUT LABORATORY ANALYSIS DOES NOT INDICATE THIS.
PLATE 22	TRIAL PIT 10A IN THE VICINITY OF THE FORMER OIL-GAS PLANT, SHOWING THE CLAY DRIFT DEPOSIT.
PLATE 23	TRIAL PIT 19. ADJACENT TO THE FORMER RETORT HOUSE.
PLATE 24	TRIAL PIT 18 SHOWING FILL MATERIAL CONTAINING TREE ROOTS.
PLATE 25	TRIAL PIT 20. FILL MATERIAL OVERLAYING SAND. COAL TAR MATERIAL CAN BE SEEN SEEPING INTO THE PIT. THIS IS LOCATED IN THE VICINITY OF THE FORMER CWG PLANT.
PLATE 26	TRIAL PIT 21. DUG INTO AN UNDERGROUND IN THE VICINITY OF THE TAR SEPARATOR NEXT TO THE CWG PLANT.
PLATE 27	TRIAL PIT 23. THE PIT CROSSES THE WALL OF THE FORMER TAR WELL. THE ELEVATED WATER LEVEL CAN BE SEEN.
PLATE 28	TRIAL PIT 23. SHOWING THE FILL MATERIAL WITHIN THE TAR WELL WATER SAMPLE LOCATION.
PLATE 29	TRIAL PIT 24. DUG IN THE FORMER EFFLUENT WELL, ADJACENT TO THE TAR WELL.
PLATE 30	TRIAL PIT 24. SHOWING THE FILL MATERIAL WITHIN THE EFFLUENT WELL.
PLATE 31	TRIAL PIT 25.
PLATE 32	TRIAL PIT 26.
PLATE 33	TRIAL PIT 27.
PLATE 34	CLINKER FROM TRIAL PIT 27.
PLATE 35	TRIAL PIT 28. SHOWING CLAY BELOW FILL MATERIALS.
PLATE 36	TRIAL PIT 29.
PLATE 37	SOLIDIFIED TAR FROM TRIAL PIT 29.
PLATE 38	TRIAL PIT 30.
PLATE 39	TRIAL PIT STORM DRAIN OUTFALLS INTO THE STREAM IN THE SOUTHEAST OF THE SITE. SAMPLE COLLECTION POINT RW2.
PLATE 40	LOCATION OF A MANHOLE BEYOND THE NORTHERN BOUNDARY OF THE SITE. COAL TAR SMELL NOTED. WATER SAMPLE LOCATION DW1.
PLATE 41	RIVER CLWYDOG LOOKING SOUTHEAST WITH THE MAELOR WORK'S AERIAL AND PROPANE BULLET VISIBLE AT THE TOP OF THE HILL.

APPENDICES

APPENDIX I	UNDERGROUND UTILITY PLANS
APPENDIX II	NRA, HMIP, AND BGS DATA
APPENDIX III	HISTORICAL ORDNANCE SURVEY MAPS
APPENDIX IV	TRIAL PIT AND BOREHOLE LOGS
APPENDIX V	LABORATORY DATA
APPENDIX VI	SURVEYORS 1:500 SCALE SITE PLAN

1. INTRODUCTION

1.1 GENERAL

Komex Clarke Bond (KCB) was retained by British Gas Properties (BGP) to conduct an environmental desk study and site investigation of the previous gas manufacturing facility, Maelor Gas Works, Marchwiel, Clwyd (herein referred to as the site). Confirmation to proceed was provided by Mr. Roy Hobby, BGP, on May 26, 1995. The site is presently used by TransCo as a major gas transmission facility for the North Wales Grid, and as the Regional Head Office.

This report presents the findings of the desk study and the subsequent field investigation.

The purpose of the desk study is to:

- Determine from available records the surficial geology, bedrock geology and hydrogeology of the site [REDACTED]
 - Determine the historic land use of the whole of the previous gas manufacturing works, and surrounding sites, [REDACTED]
 - Establish drainage and position of utility services and pipework [REDACTED]
 - Assess visual signs of contamination at the site through a site visit; and,
 - Define a site investigation program.
- [REDACTED]

1.2 REPORT FORMAT

The report contains a description of the present site status; details of the site geology, hydrogeology and hydrology; history of site works and relevant adjacent properties; description of site investigation, summary of findings, conclusions and [REDACTED]

1.3 SOURCES OF INFORMATION AND PREVIOUS WORK

The following sources of information were used to complete this study:

- Mr. Steve Roberts of TransCo, Maelor Works for site history, site plans and current site conditions;
- Mr. Tony Smith, Mechanical Engineering Department, TransCo, Maelor, concerning the decommissioning of gas holders;
- Discussions with Mr. Roy Hobby of BGP concerning site history;
- Mr. Wyndam Morgan, Head of Scientific Services, Transco, Welsh Region;
- Transco Drawing Office in Cardiff, Wales for historical and present site plans;
- The Wrexham Borough Council Planning Office for sewer plans and site history;
- Wrexham Public Library for archive information and historical Ordnance Survey (O.S.) Maps;
- Historical Aerial Photographs;
- Her Majesty's Inspectorate of Pollution (HMIP);
- The National Rivers Authority (NRA);
- British Geological Society for geological borehole information;

- ♦ British Geological Society Hydrogeological Maps;
- ♦ TransCo for utility plans;
- ♦ British Telecom Plc. for utility plans;
- ♦ Welsh Water Plc. for utility plans; and,
- ♦ Manweb Electricity Board for utility plans;

On June 12, 1995 a site visit and site vicinity reconnaissance was conducted by Mr. Richard Croft of Komex Clarke Bond (KCB).

A site investigation was conducted at the site by KCB between 12 and 14 July, and on 19 July, 1995.

2. SITE AREA

2.1 SITE LOCATION

The Maelor Works, Marchwiel, Clwyd is located 5 km east-southeast of Wrexham town centre (Figure 1). The site is situated in the county of Clwyd at grid reference SJ 380485 (Figure 2). The site lies on land of flat topography (about 30 metres above sea level - m.a.s.l.) between two shallowly incised water courses. To the north of the site lies the River Clwydog (a tributary of the River Dee) and to the south lies a brook (a tributary of the River Clwydog). Both of these water courses drain to the east.

The site is surrounded on all sides by open farmland, all laid to pasture. The Wrexham Industrial Estate lies 1 km to the north of the site, on the opposite bank of the river Clwydog.

2.2 SITE DESCRIPTION

The site, now operated by British Gas Transco, covers an area of approximately 44 acres (17.8 Ha). Approximately 15% of the site is paved. The site comprises the following (Figure 2):

- Site access road and surrounding land, once occupied by a railway;
- Offices comprising the TransCo Area Head Quarters.;
- Former retort house area, now used as a storage area with a gravel surface;
- Fire sprinkler lagoon occupying the site of the former liquid distillate feedstock tanks
- LPG storage facility;
- Stores building;
- Vehicle maintenance workshops occupying the site of the former carburetted water gas plant and boiler house;
- Former compressor house now used for archive storage and offices;
- Storage area for prefabricated buildings, formerly the site of the tar scrubbers and tar/liquor wells;
- Decompression equipment feeding the Wrexham gas main, on the former site of the Benzol Plant and the Concentrated Liquor Plant;
- AGI (above ground installation) high pressure natural gas pipeline facility (North Wales Grid);
- Disused single story brick buildings, formerly Royal Ordnance Factory (ROF) storage buildings;
- Former town gas purifiers, now filled with rubble;
- Large disused propane bullet;
- Concrete pads where the gas holders No. 1, and No. 2 used to be (Plate 1); and
- Area of pasture, formerly occupied by ROF railways and now leased to a local resident for grazing stock.

2.3 UNDERGROUND SERVICES

The following underground utility plans for the site and vicinity are provided in Appendix I:

- Electrical Mains Distribution System;
- Gas Mains Distribution System;
- Water Mains Distribution System; and,
- British Telecom Distribution System.

2.4 LOCAL AND REGIONAL AUTHORITY INFORMATION

2.4.1 HER MAJESTY'S INSPECTORATE OF POLLUTION (HMIP)

Her Majesty's Inspectorate of Pollution (HMIP) was contacted for the following information about the site and facilities in the surrounding area:

- Authorisations issued under the Prescribed Substances Regulations;
- Premises registered under the Radioactive Substances Act;
- IPC Process Authorisations;
- Enforcement and Prohibition Orders;
- Convictions under S.23 (1) for the study site or adjoining properties;
- Environmental assessment reports on file for the site; and,
- Any nearby tips and any suspected fill material.

The HMIP have records of an authorisation for the disposal of radioactive waste from the site to British Nuclear Fuels Ltd (BNFL) at Drigg. The radioactive waste is discussed in Section 3.2 below. No other records were held by HMIP.

2.4.2 NATIONAL RIVERS AUTHORITY (NRA) WELSH REGION

The Welsh Region of the NRA was contacted and following records were requested for the site and immediate site vicinity:

- Local hydrogeological information;
- Groundwater abstraction points;
- Rates of groundwater abstraction;
- Surface water quality information; and,
- Groundwater quality information.

This information is discussed within Section 2.6 and included in Appendix II.

2.4.3 WREXHAM BOROUGH COUNCIL ENVIRONMENTAL HEALTH OFFICE

Records of contaminated sites within the study area were requested from the Wrexham Borough Council (WBC) Environmental Health Office. They hold no records for this area.

2.5 GEOLOGY

2.5.1 REGIONAL GEOLOGY

The general site area is located on Pleistocene glacial till overlying the subcropping of the contact between the Permian-Triassic Sherwood Sandstone Group and the Carboniferous Coal Measures. The glacial till generally is less than 10 metres thick, however in localised areas of glacial channels and lakes, the thickness can reach 70 metres. The till is generally sandy where it overlies the Sherwood Sandstone and is relatively impermeable. The Sherwood Sandstone Group is subdivided into the following sequence; the Helsby Sandstone Formation overlying the Wilmslow Sandstone overlying the Chester Pebble Beds overlying the Kinnerton Sandstone Formation. The total thickness of these beds reaches 1300 metres.

2.5.2 SITE GEOLOGY

Alluvial clays are present to the immediate north of the site, deposited by the River Clwydog. From borehole records in the immediate vicinity of the site, the thickness of glacial till was determined to be 60 metres thick. The till is either underlain directly by the Carboniferous Coal Measures or a shallow thickness of the Sherwood Sandstone which itself is underlain by the Coal Measures.

The geology described in a borehole within 1 km of the site (GR SJ382495) is summarised below (BGS 121/21):

THICKNESS	LITHOLOGY
0.5 m	Top Soil
32 m	Boulder Clay
36 m	Soft Silt
44.5 m	Boulder Clay
51.3 m	Running Sand
54 m	Sand and Pebbles
59.9 m	Boulder Clay
59.93 m	Erbistock Beds (Carboniferous Coal Measures)

Groundwater was encountered at a depth of 30.0 m below ground level in this borehole.

The lithology identified during the site investigation was consistent with the above description. The site was found to be underlain by glacial drift. The drift deposits consisted of sand and gravel which was discontinuous across the site and varied in thickness.

2.6 HYDROGEOLOGY

2.6.1 REGIONAL HYDROGEOLOGY

The main groundwater supply aquifer in the region is the Permo - Triassic Sherwood Sandstone (BGS, 1989a). This aquifer is classified by the NRA as a major aquifer covered by soils with a low to high leaching potential. Where the aquifer is covered by drift deposits, recharge from precipitation is significantly restricted. The site lies above the contact between this aquifer and the underlying Carboniferous Coal Measures.

The well cemented sandstones and shales making up the Carboniferous Coal Measures generally have a low primary permeability. The Coal Measures are classed as a minor aquifer by the NRA, although the presence of fractures and old mine workings can result in high yields from boreholes. The yield is dependent on how many fractures have been intercepted by the borehole. The quality of groundwater from the Coal Measures is usually low, with high chloride and iron concentrations.

2.6.2 SITE HYDROGEOLOGY

The site itself lies on what the NRA classify as a minor aquifer. A minor aquifer is described as one which "can be fractured, or potentially fractured rocks which do not have a high primary permeability or other formations of variable permeability" (NRA, 1992).

Some groundwater is present within the sand and gravel drift deposits [REDACTED]
[REDACTED] Refer to Section 5.3 for findings of the site investigation.

2.6.3 GROUNDWATER SUPPLY WELLS AND GROUNDWATER QUALITY

The NRA have no active licences for groundwater abstraction within a 2 km radius of the site.

The nearest public supply borehole is 8.5 km to the west of the site (Grid reference SJ288477), abstracting water from the Coal Measures.

2.7 HYDROLOGY

The site receives an average rainfall of less than 700 mm per year (BGS, 1989b). The site naturally slopes gently to the north, but the placing of fill material, since the 1950's has resulted in the site now appearing to be roughly level. There is a relatively small area of paving on the site (estimated as 15%), the rest being either gravelled surface or grass. From observation and anecdotal evidence it is believed that the majority of precipitation infiltrates into the fill materials across the site or evaporates. Surface runoff from paved areas is intercepted by a fairly extensive drainage system which discharges into the a tributary brook of the River Clwydog. Infiltrated precipitation has been observed seeping from the contact between the fill material and the natural land surface along the western boundary of the site. This seepage of groundwater was heavily iron stained. [REDACTED] a land drain was excavated along the western boundary of the site to carry this stained groundwater, via an intercepting chamber, to the River Clwydog. This water infiltrates into the alluvial sediments along the banks of the River Clwydog before it can enter the river as surface discharge. [REDACTED]

[REDACTED] Shallow groundwater beneath the site exists within a sand and gravel deposit.

2.8 SURFACE WATER QUALITY

The River Clwydog flows to the north of the site. No information specific to the quality of river water adjacent to the site was available from the NRA (NRA, 1995).

2.9 SITE HISTORY

2.9.1 PRE 1940 SITE USE

Before 1940, the site was open farm land. Two farms occupied the site; Parkey Farm to the south and The Parkey to the north. The farm buildings are still in evidence. The Parkey is now in ruins just to the north of the site and Parkey Farm is still in use as a farm to the south of the site. The 1909 Ordnance Survey map showing the site is presented in Appendix III.

2.9.2 1940 THE ROYAL ORDNANCE FACTORY MARCHWIEL

In 1940, the present site area was incorporated into the new Royal Ordnance Factory (ROF) Marchwiel. The factory covered an area of 1400 acres employing 5000 people in the manufacture of explosives. ROF Marchwiel consisted of a number of production units, widely separated to minimise the damage done should there be an explosion. The site of the Maelor Works occupies what was an extension area to ROF Marchwiel. It is believed that this area was only used for dry storage and that no manufacturing or bulk storage of liquids took place in this particular location. ROF Marchwiel was closed down shortly

after the end of World War Two. The land it occupied was used partially for the Wrexham Industrial Estate, for housing, pasture and the Maelor Works.

There were 14 ROF buildings still standing on the site when the land was purchased by the Wales Gas Board in 1950 for the construction of its Maelor Works. Ten of the ROF buildings are still standing at present; five of these are occupied as offices, workshops and the remaining are used as storage areas.

2.9.3 1953 THE MAELOR GASWORKS

The Maelor Gasworks were opened on 14 October 1953 (WGB 1953) after 3 years of construction. The works were centred around a retort house containing 25 intermittent vertical chamber ovens. The other facilities at the site were (WGB, 1953);

- Coal handling plant;
- Coke quenching and handling equipment;
- Coke grading and storage plant;
- Carburetted Water Gas House;
- Compressor and Power House;
- Laboratory and Office Block;
- Condensers;
- Detarrer;
- Ammonia Washer;
- Napthalene Washer;
- Purifiers;
- Town's Gas Gasholder;
- Carburetted Water Gas Holder;
- Gas Dehydration Plant;
- Water Cooling Tower;
- Liquor Concentration Plant;
- Tar and Liquor Storage; and,
- Benzol Plant.

This plant continued to operate, without further expansion until 1968 when a new oil-gas plant, built just to the north of the existing Retort House, took over gas production. It has not been established exactly when the retort house ceased to be used or when it was demolished.

2.9.4 1968 OIL GAS

The oil gas plant was under construction by the end of 1965 (LEADER, 1964, 1966). It occupied a plot of land adjacent to the site of the Retort House (Figure 2). The plant was completed in August 1968 and used a distillate of oil, probably naptha, as a feedstock. On-site storage existed for 168,000 gallons of feedstock (LEADER, 1968), although the exact location of this storage is unknown, it is believed that the old LDF storage tanks were used.

The oil gas plant was dismantled in August 1971. Catalyst, which was used in the oil gas manufacturing process, was left on the site, stored in one of the ROF buildings. This catalyst took the form of nickel/depleted uranium pellets (HMIP, 1995). The catalyst is still on site but has been placed in an appropriate steel container and is awaiting disposal.

2.9.5 1971 NATURAL GAS

Gas has not been manufactured at the site since the oil gas plant was dismantled. Part of the Maelor Works site is now occupied by high pressure natural gas equipment supplying the North Wales Grid.

This equipment is referred to as the Above Ground Installation (AGI). Medium and low pressure gas equipment is also present on site, servicing the local gas distribution system around Wrexham.

The British Gas Wales Northern Regional Offices were built on the site of the former oil gas plant. These offices are still in use as the Regional Headquarters for TransCo.

2.10 PREVIOUS ONSITE OR OFFSITE INVESTIGATIONS

No records were found with regards to previous offsite or onsite contamination investigations.

3. ENVIRONMENTAL ASSESSMENT

3.1 RELEVANT PROCESS INFORMATION

COAL CARBONISATION

The manufacture of gas by the process of coal carbonisation began on the site in 1953 and continued until 1978, when oil gas manufacture replaced coal carbonisation. The oil gas process was replaced by natural gas in 1971. An understanding of the coal gasification process will assist in evaluating the origin of organic and inorganic compounds commonly detected at gas works sites. Accordingly, a brief summary of the coal gasification process is presented below (ERL, 1987).

During the coal manufacturing process, coal was "carbonised" by heating the coal in closed retorts in the absence of air. This process yielded gas, coke, coal tar and ammoniacal liquor as the main products. During carbonisation, approximately one third of the original mass of coal was converted to gas. This gas leaving the retorts contained tar, ammonia, cyanides and hydrogen sulphide that had to be removed before the gas could be used or distributed to consumers. The gas was passed through condensers, and scrubbers/washers to remove tar, phenols, ammonia, and naphthalene. The gas was then passed through purifiers. Purification process resulted in the production of waste referred to as spent oxide. This material often consisted of a deep blue friable solid ("blue billy"), the colouration resulting from the presence of ferric ferrocyanide.

An important organic by-product of coal carbonisation was the production of coal tar. Coal tar is an extremely complex mixture of organic compounds and contains polycyclic aromatic hydrocarbons (PAH's). On many gas works sites, the coal tar was stored in tanks from which it was periodically removed for processing at other sites. At Wrexham a Benzol Plant was in operation to further refine some of these coal carbonisation wastes.

Ammoniacal liquor, another by-product of coal carbonisation, was often stored in tanks for further use. Where it was collected and processed, its most important constituent was ammonia, usually in the form of ammonia salts, chiefly cyanide sulphide and carbonate (termed "free ammonia"), but also as chloride thiocyanate, sulphate and ferrocyanide ("fixed ammonia").

OIL GAS PRODUCTION

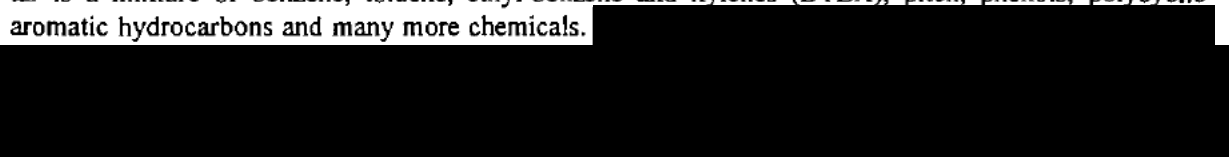
The oil gas plant at Maelor is believed to have been based on the reforming of naphtha, a distillate of crude oil, into gas. The basic principle was steam reforming of the feedstock at an high pressure over a catalyst bed, followed by shift conversion of the 'lean gas' and steam mixture in another catalytic reaction to increase the H_2/CO ratio in the gas. This gas was then blended with LPG (liquid petroleum gas) to achieve the desired calorific value (DoE, 1987)

The exact processes used at Maelor are unknown but general processes associated with oil gas manufacture can be described. Petroleum distillates, used as feedstock, often required de-sulphurisation before reforming. This was achieved, for example by passing the gas over hot zinc oxide. Purification of the product gas was usually relatively simple. Carbon dioxide was removed by washing with potassium carbonate solution containing arsenic trioxide. Carbon dioxide removal was performed, at the site, in two 30 metre high towers lined with lead. These towers were removed intact from the site in 1971 (LEADER, 1971).



STORAGE AND HANDLING OF COAL TAR

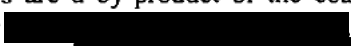
Coal tar produced at the site was stored in the underground tar and liquor tanks shown in Figure 2. Coal tar is a mixture of benzene, toluene, ethyl-benzene and xylenes (BTEX), pitch, phenols, polycyclic aromatic hydrocarbons and many more chemicals.

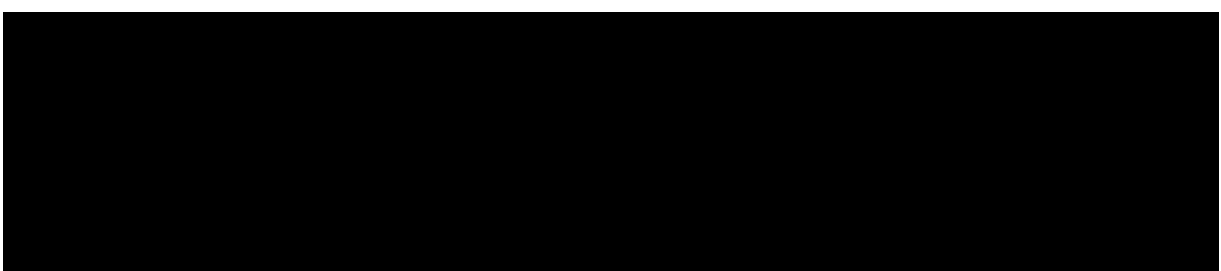




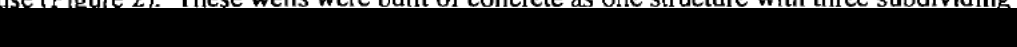
It was also common for spent oxide and "clinker" to be used as fill materials during expansion or rebuilding of plant facilities (DoE, 1987). Demolition debris were also commonly used as fill materials on gas works sites.

AREAS ASSOCIATED WITH AMMONIACAL LIQUOR STORAGE/HANDLING

Ammoniacal liquors are a by-product of the coal gasification process, containing ammonia, cyanide, sulphides and other . These liquors were stored in the underground liquor tanks shown in Figure 2. 



COAL TAR / LIQUOR STORAGE

The gas works underground tar and liquor wells were located in an area directly west of the Power and Compressor House (Figure 2). These wells were built of concrete as one structure with three subdividing internal walls. 

 The excavation for the construction of these wells can be seen in Plate 2. The Detarrer and scrubbers mounted above the wells, can be seen in Plates 4 and 5.

CONDENSERS

The condensers were located immediately to the south of the Power/Compressor Building. They are shown in Plate 3.

FILL MATERIAL

Fill material has been used to level the north west of the site as an ongoing process since construction of the works began in 1951.

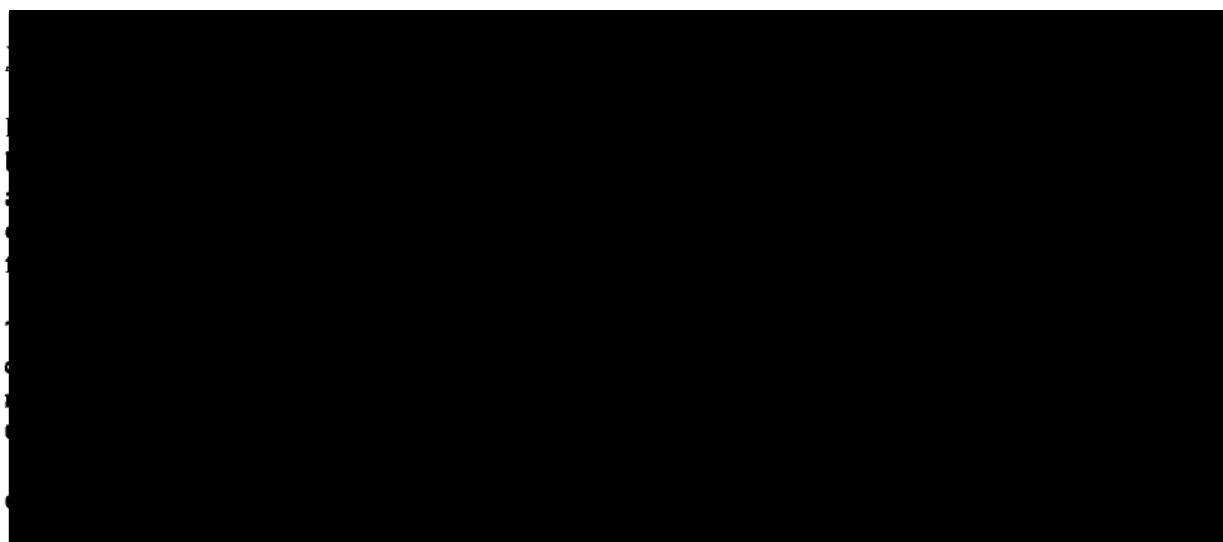
The levelling operations can be seen in progress in Plate 2.

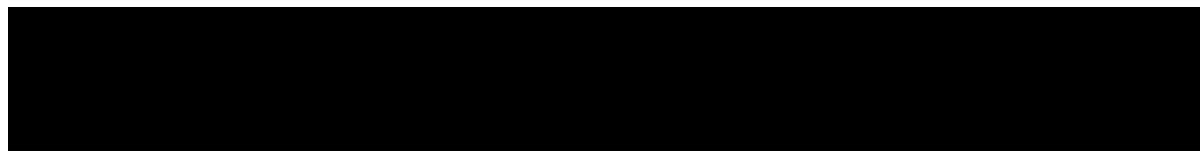
Fill material continues to be deposited to the present day in this area. This new fill material is derived from the activities of the TransCo pipe line maintenance crews, who deposit the spoil from their trenches in this area.

PURIFIERS

The former purifiers were located on the western boundary of the site (Figure 2, Plate 5). The purifiers were constructed of reinforced concrete and were below ground level. The gas purification process resulted in the production of waste referred to as spent oxide. This material often consisted of a deep blue friable solid ("blue billy"), the colouration resulting from the presence of ferric ferrocyanide.

Areas of vegetation kill and patches of bare blue stained soil are evident immediately to the east of the purifiers. The charges of oxide within the purifiers, which had not been emptied when the coal carbonising plant was decommissioned, were finally removed in 1990. The oxide was disposed of in an appropriate landfill. The empty purifier beds were then backfilled with spoil from TransCo trenching activities in the general region. The Revivifying Yards are still in place alongside the purifiers (Figure 2, Plate 5), and blue stained soil can be observed between the concrete slabs making up the yards.





SUBSURFACE PIPING

Much of the process pipework associated with the coal carbonisation plant was above ground, as evidenced in the photographs of the operating plant (Plates 3,4 and 5). The above ground pipework has been removed although it is not known if any underground pipework (if any existed) was removed at the time of decommissioning.



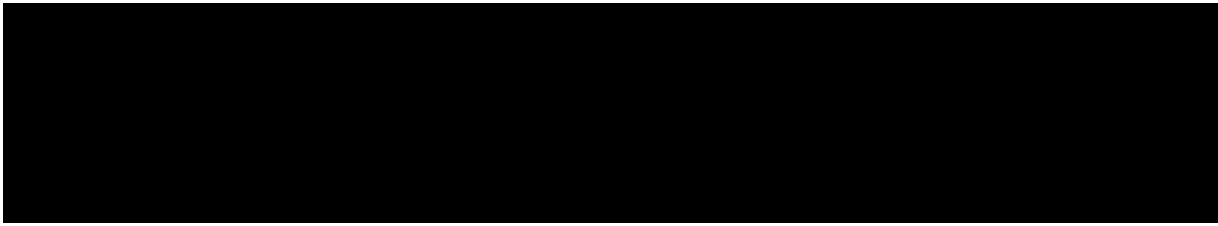
GAS HOLDERS

Both gasholders on the site were drained, dismantled, and the sludges removed in 1994. The holders were both of the above ground type. Sealing water was drained, by consent, into the foul drainage system of the site. All that remains of the gasholders are the concrete foundation pads.



3.5 SURFACE WATER

The perched groundwater  is seeping onto adjacent land to the west of the site. This water is being intercepted by a land drain running along the western boundary of the site, draining into a interceptor pit located at the far north west corner of the site. The interceptor pit overflows into a ceramic pipe that drains north towards the River Clwydog. The line of this pipe was traced and it was found to drain into a field ditch. The water in this ditch infiltrated the ground before it reached the river with no outfall evident at the river bank.



4. SITE INVESTIGATION FIELD WORK

To characterise the site and [REDACTED] (Section 3.2) a field work program was designed and implemented. The investigation was supervised by T. M. Parker and J. Farrow and conducted between 12 July and 14 July and on 19 July, 1995. It consisted of the excavation of 29 trial pits and drilling of 6 soil boreholes (Figure 2). All six of the soil boreholes were completed as groundwater monitoring wells. Excavations were conducted after all utilities had been identified and the area had been verified as clear by a cable location device. Excavations in sensitive areas were advanced by hand to a depth of one metre.

4.1 SOILS INVESTIGATION

4.1.1 TRIAL PITS

Twenty nine trial pits, TP 1 to TP29 ranging in depth from 0.7 to 2.7 metres were excavated between 12 July and 14 July. A Sitemaster JCB was used in these excavations with a 2 foot bucket on the rear excavator arm. This was supplied and operated by Brookes Plant Hire of Wrexham.

The following information was recorded during trial pit excavation:

- Visual contaminant evidence;
- Olfactory contaminant evidence;
- Organic vapour present in the samples (as measured with an Organic Vapour Analyser (OVA));
- Lithology; and,
- Moisture content and or groundwater presence.

Trial pit excavation logs are provided in Appendix V.

Upon completion, the trial pits were immediately backfilled with material in the order in which it had been removed. Any excess clean surficial material was deposited in a skip and removed from site. The ground surface was reinstated by using a compactor and Type 1, cl 803 granular materials. The paving was repaired to match the existing cover (asphalt or concrete).

4.1.2 SOIL BOREHOLES AND MONITORING WELL CONSTRUCTION

Between 12 July and 14 July and on 19 July, 1995, six soil boreholes, MW-1 to MW-6, were drilled at the site (Figure 2). The soil boreholes were drilled using a tripod mounted shell and auger operated by Geotechnical Engineering Ltd., of Normanton, West Yorkshire (GEOTECHNICAL).

MW 1 was drilled adjacent to the Propane Bullet, in the north of the site. [REDACTED]

[REDACTED]

MW 3 was drilled in the vicinity of the former LDF storage facilities [REDACTED]

[REDACTED] This also provides a sample location for groundwater's near the southern boundary of the site.

MW 4 was drilled in the south east of the site, adjacent to the tributary brook of the River Clwydog. [REDACTED]

MW 5 was drilled in the vicinity of the former CWG tar separators and the former CWG gas holder. [REDACTED]

MW 6 was drilled adjacent to the Tar and Liquor Wells. [REDACTED]

Groundwater monitoring wells were installed at the site to determine groundwater conditions. Specifically :

- Groundwater flow direction;
- Groundwater flow gradients;
- Groundwater quality; and,
- [REDACTED]

Monitoring wells are completed with 50 mm diameter, 0.5 mm slotted PVC casing adjacent to the groundwater bearing zone. Silica sand of diameter 0.7 to 1.2 mm sits in the annulus around the screen. Solid PVC casing threads onto the screen and brings the well back to surface. A hydraulic seal is in place above the silica sand consisting of hydrated bentonite pellets. This prevents the downward migration of contamination between the borehole walls and the outside of the well casing.

Soil borehole and monitoring well logs are provided in Appendix V.

4.2 FIELD SAMPLES

4.2.1 SOIL SAMPLES

Approximately 2 to 3 soil samples per trial pit and soil borehole respectively, were collected. Each sample was contained in a one litre HDPE plastic container and one 250 ml glass jar for phenols analysis. Samples for British Gas Research Centre analysis were contained in a large heavy duty plastic sacks. All samples were preserved at 4⁰ C. [REDACTED]

Samples were submitted for the following laboratory analyses:

- Phenols (analysis for the 11 phenols by Gas Chromatography (GC) classed as priority pollutants);
- PAHs (analysis for the 16 PAHs classed as priority pollutants);
- Total Acid Extractable Metals;
- Cyanide - free and total;
- Elemental Sulphur;
- Boron;
- Exchangeable Ammonium;
- Total Petroleum Hydrocarbons (TPH) (extractable) - selected locations only;
- Benzene, Toluene, Ethylbenzene, and Xylenes (BTEX) - selected locations only;
- pH;
- Loss on Ignition and,
- Soil Moisture.

Quality control was maintained by analysing duplicate samples. The results of laboratory analyses are presented in Table 1 and the complete laboratory data is provided in Appendix IV.

4.2.2 GROUNDWATER SAMPLES

Groundwater samples were collected from installed piezometers. Each piezometer was purged prior to sampling, ensuring a representative sample was collected.

Four groundwater samples were taken, one from each of: MW 3, MW 4, MW 5, and MW 6. A duplicate sample of MW 4 was taken and called MW 7 for identification purposes only. A groundwater sample was not obtained from MW 1 [REDACTED] due to there being no water in these wells. One water sample was taken for analysis from trial pit TP 23 (inside the tar well) to determine the contaminant content. Each sample required six bottles. The samples for phenols analysis were taken in a 1 litre amber glass bottle with copper sulphate preservative. Cyanide samples were collected into a 500 ml amber glass bottle with sodium hydroxide preservative. BTEX and PAH samples were also collected into a one litre amber glass bottle. Samples for mineral content and oils content were taken in a one litre HDPE bottle. Samples were preserved at 4°C during transport to the laboratory.

Groundwater samples were analysed for the following:

- pH;
- Conductivity;
- Total Organic Carbon;
- Total Ammonium;
- Free Cyanide, total cyanide and thiocyanate;
- Suspended solids;
- Heavy Metals;
- Phenols (analysis for the 11 phenols classed as priority pollutants, by GC);
- PAHs (analysis for the 16 PAHs classed as priority pollutants);
- TPH, and
- BTEX.

Quality control was ensured by analysing duplicate samples. The results of groundwater laboratory analyses are summarised in Table 2. The laboratory data is presented in Appendix VI.

4.2.3 SURFACE WATER AND DRAIN WATER SAMPLES

Six water samples were taken [REDACTED]
[REDACTED] To assess the condition of water passing along the land drain running along the western boundary of the site, the water within the interceptor pit at the drains' end was analysed (sample 03). A second drain leaves the site to the north, from the north-west corner of the site. This drain flows, via a manhole, into the same field ditch as the land drain mentioned above. Water from this manhole was analysed (sample DW1). The River Clwydog was sampled in three locations; downstream of the site (sample 01), adjacent to the likely discharge of the field ditch mentioned above (sample RW1), and upstream (sample 02) of the site. These locations are shown in Figure 7.

Surface samples were analysed for the following:

- pH;
- Conductivity;
- Total Organic Carbon;
- Total Ammonium;
- Free Cyanide, total cyanide and thiocyanate;

- Suspended solids;
- Heavy Metals;
- Phenols (analysis for the 11 phenols classed as priority pollutants, by GC);
- PAHs (analysis for the 16 PAHs classed as priority pollutants);
- TPH; and,
- BTEX.

5. SITE INVESTIGATION RESULTS

5.1 SUBSURFACE STRUCTURES

The following subsurface structures, related to the former gas works, were encountered during the site investigation (See Figure 3 for locations):

- Purifiers
- Liquor and Tar Wells
- Retort House Coal Hopper

5.2 GEOLOGICAL CONDITIONS

The following geological sequence was identified beneath the site from trial pits and monitoring wells completed as part of this investigation. Borehole logs are included as Appendix V.

<u>depth</u>	<u>description</u>
0.4 - 3.6 m	FILL : Brick and rubble, gravel. Varying proportions of sand, gravel, spent oxide, clinker, gravel, clay, coal.
0.4 - 1.5	CLAYEY SAND : Plastic, moist, brown. Trace organic material, trace rounded gravel.
3.0 - 3.8	GRAVEL : Fine to coarse gravel, not present over entire site.
1.5 - > 4.3 m	CLAY : Stiff, orange brown with grey streaks.

The soils encountered beneath the fill material were of glacial origin. These glacial drift deposits consisted of clayey sand overlying clay with discontinuous bands of gravel (BH4). From nearby borehole records the glacial drift deposits may extend to a depth of 90 metres below ground level.

The site was generally underlain by fill materials of varying thickness. The origin of this fill material varied from demolition rubble to soils contaminated with gasworks wastes. Cut and fill operations were conducted during the levelling of the site in the 1950's. The areas where cut and fill took place are presented in Figure 6.

5.3 HYDROGEOLOGIC CONDITIONS

The shallow groundwater beneath the site occurred within a sand and gravel deposit [REDACTED] [REDACTED] Where sand and gravel and fill materials were absent on the site, there was no evidence of shallow groundwater. No groundwater was found along the northern boundary of the site, where only clay lithology was identified.

Groundwater surface elevations are tabulated in Table 3.

5.4 SOIL CONTAMINATION CONDITIONS

LABORATORY RESULTS

PURIFIERS

The Purifiers were investigated by trial pits TP 1, and TP 2. Trial pits were excavated within the purifier oxide chambers. The structure of the purifiers was found to have been partially demolished with some of the internal dividing walls having been ripped out. The floor slab of the purifier chambers was found at 1.9 metres below ground level. The material within the purifiers was random fill material consisting of building rubble, clay, metal pipes, and sand. Groundwater was found within the purifiers. Field screening of the soils with an organic vapour analyser (OVA) gave readings of 0 ppm in all cases.

In trial pit TP 1, the groundwater level was found at 1.1 m below ground level. In trial pit TP 2 the groundwater level was found to be at 1.8 m below ground level.

There was an hydrocarbon sheen noted on the water surface in trial pit TP 2 and a slight sulphurous odour to the water in both trial pits TP 1 and TP 2.

REVIVIFYING YARDS

The soils beneath the Revivifying Yards were investigated by trial pits TP 8 and TP 9. Trial pit TP 8 was dug through the southern Revivifying Yard. Spent oxide contamination was observed within the top 0.4 metres below the surface of the concrete yard.

NORTH-EASTERN AREA OF THE SITE

The soils in the area of the **Propane Bullet** were explored by trial pits TP 3 and TP 4. The level of this north-western part of the site has been raised by approximately 2.5 metres above the adjacent pasture land by the importation of fill materials. Trial pit TP 3 was dug into the embankment that forms the western boundary of the site in this area, to determine the extent and nature of some of this fill material. Numerous refractory bricks were noted on the surface of the embankment where trial pit TP 3 was dug. No visible contamination was noted, although there was a 'gas works' odour noted.

Below the fill material, a natural light brown/yellow clayey sand was encountered. Chemical analysis of this natural soil also revealed a low pH of 3.6.

Fill materials to the north of the **Propane Bullet** were investigated by trial pit TP 4. The fill in this area appeared to be derived from trench spoil from TransCo pipeline maintenance activities.

A further area where fill material has been deposited over the last forty years is to the east of the **Propane Bullet**, immediately to the south of the **Old Paint Stores**. This area was investigated with trial pits TP 5, TP 6 and TP 7. There was visible evidence of patches of spent oxide on the ground surface in this whole area. The spent oxide contamination was found extending from surface to a depth of 0.5 m to 1.5 m below ground level.

GASHOLDER No1.

The soil in the area of **Gas Holder No 1** was investigated by trial pit TP10.

OIL GAS PLANT

The former **Oil Gas Plant** area, now occupied by the Transco North Wales District Office, was investigated by trial pits TP11 and TP12. No soil contamination was evident visually,
Fill material extended to a depth of 0.9 m below ground level.

RETORT HOUSE

The former **Retort House** area was explored by trial pits TP13, TP14, TP19 and TP22. Phenol was identified in an analysis of a soil sample in TP14 at a depth of 1.0 m below ground level

TP22 was excavated within the fill

material of what is believed to be a coal bunker. The fill material was a mixture of sand, gravel and clinker. The trial pit extended to a depth of 2.6 m below ground level but did not encounter the bottom of the bunker.

COKE STORAGE

The **Coke Storage** area was investigated by trial pit TP15.

The **Loss on Ignition** of this samples was 39.1 % This material did not extend below a depth of 0.15 m below ground level.

LIQUID DISTILLATE FEEDSTOCK STORAGE AREA

The area of the former **Liquid Distillate Feedstock (LDF) Tanks** was investigated by trial pits TP16 and TP17. No visible contamination was noted

WATER TREATMENT PLANT AREA

The area around the **Water Treatment Plant** was explored by trial pit TP18.

CARBURETTED WATER GAS PLANT

The area of the **Carburetted Water Gas (CWG) Plant** was investigated by trial pits TP20 and TP21. The soil in trial pit TP20 was stained black from 1.0 m below ground level down to the bottom of the trial pit at 1.8 m. A diesel fuel odour was noted at a depth of 0.7 m below ground level and a strong coal tar odour at 1.5 m below ground level. Coal tar like material was observed seeping into the trial pit at a depth interval of 1.4 m to 1.6 m below ground level.

Trial pit TP20 was located within an underground tank which had been backfilled with building rubble. During excavation a strong coal tar odour was noted although no visible coal tar was evident.

TAR AND LIQUOR WELLS

Tar and Liquor Wells were explored by trial pits TP23 and TP24. These trial pits were dug so that both the inside and the outside of the walls of the wells could be investigated. Trial pit TP23 was dug into the **Tar Well**. The well was backfilled with angular gravel with no visual signs of coal tar contamination. There was however a strong coal tar odour. Groundwater was found at a depth of 0.4 m below ground level.

A sample of

groundwater taken from the Tar Well at a depth of 1.0 m below ground level [REDACTED]

The trial pit was not dug deeper because it collapsed during excavation. Trial pit TP24 was excavated into the **Concentrated Liquor Well**. This was found to be backfilled with an angular gravel.

SOUTH-EASTERN AREA OF THE SITE

The south-east of the site, incorporating the area between the former Retort House and the main entrance, was investigated by trial pits TP26, TP27, TP28, TP29 and TP30. Fill material, consisting of brick rubble, sand and gravel extends over this area with thicknesses of between 0.3 m and 2.6 m.

NORTH-WESTERN AREA OF THE SITE

Four ROF buildings are located in this area of the site. They are presently either empty or used for storing barrels of filter dust. [REDACTED]

5.5 GROUNDWATER [REDACTED] CONDITIONS

5.5.2 [REDACTED] OFF-SITE [REDACTED]

A water sample was taken from a drain manhole to the north of the site. This drain passes off-site in the north-west corner of the site. The drain discharges into a field ditch which discharges into the River Clwydog. [REDACTED]

[REDACTED] An initial water sample was taken from the River Clwydog, in the vicinity of the discharge of the field ditch to which the above mentioned drain and the land drain on the western side of the site both discharge. [REDACTED]

[REDACTED] Two further water samples were taken from the River Clwydog. These were taken upstream and downstream of the site. The sampling locations are shown on Figure 7.

The land drain, mentioned in Section 3.5, which passes along the western site boundary, feeds an interceptor pit at the north-west corner of the site. The water within this pit was sampled and analysed (sample 03) [REDACTED]
[REDACTED]

These samples were taken, and observations made, during a period of dry weather (summer 1995) and hence during low flows.

Analysis of a water sample (sample DW2) from the stream in the south-east of the site [REDACTED]

[REDACTED] This stream receives most of the storm water from the site. The sample was taken during a period of dry weather and the flow to the stream from the sites' storm drains was negligible. There were no discharges from the site drains into the brook in the south-east of the site during this period and thus no samples were taken.

6. SUMMARY

6.1 SUMMARY

COAL TAR [REDACTED]

Free phase liquid coal tar [REDACTED] was reported in one trial pit (TP20). This coal tar was observed at a depth of 1.8 m below ground level, it was not sampled. The trial pit was located between the former CWG plant and Holder No2. Visible coal tar was not recorded in any other trial pit or borehole. Coal tar odours were noted in several trial pits and boreholes (TP2, TP3, TP5, TP9, TP12, TP13, TP15, TP18, TP20, TP21, TP23, TP24, TP29, MW2, MW3, MW4, MW6, TP30).

The Tar and Liquor Wells were found to contain fill materials and water. No liquid tars were encountered to a depth of 1.4 m.

HYDROCARBON [REDACTED]

Well. Toluene, Ethylbenzene and Xylene were in the sample from location TP 23, within the Tar reported.

[REDACTED]

GROUNDWATER [REDACTED]

The groundwater encountered by the investigation was shallow

investigated [REDACTED] deeper groundwater was not

The maximum concentration of phenols measured was 0.54 mg/kg. PAHs were also identified at a maximum concentration of 0.18 mg/l.

This brook is a tributary of the River Clwydog.

Report Prepared by:

Richard G Croft
Assistant Director

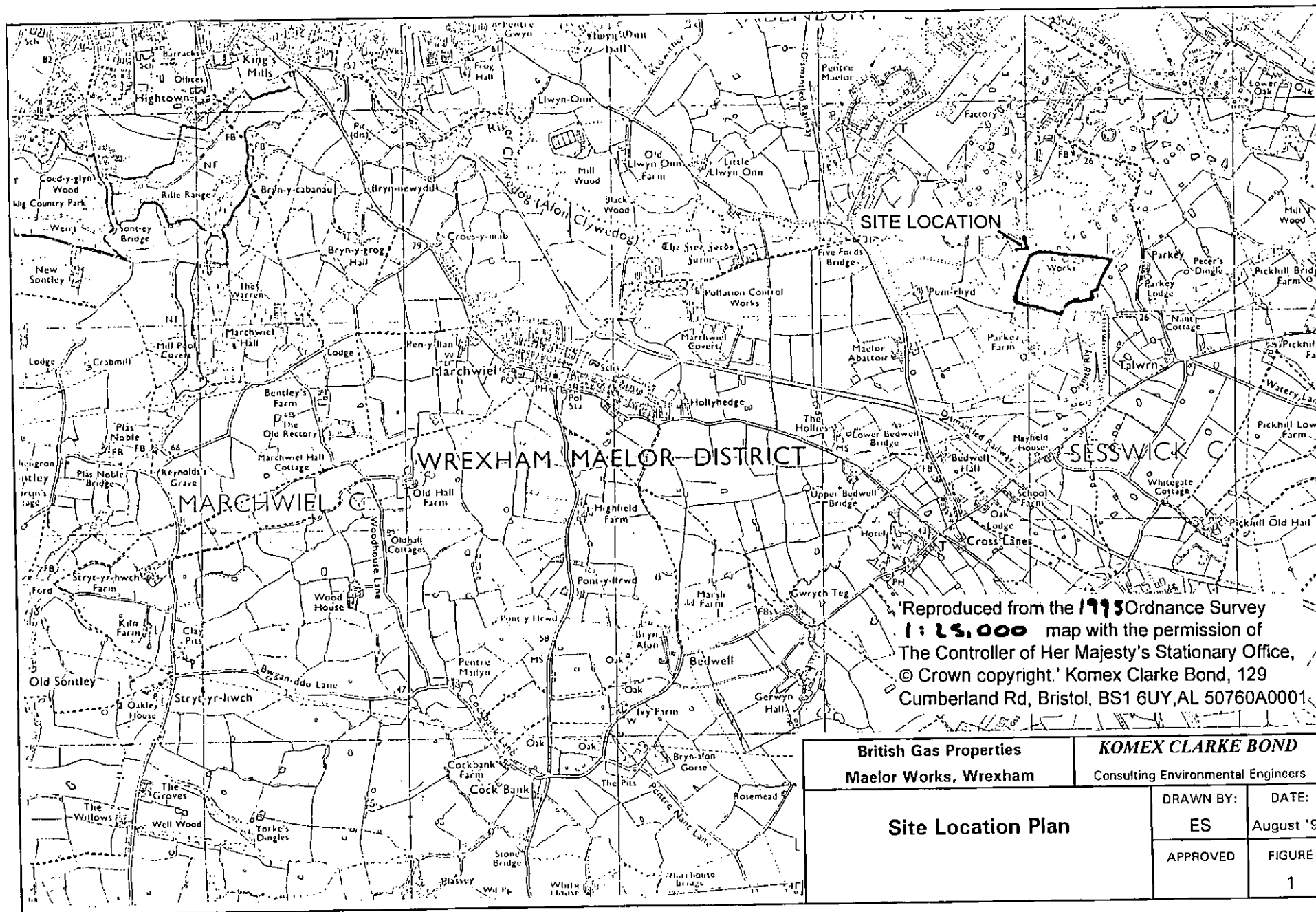
Dr Paul E Hardisty
Managing Director

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FIGURES

FIGURES

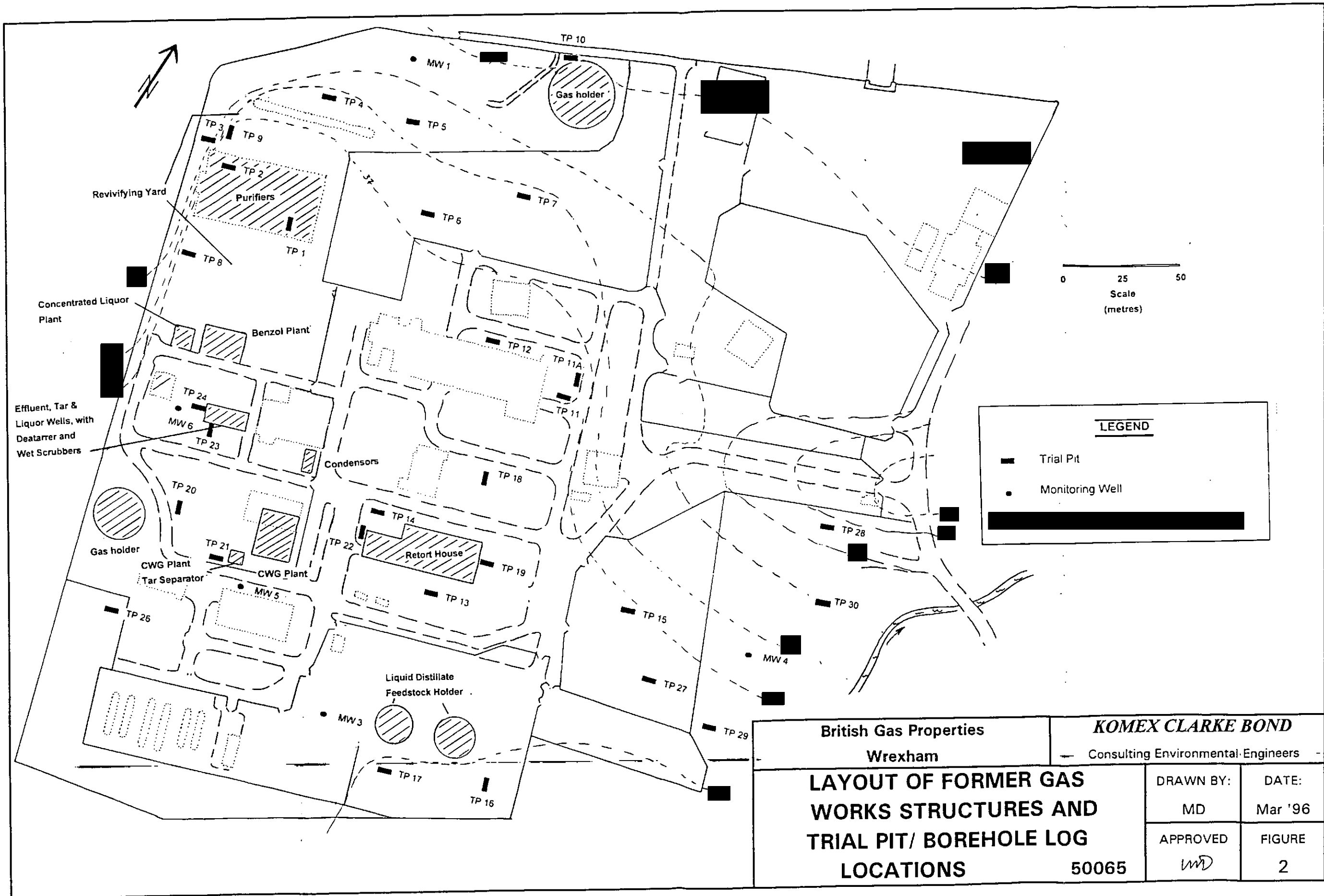


British Gas Properties
Maelor Works, Wrexham

KOMEX CLARKE BOND
 Consulting Environmental Engineers

Site Location Plan

DRAWN BY: ES	DATE: August '95
APPROVED	FIGURE 1



TABLES

TABLES

TABLE 1

SOIL ANALYTICAL RESULTS
WREXHAM GAS WORKS, WREXHAM
JULY 17, 1995
Analysed by TES Bretby

Trial Pit/ Borehole No. Sampling Depth (m)	TP 1-1 0.5	TP 1-2 1.8	TP 2-1 0.9	TP 2-2 2.3
pH	7.6	7.4	8	7.2
% Loss on Ignition	15.2	11	18.6	18.1
% Moisture	13.7	12.5	9.6	13.9
Benzene	ND	ND	ND	ND
Toluene	ND	ND	ND	ND
Ethylbenzene	ND	ND	ND	ND
Xylene	ND	ND	ND	ND
Phenol	<1	<1	<1	<1
2-Chlorophenol	<1	<1	<1	<1
2-Methylphenol	<1	<1	<1	<1
4-Methylphenol	<1	<1	<1	<1
2-Nitrophenol	<1	<1	<1	<1
2,4-Dimethylphenol	<1	<1	<1	<1
2,4-Dichlorophenol	<1	<1	<1	<1
4-Chlorophenol	ND	ND	ND	ND
4-Chloro-3-Methylphenol	<1	<1	<1	<1
2,4,6-Trichlorophenol	<1	<1	<1	<1
2,4-Dinitrophenol	<1	1	<1	<1
4-Nitrophenol	<1	3	2	<1
2-Methyl-4,6-Dinitrophenol	<1	3	3	<1
Pentachlorophenol	<1	4	4	<1
Total Phenols	ND	11	9	ND
Napthalene	1	1	2	<2
Acenaphthylene	<1	<1	<1	<2
Acenaphthene	<1	8	2	<2
Fluorene	<1	9	2	<2
Phenanthrene	5	49	12	8
Anthracene	3	17	5	5
Fluoranthene	5	48	10	7
Pyrene	4	43	9	6
Chrysene	3	17	5	6
Benzo(a)anthracene	<1	12	1	<2
Benzo(b)fluoranthene	5	13	9	8
Benzo(k)fluoranthene	#	14	#	#
Benzo(a)pyrene	3	16	5	4
Indeno(1,2,3-cd)pyrene	<2	14	4	<4
Dibenzo (ah) anthracene	*	*	*	*
Benzo(g,h,i)perylene	1	9	2	<2
Total PAH	30	270	68	44
Total Cyanide	<10	<10	25	522
Complex Cyanide	<10	<10	23	513
Free Cyanide	1	2	2	9
Elemental Sulphur	<100	100	104	2340
Water Soluble Chloride	14	52	38	24
Ammonium as N	<5	<5	<5	24
Aluminium	ND	ND	ND	ND
Arsenic	18	10	12	15
Boron	<1	<1	<1	<1
Cadmium	<1	<1	1	<1
Chromium	22	24	15	20
Cobalt	ND	ND	ND	ND
Copper	106	38	39	45
Iron	ND	ND	ND	ND
Lead	167	161	217	203
Manganese	ND	ND	ND	ND
Mercury	<2	<2	<2	<2
Molybdenum	ND	ND	ND	ND
Nickel	40	26	22	19
Selenium	<0.5	<0.5	<0.5	<0.5
Vanadium	ND	ND	ND	ND
Zinc	299	112	265	105

NOTES:

1. All analytical results and Guidelines reported in mg/kg air dried soil.
2. # Co-eluted with Benzo (b) fluoranthene
3. * Co-eluted with Indeno (123-cd)pyrene
4. NA - Not applicable.
5. ND - Not determined.

TABLE 1

SOIL ANALYTICAL RESULTS
WREXHAM GAS WORKS, WREXHAM
JULY 17, 1995
Analysed by TES Bretby

Trial Pit/ Borehole No. Sampling Depth (m)	TP 3-1 0.4	TP 3-2 0.8	TP 4-1 1	TP 4-2 1.6	TP 4-2D 1.6
pH	3.2	3.6	8.1	6.5	7.4
% Loss on Ignition	11	4.9	21	5.2	4.7
% Moisture	16.8	18.7	11.7	19.7	14.8
Benzene	ND	ND	<0.1	<0.1	<0.1
Toluene	ND	ND	<0.1	<0.1	<0.1
Ethylbenzene	ND	ND	<0.1	<0.1	<0.1
Xylene	ND	ND	<0.1	<0.1	<0.1
Phenol	<1	<1	<1	<1	<1
2-Chlorophenol	<1	<1	<1	<1	<1
2-Methylphenol	2	<1	<1	<1	<1
4-Methylphenol	2	<1	<1	<1	<1
2-Nitrophenol	3	<1	<1	<1	<1
2,4-Dimethylphenol	<1	<1	<1	<1	<1
2,4-Dichlorophenol	<1	<1	<1	<1	<1
4-Chlorophenol	ND	ND	ND	ND	ND
4-Chloro-3-Methylphenol	1	<1	<1	<1	<1
2,4,6-Trichlorophenol	2	<1	<1	<1	<1
2,4-Dinitrophenol	2	<1	<1	<1	<1
4-Nitrophenol	3	<1	2	<1	<1
2-Methyl-4,6-Dinitrophenol	3	<1	<1	<1	<1
Pentachlorophenol	4	<1	4	4	4
Total Phenols	22	0	6	4	4
Napthalene	4	<1	2	<1	<1
Acenaphthylene	1	<1	<2	<1	<1
Acenaphthene	<1	<1	2	<1	<1
Fluorene	2	<1	4	<1	<1
Phenanthrene	9	3	21	3	<1
Anthracene	4	<1	9	<1	<1
Fluoranthene	6	<1	23	<1	<1
Pyrene	8	<1	23	<1	<1
Chrysene	6	<1	12	<1	<1
Benzo(a)anthracene	2	<1	6	<1	<1
Benzo(b)fluoranthene	5	<2	9	<2	<2
Benzo(k)fluoranthene	5	#	10	<1	#
Benzo(a)pyrene	2	<1	12	<1	<1
Indeno(1,2,3-cd)pyrene	4	<2	9	<2	<2
Dibenzo (ah) anthracene	*	*	*	*	*
Benzo(g,h,i)perylene	2	<1	6	<1	<1
Total PAH	60	3	148	3	ND
Total Cyanide	732	<10	<10	<10	<10
Complex Cyanide	697	<10	<10	<10	<10
Free Cyanide	35	2	3	<1	<1
Elemental Sulphur	1500	<100	230	162	<100
Water Soluble Chloride	34	<12	89	<12	<12
Ammonium as N	52	9	5	5	<5
Aluminium	ND	ND	ND	ND	ND
Arsenic	24	13	14	13	13
Boron	1	<1	<1	<1	<1
Cadmium	<1	<1	4	<1	<1
Chromium	25	21	24	24	27
Cobalt	ND	ND	ND	ND	ND
Copper	44	22	42	26	25
Iron	ND	ND	ND	ND	ND
Lead	880	39	649	32	35
Manganese	ND	ND	ND	ND	ND
Mercury	<2	<2	<2	<2	<2
Molybdenum	ND	ND	ND	ND	ND
Nickel	13	22	20	26	27
Selenium	<0.5	<0.5	<0.5	<0.5	<0.5
Vanadium	ND	ND	ND	ND	ND
Zinc	101	61	709	60	63

NOTES :

1. All analytical results and Guidelines reported in mg/kg air dried soil.
2. # Co-eluted with Benzo (b) fluoranthene
3. * Co-eluted with Indeno (123-cd)pyrene
4. NA - Not applicable.
5. ND - Not determined.

TABLE 1

SOIL ANALYTICAL RESULTS
 WREXHAM GAS WORKS, WREXHAM
 JULY 17, 1995
 Analysed by TES Bretby

Trial Pit/ Borehole No. Sampling Depth (m)	TP 4-3 2.6	TP 5-1 0.9	TP 5-2 1.6	TP 5-3 2.65
pH	7.4	4.4	6.4	6.2
% Loss on Ignition	7.6	15.5	5.2	7.8
% Moisture	24.3	21	22.7	32.2
Benzene	<0.1	ND	ND	ND
Toluene	<0.1	ND	ND	ND
Ethylbenzene	<0.1	ND	ND	ND
Xylene	<0.1	ND	ND	ND
Phenol	<1	*	<1	<1
2-Chlorophenol	<1	*	<1	<1
2-Methylphenol	<1	*	<1	<1
4-Methylphenol	<1	*	<1	<1
2-Nitrophenol	<1	*	<1	<1
2,4-Dimethylphenol	<1	*	<1	<1
2,4-Dichlorophenol	<1	*	<1	<1
4-Chlorophenol	ND	*	ND	ND
4-Chloro-3-Methylphenol	<1	*	<1	<1
2,4,6-Trichlorophenol	<1	*	<1	<1
2,4-Dinitrophenol	<1	*	<1	<1
4-Nitrophenol	<1	*	<1	<1
2-Methyl-4,6-Dinitrophenol	<1	*	<1	<1
Pentachlorophenol	4	*	<1	<1
Total Phenols	4	ND	ND	ND
Napthalene	<1	2	<1	<1
Acenaphthylene	<1	2	<1	<1
Acenaphthene	<1	<1	<1	<1
Fluorene	<1	4	<1	<1
Phenanthrene	<1	19	2	2
Anthracene	<1	8	<1	<1
Fluoranthene	<1	22	<1	<1
Pyrene	<1	25	<1	<1
Chrysene	<1	12	<1	<1
Benzo(a)anthracene	<1	9	<1	<1
Benzo(b)fluoranthene	<2	17	<1	<1
Benzo(k)fluoranthene	#	#	<1	<1
Benzo(a)pyrene	<1	8	<1	<1
Indeno(1,2,3-cd)pyrene	<2	10	<2	<2
Dibenzo (ah) anthracene	*	*	*	*
Benzo(g,h,i)perylene	<1	8	<1	<1
Total PAH	ND	146	2	2
Total Cyanide	<10	1950	<10	<10
Complex Cyanide	<1	1940	<10	<10
Free Cyanide	<1	10	3	1
Elemental Sulphur	<100	348	332	194
Water Soluble Chloride	<12	13	22	<12
Ammonium as N	<5	25	49	86
Aluminium	ND	ND	ND	ND
Arsenic	16	23	10	20
Boron	1	1	<1	<1
Cadmium	<1	<1	<1	<1
Chromium	30	25	201	26
Cobalt	ND	ND	ND	ND
Copper	33	73	19	30
Iron	ND	ND	ND	ND
Lead	35	116	41	42
Manganese	ND	ND	ND	ND
Mercury	<2	<2	<2	<2
Molybdenum	ND	ND	ND	ND
Nickel	44	17	212	40
Selenium	<0.5	<0.5	<0.5	<0.5
Vanadium	ND	ND	ND	ND
Zinc	83	82	55	76

NOTES :

1. All analytical results and Guidelines reported in mg/kg air dried soil.
2. # Co-eluted with Benzo (b) fluoranthene
3. * Co-eluted with Indeno (123-cd)pyrene
4. NA - Not applicable.
5. ND - Not determined.

TABLE 1

SOIL ANALYTICAL RESULTS
 WREXHAM GAS WORKS, WREXHAM
 JULY 17, 1995
 Analysed by TES Bretby

Trial Pit/ Borehole No. Sampling Depth (m)	TP 6-1 0.4	TP 6-2 1.4	TP 7-1 0.15	TP 7-2 1.2
pH	8.4	6.9	3.7	6
% Loss on Ignition	11	7	21.3	5.4
% Moisture	6.4	24.5	21.9	19.6
Benzene	ND	ND	ND	ND
Toluene	ND	ND	ND	ND
Ethylbenzene	ND	ND	ND	ND
Xylene	ND	ND	ND	ND
Phenol	<1	<1	<1	1
2-Chlorophenol	<1	<1	<1	<1
2-Methylphenol	<1	<1	<1	1
4-Methylphenol	<1	<1	<1	1
2-Nitrophenol	<1	<1	<1	<1
2,4-Dimethylphenol	<1	<1	<1	1
2,4-Dichlorophenol	<1	<1	<1	<1
4-Chlorophenol	ND	ND	ND	ND
4-Chloro-3-Methylphenol	<1	<1	<1	<1
2,4,6-Trichlorophenol	<1	<1	<1	<1
2,4-Dinitrophenol	<1	<1	<1	<1
4-Nitrophenol	<1	<1	2	<1
2-Methyl-4,6-Dinitrophenol	<1	<1	3	<1
Pentachlorophenol	<1	<1	4	<1
Total Phenols	ND	ND	9	4
Napthalene	1	<1	2	3
Acenaphthylene	<1	<1	<1	3
Acenaphthene	<1	<1	<1	<1
Fluorene	<1	<1	1	4
Phenanthrene	4	3	5	16
Anthracene	2	<1	3	7
Fluoranthene	2	<1	5	14
Pyrene	2	<1	6	13
Chrysene	2	<1	6	7
Benzo(a)anthracene	<1	<1	2	4
Benzo(b)fluoranthene	3	<1	7	9
Benzo(k)fluoranthene	#	<1	#	#
Benzo(a)pyrene	1	<1	3	5
Indeno(1,2,3-cd)pyrene	<2	<2	5	4
Dibenzo (ah) anthracene	*	*	*	*
Benzo(g,h,i)perylene	<1	<1	3	3
Total PAH	17	3	48	92
Total Cyanide	<10	<10	11250	129
Complex Cyanide	<10	<10	11233	119
Free Cyanide	3	3	17	10
Elemental Sulphur	156	176	17500	688
Water Soluble Chloride	<12	16	<12	<12
Ammonium as N	<5	91	115	<5
Aluminium	ND	ND	ND	ND
Arsenic	16	13	25	15
Boron	<1	<1	1	1
Cadmium	<1	<1	<1	<1
Chromium	20	18	35	45
Cobalt	ND	ND	ND	ND
Copper	48	24	366	79
Iron	ND	ND	ND	ND
Lead	92	48	587	133
Manganese	ND	ND	ND	ND
Mercury	<2	<2	<2	<2
Molybdenum	ND	ND	ND	ND
Nickel	32	23	14	65
Selenium	<0.5	<0.5	<0.5	<0.5
Vanadium	ND	ND	ND	ND
Zinc	101	65	137	189

NOTES:

1. All analytical results and Guidelines reported in mg/kg air dried soil.
2. # Co-eluted with Benzo (b) fluoranthene
3. * Co-eluted with Indeno (123-cd)pyrene
4. NA - Not applicable.
5. ND - Not determined.

TABLE 1

SOIL ANALYTICAL RESULTS
 WREXHAM GAS WORKS, WREXHAM
 JULY 17, 1995
 Analysed by TES Bretby

Trial Pit/ Borehole No. Sampling Depth (m)	TP 7-3 1.9	TP 8-1 0.2	TP 8-2 1	TP 9-1 0.5
pH	6.7	1.6	7.2	7.9
% Loss on Ignition	5.4	34.5	4.8	14.5
% Moisture	19.6	21.7	17.1	14.3
Benzene	ND	ND	ND	<0.1
Toluene	ND	ND	ND	<0.1
Ethylbenzene	ND	ND	ND	<0.1
Xylene	ND	ND	ND	<0.1
Phenol	<1	1	<1	<1
2-Chlorophenol	<1	<1	<1	<1
2-Methylphenol	<1	1	<1	<1
4-Methylphenol	<1	1	<1	<1
2-Nitrophenol	<1	<1	<1	<1
2,4-Dimethylphenol	<1	1	<1	<1
2,4-Dichlorophenol	<1	<1	<1	<1
4-Chlorophenol	ND	ND	ND	ND
4-Chloro-3-Methylphenol	<1	1	<1	<1
2,4,6-Trichlorophenol	<1	<1	<1	<1
2,4-Dinitrophenol	<1	<1	<1	<1
4-Nitrophenol	<1	<1	<1	2
2-Methyl-4,6-Dinitrophenol	<1	<1	<1	<1
Pentachlorophenol	<1	<1	4	4
Total Phenols	ND	5	4	6
Napthalene	<1	3	<1	2
Acenaphthylene	<1	<1	<1	4
Acenaphthene	<1	<1	<1	<1
Fluorene	<1	<1	1	3
Phenanthrene	2	4	6	16
Anthracene	<1	<1	3	8
Fluoranthene	<1	4	3	16
Pyrene	<1	4	3	15
Chrysene	<1	4	<1	8
Benzo(a)anthracene	<1	<1	<1	7
Benzo(b)fluoranthene	2	4	2	10
Benzo(k)fluoranthene	#	#	#	#
Benzo(a)pyrene	<1	1	1	6
Indeno(1,2,3-cd)pyrene	<2	2	<2	5
Dibenzo (ah) anthracene	*	*	*	*
Benzo(g,h,i)perylene	<1	1	<1	2
Total PAH	4	27	19	102
Total Cyanide	<10	<10	<10	<10
Complex Cyanide	<10	<10	<10	<10
Free Cyanide	3	ND	5	5
Elemental Sulphur	404	13600	842	374
Water Soluble Chloride	<12	12	<12	12
Ammonium as N	23	194	188	21
TPH	ND	ND	ND	<20
Aluminium	ND	ND	ND	ND
Arsenic	9	22	10	30
Boron	<1	2	<1	1
Cadmium	<1	2	2	1
Chromium	14	26	21	31
Cobalt	ND	ND	ND	ND
Copper	11	133	39	104
Iron	ND	ND	ND	ND
Lead	28	440	68	128
Manganese	ND	ND	ND	ND
Mercury	<2	6	<2	<2
Molybdenum	ND	ND	ND	ND
Nickel	15	18	24	47
Selenium	<0.5	<0.5	<0.5	<0.5
Vanadium	ND	ND	ND	ND
Zinc	32	325	131	176

NOTES :

1. All analytical results and Guidelines reported in mg/kg air dried soil.
2. # Co-eluted with Benzo (b) fluoranthene
3. * Co-eluted with Indeno (123-cd)pyrene
4. NA - Not applicable.
5. ND - Not determined.

TABLE 1

SOIL ANALYTICAL RESULTS

WREXHAM GAS WORKS, WREXHAM

JULY 17, 1995

Analysed by TES Bretby

Trial Pit/ Borehole No. Sampling Depth (m)	TP 9-2 1.6	TP 9-3 1.8	TP 9-4 2.6	TP 10-A1 0.7
pH	7.6	6.9	7.9	6.3
% Loss on Ignition	28.7	11.5	6.6	6.5
% Moisture	12.1	19.6	16.2	18.3
Benzene	<0.1	<0.1	<0.1	ND
Toluene	<0.1	<0.1	<0.1	ND
Ethylbenzene	<0.1	<0.1	<0.1	ND
Xylene	<0.1	<0.1	<0.1	ND
Phenol	1	<1	<1	<1
2-Chlorophenol	<1	<1	<1	<1
2-Methylphenol	2	<1	<1	<1
4-Methylphenol	2	<1	<1	<1
2-Nitrophenol	<1	2	2	<1
2,4-Dimethylphenol	1	<1	<1	1
2,4-Dichlorophenol	<1	<1	<1	<1
4-Chlorophenol	ND	ND	ND	ND
4-Chloro-3-Methylphenol	<1	1	1	1
2,4,6-Trichlorophenol	<1	<1	<1	<1
2,4-Dinitrophenol	2	<1	<1	<1
4-Nitrophenol	5	2	<1	<1
2-Methyl-4,6-Dinitrophenol	3	3	<1	<1
Pentachlorophenol	5	4	<1	<1
Total Phenols	21	12	3	2
Napthalene	9	2	<1	<1
Acenaphthylene	12	<1	<1	<1
Acenaphthene	1	<1	<1	<1
Fluorene	13	2	<1	<1
Phenanthrene	53	6	3	2
Anthracene	22	4	<1	<1
Fluoranthene	43	5	<1	<1
Pyrene	38	4	<1	<1
Chrysene	19	3	<1	<1
Benzo(a)anthracene	18	<1	<1	<1
Benzo(b)fluoranthene	24	<2	<1	<1
Benzo(k)fluoranthene	#	#	<1	<1
Benzo(a)pyrene	14	1	<1	<1
Indeno(1,2,3-cd)pyrene	9	<2	<2	<2
Dibenzo (ah) anthracene	*	*	*	*
Benzo(g,h,i)perylene	5	<1	<1	<1
Total PAH	280	27	3	2
Total Cyanide	<10	<10	<10	<10
Complex Cyanide	<10	<10	<10	<10
Free Cyanide	4	ND	ND	<1
Elemental Sulphur	414	2960	1280	<100
Water Soluble Chloride	386	12	<12	25
Ammonium as N	29	95	178	<5
TPH	126	<20	<20	ND
Aluminium	ND	ND	ND	ND
Arsenic	22	20	13	12
Boron	1	1	1	<1
Cadmium	2	2	2	1
Chromium	91	24	20	22
Cobalt	ND	ND	ND	ND
Copper	126	52	42	24
Iron	ND	ND	ND	ND
Lead	58	85	85	30
Manganese	ND	ND	ND	ND
Mercury	<2	<2	2	<2
Molybdenum	ND	ND	ND	ND
Nickel	67	31	22	24
Selenium	<0.5	<0.5	<0.5	<0.5
Vanadium	ND	ND	ND	ND
Zinc	84	115	93	72

NOTES :

1. All analytical results and Guidelines reported in mg/kg air dried soil.
2. # Co-eluted with Benzo (b) fluoranthene
3. * Co-eluted with Indeno (123-cd)pyrene
4. NA - Not applicable.
5. ND - Not determined.

TABLE 1

SOIL ANALYTICAL RESULTS
WREXHAM GAS WORKS, WREXHAM
JULY 17, 1995
Analysed by TES Bretby

Trial Pit/ Borehole No. Sampling Depth (m)	TP 12-1 0.65	TP 12-2 1.1	TP 13-1 0.5	TP 13-2 1.5
pH	7.9	6.9	7.6	7.4
% Loss on Ignition	8.3	3.6	3.2	3.3
% Moisture	20.7	11.7	13.9	7.4
Benzene	ND	ND	ND	ND
Toluene	ND	ND	ND	ND
Ethylbenzene	ND	ND	ND	ND
Xylene	ND	ND	ND	ND
Phenol	<1	<1	<1	<1
2-Chlorophenol	<1	<1	<1	<1
2-Methylphenol	<1	<1	<1	<1
4-Methylphenol	1	<1	<1	<1
2-Nitrophenol	<1	<1	<1	<1
2,4-Dimethylphenol	2	<1	<1	<1
2,4-Dichlorophenol	<1	<1	<1	<1
4-Chlorophenol	ND	ND	ND	ND
4-Chloro-3-Methylphenol	<1	<1	<1	<1
2,4,6-Trichlorophenol	<1	<1	<1	<1
2,4-Dinitrophenol	<1	<1	<1	<1
4-Nitrophenol	<1	<1	<1	<1
2-Methyl-4,6-Dinitrophenol	3	<1	<1	<1
Pentachlorophenol	<1	<1	<1	<1
Total Phenols	6	ND	ND	ND
Napthalene	<1	<1	<1	<1
Acenaphthylene	2	<1	<1	<1
Acenaphthene	<1	<1	<1	<1
Fluorene	2	<1	<1	<1
Phenanthrene	9	3	3	<1
Anthracene	4	<1	<1	<1
Fluoranthene	7	1	<1	<1
Pyrene	8	1	<1	<1
Chrysene	3	<1	<1	<1
Benzo(a)anthracene	<1	<1	<1	<1
Benzo(b)fluoranthene	3	<2	<2	<1
Benzo(k)fluoranthene	#	#	#	<1
Benzo(a)pyrene	2	<1	<1	<1
Indeno(1,2,3-cd)pyrene	<2	<2	<2	<2
Dibenzo (ah) anthracene	*	*	*	*
Benzo(g,h,i)perylene	1	<1	<1	<1
Total PAH	41	5	3	ND
Total Cyanide	<10	<10	<10	<10
Complex Cyanide	<10	<10	<10	<10
Free Cyanide	ND	ND	5	1
Elemental Sulphur	<100	<100	510	<100
Water Soluble Chloride	<12	<12	22	64
Ammonium as N	16	13	15	35
Aluminium	ND	ND	ND	ND
Arsenic	12	7	7	7
Boron	1	<1	<1	<1
Cadmium	2	<1	1	1
Chromium	14	15	15	15
Cobalt	ND	ND	ND	ND
Copper	45	18	17	13
Iron	ND	ND	ND	ND
Lead	111	18	20	22
Manganese	ND	ND	ND	ND
Mercury	<2	<2	<2	<2
Molybdenum	ND	ND	ND	ND
Nickel	18	18	19	18
Selenium	<0.5	<0.5	<0.5	<0.5
Vanadium	ND	ND	ND	ND
Zinc	319	59	54	56

NOTES :

1. All analytical results and Guidelines reported in mg/kg air dried soil.
2. # Co-eluted with Benzo (b) fluoranthene
3. * Co-eluted with Indeno (123-cd)pyrene
4. NA - Not applicable.
5. ND - Not determined.

TABLE 1

SOIL ANALYTICAL RESULTS
WREXHAM GAS WORKS, WREXHAM
JULY 17, 1995
Analysed by TES Bretby

Trial Pit/ Borehole No. Sampling Depth (m)	TP 14-1 1	TP 14-2 2		
pH	7.5	7.6		
% Loss on Ignition	5.1	5.6		
% Moisture	9.6	11.1		
Benzene	ND	ND		
Toluene	ND	ND		
Ethylbenzene	ND	ND		
Xylene	ND	ND		
Phenol	2	<1		
2-Chlorophenol	<1	<1		
2-Methylphenol	2	<1		
4-Methylphenol	3	<1		
2-Nitrophenol	2	<1		
2,4-Dimethylphenol	2	<1		
2,4-Dichlorophenol	<1	<1		
4-Chlorophenol	ND	ND		
4-Chloro-3-Methylphenol	<1	<1		
2,4,6-Trichlorophenol	<1	<1		
2,4-Dinitrophenol	3	<1		
4-Nitrophenol	<1	<1		
2-Methyl-4,6-Dinitrophenol	<1	3		
Pentachlorophenol	<1	<1		
Total Phenols	14	3		
Napthalene	<1	<1		
Acenaphthylene	<1	<1		
Acenaphthene	<1	<1		
Fluorene	<1	<1		
Phenanthrene	3	3		
Anthracene	<1	<1		
Fluoranthene	<1	1		
Pyrene	<1	2		
Chrysene	<1	<1		
Benzo(a)anthracene	<1	<1		
Benzo(b)fluoranthene	<1	<1		
Benzo(k)fluoranthene	#	#		
Benzo(a)pyrene	<1	<1		
Indeno(1,2,3-cd)pyrene	<2	<2		
Dibenzo (ah) anthracene	*	*		
Benzo(g,h,i)perylene	<1	<1		
Total PAH	3	6		
Total Cyanide	<10	<10		
Complex Cyanide	<10	<10		
Free Cyanide	<1	<1		
Elemental Sulphur	<100	<100		
Water Soluble Chloride	<12	<12		
Ammonium as N	<5	<5		
Aluminium	8550	12100		
Arsenic	8	14		
Boron	1	1		
Cadmium	1	1		
Chromium	19	27		
Cobalt	6	11		
Copper	24	65		
Iron	25900	37300		
Lead	27	60		
Manganese	290	1080		
Mercury	<2	<2		
Molybdenum	<2	<2		
Nickel	17	33		
Selenium	<0.5	<0.5		
Vanadium	24	40		
Zinc	45	102		

NOTES :

1. All analytical results and Guidelines reported in mg/kg air dried soil.
2. # Co-eluted with Benzo (b) fluoranthene
3. * Co-eluted with Indeno (123-cd)pyrene
4. NA - Not applicable.
5. ND - Not determined.

TABLE 1

SOIL ANALYTICAL RESULTS
WREXHAM GAS WORKS, WREXHAM
JULY 17, 1995
Analysed by TES Bretby

Trial Pit/ Borehole No. Sampling Depth (m)	TP 15-1 0.15	TP 15-2 1.4	TP 16-1 0.5	TP 16-2 1.2
pH	7.8	7.8	7.8	7.8
% Loss on Ignition	39.1	4.1	9.7	10.4
% Moisture	7.6	12.2	18.3	21.4
Benzene	ND	ND	ND	ND
Toluene	ND	ND	ND	ND
Ethylbenzene	ND	ND	ND	ND
Xylene	ND	ND	ND	ND
Phenol	2	<1	<1	<1
2-Chlorophenol	6	<1	<1	<1
2-Methylphenol	3	<1	<1	<1
4-Methylphenol	2	<1	<1	<1
2-Nitrophenol	2	<1	<1	<1
2,4-Dimethylphenol	2	<1	<1	1
2,4-Dichlorophenol	1	<1	<1	<1
4-Chlorophenol	ND	ND	ND	ND
4-Chloro-3-Methylphenol	<1	<1	<1	<1
2,4,6-Trichlorophenol	2	<1	<1	<1
2,4-Dinitrophenol	3	<1	<1	<1
4-Nitrophenol	4	<1	<1	<1
2-Methyl-4,6-Dinitrophenol	3	<1	<1	<1
Pentachlorophenol	4	<1	<1	<1
Total Phenols	34	ND	ND	1
Napthalene	32	<1	2	2
Acenaphthylene	<1	<1	<1	<1
Acenaphthene	<1	<1	<1	<1
Fluorene	<1	<1	<1	<1
Phenanthrene	15	2	4	3
Anthracene	4	<1	<1	<1
Fluoranthene	15	<1	2	<1
Pyrene	24	<1	2	1
Chrysene	9	<1	2	<1
Benzo(a)anthracene	7	<1	<1	<1
Benzo(b)fluoranthene	11	<1	<2	2
Benzo(k)fluoranthene	8	<1	#	#
Benzo(a)pyrene	9	<1	<1	<1
Indeno(1,2,3-cd)pyrene	15	<2	<2	<2
Dibenzo (ah) anthracene	*	*	#	*
Benzo(g,h,i)perylene	15	<1	<1	<1
Total PAH	164	2	12	8
Total Cyanide	<10	<10	<10	<10
Complex Cyanide	<10	<10	<10	<10
Free Cyanide	3	2	<1	2
Elemental Sulphur	218	<100	110	<100
Water Soluble Chloride	151	61	13	35
Ammonium as N	5	7	<5	<5
Aluminium	ND	ND	ND	ND
Arsenic	29	9	4	16
Boron	1	<1	1	<1
Cadmium	2	<1	<1	1
Chromium	21	19	16	118
Cobalt	ND	ND	ND	ND
Copper	85	28	17	53
Iron	ND	ND	ND	ND
Lead	109	25	22	34
Manganese	ND	ND	ND	ND
Mercury	<2	<2	<2	<2
Molybdenum	ND	ND	ND	ND
Nickel	41	25	18	135
Selenium	<0.5	<0.5	<0.5	<0.5
Vanadium	ND	ND	ND	ND
Zinc	122	75	62	84

NOTES:

1. All analytical results and Guidelines reported in mg/kg air dried soil.
2. # Co-eluted with Benzo (b) fluoranthene
3. * Co-eluted with Indeno (123-cd)pyrene
4. NA - Not applicable.
5. ND - Not determined.

TABLE 1

SOIL ANALYTICAL RESULTS
WREXHAM GAS WORKS, WREXHAM
JULY 17, 1995
Analysed by TES Bretby

Tral Pit/ Borehole No. Sampling Depth (m)	TP 17-1 1	TP 18-1 0.35	TP 18-1D 0.35	TP 18-2 1.2
pH	7.7	7.4	6.6	6.8
% Loss on Ignition	5.2	43.2	52.4	5.1
% Moisture	9	24.8	30.4	14.9
Benzene	ND	ND	ND	ND
Toluene	ND	ND	ND	ND
Ethylbenzene	ND	ND	ND	ND
Xylene	ND	ND	ND	ND
Phenol	<1	1	4	<1
2-Chlorophenol	<1	<1	<1	<1
2-Methylphenol	<1	2	3	<1
4-Methylphenol	<1	2	6	<1
2-Nitrophenol	<1	<1	2	<1
2,4-Dimethylphenol	1	1	4	<1
2,4-Dichlorophenol	<1	<1	5	<1
4-Chlorophenol	ND	ND	ND	ND
4-Chloro-3-Methylphenol	<1	1	<1	<1
2,4,6-Trichlorophenol	<1	<1	2	<1
2,4-Dinitrophenol	<1	<1	2	<1
4-Nitrophenol	<1	2	4	<1
2-Methyl-4,6-Dinitrophenol	<1	<1	4	<1
Pentachlorophenol	<1	<1	<1	<1
Total Phenols	1	9	36	ND
Napthalene	<1	5	18	<1
Acenaphthylene	<1	2	14	<1
Acenaphthene	<1	1	3	<1
Fluorene	<1	2	16	<1
Phenanthrene	<1	6	48	3
Anthracene	<1	4	19	<1
Fluoranthene	<1	6	36	2
Pyrene	<1	5	31	2
Chrysene	<1	4	18	<1
Benzo(a)anthracene	<1	1	15	<1
Benzo(b)fluoranthene	<1	5	28	<1
Benzo(k)fluoranthene	<1	#	#	#
Benzo(a)pyrene	<1	3	17	<1
Indeno(1,2,3-cd)pyrene	<2	3	15	<2
Dibenzo (ah) anthracene	*	*	*	*
Benzo(g,h,i)perylene	<1	1	10	<1
Total PAH	16	48	288	18
Total Cyanide	<10	<10	<10	<10
Complex Cyanide	<10	<10	<10	<10
Free Cyanide	<1	1	2	4
Elemental Sulphur	<100	178	190	210
Water Soluble Sulphate	ND	ND	ND	ND
Water Soluble Chloride	474	<12	19	37
Ammonium as N	<5	7	20	65
Aluminium	ND	9210	10200	10600
Arsenic	18	27	19	8
Boron	1	1	1	1
Cadmium	1	<1	1	1
Chromium	25	18	18	15
Cobalt	ND	15	11	6
Copper	21	127	69	25
Iron	ND	35700	32900	22700
Lead	37	68	50	31
Manganese	ND	384	196	379
Mercury	<2	3	<2	<2
Molybdenum	ND	9	6	<2
Nickel	29	53	28	16
Selenium	<0.5	1.5	1	<0.5
Vanadium	ND	61	45	25
Zinc	71	117	48	56

NOTES :

1. All analytical results and Guidelines reported in mg/kg air dried soil.
2. # Co-eluted with Benzo (b) fluoranthene
3. * Co-eluted with Indeno (123-cd)pyrene
4. NA - Not applicable.
5. ND - Not determined.

TABLE 1

SOIL ANALYTICAL RESULTS
WREXHAM GAS WORKS, WREXHAM
JULY 17, 1995
Analysed by TES Bretby

Trial Pit/ Borehole No. Sampling Depth (m)	TP 18-3 1.5	TP 19-1 0.7	TP 19-2 1.5	TP 20-1 0.5
pH	6.6	8.4	7.5	8.4
% Loss on Ignition	6.2	6.2	6.8	34.5
% Moisture	9.8	16	16.7	18.1
Benzene	ND	ND	ND	<0.1
Toluene	ND	ND	ND	<0.1
Ethylbenzene	ND	ND	ND	<0.1
Xylene	ND	ND	ND	<0.1
Phenol	2	<1	<1	1
2-Chlorophenol	<1	<1	<1	4
2-Methylphenol	2	<1	<1	3
4-Methylphenol	2	<1	<1	2
2-Nitrophenol	<1	<1	<1	<1
2,4-Dimethylphenol	1	<1	<1	2
2,4-Dichlorophenol	<1	<1	<1	<1
4-Chlorophenol	ND	ND	ND	ND
4-Chloro-3-Methylphenol	1	<1	<1	2
2,4,6-Trichlorophenol	<1	<1	<1	<1
2,4-Dinitrophenol	1	<1	<1	11
4-Nitrophenol	4	<1	<1	6
2-Methyl-4,6-Dinitrophenol	3	3	<1	4
Pentachlorophenol	1	<1	<1	8
Total Phenols	17	3	ND	43
Napthalene	<1	<1	<1	17
Acenaphthylene	<1	1	<1	5
Acenaphthene	<1	<1	<1	2
Fluorene	<1	1	<1	2
Phenanthrene	3	5	2	12
Anthracene	<1	<1	<1	6
Fluoranthene	<1	2	<1	8
Pyrene	<1	3	<1	8
Chrysene	<1	2	<1	6
Benzo(a)anthracene	<1	<1	<1	4
Benzo(b)fluoranthene	<1	<2	<1	9
Benzo(k)fluoranthene	#	#	#	#
Benzo(a)pyrene	<1	<1	<1	5
Indeno(1,2,3-cd)pyrene	<2	<2	<2	4
Dibenzo (ah) anthracene	*	*	*	*
Benzo(g,h,i)perylene	<1	<1	<1	2
Total PAH	3	14	2	90
Total Cyanide	<10	<10	<10	<10
Complex Cyanide	<10	<10	<10	<10
Free Cyanide	2	2	<1	<1
Elemental Sulphur	142	322	122	292
Water Soluble Sulphate	ND	ND	ND	ND
Water Soluble Chloride	12	51	87	13
Ammonium as N	25	115	65	10
TPH	ND	ND	ND	708
Aluminium	16400	11900	17200	17700
Arsenic	20	10	14	11
Boron	1	1	1	1
Cadmium	2	1	1	<1
Chromium	25	18	28	22
Cobalt	11	10	16	18
Copper	81	20	22	105
Iron	42700	25800	40500	39400
Lead	38	48	39	20
Manganese	569	509	979	209
Mercury	<2	<2	<2	<2
Molybdenum	<2	<2	<2	9
Nickel	32	23	30	47
Selenium	<0.5	<0.5	<0.5	1
Vanadium	43	32	45	79
Zinc	83	62	80	31

NOTES :

1. All analytical results and Guidelines reported in mg/kg air dried soil.
2. # Co-eluted with Benzo (b) fluoranthene
3. * Co-eluted with Indeno (123-cd)pyrene
4. NA - Not applicable.
5. ND - Not determined.

TABLE 1

SOIL ANALYTICAL RESULTS
WREXHAM GAS WORKS, WREXHAM
JULY 17, 1995
Analysed by TES Bretby

Trial Pit/ Borehole No. Sampling Depth (m)	TP 20-2 1	TP 20-3 1.6	TP21-1 1.2	TP 21-1D 1.4
pH	7.7	7.6	10.4	8.9
% Loss on Ignition	2.7	4.2	17	10.5
% Moisture	17.5	22.4	17	12.4
Benzene	<0.1	<0.1	<0.1	ND
Toluene	<0.1	<0.1	<0.1	ND
Ethylbenzene	<0.1	<0.1	<0.1	ND
Xylene	<0.1	<0.1	<0.1	ND
Phenol	<1	1	<1	<1
2-Chlorophenol	<1	<1	<1	<1
2-Methylphenol	<1	1	<1	<1
4-Methylphenol	<1	1	<1	<1
2-Nitrophenol	<1	1	<1	<1
2,4-Dimethylphenol	<1	<1	<1	<1
2,4-Dichlorophenol	<1	<1	<1	<1
4-Chlorophenol	ND	ND	ND	ND
4-Chloro-3-Methylphenol	<1	<1	<1	<1
2,4,6-Trichlorophenol	<1	<1	<1	<1
2,4-Dinitrophenol	<1	<1	<1	<1
4-Nitrophenol	<1	<1	3	<1
2-Methyl-4,6-Dinitrophenol	<1	<1	<1	<1
Pentachlorophenol	<1	<1	<1	<1
Total Phenols	ND	4	3	ND
Napthalene	4	4	4	<1
Acenaphthylene	2	<1	3	<1
Acenaphthene	<1	<1	<1	<1
Fluorene	1	1	4	<1
Phenanthrene	6	4	13	4
Anthracene	3	<1	8	<1
Fluoranthene	2	2	16	2
Pyrene	3	2	27	3
Chrysene	2	2	8	2
Benzo(a)anthracene	<1	<1	5	<1
Benzo(b)fluoranthene	<2	<1	15	2
Benzo(k)fluoranthene	#	#	#	#
Benzo(a)pyrene	5	<1	14	<1
Indeno(1,2,3-cd)pyrene	4	<2	10	<2
Dibenzo (ah) anthracene	*	*	*	*
Benzo(g,h,i)perylene	2	<1	12	<1
Total PAH	34	15	139	13
Total Cyanide	<10	<10	19	<10
Complex Cyanide	<10	<10	17	<10
Free Cyanide	<1	2	2	1
Elemental Sulphur	<100	238	<100	<100
Water Soluble Sulphate	ND	ND	ND	ND
Water Soluble Chloride	24	<12	<12	50
Ammonium as N	65	20	6	<5
TPH	<20	<20	70	ND
Aluminium	11500	8320	11000	11300
Arsenic	10	7	34	18
Boron	1	1	1	1
Cadmium	1	<1	<1	1
Chromium	25	22	40	23
Cobalt	10	7	8	10
Copper	22	23	169	176
Iron	30300	26000	29300	33700
Lead	24	25	394	130
Manganese	360	264	377	591
Mercury	<2	<2	<2	<2
Molybdenum	<2	<2	<2	<2
Nickel	25	21	659	106
Selenium	<0.5	<0.5	0.7	<0.5
Vanadium	28	22	49	41
Zinc	57	46	251	119

NOTES :

1. All analytical results and Guidelines reported in mg/kg air dried soil.
2. # Co-eluted with Benzo (b) fluoranthene
3. * Co-eluted with Indeno (123-cd)pyrene
4. NA - Not applicable.
5. ND - Not determined.

TABLE 1

SOIL ANALYTICAL RESULTS
WREXHAM GAS WORKS, WREXHAM
JULY 17, 1995
Analysed by TES Bretby

Trial PIV Borehole No. Sampling Depth (m)	TP 22-1 1.4	TP 22-2 2.5	TP 23-1 0.7	TP 23-1D 0.7
pH	9	7.8	9.5	9.5
% Loss on Ignition	8.3	7.6	19	20.4
% Moisture	18.4	26.8	18.9	19.2
Benzene	ND	ND	<0.1	<0.1
Toluene	ND	ND	1	<0.1
Ethylbenzene	ND	ND	0.5	<0.1
Xylene	ND	ND	2.9	<0.1
Phenol	<1	<1	3	<1
2-Chlorophenol	<1	<1	<1	<1
2-Methylphenol	<1	<1	2	<1
4-Methylphenol	<1	<1	2	<1
2-Nitrophenol	<1	<1	<1	<1
2,4-Dimethylphenol	<1	<1	1	<1
2,4-Dichlorophenol	<1	<1	<1	<1
4-Chlorophenol	ND	ND	ND	ND
4-Chloro-3-Methylphenol	<1	<1	2	<1
2,4,6-Trichlorophenol	<1	<1	2	<1
2,4-Dinitrophenol	2	<1	3	1
4-Nitrophenol	<1	<1	5	<1
2-Methyl-4,6-Dinitrophenol	<1	3	4	<1
Pentachlorophenol	<1	<1	1	<1
Total Phenols	2	3	25	1
Napthalene	<1	<1	10	7
Acenaphthylene	<1	<1	8	9
Acenaphthene	<1	1	40	39
Fluorene	<1	1	50	57
Phenanthrene	3	4	86	97
Anthracene	<1	<1	44	44
Fluoranthene	1	2	73	78
Pyrene	<1	2	78	85
Chrysene	<1	<1	27	27
Benzo(a)anthracene	<1	<1	32	31
Benzo(b)fluoranthene	<1	<1	33	36
Benzo(k)fluoranthene	#	#	#	#
Benzo(a)pyrene	<1	<1	19	21
Indeno(1,2,3-cd)pyrene	<2	<2	15	16
Dibenzo (ah) anthracene	*	*	*	*
Benzo(g,h,i)perylene	<1	<1	9	9
Total PAH	4	10	534	556
Total Cyanide	<10	<10	<10	<10
Complex Cyanide	<10	<10	<10	<10
Free Cyanide	<1	<1	5	6
Elemental Sulphur	124	192	256	226
Water Soluble Sulphate	ND	ND	ND	ND
Water Soluble Chloride	<12	<12	44	19
Ammonium as N	5	<5	27	29
TPH	ND	ND	8370	3190
Aluminium	11500	19500	7700	8510
Arsenic	14	14	23	22
Boron	1	1	1	2
Cadmium	1	1	1	3
Chromium	22	34	19	22
Cobalt	10	16	8	11
Copper	33	45	187	100
Iron	32900	41000	27300	27600
Lead	113	54	333	523
Manganese	556	564	640	574
Mercury	<2	<2	<2	<2
Molybdenum	<2	<2	<2	<2
Nickel	26	47	26	28
Selenium	<0.5	<0.5	<0.5	<0.5
Vanadium	32	51	34	37
Zinc	74	107	592	886

NOTES :

1. All analytical results and Guidelines reported in mg/kg air dried soil.
2. # Co-eluted with Benzo (b) fluoranthene
3. * Co-eluted with Indeno (123-cd)pyrene
4. NA - Not applicable.
5. ND - Not determined.

TABLE 1

SOIL ANALYTICAL RESULTS
 WREXHAM GAS WORKS, WREXHAM
 JULY 17, 1995
 Analysed by TES Bretby

Trial Pit/Borehole No. Sampling Depth (m)	TP 23-2 1.2	TP 23-3 2	TP 24-1 1.3
pH	9.4	9	8.6
% Loss on Ignition	7.7	5.3	20.8
% Moisture	15.2	16.9	8.1
Benzene	<0.1	<0.1	<0.1
Toluene	<0.1	<0.1	<0.1
Ethylbenzene	<0.1	<0.1	<0.1
Xylene	<0.1	<0.1	<0.1
Phenol	2	<1	<1
2-Chlorophenol	<1	<1	<1
2-Methylphenol	2	<1	<1
4-Methylphenol	2	1	<1
2-Nitrophenol	<1	<1	<1
2,4-Dimethylphenol	1	1	<1
2,4-Dichlorophenol	<1	<1	<1
4-Chlorophenol	ND	ND	ND
4-Chloro-3-Methylphenol	1	<1	<1
2,4,6-Trichlorophenol	<1	<1	<1
2,4-Dinitrophenol	<1	<1	<1
4-Nitrophenol	2	3	<1
2-Methyl-4,6-Dinitrophenol	<1	3	<1
Pentachlorophenol	<1	<1	<1
Total Phenols	10	8	ND
Napthalene	3	4	<1
Acenaphthylene	3	<1	<1
Acenaphthene	<1	2	<1
Fluorene	7	2	<1
Phenanthrene	25	6	3
Anthracene	10	3	<1
Fluoranthene	25	3	1
Pyrene	24	3	1
Chrysene	12	2	<1
Benzo(a)anthracene	10	<1	<1
Benzo(b)fluoranthene	18	4	<2
Benzo(k)fluoranthene	#	#	#
Benzo(a)pyrene	9	1	<1
Indeno(1,2,3-cd)pyrene	8	<2	<2
Dibenzo (ah) anthracene	*	*	*
Benzo(g,h,i)perylene	4	<1	<1
Total PAH	158	30	5
Total Cyanide	<10	<10	<10
Complex Cyanide	<10	<10	<10
Free Cyanide	4	2	<1
Elemental Sulphur	1740	324	<100
Water Soluble Sulphate	ND	ND	ND
Water Soluble Chloride	<12	<12	<12
Ammonium as N	57	78	11
TPH	<20	<20	<20
Aluminium	12100	10300	5140
Arsenic	18	12	5
Boron	1	1	1
Cadmium	1	1	1
Chromium	23	20	11
Cobalt	12	13	6
Copper	53	94	25
Iron	34300	29200	15400
Lead	133	64	162
Manganese	493	421	312
Mercury	<2	<2	<2
Molybdenum	<2	<2	<2
Nickel	40	28	17
Selenium	<0.5	<0.5	<0.5
Vanadium	39	30	14
Zinc	176	118	213

NOTES :

1. All analytical results and Guidelines reported in mg/kg air dried soil.
2. # Co-eluted with Benzo (b) fluoranthene
3. * Co-eluted with Indeno (123-cd)pyrene
4. NA - Not applicable.
5. ND - Not determined.

TABLE 1

SOIL ANALYTICAL RESULTS
WREXHAM GAS WORKS, WREXHAM
JULY 17, 1995
Analysed by TES Bretby

Trial Pit/ Borehole No. Sampling Depth (m)	TP 26-1 0.7	TP 26-2 1.5	TP 27-1 1.4	TP 27-2 2.6
pH	8	7.5	7.6	6.8
% Loss on Ignition	5.6	8.6	33.3	8.7
% Moisture	18.1	26.5	19.3	30.2
Benzene	ND	ND	ND	ND
Toluene	ND	ND	ND	ND
Ethylbenzene	ND	ND	ND	ND
Xylene	ND	ND	ND	ND
Phenol	1	1	1	2
2-Chlorophenol	<1	<1	<1	<1
2-Methylphenol	2	1	<1	2
4-Methylphenol	2	2	<1	2
2-Nitrophenol	<1	<1	<1	<1
2,4-Dimethylphenol	1	<1	<1	1
2,4-Dichlorophenol	<1	<1	<1	<1
4-Chlorophenol	ND	ND	ND	ND
4-Chloro-3-Methylphenol	<1	<1	<1	<1
2,4,6-Trichlorophenol	<1	<1	<1	<1
2,4-Dinitrophenol	<1	<1	<1	<1
4-Nitrophenol	2	<1	<1	<1
2-Methyl-4,6-Dinitrophenol	<1	<1	<1	<1
Pentachlorophenol	<1	<1	<1	<1
Total Phenols	8	4	1	7
Napthalene	<1	<1	7	42
Acenaphthylene	<1	<1	1	34
Acenaphthene	<1	<1	<1	17
Fluorene	<1	<1	1	49
Phenanthrene	3	3	12	129
Anthracene	<1	<1	6	47
Fluoranthene	<1	<1	19	75
Pyrene	<1	<1	16	64
Chrysene	<1	<1	9	28
Benzo(a)anthracene	<1	<1	9	35
Benzo(b)fluoranthene	<1	<1	10	35
Benzo(k)fluoranthene	#	#	#	#
Benzo(a)pyrene	1	<1	6	22
Indeno(1,2,3-cd)pyrene	<2	<2	5	17
Dibenzo (ah) anthracene	*	*	*	*
Benzo(g,h,i)perylene	<1	<1	3	10
Total PAH	4	3	104	604
Total Cyanide	<10	<10	<10	<10
Complex Cyanide	<10	<10	<10	<10
Free Cyanide	<1	<1	<1	10
Elemental Sulphur	<100	<100	370	1570
Water Soluble Sulphate	124	71.4	209	634
Water Soluble Chloride	68	147	<12	<12
Ammonium as N	<5	<5	<5	40
Aluminium	16900	19400	21000	10700
Arsenic	20	17	11	12
Baron	1	1	1	2
Cadmium	<1	<1	<1	<1
Chromium	30	34	28	19
Cobalt	16	19	22	9
Copper	42	35	98	20
Iron	45300	43100	48000	23900
Lead	57	33	29	75
Manganese	861	457	374	247
Mercury	<2	<2	<2	<2
Molybdenum	<2	<2	<2	<2
Nickel	37	51	57	22
Selenium	<0.5	<0.5	1.1	<0.5
Vanadium	44	51	84	35
Zinc	134	132	86	74

NOTES:

1. All analytical results and Guidelines reported in mg/kg air dried soil.
2. # Co-eluted with Benzo (b) fluoranthene
3. * Co-eluted with Indeno (123-cd)pyrene
4. NA - Not applicable.
5. ND - Not determined.

TABLE 1

SOIL ANALYTICAL RESULTS
 WREXHAM GAS WORKS, WREXHAM
 JULY 17, 1995
 Analysed by TES Bretby

Tral Pit/ Borehole No. Sampling Depth (m)	TP 27-3 3.1	TP 28-1 0.2	TP 29-1 1.7	TP 29-2 2.8
pH	7.3	8	7.6	7.2
% Loss on Ignition	5.9	40	8.5	8.5
% Moisture	18	7.4	19.1	46.7
Benzene	ND	ND	ND	ND
Toluene	ND	ND	ND	ND
Ethylbenzene	ND	ND	ND	ND
Xylene	ND	ND	ND	ND
Phenol	<1	2	<1	2
2-Chlorophenol	<1	1	<1	<1
2-Methylphenol	<1	2	2	2
4-Methylphenol	<1	2	2	3
2-Nitrophenol	<1	<1	2	2
2,4-Dimethylphenol	<1	1	<1	2
2,4-Dichlorophenol	<1	<1	<1	<1
4-Chlorophenol	ND	ND	ND	ND
4-Chloro-3-Methylphenol	<1	1	<1	<1
2,4,6-Trichlorophenol	<1	<1	<1	<1
2,4-Dinitrophenol	<1	<1	<1	2
4-Nitrophenol	<1	3	<1	<1
2-Methyl-4,6-Dinitrophenol	<1	3	3	<1
Pentachlorophenol	<1	<1	<1	<1
Total Phenols	ND	15	9	13
Napthalene	<1	8	2	3
Acenaphthylene	<1	4	<1	<1
Acenaphthene	<1	1	<1	<1
Fluorene	<1	5	<1	<1
Phenanthrene	3	28	4	4
Anthracene	<1	12	3	<3
Fluoranthene	<1	33	2	<2
Pyrene	<1	28	2	2
Chrysene	<1	16	2	2
Benzo(a)anthracene	<1	14	<1	<1
Benzo(b)fluoranthene	<1	23	<1	<1
Benzo(k)fluoranthene	#	#	#	#
Benzo(a)pyrene	<1	13	<1	<1
Indeno(1,2,3-cd)pyrene	<2	12	<2	<2
Dibenzo (ah) anthracene	*	*	*	*
Benzo(g,h,i)perylene	<1	7	<1	<1
Total PAH	16	204	23	21
Total Cyanide	<10	<10	<10	<10
Complex Cyanide	<10	<10	<10	<10
Free Cyanide	<1	<1	<1	<1
Elemental Sulphur	<100	202	662	274
Water Soluble Sulphate	57.4	105	182	157
Water Soluble Chloride	14	68	<12	41
Ammonium as N	25	<5	38	28
Aluminium	14200	21300	13800	12900
Arsenic	9	16	12	14
Boron	1	1	1	1
Cadmium	<1	<1	<1	<1
Chromium	93	30	23	23
Cobalt	8	24	9	12
Copper	15	114	28	35
Iron	23400	54200	31500	30900
Lead	32	36	77	63
Manganese	232	358	480	520
Mercury	<2	<2	<2	<2
Molybdenum	22	12	<2	<2
Nickel	121	64	29	28
Selenium	<0.5	1.6	0.8	0.8
Vanadium	32	92	38	41
Zinc	70	57	144	111

NOTES :

1. All analytical results and Guidelines reported in mg/kg air dried soil.
2. # Co-eluted with Benzo (b) fluoranthene
3. * Co-eluted with Indeno (123-cd)pyrene
4. NA - Not applicable.
5. ND - Not determined.

TABLE 1

SOIL ANALYTICAL RESULTS
 WREXHAM GAS WORKS, WREXHAM
 JULY 17, 1995
 Analysed by TES Bretby

Trial Pit/ Borehole No. Sampling Depth (m)	TP 30-1 2	TP 30-2 3		
pH	8	7.1		
% Loss on Ignition	39.7	8.7		
% Moisture	ND	19.5		
Benzene	ND	ND		
Toluene	ND	ND		
Ethylbenzene	ND	ND		
Xylene	ND	ND		
Phenol	30	<1		
2-Chlorophenol	<1	<1		
2-Methylphenol	27	2		
4-Methylphenol	78	2		
2-Nitrophenol	7	3		
2,4-Dimethylphenol	46	1		
2,4-Dichlorophenol	76	<1		
4-Chlorophenol	ND	ND		
4-Chloro-3-Methylphenol	3	1		
2,4,6-Trichlorophenol	8	2		
2,4-Dinitrophenol	12	19		
4-Nitrophenol	21	4		
2-Methyl-4,6-Dinitrophenol	12	7		
Pentachlorophenol	<1	1		
Total Phenols	320	42		
Napthalene	1115	2		
Acenaphthylene	572	<1		
Acenaphthene	74	<1		
Fluorene	566	<1		
Phenanthrene	1548	3		
Anthracene	534	<1		
Fluoranthene	791	1		
Pyrene	664	1		
Chrysene	299	<1		
Benzo(a)anthracene	385	<1		
Benzo(b)fluoranthene	376	3		
Benzo(k)fluoranthene	#	#		
Benzo(a)pyrene	231	1		
Indeno(1,2,3-cd)pyrene	172	<2		
Dibenzo (ah) anthracene	*	*		
Benzo(g,h,i)perylene	97	<1		
Total PAH	7424	11		
Total Cyanide	ND	ND		
Complex Cyanide	ND	ND		
Free Cyanide	ND	ND		
Elemental Sulphur	770	776		
Water Soluble Sulphate	91	530		
Water Soluble Chloride	60	18		
Ammonium as N	246	38		
Aluminium	1900	11600		
Arsenic	37	16		
Boron	1	1		
Cadmium	1	<1		
Chromium	36	23		
Cobalt	5	10		
Copper	68	58		
Iron	41500	31800		
Lead	346	158		
Manganese	280	633		
Mercury	<2	<2		
Molybdenum	3	2		
Nickel	41	28		
Selenium	2	0.5		
Vanadium	21	35		
Zinc	552	321		

NOTES :

1. All analytical results and Guidelines reported in mg/kg air dried soil.
2. # Co-eluted with Benzo (b) fluoranthene
3. * Co-eluted with Indeno (123-cd)pyrene
4. NA - Not applicable.
5. ND - Not determined.

TABLE 1

SOIL ANALYTICAL RESULTS
 WREXHAM GAS WORKS, WREXHAM
 JULY 17, 1995
 Analysed by TES Bretby

Triax Pit/ Borehole No. Sampling Depth (m)	MW 1-1 0.9	MW 1-2 1.1	MW 1-3 4
pH	7.9	7.7	8.5
% Loss on Ignition	8.9	6.7	12
% Moisture	21	20	24.1
Benzene	ND	ND	ND
Toluene	ND	ND	ND
Ethylbenzene	ND	ND	ND
Xylene	ND	ND	ND
Phenol	<1	<1	<1
2-Chlorophenol	<1	<1	<1
2-Methylphenol	<1	<1	<1
4-Methylphenol	<1	<1	<1
2-Nitrophenol	<1	<1	<1
2,4-Dimethylphenol	<1	<1	<1
2,4-Dichlorophenol	<1	<1	<1
4-Chlorophenol	ND	ND	ND
4-Chloro-3-Methylphenol	<1	<1	<1
2,4,6-Trichlorophenol	<1	<1	<1
2,4-Dinitrophenol	<1	<1	<1
4-Nitrophenol	<1	<1	<1
2-Methyl-4,6-Dinitrophenol	<1	<1	<1
Pentachlorophenol	<1	<1	<1
Total Phenols	ND	ND	ND
Napthalene	<1	<1	<1
Acenaphthylene	<1	<1	<1
Acenaphthene	<1	<1	<1
Fluorene	<1	<1	<1
Phenanthrene	<1	2	<1
Anthracene	<1	<1	<1
Fluoranthene	<1	<1	<1
Pyrene	<1	<1	<1
Chrysene	<1	<1	<1
Benzo(a)anthracene	<1	<1	<1
Benzo(b)fluoranthene	<1	<1	<1
Benzo(k)fluoranthene	<1	<1	<1
Benzo(a)pyrene	<1	<1	<1
Indeno(1,2,3-cd)pyrene	<2	<2	<2
Dibenzo (ah) anthracene	*	*	*
Benzo(g,h,i)perylene	<1	<1	<1
Total PAH	ND	2	ND
Total Cyanide	<10	<10	<10
Complex Cyanide	<1	<10	<10
Free Cyanide	1	2	<1
Elemental Sulphur	142	<100	<100
Water Soluble Chloride	18	<12	161
Ammonium as N	<5	<5	<5
Aluminium	ND	ND	ND
Arsenic	15	14	18
Boron	<1	<1	<1
Cadmium	<1	<1	<1
Chromium	27	21	30
Cobalt	ND	ND	ND
Copper	38	34	30
Iron	ND	ND	ND
Lead	35	67	31
Manganese	ND	ND	ND
Mercury	<2	<2	<2
Molybdenum	ND	ND	ND
Nickel	43	36	43
Selenium	<0.5	<0.5	<0.5
Vanadium	ND	ND	ND
Zinc	72	91	73

NOTES :

1. All analytical results and Guidelines reported in mg/kg air dried soil.
2. # Co-eluted with Benzo (b) fluoranthene
3. * Co-eluted with Indeno (123-cd)pyrene
4. NA - Not applicable.
5. ND - Not determined.

TABLE 1

SOIL ANALYTICAL RESULTS
WREXHAM GAS WORKS, WREXHAM
JULY 17, 1995
Analysed by TES Bretby

Trial Pit/ Borehole No.	MW 3-1	MW 3-2
Sampling Depth (m)	0.7	1.1
pH	8.2	7.8
% Loss on Ignition	8.8	4.5
% Moisture	13.8	17.4
Benzene	ND	ND
Toluene	ND	ND
Ethylbenzene	ND	ND
Xylene	ND	ND
Phenol	<1	<1
2-Chlorophenol	<1	<1
2-Methylphenol	<1	<1
4-Methylphenol	<1	<1
2-Nitrophenol	2	<1
2,4-Dimethylphenol	<1	<1
2,4-Dichlorophenol	<1	<1
4-Chlorophenol	ND	ND
4-Chloro-3-Methylphenol	1	<1
2,4,6-Trichlorophenol	<1	<1
2,4-Dinitrophenol	<1	<1
4-Nitrophenol	<1	<1
2-Methyl-4,6-Dinitrophenol	<1	<1
Pentachlorophenol	4	<1
Total Phenols	7	ND
Napthalene	2	<1
Acenaphthylene	2	<1
Acenaphthene	<1	<1
Fluorene	2	<1
Phenanthrene	12	3
Anthracene	4	<1
Fluoranthene	12	1
Pyrene	13	1
Chrysene	4	<1
Benzo(a)anthracene	2	<1
Benzo(b)fluoranthene	4	<2
Benzo(k)fluoranthene	#	#
Benzo(a)pyrene	3	<1
Indeno(1,2,3-cd)pyrene	2	<2
Dibenzo (ah) anthracene	*	*
Benzo(g,h,i)perylene	2	<1
Total PAH	64	5
Total Cyanide	<10	25
Complex Cyanide	<10	25
Free Cyanide	6	<1
Elemental Sulphur	138	<100
Water Soluble Chloride	14	14
Ammonium as N	37	38
Aluminium	ND	ND
Arsenic	16	7
Boron	1	<1
Cadmium	6	1
Chromium	20	16
Cobalt	ND	ND
Copper	53	18
Iron	ND	ND
Lead	3080	186
Manganese	ND	ND
Mercury	<2	<2
Molybdenum	ND	ND
Nickel	27	17
Selenium	<0.5	<0.5
Vanadium	ND	ND
Zinc	1100	177

NOTES :

1. All analytical results and Guidelines reported in mg/kg air dried soil.
2. # Co-eluted with Benzo (b) fluoranthene
3. * Co-eluted with Indeno (123-cd)pyrene
4. NA - Not applicable.
5. ND - Not determined.

TABLE 1

SOIL ANALYTICAL RESULTS
WREXHAM GAS WORKS, WREXHAM
JULY 17, 1995
Analysed by TES Bretby

Trial Pit/ Borehole No. Sampling Depth (m)	MW 3-3 2.6	MW 3-4 3.9	MW 4-1 0.6	MW 4-2 2.9
pH	7.7	8.7	8	7.4
% Loss on Ignition	6.3	8	11.5	7.4
% Moisture	17.1	23.7	12.7	24.5
Benzene	ND	ND	ND	ND
Toluene	ND	ND	ND	ND
Ethylbenzene	ND	ND	ND	ND
Xylene	ND	ND	ND	ND
Phenol	<1	<1	<1	<1
2-Chlorophenol	<1	<1	<1	<1
2-Methylphenol	<1	<1	<1	<1
4-Methylphenol	<1	<1	<1	<1
2-Nitrophenol	<1	<1	<1	<1
2,4-Dimethylphenol	<1	1	<1	<1
2,4-Dichlorophenol	<1	<1	<1	<1
4-Chlorophenol	ND	ND	ND	ND
4-Chloro-3-Methylphenol	<1	<1	<1	<1
2,4,6-Trichlorophenol	<1	<1	<1	<1
2,4-Dinitrophenol	<1	<1	<1	<1
4-Nitrophenol	<1	<1	<1	3
2-Methyl-4,6-Dinitrophen	<1	<1	<1	<1
Pentachlorophenol	<1	4	<1	4
Total Phenols	ND	5	ND	7
Napthalene	<1	<1	4	1
Acenaphthylene	<1	<1	22	7
Acenaphthene	<1	<1	3	4
Fluorene	<1	<1	17	10
Phenanthrene	<1	2	93	57
Anthracene	<1	<1	24	14
Fluoranthene	<1	<1	72	34
Pyrene	<1	<1	97	40
Chrysene	<1	<1	18	8
Benzo(a)anthracene	<1	<1	18	6
Benzo(b)fluoranthene	<2	<1	22	10
Benzo(k)fluoranthene	#	<1	#	#
Benzo(a)pyrene	<1	<1	16	7
Indeno(1,2,3-cd)pyrene	<2	<2	12	6
Dibenzo (ah) anthracene	*	*	*	*
Benzo(g,h,i)perylene	<1	<1	11	5
Total PAH	16	17	429	209
Total Cyanide	<10	<10	<10	<10
Complex Cyanide	<10	<10	<10	<10
Free Cyanide	8	<1	2	ND
Elemental Sulphur	3380	<100	600	1280
Water Soluble Chloride	12	66	<12	15
Ammonium as N	10	6	7	16
Aluminium	ND	ND	ND	ND
Arsenic	6	13	25	17
Boron	<1	<1	1	1
Cadmium	1	<1	7	4
Chromium	23	26	20	22
Cobalt	ND	ND	ND	ND
Copper	47	38	77	37
Iron	ND	ND	ND	ND
Lead	87	37	611	331
Manganese	ND	ND	ND	ND
Mercury	<2	<2	<2	<2
Molybdenum	ND	ND	ND	ND
Nickel	24	36	31	26
Selenium	<0.5	<0.5	<0.5	<0.5
Vanadium	ND	ND	ND	ND
Zinc	131	90	1110	707

NOTES :

1. All analytical results and Guidelines reported in mg/kg air dried soil.
2. # Co-eluted with Benzo (b) fluoranthene
3. * Co-eluted with Indeno (123-cd)pyrene
4. NA - Not applicable.
5. ND - Not determined.

TABLE 1

SOIL ANALYTICAL RESULTS
WREXHAM GAS WORKS, WREXHAM
JULY 17, 1995
Analysed by TES Bretby

Trial Pit/ Borehole No. Sampling Depth (m)	MW 4-3 3.8	MW 5-1 1.5	MW 5-2 2.5	MW 5-3 3.5
pH	8.2	8.1	ND	8.7
% Loss on Ignition	8.6	3.3	3.3	10.2
% Moisture	20.8	13.5	10.8	25.1
Benzene	ND	ND	ND	ND
Toluene	ND	ND	ND	ND
Ethylbenzene	ND	ND	ND	ND
Xylene	ND	ND	ND	ND
Phenol	<1	<1	<1	<1
2-Chlorophenol	<1	<1	<1	<1
2-Methylphenol	<1	<1	<1	<1
4-Methylphenol	<1	<1	<1	<1
2-Nitrophenol	<1	<1	<1	<1
2,4-Dimethylphenol	<1	<1	<1	<1
2,4-Dichlorophenol	<1	<1	<1	<1
4-Chlorophenol	ND	ND	ND	ND
4-Chloro-3-Methylphenol	<1	<1	<1	<1
2,4,6-Trichlorophenol	<1	<1	<1	<1
2,4-Dinitrophenol	<1	<1	<1	<1
4-Nitrophenol	<1	<1	<1	<1
2-Methyl-4,6-Dinitrophenol	<1	<1	<1	<1
Pentachlorophenol	<1	<1	<1	<1
Total Phenols	ND	ND	ND	ND
Napthalene	<1	<1	<1	1
Acenaphthylene	<1	<1	<1	<1
Acenaphthene	<1	<1	<1	<1
Fluorene	<1	<1	<1	<1
Phenanthrene	3	<1	3	3
Anthracene	<1	<1	<1	<1
Fluoranthene	<1	<1	<1	<1
Pyrene	<1	<1	<1	<1
Chrysene	<1	<1	<1	<1
Benzo(a)anthracene	<1	<1	<1	<1
Benzo(b)fluoranthene	2	2	2	<1
Benzo(k)fluoranthene	#	#	#	<1
Benzo(a)pyrene	<1	<1	<1	<1
Indeno(1,2,3-cd)pyrene	<2	<2	<2	<2
Dibenzo (ah) anthracene	*	*	*	*
Benzo(g,h,i)perylene	<1	<1	<1	<1
Total PAH	ND	2	5	4
Total Cyanide	<10	<10	<10	<10
Complex Cyanide	<10	<10	<10	<10
Free Cyanide	<1	<1	4	3
Elemental Sulphur	<100	<100	184	<100
Water Soluble Chloride	22	<12	<12	31
Ammonium as N	26	<5	10	34
Aluminium	ND	ND	ND	ND
Arsenic	13	5	9	11
Boron	1	<1	<1	<1
Cadmium	1	1	1	1
Chromium	28	19	25	27
Cobalt	ND	ND	ND	ND
Copper	57	31	33	32
Iron	ND	ND	ND	ND
Lead	33	31	34	29
Manganese	ND	ND	ND	ND
Mercury	<2	<2	2	3.00
Molybdenum	ND	ND	ND	ND
Nickel	40	26	29	38
Selenium	<0.5	<0.5	<0.5	<0.5
Vanadium	ND	ND	ND	ND
Zinc	95	90	80	83

NOTES :

1. All analytical results and Guidelines reported in mg/kg air dried soil.
2. # Co-eluted with Benzo (b) fluoranthene
3. * Co-eluted with Indeno (123-cd)pyrene
4. NA - Not applicable.
5. ND - Not determined.

TABLE 1

SOIL ANALYTICAL RESULTS
WREXHAM GAS WORKS, WREXHAM
JULY 17, 1995
Analysed by TES Bretby

Trial Pit/ Borehole No. Sampling Depth (m)	MW 6-1 0.4	MW 6-2 1.7	MW 6-3 2.6	MW 6-4 3.7
pH	8.9	8.2	10.2	8.6
% Loss on Ignition	24.8	5.4	11.3	8.7
% Moisture	7	16	20.9	27
Benzene	<0.1	<0.1	<0.1	<0.1
Toluene	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	<0.1	<0.1	<0.1	<0.1
Xylene	<0.1	<0.1	<0.1	<0.1
Phenol	<1	<1	<1	<1
2-Chlorophenol	<1	<1	<1	<1
2-Methylphenol	<1	<1	<1	<1
4-Methylphenol	<1	<1	<1	<1
2-Nitrophenol	3	3	2	2
2,4-Dimethylphenol	<1	<1	<1	<1
2,4-Dichlorophenol	<1	<1	<1	<1
4-Chlorophenol	ND	ND	ND	ND
4-Chloro-3-Methylphenol	<1	1	<1	<1
2,4,6-Trichlorophenol	<1	<1	<1	<1
2,4-Dinitrophenol	<1	<1	<1	<1
4-Nitrophenol	<1	<1	2	<1
2-Methyl-4,6-Dinitrophenol	3	<1	3	<1
Pentachlorophenol	4	<1	4	<1
Total Phenols	10	4	11	2
Napthalene	<1	<1	3	<1
Acenaphthylene	<1	<1	<1	<1
Acenaphthene	<1	<1	<1	<1
Fluorene	<1	<1	<1	<1
Phenanthrene	3	3	3	3
Anthracene	<1	<1	<1	<1
Fluoranthene	<1	<1	1	<1
Pyrene	<1	<1	2	<1
Chrysene	<1	<1	<1	<1
Benzo(a)anthracene	<1	<1	<1	<1
Benzo(b)fluoranthene	<1	<1	2	<1
Benzo(k)fluoranthene	<1	<1	#	<1
Benzo(a)pyrene	<1	<1	<1	<1
Indeno(1,2,3-cd)pyrene	<2	<2	<2	<2
Dibenzo (ah) anthracene	*	*	*	*
Benzo(g,h,i)perylene	<1	<1	<1	<1
Total PAH	18	18	21	18
Total Cyanide	ND	<10	<10	<10
Complex Cyanide	ND	<10	<10	<10
Free Cyanide	6	ND	7	3
Elemental Sulphur	652	326	<100	306
Water Soluble Chloride	<12	26	28	34
Ammonium as N	8	19	35	25
Aluminium	ND	ND	ND	ND
Arsenic	13	12	13	14
Boron	<1	<1	1	<1
Cadmium	1	1	1	1
Chromium	18	21	24	26
Cobalt	ND	ND	ND	ND
Copper	171	29	43	42
Iron	ND	ND	ND	ND
Lead	309	35	54	41
Manganese	ND	ND	ND	ND
Mercury	<2	<2	<2	<2
Molybdenum	ND	ND	ND	ND
Nickel	37	28	32	36
Selenium	<0.5	<0.5	<0.5	<0.5
Vanadium	ND	ND	ND	ND
Zinc	675	68	150	82

NOTES :

1. All analytical results and Guidelines reported in mg/kg air dried soil.
2. # Co-eluted with Benzo (b) fluoranthene
3. * Co-eluted with Indeno (123-cd)pyrene
4. NA - Not applicable.
5. ND - Not determined.

TABLE 2

GROUNDWATER ANALYTICAL DATA - RESULTS
 Wrexham Gas Works, Wrexham
 August 1995
 Analysed by TES Bretby

Trial Pit/ Borehole No. Sampling Depth (m) Aquifer	DW 1	RW 1	MW 3	MW 4
pH	6.7	7.5	7.0	6.9
TOC	34	7.5	4.0	34.0
Suspended solids	6030	38	3030	3520
Conductivity (uS/cm)	3,400	668	516	1,940
Phenol	<0.01	<0.01	<0.01	<0.01
2-Chlorophenol	<0.01	0.03	<0.01	0.04
2-Methylphenol	0.01	0.02	0.01	0.03
3/4-Methylphenol	<0.01	0.02	<0.01	<0.01
2-Nitrophenol	<0.01	<0.01	<0.01	0.05
2,4-Dimethylphenol	<0.01	0.01	<0.01	0.03
2,4-Dichlorophenol	<0.01	0.02	<0.01	<0.01
4-Chlorophenol	ND	ND	ND	ND
4-Chloro-3-Methylphenol	<0.01	0.01	<0.01	0.02
2,4,6-Trichlorophenol	0.01	0.02	<0.01	0.03
2,4-Dinitrophenol	0.10	0.02	<0.01	0.25
4-Nitrophenol	0.03	0.02	<0.01	0.05
2-Methyl-4,6-Dinitrophenol	0.03	0.03	<0.01	<0.01
Pentachlorophenol	<0.01	<0.01	<0.01	0.04
Total Phenols	0.18	0.20	0.01	0.54
Napthalene	<0.01	<0.01	<0.01	<0.02
Acenaphthylene	<0.01	<0.01	<0.01	0.05
Acenaphthene	<0.01	<0.01	<0.01	0.02
Fluorene	0.01	<0.01	<0.01	0.03
Phenanthrene	<0.01	0.02	<0.01	0.08
Anthracene	<0.01	<0.01	<0.01	<0.02
Fluoranthene	<0.01	<0.01	<0.01	<0.02
Pyrene	<0.01	<0.01	<0.01	<0.02
Benzo(a)anthracene	<0.01	<0.01	<0.01	<0.02
Chrysene	<0.01	<0.01	<0.01	<0.02
Benzo(b)fluoranthene	<0.01	<0.01	ND	<0.02
Benzo(k)fluoranthene	<0.01	<0.01	<0.02	<0.02
Benzo(a)pyrene	<0.01	<0.01	<0.01	<0.02
Indeno(1,2,3-cd)pyrene	<0.01	<0.01	ND	<0.02
Dibenzo (ah) Anthracene	<0.01	<0.01	<0.02	<0.02
Benzo(g,h,i)perylene	<0.01	<0.01	<0.01	<0.02
Total PAH	0.01	0.02	ND	0.18
Total Cyanide	0.2	<0.1	<0.1	<0.2
Free Cyanide	<0.1	<0.1	<0.1	<0.1
Sulphate	1410	100	61	219
Thiocyanate	4.6	0.2	<0.2	0.3
Ammonia as N	150	2	0.3	0.7
Arsenic	<0.04	<0.04	<0.04	<0.04
Cadmium	<0.01	<0.01	<0.01	<0.01
Chromium	<0.02	<0.02	<0.02	0.03
Lead	<0.03	0.16	<0.01	<0.03
Copper	0.03	<0.01	<0.01	<0.01
Nickel	<0.02	<0.02	<0.02	<0.02
Zinc	<0.01	0.06	<0.01	<0.01
Calcium	407	84	84	367
Magnesium	45	12	11	84
Barium	0.03	0.06	0.07	1.56
Strontium	0.75	0.14	0.23	3.44
Sodium	78	35	20	291
Potassium	15	7	7	11
Manganese	11.2	<0.01	0.64	3.64
Iron	0.18	<0.01	0.1	0.08
Aluminium	0.04	<0.01	<0.01	<0.01
TPH	NA	NA	NA	NA
Benzene	<0.01	<0.01	<0.01	<0.01
Toluene	<0.01	<0.01	<0.01	<0.01
Ethylbenzene	<0.01	<0.01	<0.01	<0.01
Xylene	<0.01	<0.01	<0.01	<0.01

NOTES:

1. All analytical results in mg/l
2. NA - Not analyzed.

TABLE 2

GROUNDWATER ANALYTICAL DATA - RESULTS
 Wrexham Gas Works, Wrexham
 August 1995
 Analysed by TES Bretby

Trial Pit/ Borehole No. Sampling Depth (m) Aquifer	MW 5	MW 6	MW4 (DUPLICATE)	TP 23
pH	7.0	7.2	7.0	9.4
TOC	7.3	10.0	39.0	56
Suspended solids	24,000	12200	5,220	734
Conductivity (uS/cm)	560	995	1,970	460
Phenol	0.01	0.02	<0.02	1.28
2-Chlorophenol	0.02	0.01	0.05	0.68
2-Methylphenol	0.03	0.02	0.03	1.45
3/4-Methylphenol	0.01	0.01	0.02	1.70
2-Nitrophenol	0.02	<0.01	0.05	0.79
2,4-Dimethylphenol	<0.01	0.01	0.03	0.79
2,4-Dichlorophenol	<0.01	0.01	<0.02	0.99
4-Chlorophenol	ND	ND	ND	ND
4-Chloro-3-Methylphenol	<0.01	<0.01	<0.02	0.30
2,4,6-Trichlorophenol	0.01	<0.01	<0.02	<0.20
2,4-Dinitrophenol	<0.01	0.03	0.29	0.78
4-Nitrophenol	<0.01	0.03	0.06	1.12
2-Methyl-4,6-Dinitrophenol	0.03	<0.01	0.06	0.86
Pentachlorophenol	<0.01	<0.01	0.05	0.91
Total Phenols	0.13	0.14	0.64	11.65
Napthalene	<0.01	<0.01	0.02	0.85
Acenaphthylene	<0.01	<0.01	0.05	0.11
Acenaphthene	<0.01	<0.01	0.03	0.32
Fluorene	<0.01	<0.01	0.04	0.19
Phenanthrene	<0.01	<0.01	0.09	0.57
Anthracene	<0.01	<0.01	<0.02	0.39
Fluoranthene	<0.01	<0.01	<0.02	0.41
Pyrene	<0.01	<0.01	<0.02	0.43
Benzo(a)anthracene	<0.01	<0.01	<0.02	<0.10
Chrysene	<0.01	<0.01	<0.02	0.27
Benzo(b)fluoranthene	<0.01	<0.01	<0.02	ND
Benzo(k)fluoranthene	<0.01	<0.01	<0.02	0.20
Benzo(a)pyrene	<0.01	<0.01	<0.02	0.11
Indeno(1,2,3-cd)pyrene	<0.01	<0.01	<0.02	ND
Dibenzo (ah) Anthracene	<0.01	<0.01	<0.02	<0.20
Benzo(g,h,i)perylene	<0.01	<0.01	<0.02	<0.10
Total PAH	ND	ND	0.23	3.65
Total Cyanide	<0.1	2.0*	2.5*	<0.1
Free Cyanide	1.2*	<0.1	<0.1	2.8
Sulphate	45	104	221	45
Thiocyanate	<0.2	0.2	0.3	0.8
Ammonia as N	3.9	3.6	6.4	22
Arsenic	<0.04	<0.04	<0.04	<0.04
Cadmium	<0.01	<0.01	<0.01	<0.01
Chromium	<0.02	<0.02	<0.02	<0.02
Lead	<0.03	<0.03	<0.03	<0.03
Copper	<0.01	<0.01	<0.01	<0.01
Nickel	<0.02	<0.02	<0.02	<0.02
Zinc	<0.01	<0.01	<0.01	<0.01
Calcium	78	139	316	27
Magnesium	10	27	71	1
Barium	0.17	0.22	0.12	0.02
Strontium	0.22	0.35	0.87	0.19
Sodium	23	21	39	34
Potassium	9	5	8	46
Manganese	1.08	0.83	5.01	0.02
Iron	0.13	0.03	0.08	0.2
Aluminium	<0.01	<0.01	<0.01	0.12
TPH	NA	NA	NA	NA
Benzene	<0.01	<0.01	<0.01	<0.01
Toluene	<0.01	<0.01	<0.01	<0.01
Ethylbenzene	<0.01	<0.01	<0.01	<0.01
Xylene	<0.01	<0.01	<0.01	<0.01

NOTES:

1. All analytical results in mg/l
2. NA - Not analyzed.

TABLE 2

GROUNDWATER ANALYTICAL DATA - RESULTS
 Wrexham Gas Works, Wrexham
 August 1995
 Analysed by TES Bretby

Trial Pit/ Borehole No. Sampling Depth (m) Aquifer	RW 2	01	02	03
pH	7.3	7.8	8	7.1
TOC	12.0			
Suspended solids	18			
Conductivity (uS/cm)	578	896	901	3,050
Phenol	<0.02	<0.01	<0.01	<0.02
2-Chlorophenol	<0.02	<0.01	<0.01	<0.02
2-Methylphenol	<0.02	<0.01	<0.01	<0.02
3/4-Methylphenol	<0.02	<0.01	<0.01	<0.02
2-Nitrophenol	<0.02	<0.01	<0.01	<0.02
2,4-Dimethylphenol	<0.02	<0.01	<0.01	<0.02
2,4-Dichlorophenol	<0.02	<0.01	<0.01	<0.02
4-Chlorophenol	ND	ND	ND	ND
4-Chloro-3-Methylphenol	<0.02	<0.01	<0.01	<0.02
2,4,6-Trichlorophenol	<0.02	<0.01	<0.01	<0.02
2,4-Dinitrophenol	<0.02	<0.01	<0.01	0.13
4-Nitrophenol	<0.02	<0.01	<0.01	<0.02
2-Methyl-4,6-Dinitrophenol	<0.02	<0.01	<0.01	0.04
Pentachlorophenol	<0.02	<0.01	<0.01	0.02
Total Phenol	ND	ND	ND	0.19
Napthalene	<0.02	<0.01	<0.01	<0.02
Acenaphthylene	<0.02	<0.01	<0.01	<0.02
Acenaphthene	<0.02	<0.01	<0.01	<0.02
Fluorene	<0.02	<0.01	<0.01	<0.02
Phenanthrene	<0.02	<0.01	<0.01	<0.02
Anthracene	<0.02	<0.01	<0.01	<0.02
Fluoranthene	<0.02	<0.01	<0.01	<0.02
Pyrene	<0.02	<0.01	<0.01	<0.02
Benzo(a)anthracene	<0.02	<0.01	<0.01	<0.02
Chrysene	<0.02	<0.01	<0.01	<0.02
Benzo(b)fluoranthene	<0.02	<0.01	<0.01	<0.02
Benzo(k)fluoranthene	<0.02	<0.01	<0.01	<0.02
Benzo(a)pyrene	<0.02	<0.01	<0.01	<0.02
Indeno(1,2,3-cd)pyrene	<0.02	ND	ND	ND
Dibenzo (ah) Anthracene	<0.02	<0.02	<0.02	<0.02
Benzo(g,h,i)perylene	<0.02	<0.01	<0.01	<0.02
Total PAH	ND	ND	ND	ND
Total Cyanide	<0.1	<0.1	<0.1	<0.1
Free Cyanide	<0.1	<0.1	<0.1	<0.1
Sulphate	63	<0.2	<0.2	<0.2
Thiocyanate	<0.2	<0.2	<0.2	0.9
Ammonia as N	1.7	0.3	<0.2	105
Arsenic	<0.04	<0.03	<0.03	<0.03
Cadmium	<0.01	<0.01	<0.01	<0.01
Chromium	<0.02	<0.02	<0.01	0.04
Chromium IV		<0.01	<0.01	<0.01
Lead	<0.03	0.04	0.04	0.06
Copper	<0.01	<0.01	<0.01	<0.01
Nickel	<0.02	<0.02	<0.02	<0.02
Zinc	<0.01	<0.01	<0.01	0.02
Calcium	67	123	122	454
Magnesium	14	18	18	61
Barium	0.05	0.1	0.1	0.04
Strontium	0.05	0.27	0.27	0.87
Sodium	34	46	44	70
Potassium	11	6	6	12
Manganese	0.03	0.08	0.04	17.3
Iron	0.05	0.02	0.01	0.24
Aluminium	<0.01	0.04	0.04	0.03
Boron		0.29	0.28	0.6
Mercury		<0.05	<0.05	<0.05
Selenium		<0.01	<0.01	<0.01
TPH	NA	NA		
Benzene	<0.01	<0.5	<0.5	<0.5
Toluene	<0.01	<2	<2	<2
Ethylbenzene	<0.01	<5	<5	<5
Xylene	<0.01	<2	<2	<2

NOTES:

1. All analytical results in mg/l
2. NA - Not analyzed.

TABLE 3

KOMEX CLARKE BOND**GROUNDWATER MONITORING WELL INFORMATION**

LOCATION : Wrexham

CLIENT : BRITISH GAS PROPERTIES

WELL I.D.	DATE (dd/mm/yy)	TOTAL WELL DEPTH (m)	DEPTH TO PRODUCT (m)	DEPTH TO WATER (m)	TOP OF PVC CASING (m)	GROUNDWATER ELEVATION (m.a.s.l.)	REMARKS
MW 1	14/07/95 19/07/95	2.70		dry dry	34.27		
MW 3	14/07/95 19/07/95	4.30		1.48 1.48	37.19	35.71 35.71	
MW 4	14/07/95 19/07/95	3.90		2.76 2.80	36.02	33.26 33.22	Strong odour, Duplicate sample MW7
MW 5	14/07/95 19/07/95	3.10		1.78 1.79	37.520	35.74 35.73	Strong odour
MW 6	14/07/95 19/07/95	3.80		0.84 2.28	36.610	35.77 34.33	Weak odour Strong odour

NOTES : Top of PVC casing surveyed into OS reference Datum.

PLATES

PLATE 1

Aerial view of Maelor Works site in 1983.
The gas holders and purifiers are still in place.

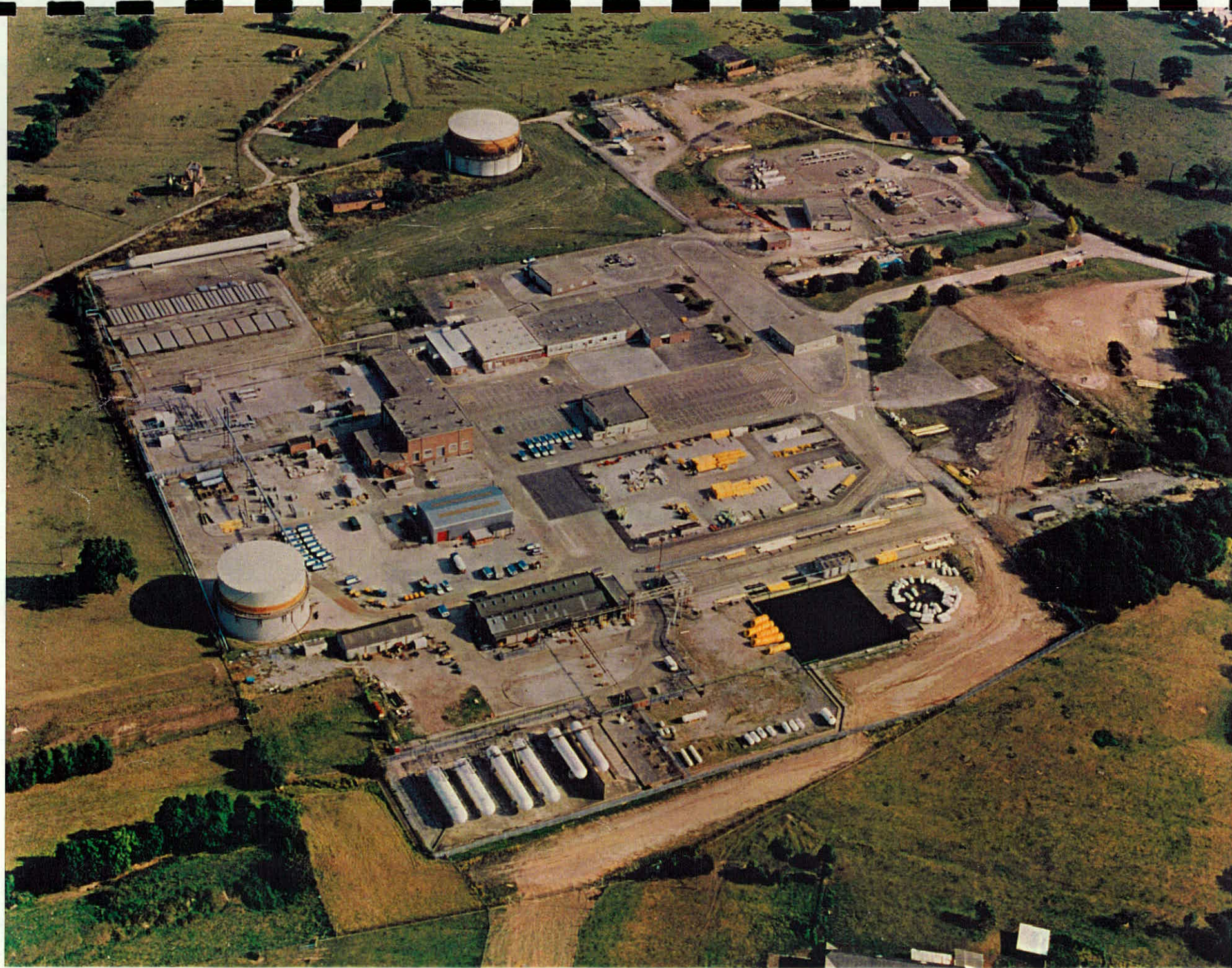


PLATE 2

Aerial view of Maelor Works under construction in 1951.
Note the deep excavation for the Tar and Liquor Wells.

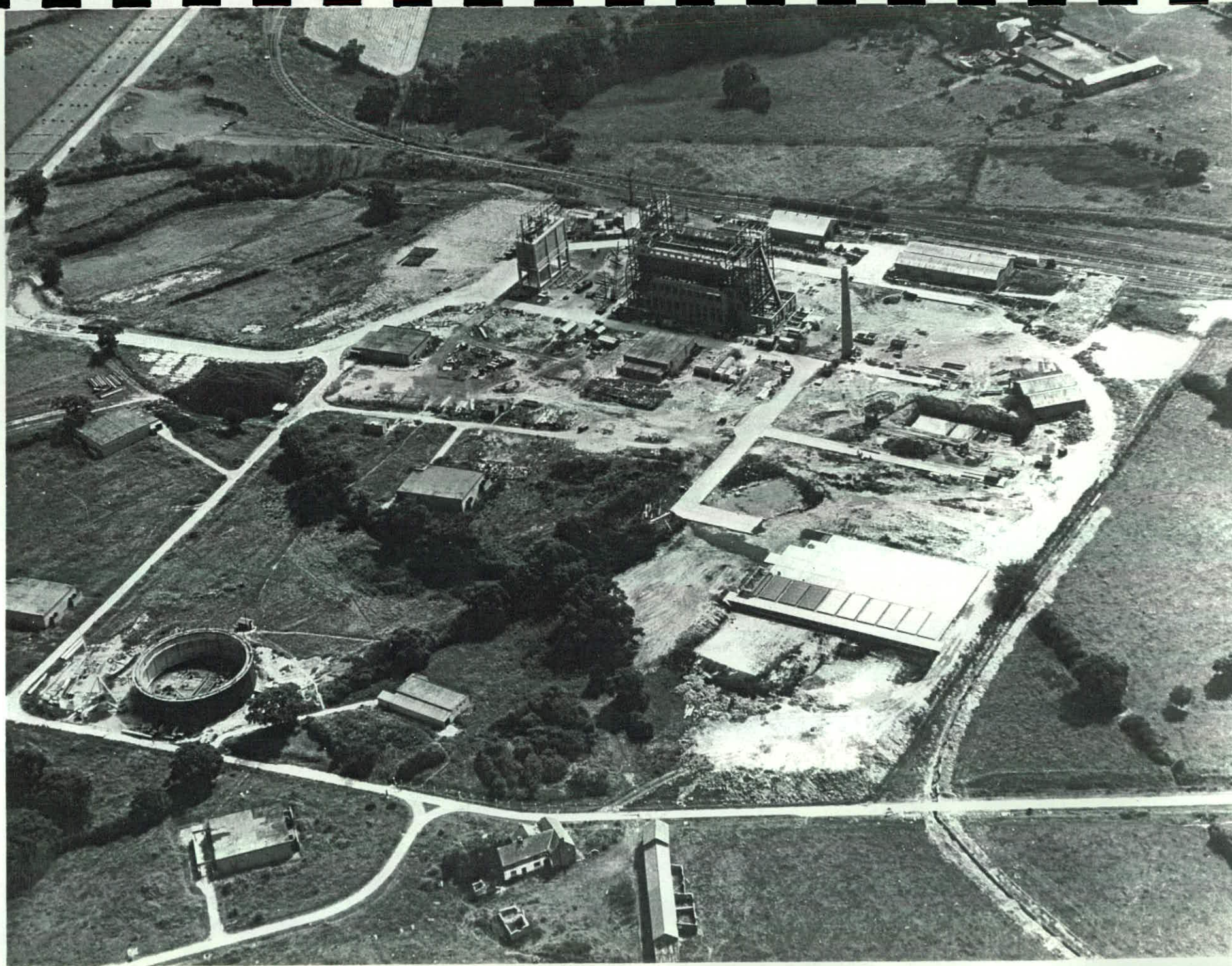


PLATE 3

Condensors with scrubbers in the background, 1952.

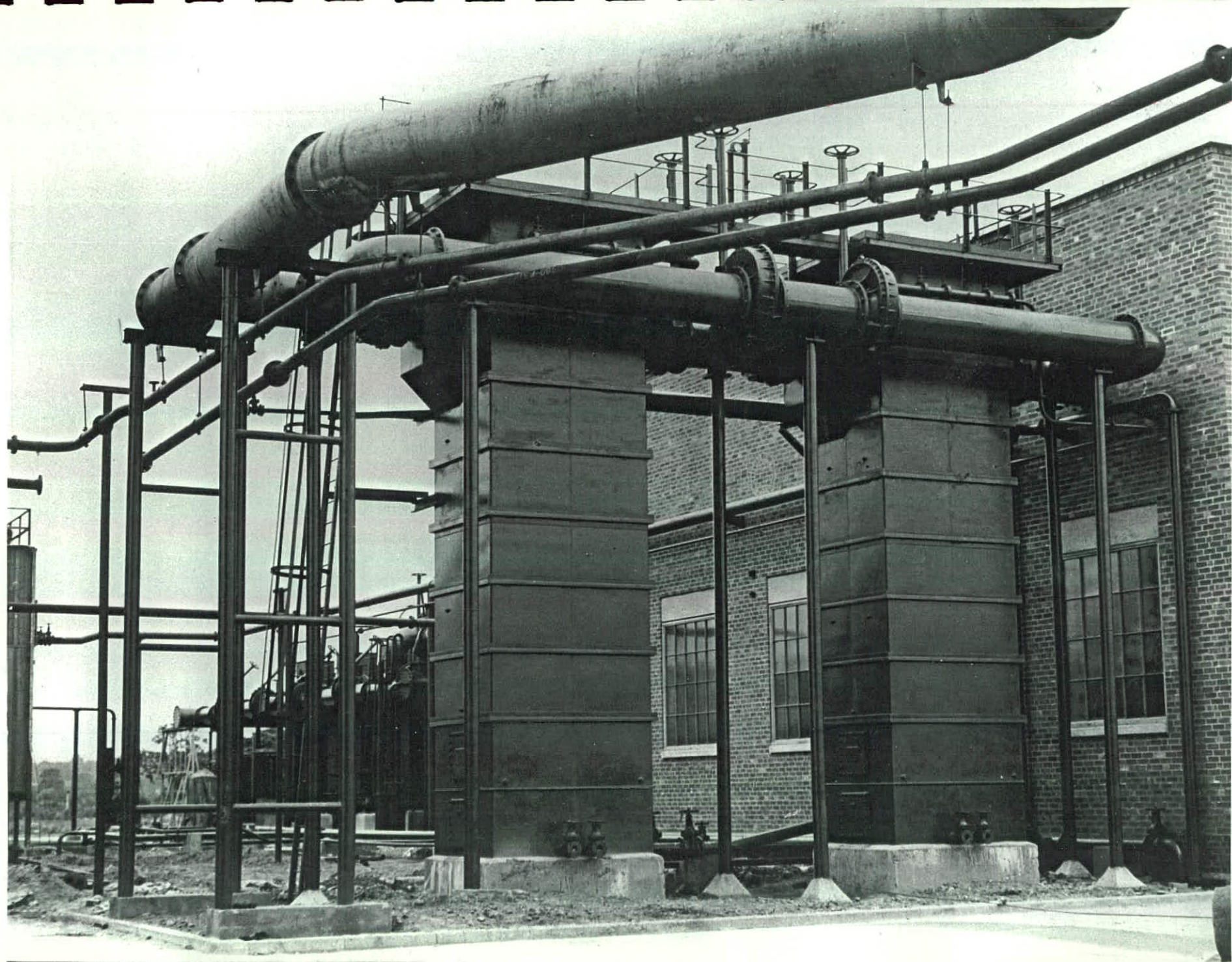


PLATE 4

Detarrer and scrubbers mounted above the tar
and liqour wells, 1952.

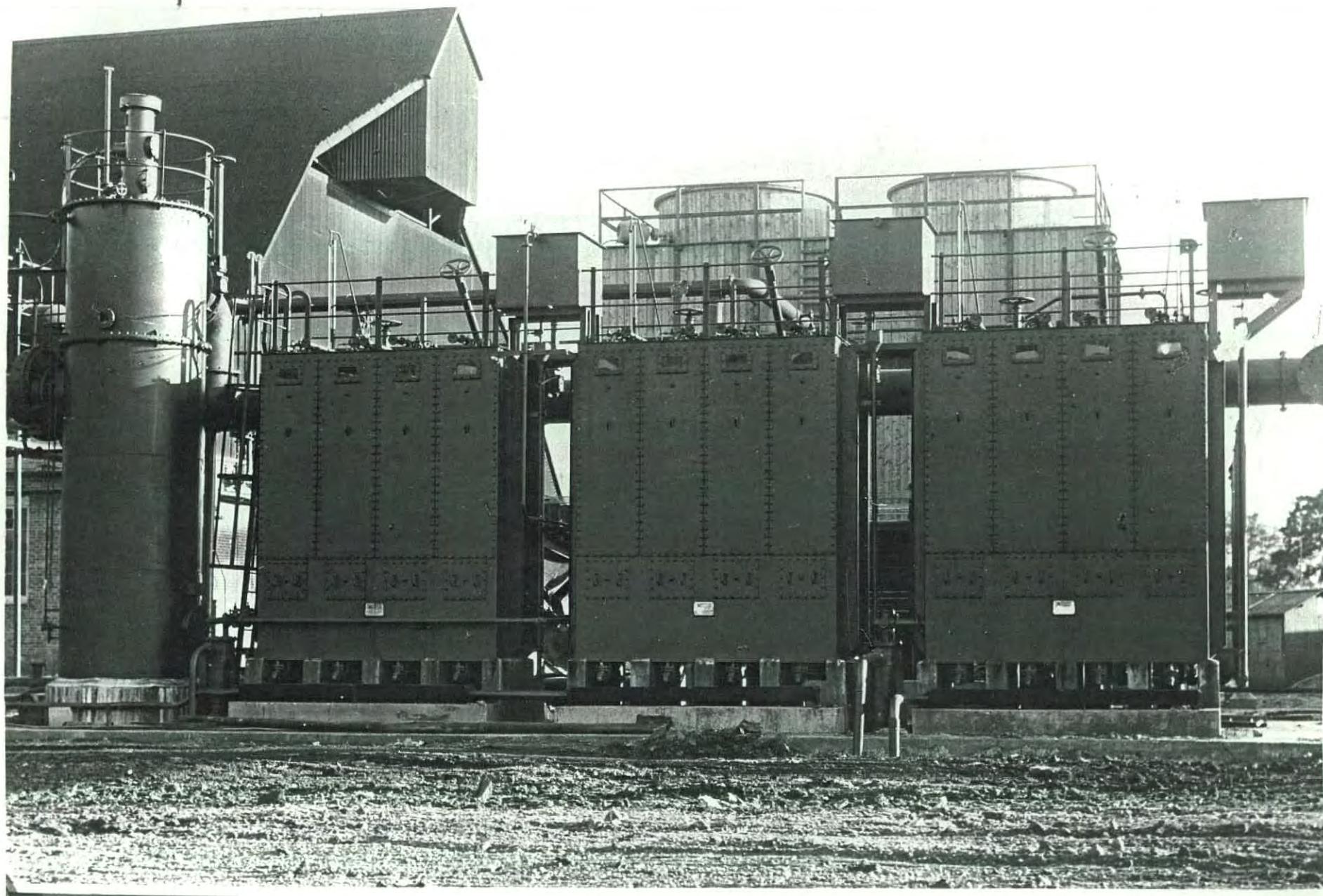


PLATE 5

Photograph looking south from the Purifiers. In the foreground is a re-vivication floor with oxide laid out. On the right is the concentrated liquor plant. The Detarrer and Scrubbers are located next to the CWG plant house.

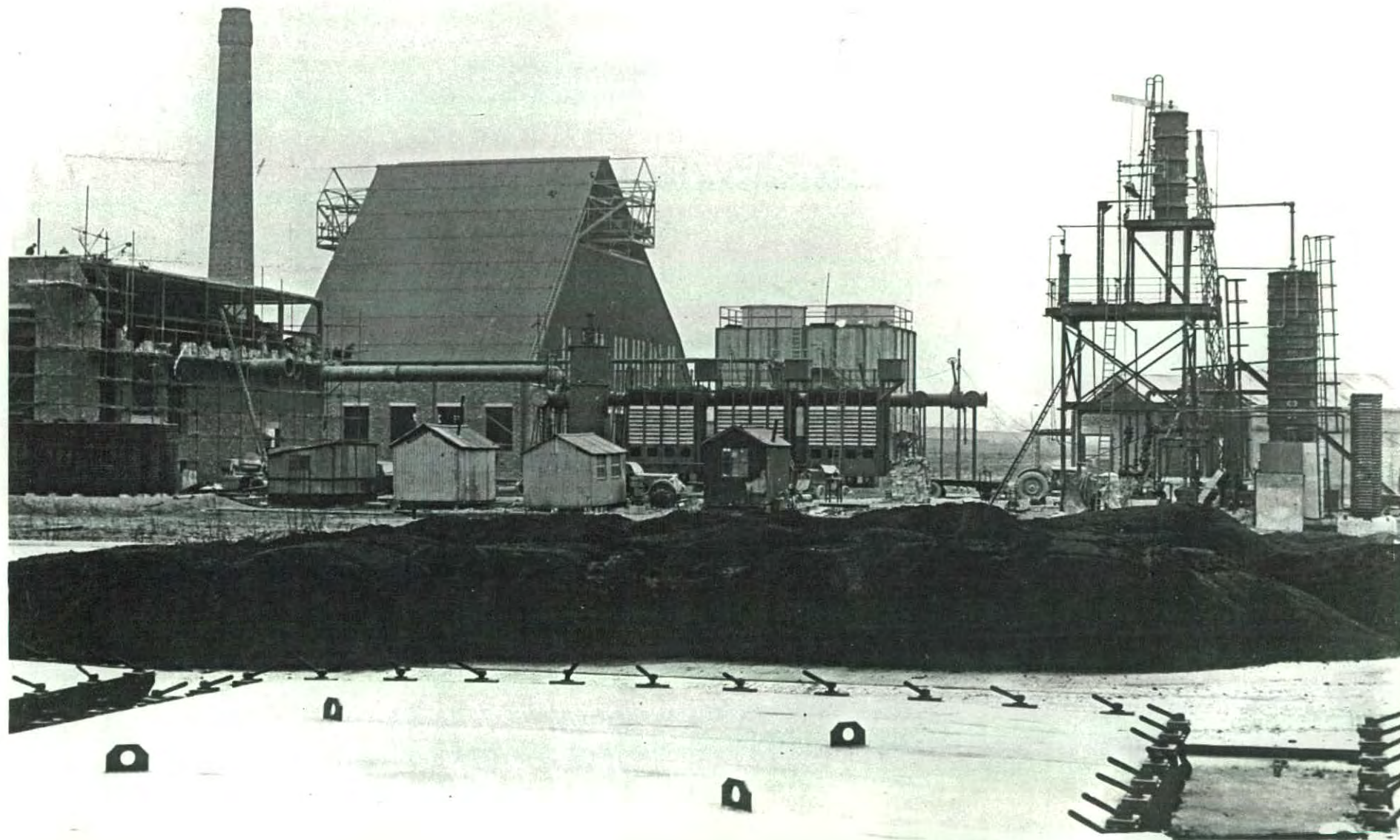




Plate 6. View from the South West to the North East showing the former location of the CWG plant and Boiler House. The present building in this area is a vehicle workshop.



Plate 7. View looking from the West to the East showing the former location of the Wet Purification Plant, comprising the Detarrer and Static Scrubbers. Beneath this gravel area lay the tar and liquor tanks. It is not known if they have been removed.



Plate 8. View from the West to East showing the former location of the Concentrated Liquor Plant and Benzol Plant. The present equipment to the left hand side is the Transco gas transmission equipment supplying Wrexham.



Plate 9. A coke filter located in the area of the former Benzol Plant.



Plate 10 View from the South East to the North West showing the former location of the Retort House. The area is currently used for storing gas transmission supplies.



Plate 11. View looking from the east to the West showing the former location of the LDF Storage Tanks. The secondary containment of the furthest tank is now used as a lagoon for the storage of sprinkler water.

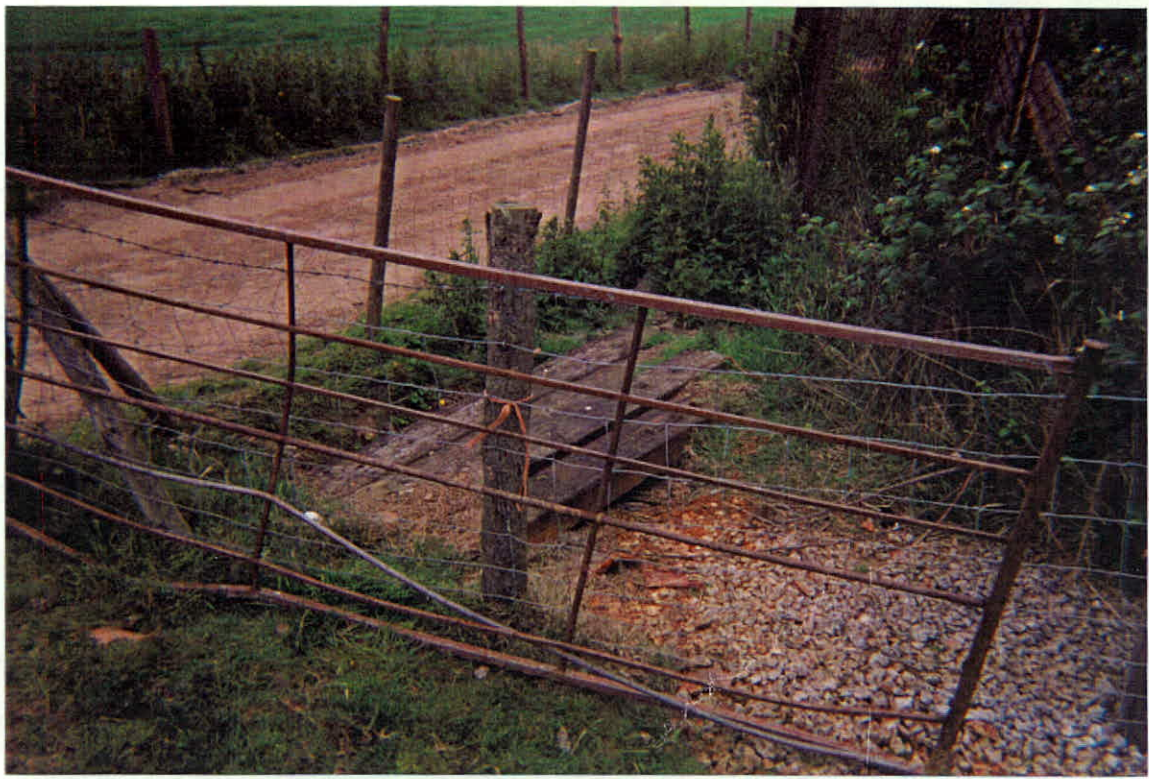


Plate 12 Interceptor pit at the end of the french drain running along the western boundary of the site. Iron staining can be seen around the pit.



Plate 13. The old Paint Store, in the North of the site. Iron staining is evident all around the building.



Plate 14 View from the North West to the South East showing the buildings within which radio active catalyst was previously stored.



Plate 15. Spherical objects found lying on the surface in the vicinity of the buildings shown in plate 14.

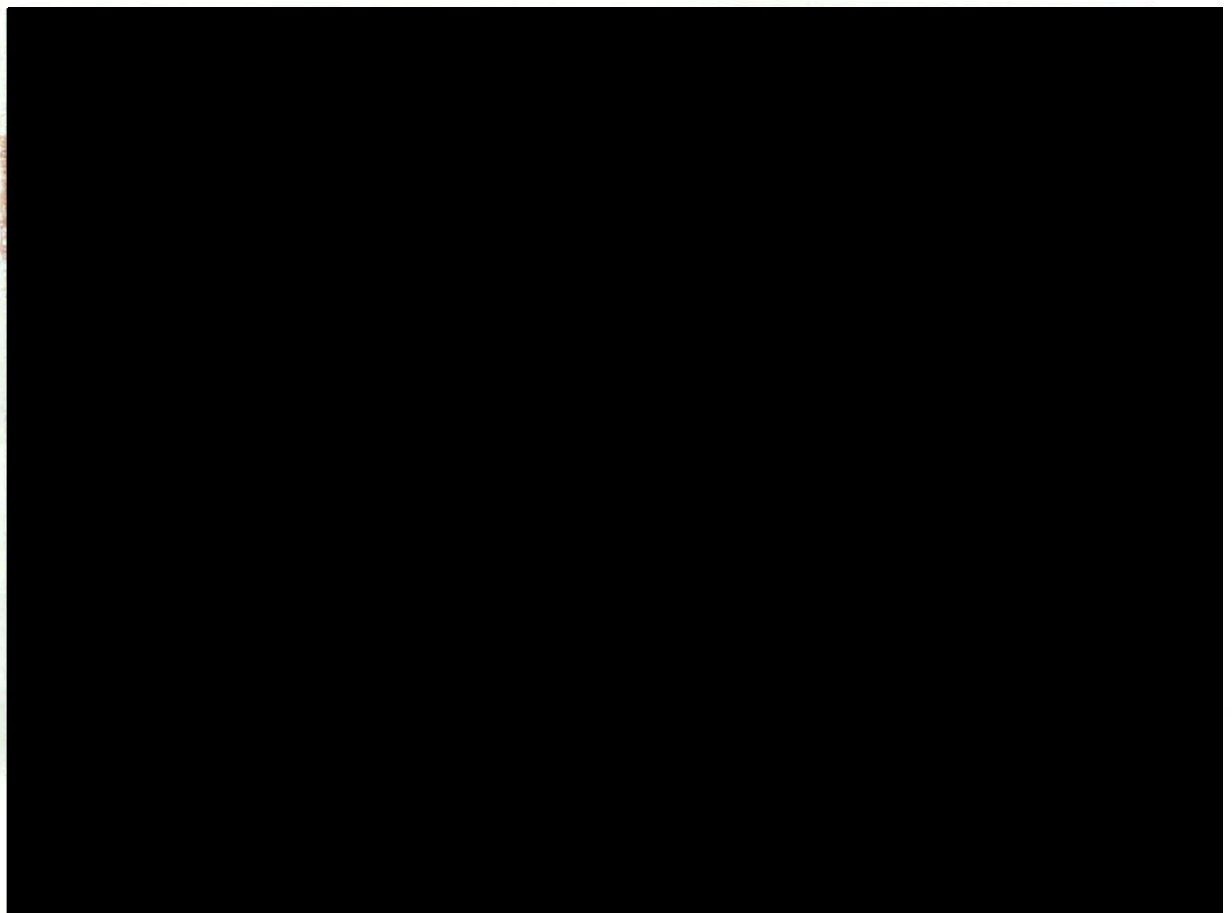




PLATE 18: Trial Pit TP 3.



PLATE 19: Trial Pit TP 5.



PLATE 20: Spent oxide [REDACTED] from Trial Pit TP 5.

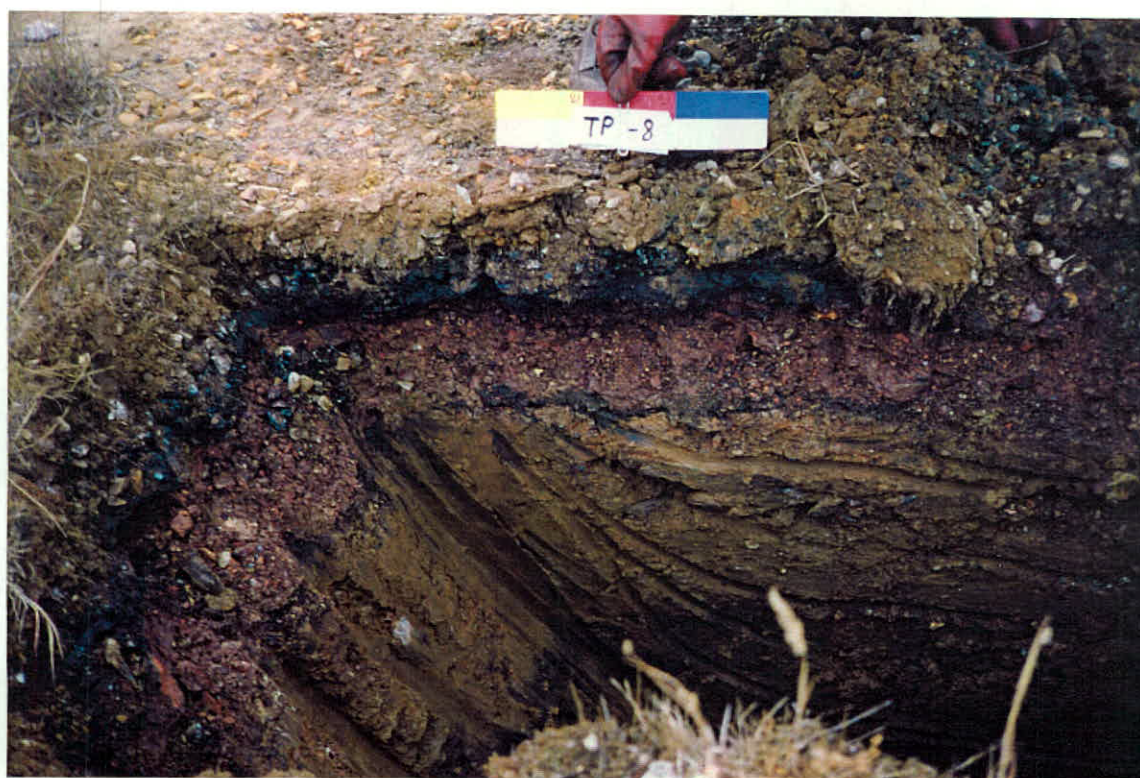


PLATE 21: Trial Pit TP 8. Adjacent to the Revivifying Yard. [REDACTED]



PLATE 22: Trial Pit 10A in the vicinity of the former Oil-Gas Plant, showing the clay drift deposit.

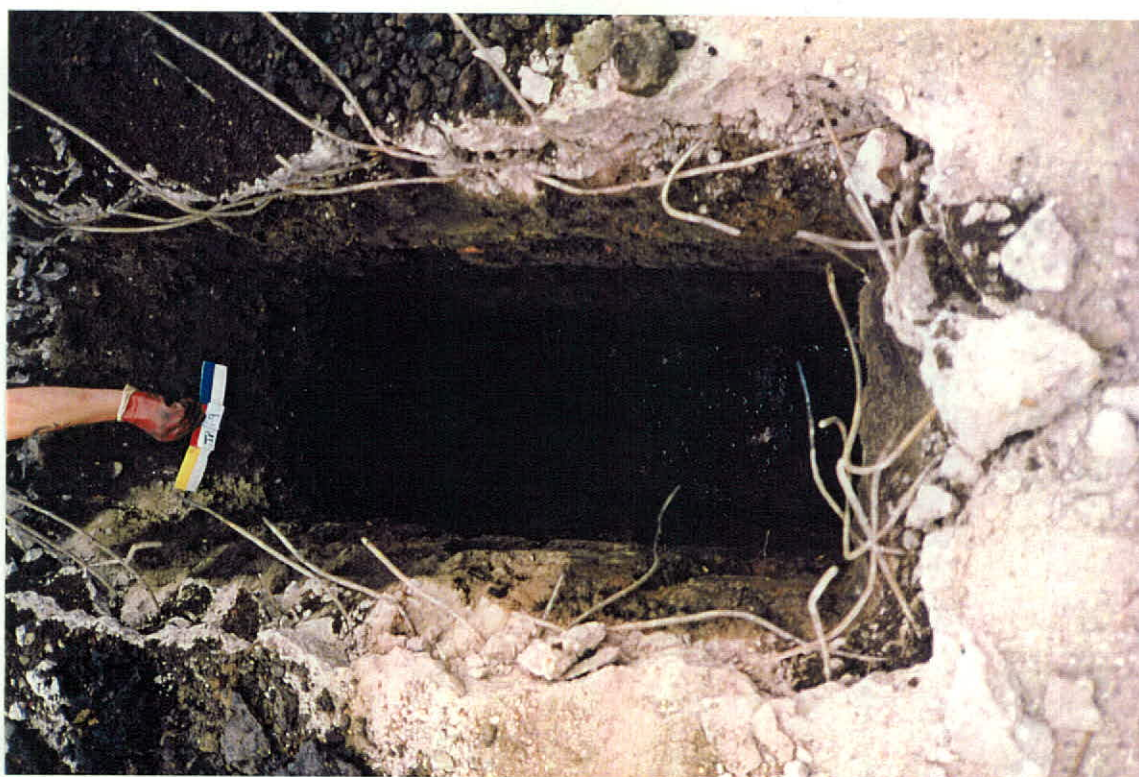


PLATE 23: Trial Pit TP 19. Adjacent to the former Retort House.



PLATE 24: Trial Pit 18 showing fill material containing tree roots.



PLATE 25: Trial Pit TP 20. Fill material overlying sand. Coal tar like material can be seen seeping into the pit. This is located in the vicinity of the former CWG Plant.



PLATE 26: Trial Pit TP21. Dug into an underground tank in the vicinity of the tar separator next to the CWG Plant.

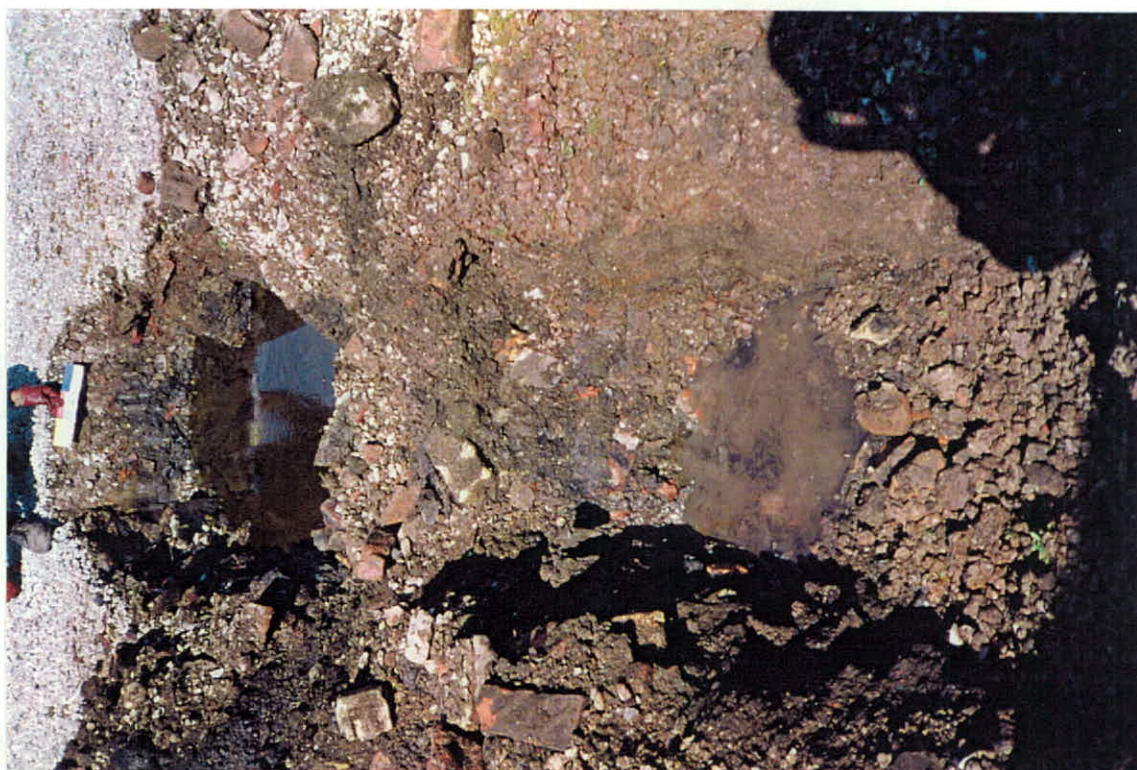


PLATE 27: Trial Pit TP 23. The pit crosses the wall of the former tar well. The elevated water level in the well can be seen



PLATE 28: Trial Pit TP 23. Showing the fill material within the Tar Well. Water sample location TP 23.



PLATE 29: Trial Pit TP 24. Dug in the former Effluent Well, adjacent to the Tar Well.



PLATE 30: Trial Pit TP24. Showing the fill material within the former Effluent Well.

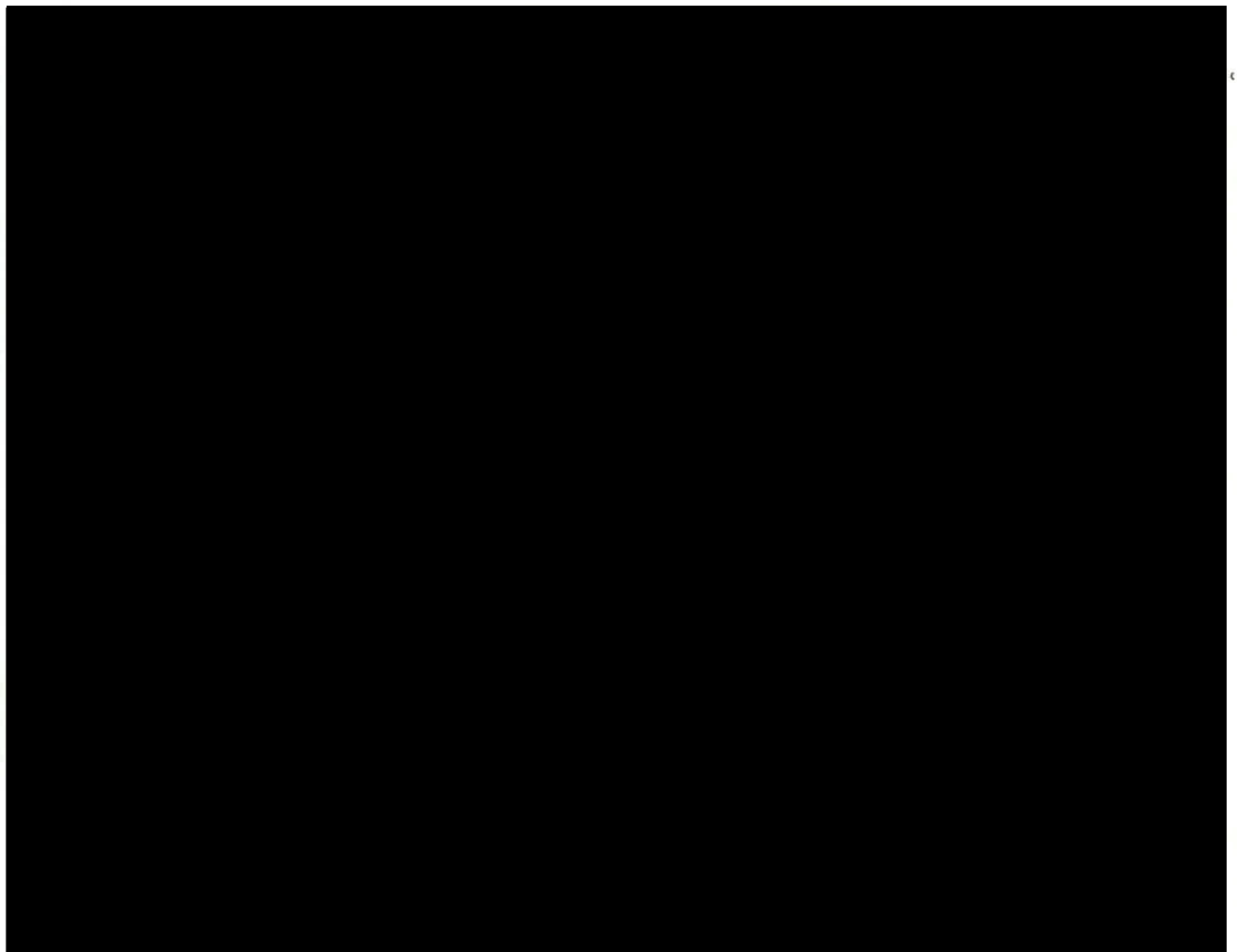




PLATE 32: Trial Pit TP 26.



PLATE 33: Trial Pit TP 27.

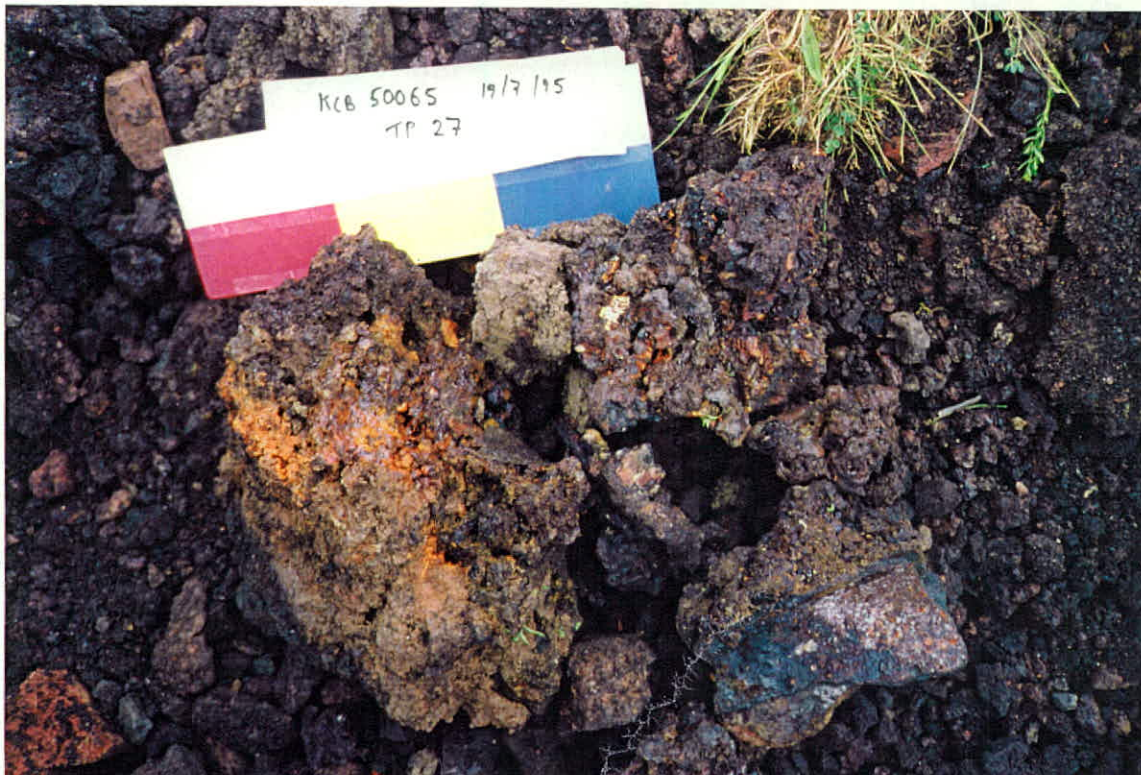


PLATE 34: Clinker from Trial Pit TP 27.



PLATE 35: Trial Pit TP 28. Showing clay below fill materials.



PLATE 36: Trial Pit TP 29.

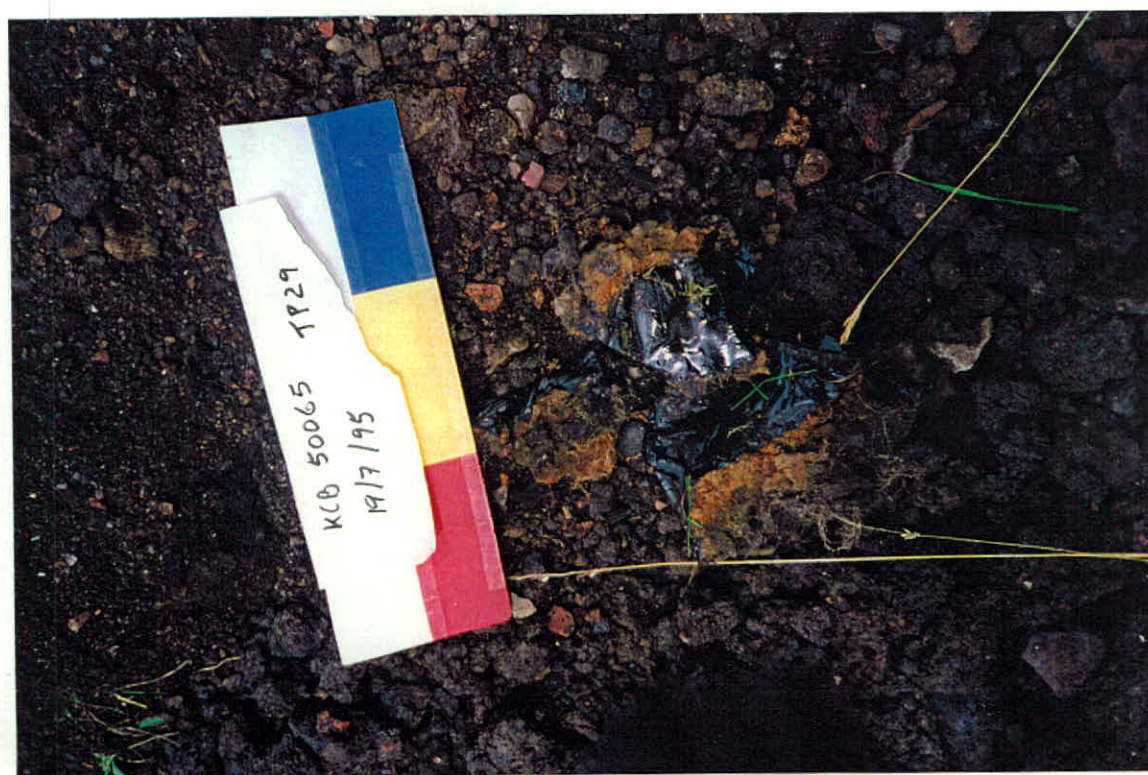


PLATE 37: Solidified tar from Trial Pit TP 29.



PLATE 38: Trial Pit TP 30.



PLATE 39: Storm drain outfalls into the stream in the southeast of the site. Sample collection point RW 2.



PLATE 40: Location of a manhole beyond the northern boundary of the site. Coal Tar smell noted. Water sample location DW 1.



PLATE 41: River Clwydog looking to the southeast with the Maelor Work's aerial and propane bullet visible at the top of the hill. The drains from the site discharge into the field ditch running along the hedgerow toward the river. The discharge to the river is not visible but is believed to be buried near the tree closest to the riverbank. Water sample location RW 1.

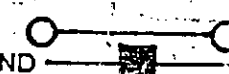
APPENDIX I

UNDERGROUND UTILITY PLANS

Information concerning the location of B.T. Telecommunication apparatus is given for your assistance and is intended for general guidance only, no guarantee is given of its accuracy. As B.T. apparatus may exist at various depths and its routes may deviate from those shown on this plan, this information must not be relied upon in the event of excavations or other works made within the area shown on this plan.

For free on site apparatus location and marking,
call the exchange operator on 100 and ask for:-
Freephone Dial Before You Dig.

BT
OVERHEAD
UNDERGROUND
EXCH. CODE
GRID MAP REF



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With British Telecom data added

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*Dial 100 and ask for
Freefone Dial Before You Dig.*



BANGOR-ON-DEE
DUTTON DIFFETH

PARCEL NUMBERS AND ACREAGES

The number and acreage of each parcel of land is shown on this plan. The map also shows a plan to divide the number(s) of the parcels on which it is shown.

IN PARCELS DIVIDED BY THE SHEET EDGE, THE ACREAGE OF EACH PARCEL IS SHOWN.

PLAN SJ 3848 & PLAN SJ 3849

The West half of this sheet is Plan SJ 3848
The East half of this sheet is Plan SJ 3948

PLAN SJ 3848 & PLAN SJ 3948

REFERENCE

REFERENCE

NATIONAL GRID REFERENCE

The books and the plans form part of the National Grid and are issued on 100 metre squares.

It is noted that the above information was obtained from a source in the Miami PD Bureau, Miami, Florida, who is a confidential source of the Miami PD Bureau.

EXAMPLE: P in PICKED & Lay form

(LAST)

of order of 1,000 to 10,000 tons per day

He, however, appeared this day in

and 100.00 mg/ml 100 100.00 mg/ml

$\frac{1}{2} \times 100 = 50$

TEN MEINE ADDRESS: 51 08414923

information is on "The Prisoners and the Unsettled Navy: Navy and Place and the Prisoners' story."

1. Identify the subject and predicate of the sentence.

File numbers of exhibits shown above of 12 mg. quantity.

REPRODUCED FROM THE ORDNANCE SURVEY
MAP WITH THE PERMISSION OF THE
CONTROLLER OF HER MAJESTY'S STATIONERY
OFFICE. BROWN COPYRIGHT RESERVED
BY FIRST EDITION 1973 ALL RIGHTS RESERVED

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[illegible]

APPENDIX II
NRA, HMIP, AND BGS DATA

Our Ref: RTP/M/C/06

Your Ref:

July 5, 1995

Marc Dubond
Komex Clarke Bond
129 Cumberland Rd
Bristol
BS1 6UY

CBP BRISTOL		
JOB No.		
PARTNER		
10 JUL 1995		
	Initials	Date
PASSED TO		
ACTION BY		

Dear Marc,

RE: Information Request

With reference to your fax to us requesting environmental information. Please find enclosed the remainder of the details you asked for.

An invoice will follow shortly for the sum of £100. May I also take this opportunity to apologise for the delay in replying to your request.

If you have any further queries, please do not hesitate to contact this office.

Yours sincerely,



PAUL DEANE
Assistant Technical Officer.

enc

1. Water Quality data for the sites in Rhyl, Llandudno & Wrexham is enclosed.
2.(i) The estuary quality at Rhyl site is classed as good (A or B)(Catchment Management Plan 1995).

(ii) The river Gwenfro adjacent to the Wrexham site is currently classed as good (B).

(iii) River classification for the Llandudno site - N/A

3. There are no current or former effluent discharge consents within 0.5km radius of the Rhyl, Llandudno or Wrexham sites.

4. Flood history & potential:

Site 1, Blaina - depending on the exact location, there is a potential for flooding.

Site 2, Newport - Area subject to tidal flooding.

Site 3, Rhyl - not aware of any problems although the site could be below the High Tide Level and as such, at risk from flooding.

Site 4, Landudno - apart from the 1993 monsoon, when half of Llandudno was underwater, no flood problems would be expected.

Site 5, Wrexham - Adjacent to river Clywedog, and depending on existing / proposed ground levels could be floodprone and within floodplain.

Site 6, Abertillery - Depending on the exact location, there is potential for flooding.

"The information provided is based on that currently available to the authority. The Authority and its officers accept no liability whatsoever for any loss or damage arising from the interpretation or use of the results."

JUNE 21 1995

REQUEST TITLE : KOMEX CLARKE BOND
REQUESTED BY : Freda Macdonald

SAMPLE POINT No: 158
LOCATION : R.GWENFRO MAELOR HOSPITAL BR. SJ3253050450
NGR : SJ 32530 05045

DATE	TIME	0061 pH pH units	0076 temp Degrees Celsius	0082 OX dis mg/l	0085 BOD5at mg/l	0111 NH4=N mg/l	0119 NH3 un mg/l
24-JAN-89	09:40	7.9000	7.8000	10.8400	1.5000	0.0100 <	
10-APR-89	10:37	8.0000	8.4000	11.2000	2.0000	0.1900	
13-JUN-89	09:55	8.3000	15.3000	9.9800	2.3000	0.0500	
13-SEP-89	12:10	8.2000	14.0000	10.1000	1.1000	0.0100 <	
29-SEP-89	09:05	8.1900	11.4000	10.1200	1.0000	0.0100	
20-NOV-89	09:00	8.2000	8.1000	11.1000	1.3000	0.0500	
31-JAN-90	09:45	7.8000	5.2000	11.8100	0.8000	0.2200	0.0017
29-MAR-90	09:45	8.3000	5.9000	12.0900	1.4000	0.0500	0.0013
04-JUN-90	11:05	8.4000			1.1000	0.0500	
24-JUL-90	10:35	8.1000	14.0000	10.0400	2.2000	0.0100	0.0003
19-OCT-90	13:38	8.0000	13.5000	8.1000	1.5000	0.0100 <	0.0002
09-JAN-91	09:30	8.0000	5.9000	11.8000	3.2000	0.0110	0.0002
11-FEB-91	10:30		1.9000	13.4000		0.0100 <	
18-APR-91	09:30	8.4000	8.5000	12.9000	3.4000	0.0100 <	0.0004
20-JUN-91	10:00	8.1000	12.0000	10.7000	1.3000	0.0200	0.0005

JUNE 21 1995

Page 3
NRA WELSH REGION - INTERIM DATA ARCHIVE - TABULAR DATA REPORT

REQUEST TITLE : KOMEX CLARKE BOND
REQUESTED BY : Freda Macdonald

08-AUG-91	10:35	8.5000	15.5000	9.8000	1.7000	0.0200	0.0017
16-AUG-91	10:50	8.4000	15.5000	10.8000	0.9000	0.0100 <	0.0007
21-JAN-92	10:00	8.3000	5.0000	13.1000	2.1000	0.0600	0.0015
27-FEB-92	10:45	8.3000	9.0000	11.5000	0.5000 <	0.0400	0.0013
01-MAY-92	13:40	8.8000		15.3000	1.4000	0.0100 <	
08-JUL-92	10:45	8.3000	16.0000	9.3000	1.3000	0.0100 <	0.0006
20-AUG-92	14:10	8.4000	17.0000	9.7000	1.3000	0.0200	0.0015
16-OCT-92	10:10	8.1000	8.0000	10.4000	1.4000 <	0.0500	0.0010
03-NOV-92	10:35	8.2000	9.0000	10.9000	0.8000	0.0100 <	0.0003
16-NOV-92	10:20	8.0000	9.0000	10.6000	1.1000	0.0800	0.0014
26-NOV-92	10:05	7.9000	7.0000	10.9000	1.2000	0.0700	0.0008
01-DEC-92	10:15	7.9000	8.0000	10.5000	2.4000	0.0600	0.0007
10-DEC-92	10:35	8.0000	7.5000	11.7000	0.9000	0.0100 <	0.0002
14-DEC-92	00:02	8.1000		10.9000	0.9000	0.0240	
26-JAN-93	10:25	8.2000	5.0000	12.4000	1.1000	0.0700	0.0014
23-FEB-93	10:35	8.1000	6.0000	12.7000	0.5000 <	0.0300	0.0005

JUNE 21 1995

Page 4
NRA WELSH REGION - INTERIM DATA ARCHIVE - TABULAR DATA REPORT

REQUEST TITLE : KOMEX CLARKE BOND
REQUESTED BY : Freda Macdonald

31-MAR-93	11:10	8.4000	7.5000	12.9000	0.8000	0.0100 <	0.0004
30-APR-93	14:00	8.7000	15.0000	12.4000	0.8000	0.0600	0.0072
27-MAY-93	09:55	7.8000	11.0000	10.2000	14.4000	0.5200	0.0065
08-JUN-93	10:10	8.3800	14.4000		0.5000 <	0.0800	0.0047
28-JUN-93	12:20	8.5000	15.2000	10.6000	1.5000	0.1800	0.0145
21-JUL-93	10:30	8.3000	13.2000	10.7000	0.9000	0.0800	0.0036
18-AUG-93	09:15	8.3000	12.8000	10.4000	0.7000	0.0200	0.0009
02-SEP-93	13:45	8.4100	12.0000	10.7000	0.6000	0.0100	0.0005
20-OCT-93	14:10	8.2000	8.5000	9.4000	1.6000	0.0200	0.0005
11-NOV-93	10:40	8.1000	6.1000	11.1000	0.5000	0.0100 <	0.0002
03-DEC-93	10:15	8.1000	9.0000	10.0000	0.9000	0.0200	0.0004
14-FEB-94	11:55	8.0000	3.1000	12.9000	0.5000 <	0.0400	0.0004
02-MAR-94	13:15	7.9000	9.7000	11.7000	1.5000	0.0900	0.0013
21-MAR-94	11:30	8.2000	6.0000	12.6000	0.5000	0.0100 <	0.0002
13-APR-94	08:55	8.0000	5.0000	11.9000	0.5000	0.0100	0.0001
11-MAY-94	13:40	8.1000	14.7000	14.8000	1.2000	0.0300	0.0010

JUNE 21 1995

Page 5
NRA WELSH REGION - INTERIM DATA ARCHIVE - TABULAR DATA REPORT

REQUEST TITLE : KOMEX CLARKE BOND
REQUESTED BY : Freda Macdonald

08-JUN-94 13:45	8.2000	12.9000	10.2000	0.5000	0.0320	0.0011
05-JUL-94 09:30	8.2000	13.6000	10.6000	1.0000	0.0100 <	0.0004
03-AUG-94 16:15	8.3000	19.2000	10.5000	1.9000	0.0100	0.0007
01-SEP-94 09:05	7.8000	12.3000	9.8000	4.0000	0.4700	0.0065
18-OCT-94 10:50	8.2000	6.0000	9.5000	3.2000	0.0100 <	0.0002
02-NOV-94 14:30	8.1000	9.0000	12.2000	1.3000	0.0100 <	0.0002
22-NOV-94 09:10	8.0000	10.0000	11.0000	0.8000	0.0380	0.0007
05-JAN-95 09:10	7.8000	7.0000	12.0000	1.2200	0.1600	0.0015
31-JAN-95 10:25	8.1300	8.0000	11.8000	1.2000	0.1200	0.0025
01-MAR-95 09:25	8.0400	6.0000	12.0000	2.0000	0.2900	0.0042
07-APR-95 10:50	8.3400	11.0000	12.6000	0.6000	0.0700	0.0029
23-MAY-95 09:55	8.3800	13.0000	10.2000	1.0000	0.0240	0.0013

JUNE 21 1995

REQUEST TITLE : KOMEX CLARKE BOND
REQUESTED BY : Freda Macdonald

NUMBER OF SAMPLES	58	56	57	58	59	49
MINIMUM	7.8000	1.9000	8.1000	0.5000	0.0100	0.0001
MAXIMUM	8.8000	19.2000	15.3000	14.4000	0.5200	0.0145
MEAN	8.1771	10.0107	11.2172	1.5469	0.0630	0.0017
< Detection Limit	0	0	0	5	16	0
> Detection Limit	0	0	0	0	0	0
S.D.	0.2140	3.9286	1.3433	1.8798	0.0995	0.0000

SAMPLE POINT No: 158
LOCATION : R.GWENFRO MAELOR HOSPITAL BR.
NGR : SJ 32530 05045

DATE	TIME	0135 TSS105 mg/l	0158 HRDtot mg/l	0235 Mg-dis mg/l	0239 Ca-dis mg/l	7245 Zn tot ug/l
24-JAN-89	09:40	6.0000	324.0000			
10-APR-89	10:37	10.0000	171.0000			
13-JUN-89	09:55	5.0000	401.0000			
13-SEP-89	12:10	7.0000	746.0000			
29-SEP-89	09:05	3.0000	403.0000			
20-NOV-89	09:00	3.0000	351.0000			
31-JAN-90	09:45	32.0000	218.0000	9.6300	62.6000	54.0000
29-MAR-90	09:45	7.0000	137.0000	23.6000	16.0000	16.0000
04-JUN-90	11:05	5.0000	419.0000	24.8000	127.1000	8.0000
24-JUL-90	10:35	3.0000	325.0000	20.5000	96.5000	5.0000 <
19-OCT-90	13:38	4.0000	258.0000	14.3400	79.8000	22.0000
09-JAN-91	09:30	10.0000	243.0000	10.5900	79.8000	59.0000

JUNE 21 1995

Page 7
NRA WELSH REGION - INTERIM DATA ARCHIVE - TABULAR DATA REPORT

REQUEST TITLE : KOMEX CLARKE BOND
REQUESTED BY : Freda Macdonald

11-FEB-91	10:30		386.0000	21.1000	119.6000	29.0000
18-APR-91	09:30	5.0000	379.0000	23.0000	113.9000	8.0000
20-JUN-91	10:00	3.0000	431.0000	21.4000	137.4000	26.0000
08-AUG-91	10:35	5.0000	377.0000	23.7000	112.0000	12.0000
16-AUG-91	10:50	5.0000	456.0000	27.5000	137.4000	17.0000
21-JAN-92	10:00	3.6000	408.0000	24.5000	123.2100	21.0000
27-FEB-92	10:45	4.0000	348.0000	20.7400	105.0000	34.0000
01-MAY-92	13:40	6.4000	357.0000	24.6400	102.3000	21.0000
08-JUL-92	10:45	17.2000	424.0000	25.4700	127.9000	32.0000
20-AUG-92	14:10	14.0000	437.0000	25.7200	132.6000	40.0000
16-OCT-92	10:10	21.2000	253.0000	12.2000	81.0200	42.0000
03-NOV-92	10:35	14.4000	300.0000	16.0100	93.7400	28.0000
16-NOV-92	10:20	15.2000	245.0000	12.3000	77.9000	45.0000
26-NOV-92	10:05	20.8000	290.0000	12.9500	94.9000	48.0000
01-DEC-92	10:15	109.0000	212.0000	8.9400	70.3000	109.0000
10-DEC-92	10:35	12.8000	337.0000	18.0900	105.0000	38.0000
14-DEC-92	00:02	8.4000	360.0000	22.4700	107.0000	36.0000
26-JAN-93	10:25	6.8000	367.0000	21.3100	112.0000	78.0000
23-FEB-93	10:35	6.0000	392.0000	23.6700	118.0000	9.0000
31-MAR-93	11:10	3.0000 <	419.0000	26.5800	124.0000	13.0000
30-APR-93	14:00	3.0000 <	377.0000	24.2100	111.0000	12.0000
27-MAY-93	09:55	770.0000	151.0000	6.7600	49.4700	496.0000
08-JUN-93	10:10	6.8000	385.0000	24.5200	113.8000	13.0000
28-JUN-93	12:20	4.0000	438.0000	27.6000	130.0000	11.0000
21-JUL-93	10:30	8.0000	377.0000	23.6000	112.0000	9.0000
18-AUG-93	09:15	6.8000	441.0000	27.2400	131.6000	8.0000
02-SEP-93	13:45	5.2000	416.0000	24.2100	126.7000	10.0000
20-OCT-93	14:10	5.0000	420.0000	23.2000	129.9000	2.0000 <
11-NOV-93	10:40	4.0000	363.0000	19.7000	112.9000	2.0000 <
03-DEC-93	10:15	6.0000	384.0000	23.0000	116.0000	9.0000
14-FEB-94	11:55	4.0000	364.0000	20.5000	112.0000	7.0000

JUNE 21 1995

Page 8
NRA WELSH REGION - INTERIM DATA ARCHIVE - TABULAR DATA REPORT

REQUEST TITLE : KOMEX CLARKE BOND
REQUESTED BY : Freda Macdonald

02-MAR-94	13:15	9.0000	313.0000	16.9000	97.5000	14.0000
21-MAR-94	11:30	6.0000	344.0000	17.5000	108.9000	2.8000
03-AUG-94	16:15		424.0000	24.7000	129.0000	7.2000
01-SEP-94	09:05		224.0000	14.2000	66.4000	38.3000
18-OCT-94	10:50		430.0000	26.1000	129.0000	9.4000
02-NOV-94	14:30		349.0000	20.6000	106.0000	7.3000
22-NOV-94	09:10		293.0000	15.4000	91.8000	9.8000
05-JAN-95	09:10		243.0000	11.9000	77.5000	18.6000
31-JAN-95	10:25		312.0000	16.4000	98.1000	24.7000
01-MAR-95	09:25		204.0000	9.8000	65.5000	25.4000
07-APR-95	10:50		409.0000	23.6000	125.0000	5.7000
23-MAY-95	09:55		390.0000	23.9000	117.0000	15.1000

NUMBER OF SAMPLES	44	55	49	49	49
MINIMUM	3.0000	137.0000	6.7600	16.0000	2.0000
MAXIMUM	770.0000	746.0000	27.6000	137.4000	496.0000
MEAN	27.5818	349.5455	20.0263	104.3682	32.8020
< Detection Limit	2	0	0	0	3
> Detection Limit	0	0	0	0	0
S.D.	115.6849	97.5243	5.6692	25.2570	70.6615

JUNE 21 1995

Page 9
NRA WELSH REGION - INTERIM DATA ARCHIVE - TABULAR DATA REPORT

REQUEST TITLE : KOMEX CLARKE BOND
REQUESTED BY : Freda Macdonald

SAMPLE POINT No: 167
LOCATION : R GWENFRO WILLOW RD. SJ3380049970
NGR : SJ 33800 04997

DATE	TIME	0061 pH pH units	0076 temp Degrees Celsius	0082 OX dis mg/l	0085 8005at mg/l	0111 NH4=N mg/l	0119 NH3 un mg/l
27-FEB-92	11:00	8.2000	9.0000	10.7000	8.3000	1.9900	0.0527
01-MAY-92	13:20	8.5000	10.0000	10.2000	5.4000	1.1400	0.0633
08-JUL-92	11:00	8.2000	16.0000	9.1000	2.1000	0.0200	0.0009
20-AUG-92	13:55	8.1000	17.0000	9.4000	2.4000	0.0100	0.0004
16-OCT-92	10:30	8.1000	8.0000	10.9000	1.5000	0.0500	0.0010
03-NOV-92	11:00	8.1000	9.5000	10.7000	2.6000	0.0300	0.0007
16-NOV-92	10:40	7.8000	9.0000	10.9000	2.4000	0.0600	0.0006
26-NOV-92	10:25	8.0000	7.5000	10.9000	1.0000	0.0500	0.0008
01-DEC-92	10:35	7.9000	8.0000	10.8000	1.9000	0.0400	0.0005
10-DEC-92	10:50	8.0000	7.5000	11.7000	0.6000	0.0100 <	0.0002
14-DEC-92	00:03	8.1000		11.1000	1.2000	0.0210	

JUNE 21 1995

Page 10
NRA WELSH REGION - INTERIM DATA ARCHIVE - TABULAR DATA REPORT

REQUEST TITLE : KOMEX CLARKE BOND
REQUESTED BY : Freda Macdonald

26-JAN-93	10:45	8.2000	5.0000	12.2000	1.9000	0.0800	0.0015
23-FEB-93	10:50	8.1000	6.0000	12.1000	0.9000	0.0300	0.0005
31-MAR-93	11:20	8.3000	7.5000	11.7000	1.0000	0.0100 <	0.0003
30-APR-93	13:45	8.3000	15.0000	10.5000	0.9000	0.0400	0.0021
27-MAY-93	10:10	7.4700	10.9000	11.0000	13.9000	0.4600	0.0027
08-JUN-93	10:25	8.2700	14.5000		3.5000	0.0200	0.0009
28-JUN-93	12:30	8.3600	15.2000	10.6000	1.5000	0.1000	0.0060
21-JUL-93	10:50	8.3000	13.8000	9.9000	1.4000	0.0100	0.0005
18-AUG-93	09:25	8.3000	13.5000	10.2000	1.0000	0.0200	0.0009
02-SEP-93	13:25	8.3100	17.0000	10.1000	1.6000	0.0200	0.0012
20-OCT-93	13:55	8.2000	9.0000	11.0000	2.0000	0.0200	0.0005
11-NOV-93	10:55	8.1000	6.8000	11.4000	0.5000 <	0.0100 <	0.0002
03-DEC-93	10:35	8.0000	9.0000	10.5000	1.4000	0.0100 <	0.0002
14-FEB-94	13:00	7.9000	4.5000	10.8000	0.6000	0.0100 <	0.0001 <
02-MAR-94	13:00	7.9000	9.5000	11.7000	1.6000	0.0500	0.0007
21-MAR-94	11:50	8.0000	5.8000	11.6000	0.8000	0.0100 <	0.0001

JUNE 21 1995

Page 11
NRA WELSH REGION - INTERIM DATA ARCHIVE - TABULAR DATA REPORT

REQUEST TITLE : KOMEX CLARKE BOND
REQUESTED BY : Freda Macdonald

13-APR-94 09:05	7.9000	5.4000	11.7000	0.5000 <	0.0100 <	0.0001
11-MAY-94 13:25	8.2000	14.3000	11.9000	1.2000	0.0400	0.0016
08-JUN-94 13:30	8.1000	16.9000	11.0000	0.4000 <	0.0100 <	0.0004
05-JUL-94 09:45	7.8000	13.9000	8.6000	6.3000	0.0100 <	0.0002
03-AUG-94 16:00	7.8000	18.1000	6.5000	4.0000	0.0200	0.0004
01-SEP-94 09:20	7.7000	12.5000	9.3000	4.8000	0.4500	0.0050
18-OCT-94 11:10	8.1000	6.0000	10.2000	1.7000	0.0300	0.0005
02-NOV-94 14:15	8.0000	9.0000	11.8000	1.0000	0.0100 <	0.0002
22-NOV-94 09:25	8.0000	10.0000	11.4000	0.7000	0.0340	0.0006
05-JAN-95 09:30	7.9000	7.0000	11.6000	1.0000	0.2000	0.0023
31-JAN-95 10:45	8.1000	8.0000	11.8000	1.4000	0.1000	0.0020
01-MAR-95 09:45	8.0000	6.0000	11.6000	2.7000	0.2100	0.0028
07-APR-95 11:10	8.3400	11.0000	11.0000	1.3000	0.0100 <	0.0004
23-MAY-95 10:20	8.3500	13.0000	10.2000	2.1000	0.0260	0.0013

JUNE 21 1995

Page 12
NRA WELSH REGION - INTERIM DATA ARCHIVE - TABULAR DATA REPORT

REQUEST TITLE : KOMEX CLARKE BOND
REQUESTED BY : Freda Macdonald

NUMBER OF SAMPLES	41	40	40	41	41	40
MINIMUM	7.4700	4.5000	6.5000	0.4000	0.0100	0.0001
MAXIMUM	8.5000	18.1000	12.2000	13.9000	1.9900	0.0633
MEAN	8.0805	10.3900	10.7575	2.2683	0.1337	0.0039
< Detection Limit	0	0	0	3	11	1
> Detection Limit	0	0	0	0	0	0
S.O.	0.2069	3.8843	1.0903	2.4949	0.3562	0.0141

SAMPLE POINT No: 167
LOCATION : R GWENFRO WILLOW RD.
NGR : SJ 33800 04997

DATE	TIME	0135 TSS105 mg/l	0158 HRDtot mg/l	0235 Mg-dis mg/l	0239 Ca-dis mg/l	7245 Zn tot ug/l
27-FEB-92	11:00	7.2000	332.0000	19.2000	101.5000	28.0000
01-MAY-92	13:20	6.4000	378.0000	22.0300	115.0000	16.0000
08-JUL-92	11:00	3.2000	398.0000	22.7800	121.8000	25.0000
20-AUG-92	13:55	9.6000	415.0000	21.8600	130.1000	45.0000
16-OCT-92	10:30	12.4000	251.0000	12.6400	79.5300	38.0000
03-NOV-92	11:00	16.4000	302.0000	16.2200	94.1700	27.0000
16-NOV-92	10:40	14.8000	253.0000	13.3100	79.5000	36.0000
26-NOV-92	10:25	16.0000	297.0000	14.3600	95.1800	39.0000
01-DEC-92	10:35	184.0000	224.0000	9.9400	73.1100	100.0000
10-DEC-92	10:50	12.0000	340.0000	19.4000	104.0000	21.0000
14-DEC-92	00:03	6.0000	355.0000	21.2700	107.0000	53.0000
26-JAN-93	10:45	6.8000	361.0000	22.1200	108.0000	24.0000

JUNE 21 1995

Page 13
NRA WELSH REGION - INTERIM DATA ARCHIVE - TABULAR DATA REPORT

REQUEST TITLE : KOMEX CLARKE BOND
REQUESTED BY : Freda Macdonald

23-FEB-93	10:50	4.0000	381.0000	23.4700	114.0000	9.0000
31-MAR-93	11:20	3.0000 <	396.0000	24.1100	119.0000	13.0000
30-APR-93	13:45	3.0000 <	356.0000	22.3000	106.0000	93.0000
27-MAY-93	10:10	558.0000	159.0000	7.5500	51.0900	463.0000
08-JUN-93	10:25	6.0000	375.0000	24.3200	110.1000	13.0000
28-JUN-93	12:30	3.0000 <	410.0000	26.3200	121.0000	10.0000
21-JUL-93	10:50	3.0000 <	359.0000	22.8800	106.0000	12.0000
18-AUG-93	09:25	4.0000	412.0000	25.4500	123.2000	5.0000
02-SEP-93	13:25	3.0000 <	369.0000	20.1600	114.7000	16.0000
20-OCT-93	13:55	5.0000	397.0000	22.4000	121.9000	7.0000
11-NOV-93	10:55	3.0000	362.0000	19.6000	112.7000	2.0000 <
03-DEC-93	10:35	6.0000	372.0000	23.1000	111.0000	8.0000
14-FEB-94	13:00	7.0000	370.0000	21.9000	112.0000	7.0000
02-MAR-94	13:00	5.0000	313.0000	18.2000	95.3000	9.0000
21-MAR-94	11:50	6.0000	354.0000	18.7000	110.9000	4.1000
03-AUG-94	16:00		359.0000	16.1000	117.0000	11.8000
01-SEP-94	09:20		213.0000	12.6000	64.6000	26.5000
18-OCT-94	11:10		410.0000	22.5000	127.0000	15.0000
02-NOV-94	14:15		331.0000	13.0000	111.0000	10.9000
22-NOV-94	09:25		300.0000	16.7000	92.5000	10.8000
05-JAN-95	09:30		253.0000	13.2000	79.7000	17.9000
31-JAN-95	10:45		316.0000	17.7000	97.4000	16.9000
01-MAR-95	09:45		214.0000	11.3000	67.0000	37.9000
07-APR-95	11:10		408.0000	23.8000	124.0000	59.6000
23-MAY-95	10:20		389.0000	24.1000	116.0000	22.3000

REQUEST TITLE : KOMEX CLARKE BOND
 REQUESTED BY : Freda Macdonald

NUMBER OF SAMPLES	27	37	37	37	37
MINIMUM	3.0000 <	159.0000	7.5500	51.0900	2.0000
MAXIMUM	558.0000	415.0000	26.3200	130.1000	463.0000
MEAN	33.8444	337.4054	19.0970	103.6211	36.5595
< Detection Limit	5	0	0	0	1
> Detection Limit	0	0	0	0	0
S.D.	110.2279	65.4465	4.8390	19.0216	75.4011

JUNE 21 1995

REQUEST TITLE : KOMEX CLARKE BOND
REQUESTED BY : Freda Macdonald

SAMPLE POINT No: 3560
LOCATION : TWR.CLWYD FORYD
NGR : SH 99500 08060

SH9950080600

DATE	TIME	0061 pH pH units	0062 COND20 uS/cm	0076 temp Degrees Celsius	0082 OX dis mg/l	0085 BOD5at mg/l	0111 NH4=N mg/l
03-JAN-90	09:40	7.8000	655.0000	6.0000	10.4000	1.8000	0.0900
01-FEB-90	11:15	7.6000	590.0000	5.1000	12.1000	1.2000	0.0700
22-MAR-90	12:50	8.6000		10.2000	13.8000	0.9000	0.0100
16-MAY-90	11:30	8.2000		13.4000	10.6000	1.9000	0.1900
14-JUN-90	10:55	8.1000		13.2000	12.9000	2.1000	0.0500
30-JUL-90	13:00	8.8000		21.0000	14.2000	15.5000	0.8190
29-AUG-90	12:45	8.2000		17.9000	9.8000	1.8000	1.6800
21-NOV-90	07:15	7.5000		6.5000	10.3000	2.0000	0.2100
25-MAR-91	11:05	7.7000		6.7000	11.6000	1.7000	0.0700
03-APR-91	08:50	7.6000		7.6000	10.0000	3.0000	0.1200
08-MAY-91	13:50	8.0000		10.9000	12.2000	1.8000	0.3300

JUNE 21 1995

Page 3
NRA WELSH REGION - INTERIM DATA ARCHIVE - TABULAR DATA REPORT

REQUEST TITLE : KOMEX CLARKE BOND
REQUESTED BY : Freda Macdonald

19-JUL-91 12:05	8.0000		15.8000	9.4000	2.1000	0.1900
30-JUL-91 08:50	8.0000		18.6000	8.9000	2.6000	0.3900
30-SEP-91 09:55	7.9000		10.6000	9.6000	1.6000	0.3500

NUMBER OF SAMPLES	14	2	14	14	14	14
MINIMUM	7.5000	590.0000	5.1000	8.9000	0.9000	0.0100
MAXIMUM	8.8000	655.0000	21.0000	14.2000	15.5000	1.6800
MEAN	8.0000	622.5000	11.6786	11.1286	2.8571	0.3264
< Detection Limit	0	0	0	0	0	0
> Detection Limit	0	0	0	0	0	0
S.D.	0.3722	45.9619	5.1402	1.6836	3.6750	0.4417

JUNE 21 1995

Page 4
NRA WELSH REGION - INTERIM DATA ARCHIVE - TABULAR DATA REPORT

REQUEST TITLE : KOMEX CLARKE BOND
REQUESTED BY : Freda Macdonald

SAMPLE POINT No: 3560
LOCATION : TWR.CLWYD FORYD
NGR : SH 99500 08060

DATE	TIME	0116 TON mg/l	0118 NO2 N mg/l	0119 NH3 un mg/l	0135 TSS105 mg/l	0162 ALK4.5 mg/l	0172 Cl - mg/l
03-JAN-90	09:40	1.5000	0.0630	0.0008	24.0000		136.1000
01-FEB-90	11:15	2.1700	0.0280	0.0003	104.0000		125.0000
22-MAR-90	12:50			0.0007	9.0000		
16-MAY-90	11:30			0.0070	29.0000		
14-JUN-90	10:55			0.0015	25.0000		
30-JUL-90	13:00			0.1739	7.0000		
29-AUG-90	12:45			0.0859	33.0000		
21-NOV-90	07:15			0.0009	147.0000		
25-MAR-91	11:05			0.0005	11.0000		
03-APR-91	08:50			0.0007	47.0000		
08-MAY-91	13:50			0.0065	8.0000		
19-JUL-91	12:05			0.0054	16.0000		
30-JUL-91	08:50			0.0135	13.0000		
30-SEP-91	09:55			0.0053	48.0000		

JUNE 21 1995

Page 5
NRA WELSH REGION - INTERIM DATA ARCHIVE - TABULAR DATA REPORT

REQUEST TITLE : KOMEX CLARKE BOND
REQUESTED BY : Freda Macdonald

NUMBER OF SAMPLES	2	2	14	14	2
MINIMUM	1.5000	0.0280	0.0003	7.0000	125.0000
MAXIMUM	2.1700	0.0630	0.1739	147.0000	136.1000
MEAN	1.8350	0.0455	0.0216	37.2143	130.5500
< Detection Limit	0	0	0	0	0
> Detection Limit	0	0	0	0	0
S.D.	0.4738	0.0245	0.0490	40.5921	7.8489

SAMPLE POINT No: 3560
LOCATION : TWR.CLWYD FORYD
NGR : SH 99500 08060

DATE	TIME	0180 o-PO4 mg/l
03-JAN-90	09:40	0.1700
01-FEB-90	11:15	0.0800

JUNE 21 1995

Page 6
NRA WELSH REGION - INTERIM DATA ARCHIVE - TABULAR DATA REPORT

REQUEST TITLE : KOMEX CLARKE BOND
REQUESTED BY : Freda Macdonald

NUMBER OF SAMPLES	2
MINIMUM	0.0800
MAXIMUM	0.1700
MEAN	0.1250
< Detection Limit	0
> Detection Limit	0
S.D.	0.0640



Awdurdod Afonydd Cenedlaethol
Rhanbarth Cymru



National Rivers Authority
Welsh Region

TROSGLWYDDIAD FFACS
TELEFAX TRANSMISSION

I
TO

Mr. R. Croft

RHIF FFACS
FAX TO

01179 293095

ODDIWRTH
FROM

T.V. EVANS

NIFER O TODALENNAU
NUMBER OF PAGES

1 TO FOLLOW

DYDDIAD
DATE

2/8/95

IF YOU REQUIRE FURTHER INFORMATION

PLEASE ~~CALL~~ GIVE ME A RING

T.V. Evans

Rheolwr: Cyffwrddol Rhanbarthol
Dr John Storer
Bryn Meari
Plodd Coerybi
Bangor
Gwynedd, LL57 2EF
Ffôn: Bangor (0248) 370970
Ffacs: (0248) 370747

Regional General Manager
Dr John Storer
Bryn Meari
Hollyhead Road
Bangor
Gwynedd, LL57 2EF
Tel: Bangor (0248) 370970
Fax: (0248) 370747

ABSRAD

Abstraction Licensing System - N.R.A. Welsh Region
Grid Reference Report

Start Grid Reference SJ 38100-48100
Maximum Radius of Arc 2 Km
Purpose Code
Source Type
Licence Status ACT - ACTIVE

Licence No : 24/67/7/0005 Grid Ref : SJ 38630-46360 Radius (Km)
Source Type : A - NON TIDAL RIVER
Source Desc. : RIVER DEE AT TWLL, BANGOR
Point Status : ACT - ACTIVE
Licensed Qtys : 9983.016000 Ml/a 27.276000 Ml/d

Purpose(s)	Purpose Description	Quantity Mla	Q
D	POTABLE WATER (PUBLIC)	9983.0160	

Licence No : 24/67/7/0182 Grid Ref : SJ 38630-46360 Radius (Km)
Source Type : A - NON TIDAL RIVER
Source Desc. : RIVER DEE AT BANGOR
Point Status : ACT - ACTIVE
Licensed Qtys : 3859.554000 Ml/a 13.638000 Ml/d

Purpose(s)	Purpose Description	Quantity Mla	Q
D	POTABLE WATER (PUBLIC)	3859.5540	

Licence No : 24/67/7/0199 Grid Ref : SJ 38800-46600 Radius (Km)
Source Type : A - NON TIDAL RIVER
Source Desc. : RIVER DEE
Point Status : ACT - ACTIVE
Licensed Qtys : 1136.500000 Ml/a 8.092000 Ml/d

Purpose(s)	Purpose Description	Quantity Mla	Q
K	INDUSTRIAL	1136.5000	

8-1.11F

RECORD OF WELL

N 14761

At WREXHAM INDUSTRIAL
ESTATE
 Town or Village WREXHAM
 County CLWYD

121 5534/8
 /21

ACT SITE
 OF WELL

Six-inch National Grid sheet and reference ST 362 495 (ST 34 NE)

For

State whether owner, tenant, builder, contractor, consultant, etc.:

Address (if different from above)

Level of ground surface above sea level (O.D.) ft (..... m)

If well top is not at ground level state how far above* ft (..... m)
 below:

SHAFT ft (..... m); diameter ft (..... m);

HEADINGS (please attach details—dimensions and directions)

BORE 195' 8" ft (59.63 m); diameter: at top in (..... mm);

at bottom in (..... mm)

Full details of permanent lining tubes (position, length, inner and outer diameters, plain slotted etc.):

Water struck at depths of ft (..... m) below well top

Rest level of water ft (..... m) above* well top. Suction at ft (..... m)
 below

Yield on hours* test pumping at galls per (..... l/s) with
 days

depression to ft (..... m) below well top. Recovery to rest level in mins*
 hours

Capacity of pump g.p.h. (..... l/s)

Date of measurements

DESCRIPTION OF PERMANENT PUMPING EQUIPMENT:

Make and/or type Motive power

Capacity galls (..... m³) per hour. Suction at ft (..... in)

below well top. Amount pumped galls (..... m³) per day. Estimated

consumption galls (..... m³) per week

Well made by Date of sinking

ADDITIONAL NOTES ANALYSIS (please attach copy if available)

LOG OF

STRATA

OVERLEAF

INSTITUTE OF GEOLOGICAL SCIENCES
 HYDROGEOLOGY UNIT
 EXHIBITION ROAD
 LONDON SW7 2DE

IGS 2494 10 000 7/79

Received from DEE & CLUMP F.D.W.N.W.D.A.Date 23.10.79

Observation well

Recorder

ER log

Site marked on

1" map

6" map—Grid Sheet

(use symbol)

Copy to N.W. LINKS & CRESH

Date

8-2.TIF

SS34/8

Institute use only

GEOLOGICAL
ASSOCIATION

NATURE OF STRATA 12/21

If measurements start below ground surface, state how far.

THICKNESS

DEPTH

Feet

Inches

Metres

Feet

Inches

Metres

BOULDER CLAY

32

SOFT SILT

36

BOULDER CLAY

44.5

RUNNING SAND

51.39

SAND & PEBBLES

53.00

COBBLES & GRAVEL

54.00

BOULDER CLAY

59.90

ROCK

59.93

Historic Beds

Upper Coal

Mammals

CARBONIFEROUS

P. H. I. P. STENSON

8-3.TIF

WELSH NATIONAL WATER DEVELOPMENT AUTHORITY

DEE AND CLWYD RIVER DIVISION

SJ34/8

DETAILED HYDROGEOLOGICAL RECORD SHEET : INDIVIDUAL SITE RECORD

D.C.R.D. REF. No.

SJ34/87

NAME Wrexham Ind. Estate Obs. b/h
DENBYS.

N.G.R. SJ 3823 4944
SJ 34 NE

EXACT SITE KNOWN

YES/NO ✓

LOCATION SKETCH

YES/NO/MAP ✓

HEIGHT A.O.D.

...26.220... METRES ✓

ESTIMATED FROM

MAP/SURVEY/OTHER ✓

REFERENCE POINT

NONE/DETAILS/SKETCH ✓

LOG

YES/NO ✓

LOCATION OF LOG

HERE/I.G.S. ✓

SUMMARY OF LOG

i) THICKNESS OF DRIFT

...59.63... METRES

Note total
measured depth
29.3 m

ii) TOTAL DEPTH

...60.50... METRES

iii) O.D. LEVEL OF ROCKHEAD

...33... METRES

* iv) Carboniferous s/stone

Regard as
Drift holeWATER QUALITY INFORMATION

YES/NO ✓

From 1974 : see enclosed sheet.

WATER QUANTITY INFORMATIONABSTRACTION

YES/NO/OCCASIONALLY/NOT KNOWN ✓

LICENSED ABSTRACTIONLICENCE NO.

none

/HOUR

/DAY

/YEAR

WATER LEVEL INFORMATION

YES/NO ✓

DETAILS : Autographic recorder installed 1974 : see file T.C.P.H. 7 for
hydrograph details

PUMPING TEST

YES/NO ✓

DATE ✓LOCATION OF DATAWATER LEVELS RECORDED

NONE/ISOLATED READINGS/MONTHLY/AUTOGRAPHIC ✓

LOCATION OF RECORDSACCESS

Wrexham Industrial Estate Section 18 Borehole
Analysis of Samples / Daily Drilling Record.

SJ34/8

8.11.11
M.

5

12

18

24 b/c

26

29

32 - Soft Silt starting at 31m - borehole casing Needs casing

- fetching casing 12"

Running in casing

36 b/c

44.5 m. - Fine Sand From 37.60 m. Water level rising.

46.6. Running Sand - 12" Casing Now stuck.

48.00 Running Sand Morning W. Level now -7.50 m.

Waiting for 10" Clamps.

51.30 - Sand + Cobbles. Running in 10" Casing.

53.00. Cobbles + Gravel.

54.00. Boulder Clay

56

58.

58.5.

59.90 m - Rock at 59.63m.

Upper Carboniferous, logged by Smith (IGS Leeds)

24/5/11

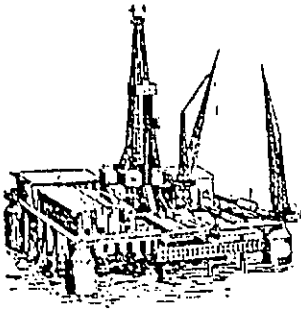
3-5.TIF

BOREHOLE - WREKHAM. IND. EST.

DIAMETER - 200 MM (8")

DEPTH - 29.24 METRES

SJ34/8



DRILLING & GEOSERVICES LIMITED

FOUNDATION and GEOTECHNICAL ENGINEERS
WATERWELL BORING CONTRACTORS

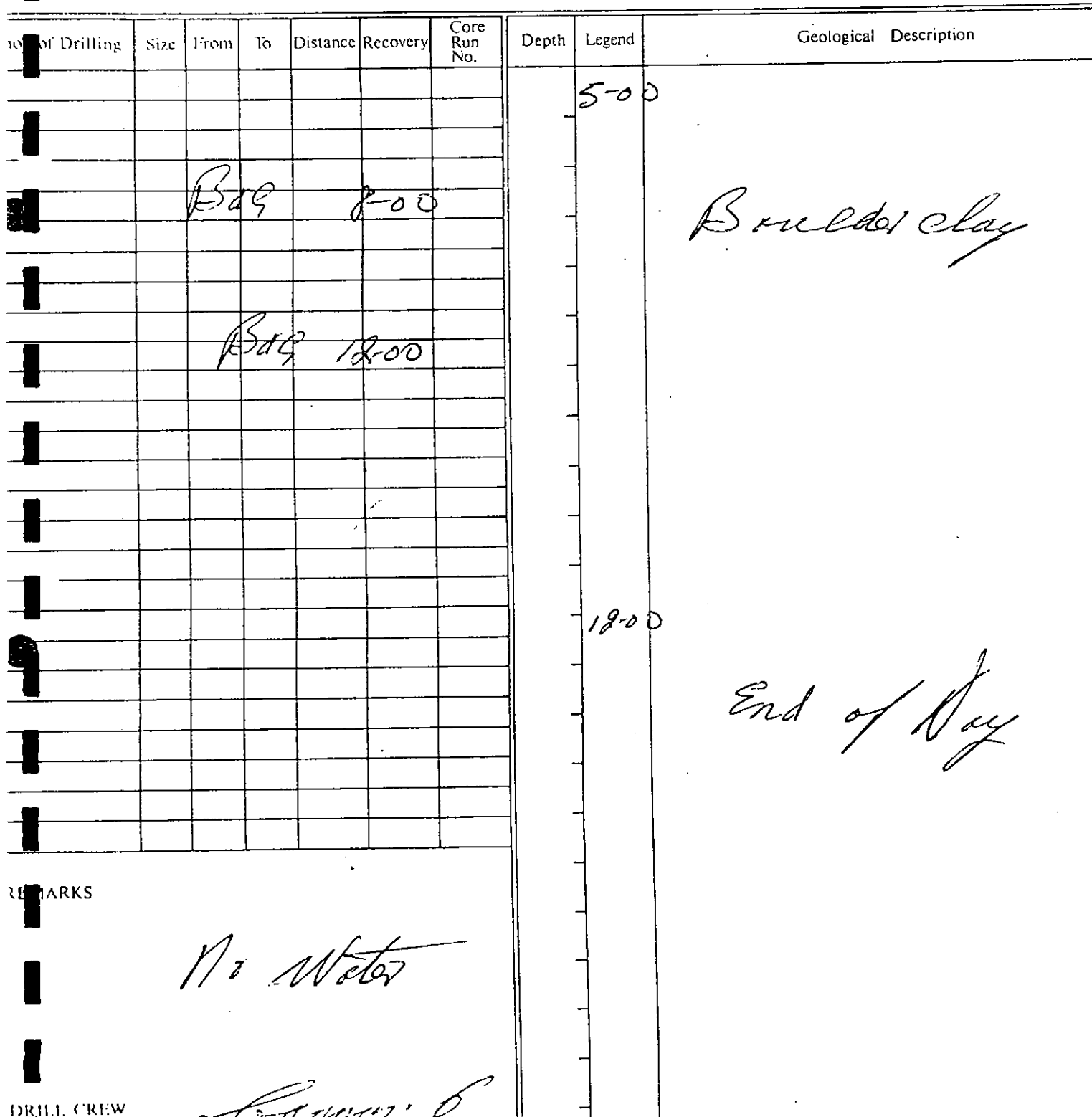
BERMUDA ROAD INDUSTRIAL ESTATE,
BERMUDA ROAD, NUNEATON, WARWICKSHIRE.

TELEPHONE: NUNEATON 68328/9 or 69458/9 (STD. Code 0682) TELEX: 31390

DAILY BOREHOLE RECORD

CLIENT Worcester RIG TYPE Recession O.D. LEVEL
CONTRACT Worcester BOREHOLE No. DATE 22 March

Method of Drilling	Size	From	To	Distance	Recovery	Core Run No.	Depth	Legend	Geological Description
								S.L.	top soil
	BAG	1.00					0.26		
	BAG	1.50							Hard clay
							1.35		
	BAG	5.00							Sandy clay
							9.20		
									Hard Boulder clay
							5.00		
									End of log
REMARKS									
No Water									
DRILL CREW									
Cannon 6									

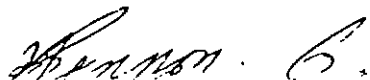


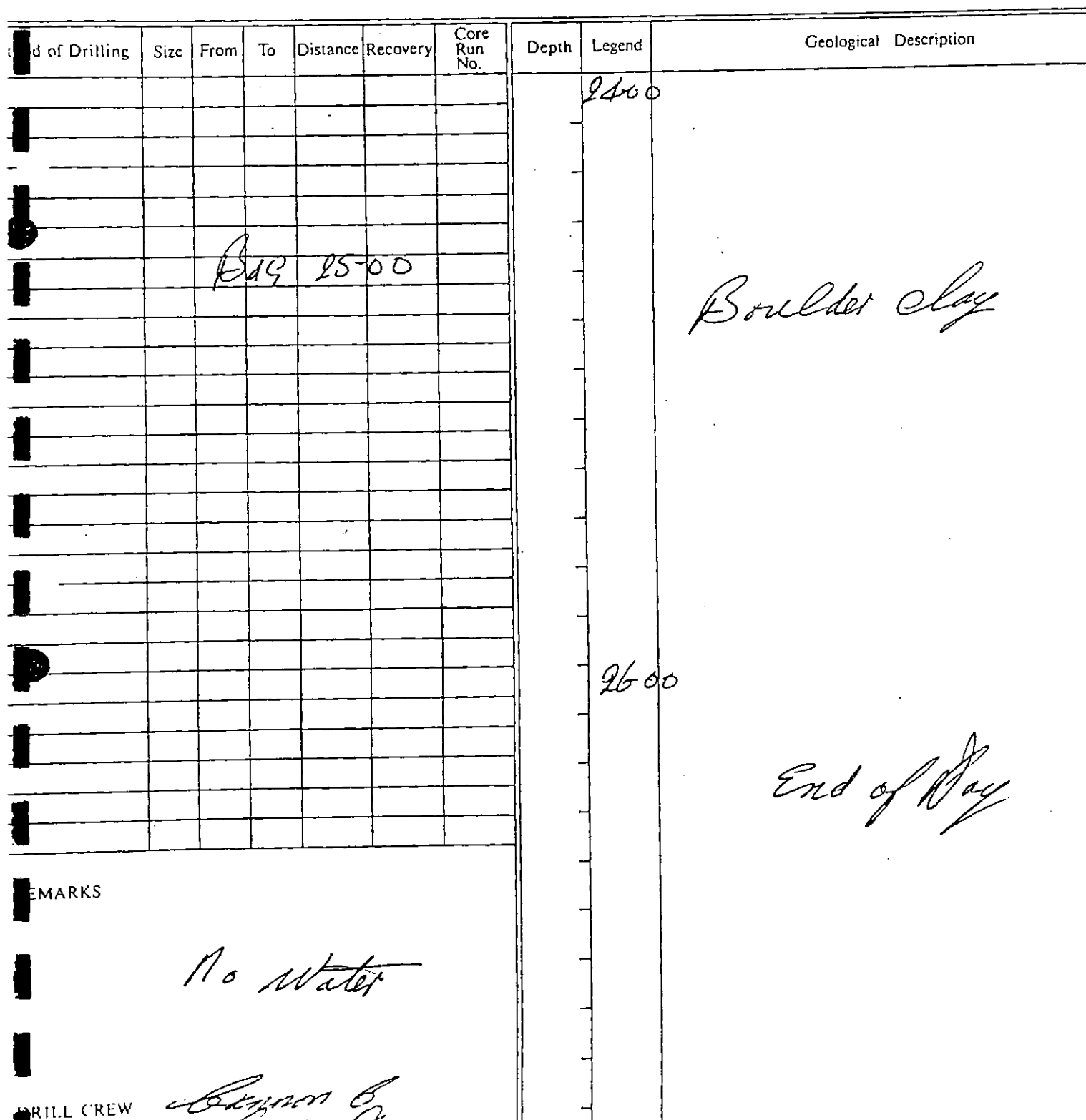
Height of Drilling	Size	From	To	Distance	Recovery	Core Run No.	Depth	Legend	Geological Description
							1200		Boulder clay
							1800		End of Way

REMARKS

No. 11

DRILL CREW





Depth	Legend	Geological Description
26-00		Boulder clay
97-00		End of Run

MARKS

No Water

CREW

Core Run No.

Distance

Recovery

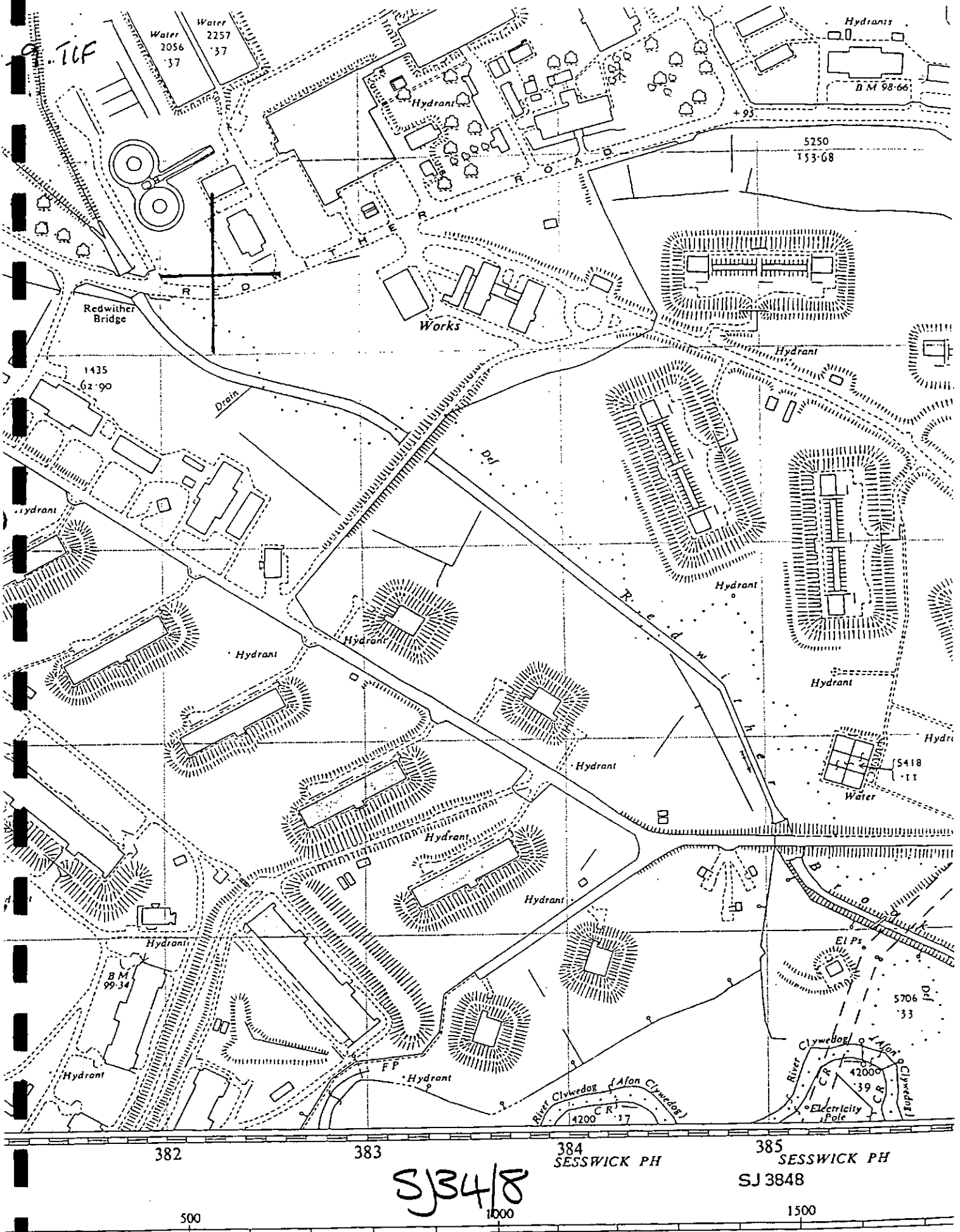
To

From

Size

Drilling





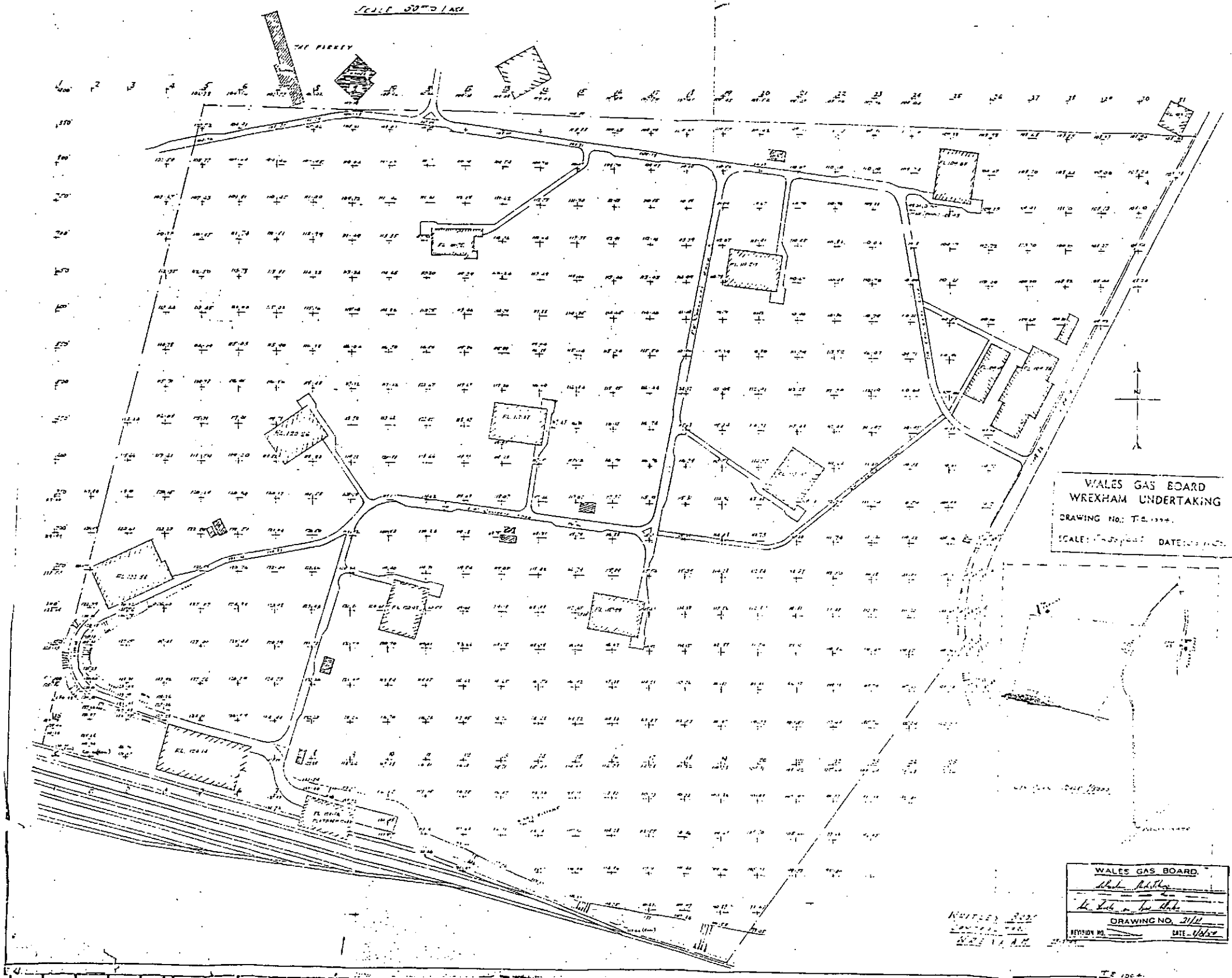
General of the Ordnance Survey, Chessington, Surrey, 1961.
 ins. Revised 1959, 60.

8/1/34/57

APPENDIX III
HISTORICAL ORDNANCE SURVEY MAPS

WALES GAS BOARD
SITE SURVEY - WREXHAM TRADING ESTATE.

SCALE 50" = 1' ASH

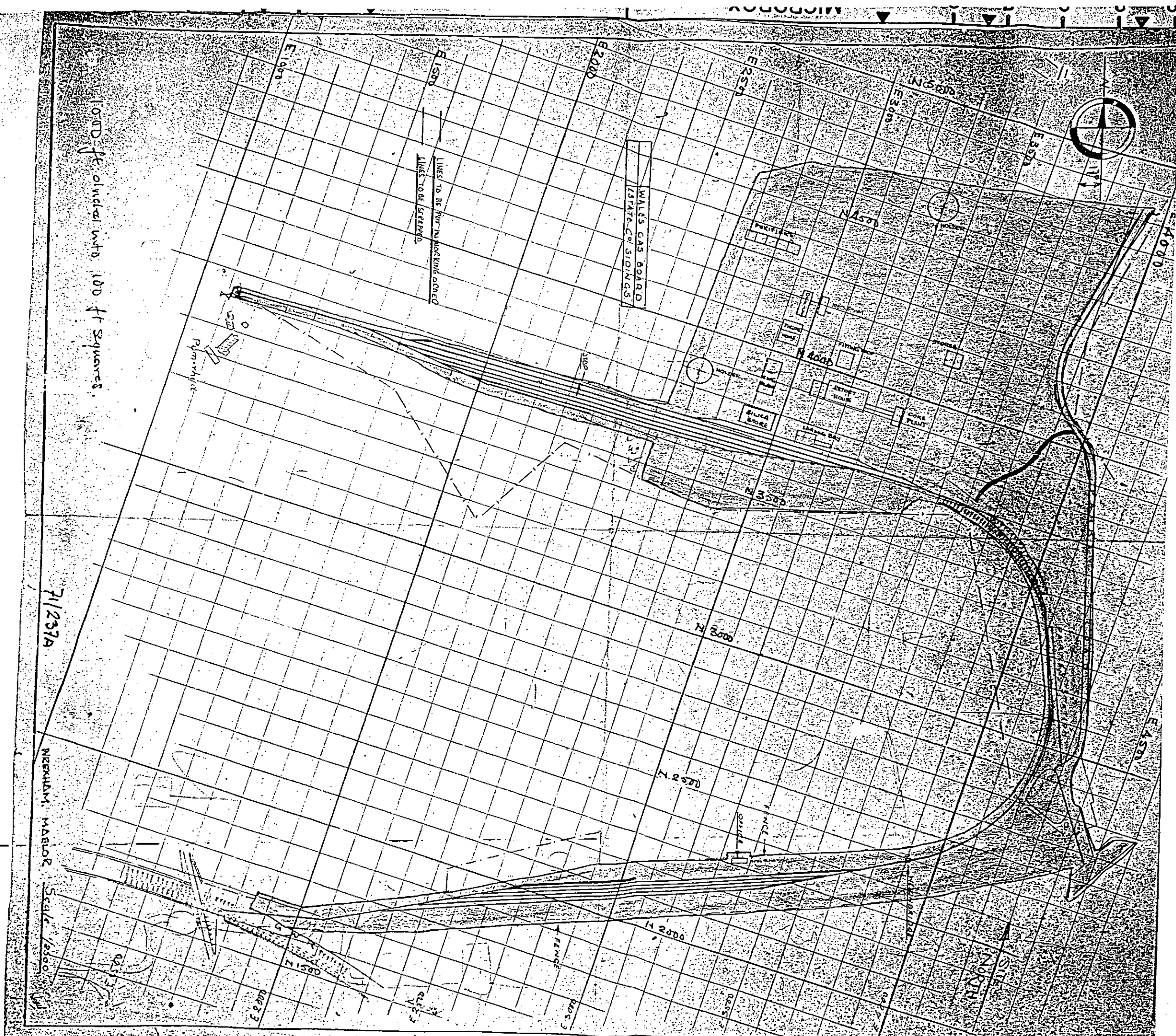


WALES GAS BOARD
WREXHAM UNDERTAKING
DRAWING No. T.S. 1004.
SCALE: 1"=50' DATE: 10/10/60.

WALES GAS BOARD.
Shelley Phillips
Leeds & Co. Ltd
 DRAWING NO. *21/11*
 REVISION NO. _____ DATE *1/1/50*

· Site survey of main site
Maelor Works, 1950.
Showing site levels.

A horizontal timeline scale. The left side is numbered 25, 24, 23, 22, 21, 20, 19, 18, 17, 16, 15, 14, 13, 12, 11, 10, 9, 8, 7, 6. The right side is numbered 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29. A central label 'MICROBOX' is positioned above a vertical line that aligns with the number 7 on both sides. There are small black triangles above the numbers 13, 9, 7, 6, 7, 9, 10, 13, 19. The text 'T.E. 1004' is visible on the right side of the scale.

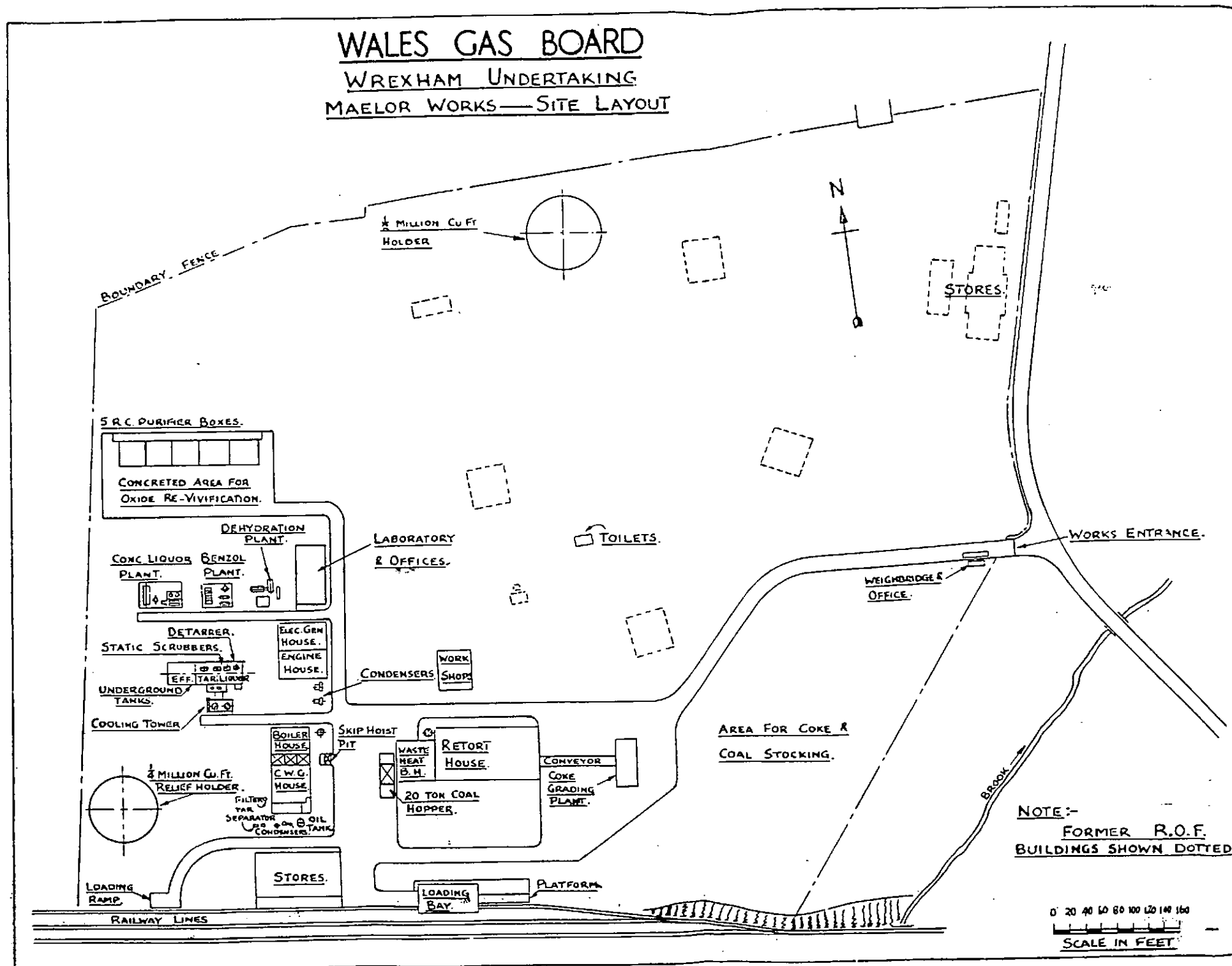


1000 ft divided into 100 ft squares.

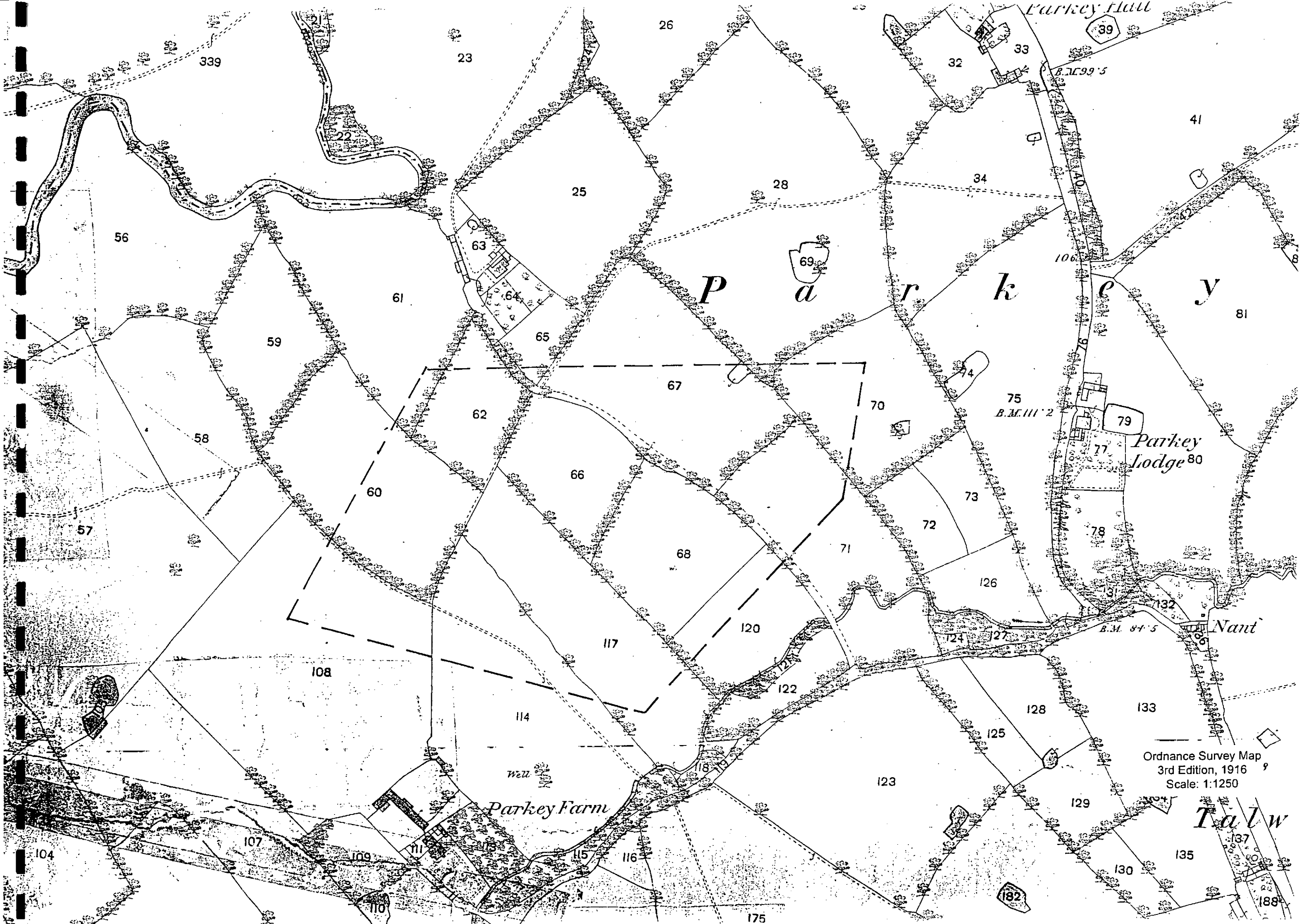
71/237A

NEWMAN, MAELOR

Scale 1/2500



Site layout of Maelor Works
 on opening day, 1953.



Ordnance Survey Map
3rd Edition, 1916
Scale: 1:1250

Talw

APPENDIX IV
TRIAL PIT AND BOREHOLE LOGS

KOMEX CLARKE BOND**BOREHOLE LOG**

CONTRACT No: 50065

COMPILED BY: T Parker

EXCAVATION DATE: July 12, 1995

BORE HOLE NO: MW 1

LOCATION: Bitish Gas Properties, Wrexham.

CONTRACTOR: Geotechnical Eng Ltd

NORTHING:

EASTING:

ELEVATION: 34.27

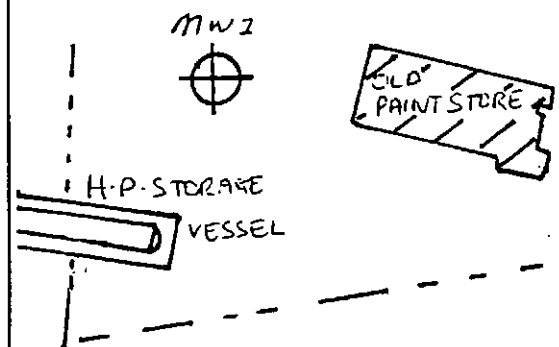
Depth (m)	Symbol	Odour	DESCRIPTION	WELL INSTALL'N DETAILS	OVA (ppm)	WATER LEVEL	SAMPLE ID	DEPTH (m)
0			HARDCORE: chippings with sand in matrix.					
0.3								
0.7			COMPACTED SOIL: Some gravel, some shell fragments.					
1.0			CLAY: Low plasticity, dry, stiff, some sand, grey rootlets, light orange brown.		0		MW1-1	0.9
1.5			SAND: Silty sand, medium to fine grained, damp, some black staining, brown.		0		MW1-2	1.1
2.0			CLAY: Stiff, dry, some pebbles, brown with grey inclusions. Grey inclusions like rock powder/flour.					
3.0					0		MW1-3	2.7
4.0					0		MW1-4	4
4.1			@ 4.1m Medium plasticity, stiff.					
			Total Depth 4.1m.					

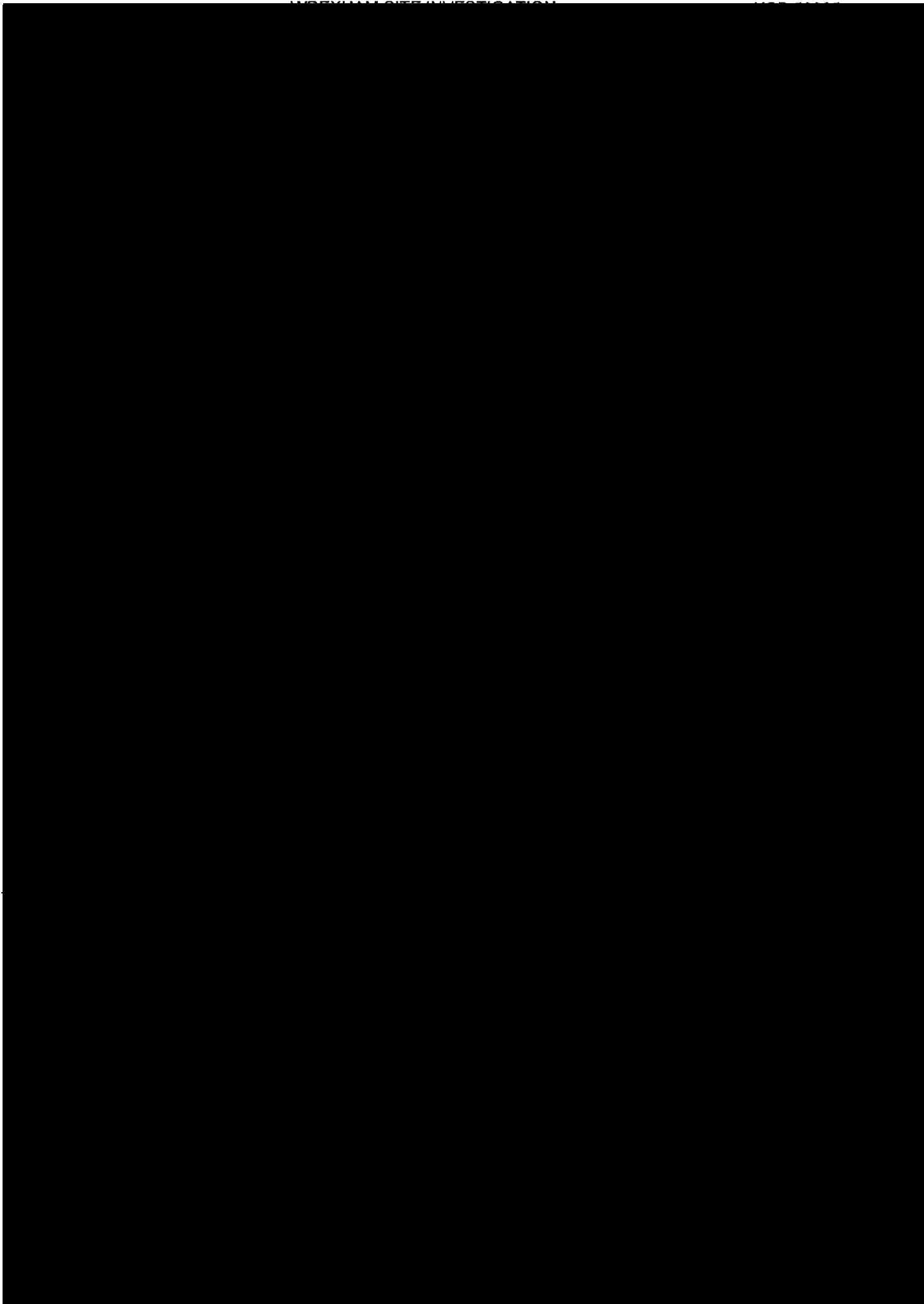
NOTES:

1. C.T. refers to coal tar
2. G.Wks refers to gas works
3. Pit was hand-dug to 1.0 metre
4. NA refers to not applicable

Monitoring Well Details:

Well box: Set in concrete
 Grout backfill: NA
 Bentonite seal: 0.0 to 0.95 m
 Sand pack: 0.95 to 2.7m, sized 0.7 to 1.2 mm
 Screen interval: 1.2 to 2.7m, 50 mm PVC, 0.1 mm slots
 Bentonite backfill: 2.7 to 4.0m

BOREHOLE LOCATION



KOMEX CLARKE BOND**BOREHOLE LOG**

CONTRACT No: 50065

COMPILED BY: T Parker

EXCAVATION DATE: July 12, 1995

BORE HOLE NO: MW 3

LOCATION: British Gas Properties, Wrexham.

CONTRACTOR: Geotechnical Eng Ltd

NORTHING:

EASTING:

ELEVATION: 37.19

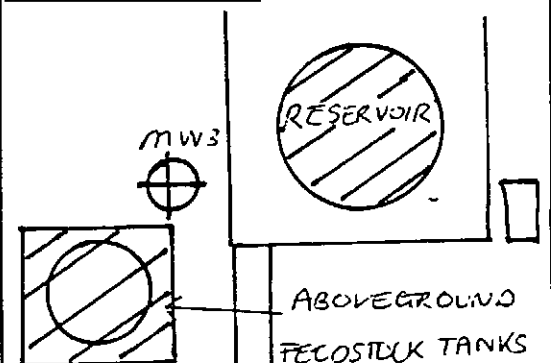
Depth (m)	Symbol	Odour	DESCRIPTION	WELL			
				INSTALL'N DETAILS	OVA (ppm)	WATER LEVEL	SAMPLE ID
0			FILL: Brick and sandy soil, orange.				
			@ 0.7m Fill, silt, some gravel, some coal, dark.		0.6		MW3-1
1.0					0.4		MW3-2
		C.T	SAND: Silty, medium grained to silt, damp.				
		strong	@ 1.5m Sand, silty, yellow and grey. @ 1.7m Sand, Silty, damp, predominantly grey. @ 1.9m Sand saturated, poorly sorted, medium to fine grained, grey.			DWL	
2.0					0		MW3-3
3.0							
			GRAVEL: Up to 5cm clasts, oily film on water.				
3.8							
			CLAY: Medium plasticity, stiff, looks clean, brown.		0		MW3-4
4.0							
4.3							
			Total Depth 4.3m.				

NOTES:

1. C.T. refers to coal tar
2. G.Wks refers to gas works
3. Pit was hand-dug to 1.0 metre
4. NA refers to not applicable

Monitoring Well Details:

Well box: Set in concrete
 Grout backfill: NA
 Bentonite seal: 0.2 to 1.1m
 Sand pack: 1.1 to 4.3m, sized 0.7 to 1.2 mm
 Screen interval: 1.3 to 4.3m, 50 mm PVC, 0.1 mm slots
 Bentonite backfill: NA

BOREHOLE LOCATION

KOMEX CLARKE BOND**BOREHOLE LOG**

CONTRACT No: 50065

COMPILED BY: T Parker

EXCAVATION DATE: July 12, 1995

BORE HOLE NO: MW 4

LOCATION: Bitish Gas Properties, Wrexham.

CONTRACTOR: Geotechnical Eng Ltd

NORTHING:

EASTING:

ELEVATION: 36.02

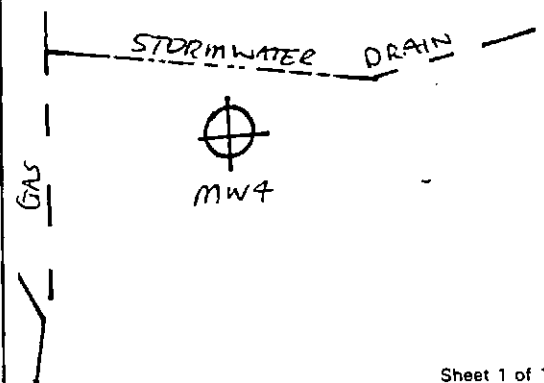
Depth (m)	Symbol	Odour	DESCRIPTION	WELL INSTALL'N DETAILS	OVA (ppm)	WATER LEVEL	SAMPLE ID	DEPTH (m)
0			TOPSOIL					
0.3								
0.6		C.T	FILL: Gravel, brick, coal, spent oxide. Odour stronger, black content increases.		4.2		MW4-1	0.6
1.0								
2.0								
2.9			@ 2.9m Black tar oozing in wet fill material.		0.8	▼	MW4-2	2.9
3.0								
3.6								
3.9			CLAY: Clean with grey rootlets, brown.		1		MW4-3	3.8
4.0			Total Depth 3.9m.					

NOTES:

1. C.T. refers to coal tar
2. G.Wks refers to gas works
3. Pit was hand-dug to 1.0 metre
4. NA refers to not applicable

Monitoring Well Details:

Well box: Set in concrete
Grout backfill: NA
Bentonite seal: 0.2 to 0.7 m
Sand pack: 0.7 to 3.9m, sized 0.7 to 1.2 mm
Screen interval: 0.9 to 3.9m, 50 mm PVC, 0.1 mm slots
Bentonite backfill: NA

BOREHOLE LOCATION

KOMEX CLARKE BOND**BOREHOLE LOG**

CONTRACT No: 50065

COMPILED BY: T Parker

EXCAVATION DATE: July 12, 1995

BORE HOLE NO: MW 5

LOCATION: British Gas Properties, Wrexham.

CONTRACTOR: Geotechnical Eng Ltd

NORTHING:

EASTING:

ELEVATION: 37.52

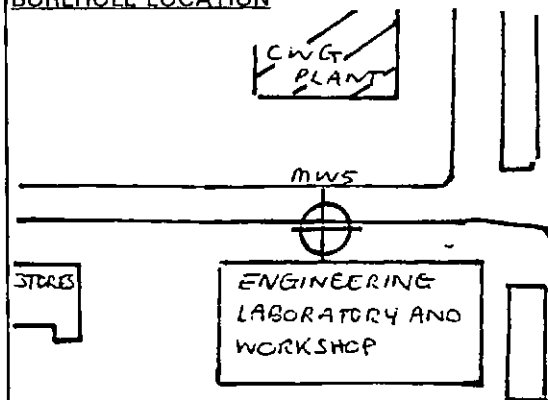
Depth (m)	Symbol	Odour	DESCRIPTION	WELL INSTALL'N DETAILS	OWA (ppm)	WATER LEVEL	SAMPLE ID	DEPTH (m)
0.1			TOPSOIL					
1.0			SAND: Medium grained, well sorted (made ground?). orange/brown.					
2.0			@ 1.5m Sand, damp, medium to fine grained, grey. @ 1.7m Sand wet.				MW5-1	1.5
2.5			@ 2.3m Sand and gravel.					1.9
3.0								
3.2								
3.7			CLAY: Plastic, stiff, trace small pebbles, no contamination, brown.				MW5-2	2.5
3.7								
4.0			Total Depth 3.7m.				MW5-3	3.5

NOTES:

1. C.T. refers to coal tar
2. G.Wks refers to gas works
3. Pit was hand-dug to 1.0 metre
4. NA refers to not applicable

Monitoring Well Details:

Well box: Set in concrete
Grout backfill: NA
Bentonite seal: 0.0 to 1.3 m
Sand pack: 1.3 to 3.1m, sized 0.7 to 1.2 mm
Screen interval: 1.6 to 3.1m, 50 mm PVC, 0.1 mm slots
Bentonite backfill: 3.1m to 3.7m

BOREHOLE LOCATION

KOMEX CLARKE BOND**BOREHOLE LOG**

CONTRACT No: 50065

COMPILED BY: T Parker

EXCAVATION DATE: July 13, 1995

BORE HOLE NO: MW 6

LOCATION: Bitish Gas Properties, Wrexham.

CONTRACTOR: Geotechnical Eng Ltd

NORTHING:

EASTING:

ELEVATION: 36.61

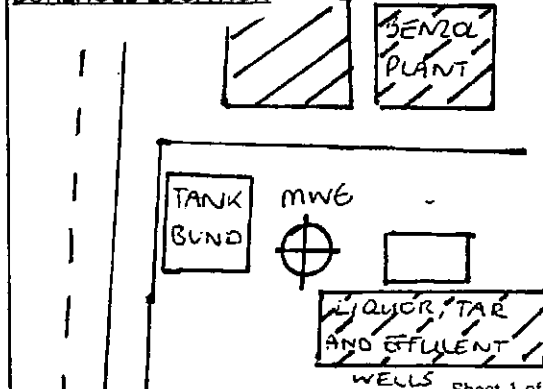
Depth (m)	Symbol	Odour	DESCRIPTION	WELL INSTALL'N DETAILS	OVA (ppm)	WATER LEVEL	SAMPLE ID	DEPTH (m)
0		C.T strong diesel	FILL: Brick, hardcore, grit.					
0.55		diesel	@ 0.55m Water flows into hole.				MW6-1	0.4
1.0								
1.3								
2.0			CLAY: Brown with grey staining.					
2.3							MW6-2	2.2
2.4		C.T	SAND: Medium/coarse grained, poorly sorted, damp, grey. @ 2.4m Sand, stained black.					
3.0							MW6-3	2.6
3.4								
3.8			CLAY: Stiff, high plasticity, clean below interface, brown.				MW6-4	3.7
4.0			Total Depth 3.8m.					

NOTES:

1. C.T. refers to coal tar
2. G.Wks refers to gas works
3. Pit was hand-dug to 1.0 metre
4. NA refers to not applicable

Monitoring Well Details:

Well box: Set in concrete
 Grout backfill: NA
 Bentonite seal: 0.3 to 2.2 m
 Sand pack: 2.2 to 3.8m, sized 0.7 to 1.2 mm
 Screen interval: 2.3 to 3.8m, 50 mm PVC, 0.1 mm slots
 Bentonite backfill: NA

BOREHOLE LOCATION

KOMEX CLARKE BOND**TRIAL PIT LOG**

CONTRACT No: 50065

COMPILED BY: J. Farrow

EXCAVATION DATE: July 12, 1995

TEST PIT No: TP 1

LOCATION: British Gas Site, Wrexham.

CONTRACTOR: Brooks

NORTHING:

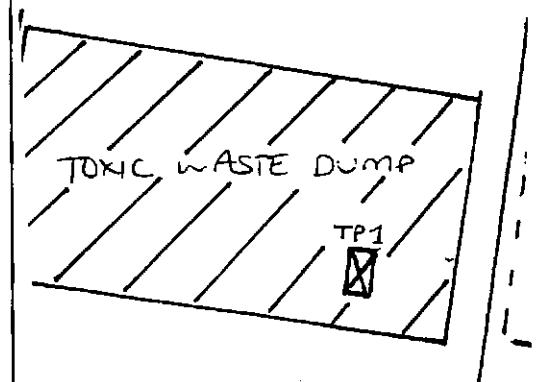
EASTING:

ELEVATION: 36.83

Depth (m)	Symbol	Odour	DESCRIPTION	OVA (ppm)	WATER LEVEL	SAMPLE I.D.	DEPTH (m)
0			GRAVEL/SOIL				
0.1							
			FILL: Sandy soil and backfill material, loose, moist, medium brown. Rubble no structure.	0		TP1-1	0.5
			Excavated concrete vault, reportedly backfilled with road material.				
1.0			@ 1.10m Water level, no visible sheen.		1.1 ▼		
		C.T	@ 1.5m Water, muddy.				
1.8				0		TP1-2	1.8
2.0		C.T	Trial Pit terminated as hole caves in.				
3.0							
4.0							

NOTES:

1. Trial Pit excavated by hand down to 1m.
2. Backfill with native material.

TRIAL PIT LOCATION

KOMEX CLARKE BOND**TRIAL PIT LOG**

CONTRACT No: 50065

COMPILED BY: J. Farrow

EXCAVATION DATE: July 12, 1995

TEST PIT No: TP 2

LOCATION: British Gas Site, Wrexham.

CONTRACTOR: Brooks

NORTHING:

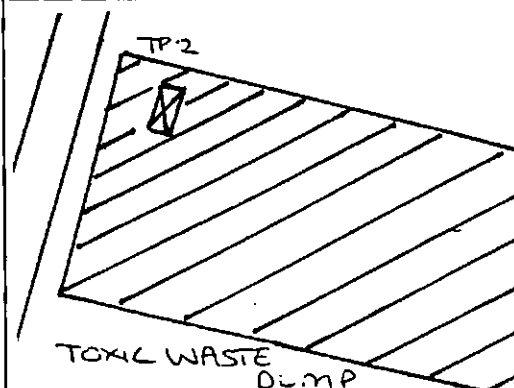
EASTING:

ELEVATION: 36.87

Depth (m)	Symbol	Odour	DESCRIPTION	OVA (ppm)	WATER LEVEL	SAMPLE I.D	DEPTH (m)
0			GRAVEL				
0.1							
1.0			FILL: Sandy soil with bituminous fill and rubble, dark brown. Medium brown clay.				
			Metal pipes and large concrete foundation material.				
			Dense Rubble	0		TP2-1	0.9
1.8							
1.9		C.T/ sulphur	@ 1.8m Water level, slight hydrocarbon sheen.		1.8 ▼		
2.0			@ 1.9m Concrete slab.				
2.4						TP2-3	2.3
2.4			Trial Pit terminated at 2.4m as hole collapses.				
3.0							
4.0							

NOTES:

1. Trial Pit excavated by hand down to 1m.
2. Backfill with native material.

TRIAL PIT LOCATION

KOMEX CLARKE BOND				TRIAL PIT LOG			
CONTRACT No: 50065		COMPILED BY: J. Farrow		EXCAVATION DATE: July 12, 1995			
TEST PIT No: TP 3		LOCATION: British Gas Site, Wrexham.		CONTRACTOR: Brooks			
NORTHING:		EASTING:		ELEVATION:			
Depth (m)	Symbol	Odour	DESCRIPTION	OVA (ppm)	WATER LEVEL	SAMPLE I.D	DEPTH (m)
0.1			LARGE BRICKS				
0.8		C.T	FILL: Sandy fill, light brown, frequently grey black.	0		TP3-1	0.4
0.9			SAND: Natural clayey sand, fine, light brown/yellow. Some local black carbonaceous material.	0		TP3-2	0.8
1.0			Trial Pit terminated at 0.9m, hand dug to natural soil.				
2.0							
3.0							
4.0							

NOTES:

1. Trial Pit excavated by hand down to 1m.
2. Backfill with native material.

TRIAL PIT LOCATION

KOMEX CLARKE BOND			TRIAL PIT LOG				
CONTRACT No: 50065		COMPILED BY: J. Farrow		EXCAVATION DATE: July 12, 1995			
TEST PIT No: TP 4		LOCATION: British Gas Site, Wrexham.		CONTRACTOR: Brooks			
NORTHING:		EASTING:		ELEVATION: 35.83			
Depth (m)	Symbol	Odour	DESCRIPTION	OVA (ppm)	WATER LEVEL	SAMPLE I.D.	DEPTH (m)
0.1			RUBBLE				
1.0			FILL: Clayey fill material with bitumin and rubble, dark brown. Recent British Gas fill from road excavations.	0			
1.6				5		TP4-1	1
2.0			SAND: Clayey sand, friable, moist to damp, light brown/yellow.	0		TP4-2	1.6
2.1							
2.7			CLAY: Plastic, massive, red/brown. Local root channels, no visible contamination.	0		TP4-3	2.6
3.0			Trial Pit terminated at 2.7m, no water.				
4.0							

NOTES:

1. Trial Pit excavated by hand down to 1m.
2. Backfill with native material.

TRIAL PIT LOCATION

Sheet 1 of 1

KOMEX CLARKE BOND TRIAL PIT LOG							
CONTRACT No: 50065		COMPILED BY: J. Farrow		EXCAVATION DATE: July 12, 1995			
TEST PIT No: TP 5		LOCATION: British Gas Site, Wrexham.		CONTRACTOR: Brooks			
NORTHING:		EASTING:		ELEVATION: 34.65			
Depth (m)	Symbol	Odour	DESCRIPTION	OVA (ppm)	WATER LEVEL	SAMPLE I.D	DEPTH (m)
0			TALL VEGETATION: Grasses.				
0.2			TOP SOIL: Sandy soil, moist, medium brown.				
0.8		slight C.T	FILL: Sandy fill material with iron cables/wooden beams, metal springs, dry, brown.				
1.0		slight C.T	@ 0.8m Oxide, moist, dark black/gray (blue billy).	0		TP5-1	0.9
1.3							
2.0			SAND: Clayey sand, very damp, light grey-dark grey, localised black inclusions. @ 1.7m Sandy clay, damp-saturated, lighter grey, locally brown/ red. Grading to clayey sand.	0		TP5-2	1.6
2.6			@ 2.35m Very slow seep of water above clay.10cm after 10mins.	0	2.4 ▼	TP5-3	2.7
2.7			CLAY: hard, firm, plastic, dry, brown-grey.				
3.0			Trial Pit terminated at 2.7m.				
4.0							

NOTES:

1. Trial Pit excavated by hand down to 1m.
2. Backfill with native material.

TRIAL PIT LOCATION

KOMEX CLARKE BOND			TRIAL PIT LOG				
CONTRACT No: 50065		COMPILED BY: J. Farrow		EXCAVATION DATE: July 12, 1995			
TEST PIT No: TP 6		LOCATION: British Gas Site, Wrexham.		CONTRACTOR: Brooks			
NORTHING:		EASTING:		ELEVATION: 36.33			
Depth (m)	Symbol	Odour	DESCRIPTION	OVA (ppm)	WATER LEVEL	SAMPLE I.D.	DEPTH (m)
0			GRASS				
0.25			TOP SOIL: sandy clayey soil, dry, light to medium brown.				
0.6			FILL: Rubble and gravel fill material, spent oxide	0		TP6-1	0.4
1.0			SAND: Slightly clayey, natural, local black carbonaceous material, light brown.				
1.4			@1.0m Sandy/silty clay, moist-damp, grey. Grading to clayey sand.	0		TP6-2	1.4
2.0			Trial Pit terminated at 1.4m, appears clean.				
3.0							
4.0							

NOTES:

1. Trial Pit excavated by hand down to 1m.
2. Backfill with native material.

TRIAL PIT LOCATION

Sheet 1 of 1

KOMEX CLARKE BOND**TRIAL PIT LOG**

CONTRACT No: 50065

COMPILED BY: J. Farrow

EXCAVATION DATE: July 12, 1995

TEST PIT No: TP 7

LOCATION: British Gas Site, Wrexham.

CONTRACTOR: Brooks

NORTHING:

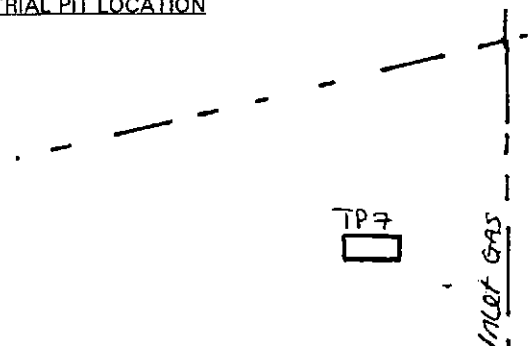
EASTING:

ELEVATION: 36.33

Depth (m)	Symbol	Odour	DESCRIPTION	OVA (ppm)	WATER LEVEL	SAMPLE I.D.	DEPTH (m)
0 0.15			SHORT TURF	0		TP7-1	0.2
1.0 1.5			FILL: Local gravel/bricks etc, dry, friable, trace blue billy (spent oxide?) green/grey-black. Brick layer in corner, brown/grey rubble. Blue oxide staining.	0		TP7-2	1.2
2.0			SAND: Medium/fine clayey sand, damp, grey. Visible roots and open root channels. Local coarse angular sand, damp.	0		TP7-3	1.9
3.0 4.0			Trial Pit terminated at 2.0m.				

NOTES:

1. Trial Pit excavated by hand down to 1m.
2. Backfill with native material.

TRIAL PIT LOCATION

KOMEX CLARKE BOND			TRIAL PIT LOG				
CONTRACT No: 50065		COMPILED BY: J. Farrow		EXCAVATION DATE: July 12, 1995			
TEST PIT No: TP 8		LOCATION: British Gas Site, Wrexham.		CONTRACTOR: Brooks			
NORTHING:		EASTING:		ELEVATION: 36.61			
Depth (m)	Symbol	Odour	DESCRIPTION	OVA (ppm)	WATER LEVEL	SAMPLE I.D.	DEPTH (m)
0.0			CONCRETE				
0.2			BASE	2.4		TP8-1	0.2
0.4			FILL: Blue billy/fill material, dark green (stains gloves green). underlain by, coarse/angular fill material, purple-brown.				
0.7			SAND: clayey sand, yellow brown.				
1.0			CLAY: Locally sandy clay, moist, plastic, brown to brown grey.	0		TP8-2	1
Trial Pit terminated at 1.0m.							
2.0							
3.0							
4.0							

NOTES:

1. Trial Pit excavated by hand down to 1m.
2. Backfill with native material.

TRIAL PIT LOCATION

Sheet 1 of 1

KOMEX CLARKE BOND				TRIAL PIT LOG			
CONTRACT No: 50065		COMPILED BY: J. Farrow		EXCAVATION DATE: July 13, 1995			
TEST PIT No: TP 9		LOCATION: British Gas Site, Wrexham.		CONTRACTOR: Brooks			
NORTHING:		EASTING:		ELEVATION: 36.52			
Depth (m)	Symbol	Odour	DESCRIPTION	OVA (ppm)	WATER LEVEL	SAMPLE I.D	DEPTH (m)
0.0			CONCRETE				
0.2			BASE				
1.0		slight C.T	FILL: Fill Material including local rubble and asbestos tiles, moist, dark brown/black.	0		TP9-1	0.5
1.7		slight C.T	Loose fill material consisting of clinker/ash/small stones/tiles, black-brown.	0		TP9-2	1.6
2.0		strong C.T	CLAY: Sandy clay, local carbonaceous material, moist to damp, black.	0.2		TP9-3	1.8
2.6			@ 2.4 m Water seeping slowly into pit. Boulder clay, massive, dry with well rounded small cobbles, brown grey.	0	2.4 ▼	TP9-3	2.6
3.0			Trial Pit terminated at 2.6m.				
4.0							

NOTES: 1. Trial Pit excavated by hand down to 1m. 2. Backfill with native material.	TRIAL PIT LOCATION
--	-------------------------------

Sheet 1 of 1

KOMEX CLARKE BOND**TRIAL PIT LOG**

CONTRACT No: 50065

COMPILED BY: J. Farrow

EXCAVATION DATE: July 12, 1995

TEST PIT No: TP 10

LOCATION: British Gas Site, Wrexham.

CONTRACTOR: Brooks

NORTHING:

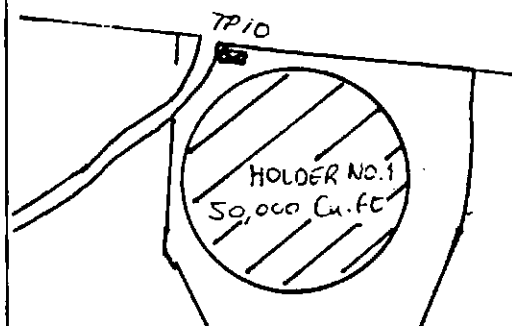
EASTING:

ELEVATION: 33.3

Depth (m)	Symbol	Odour	DESCRIPTION	OVA ppm	WATER LEVEL	SAMPLE I.D.	DEPTH (m)
0.1			SOIL ON GRASS SURFACE				
0.6			CLAY: Sandy clay, friable, moist-dry, light brown @ 0.6m Two drains (land drains- Backfilled with gravel to keep flow open. No hydrocarbon sheen on water.				
1.0			Trial Pit terminated at 0.6m. See TP 10A.				
2.0							
3.0							
4.0							

NOTES:

1. Trial Pit excavated by hand down to 1m.
2. Backfill with native material.

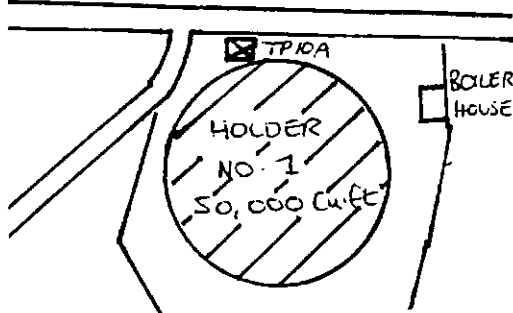
TRIAL PIT LOCATION

KOMEX CLARKE BOND				TRIAL PIT LOG			
CONTRACT No: 50065		COMPILED BY: J. Farrow		EXCAVATION DATE: July 12, 1995			
TEST PIT No: TP 10 A		LOCATION: British Gas Site, Wrexham.		CONTRACTOR: Brooks			
NORTHING:		EASTING:		ELEVATION:			
Depth (m)	Symbol	Odour	DESCRIPTION	OVA (ppm)	WATER LEVEL	SAMPLE I.D	DEPTH (m)
0			SOIL AT SURFACE				
0.1			CLAY: Slightly sandy, plastic, light brown. Local black carbonaceous inclusions @ 0.6m Pipe.			TP 10a-1	
			Trial Pit terminated at 0.7m.	0		10a-1	0.7
1.0							
2.0							
3.0							
4.0							

NOTES:

1. Trial Pit excavated by hand down to 1m.
2. Backfill with native material.

TRIAL PIT LOCATION

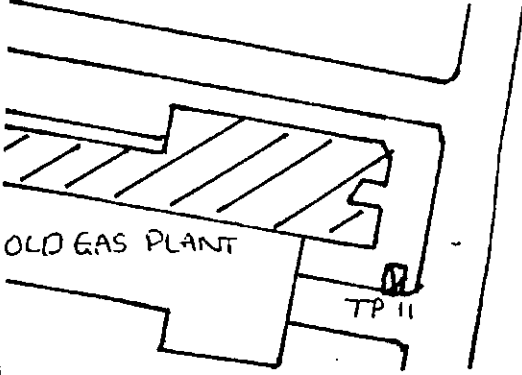


KOMEX CLARKE BOND				TRIAL PIT LOG			
CONTRACT No: 50065		COMPILED BY: J. Farrow		EXCAVATION DATE: July 12, 1995			
TEST PIT No: TP 11		LOCATION: British Gas Site, Wrexham.		CONTRACTOR: Brooks			
NORTHING:		EASTING:		ELEVATION: 36.75			
Depth (m)	Symbol	Odour	DESCRIPTION	OVA (ppm)	WATER LEVEL	SAMPLE I.O	DEPTH (m)
0.1			GRASS TURF				
0.65			FILL: Gravelly, clayey, sandy soil including bricks/ rubble, dry, brown. @ 0.65m Concrete slab.				
1.0			Trial Pit terminated due to slab at 0.65m.				
2.0							
3.0							
4.0							

NOTES:

1. Trial Pit excavated by hand down to 1m.
2. Backfill with native material.

TRIAL PIT LOCATION



KOMEX CLARKE BOND**TRIAL PIT LOG**

CONTRACT No: 50065

COMPILED BY: J. Farrow

EXCAVATION DATE: July 13, 1995

TEST PIT No: TP 11 A

LOCATION: British Gas Site, Wrexham.

CONTRACTOR: Brooks

NORTHING:

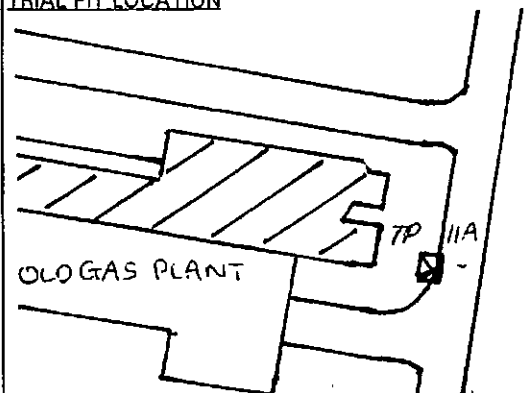
EASTING:

ELEVATION: 36.7

Depth (m)	Symbol	Odour	DESCRIPTION	OVA (ppm)	WATER LEVEL	SAMPLE I.D.	DEPTH (m)
0			GRASS				
0.1			TOP SOIL: Sandy, dry, brown. @ 0.15m Tree tap root.				
			Trial Pit abandoned at 0.15m.				
1.0							
2.0							
3.0							
4.0							

NOTES:

1. Trial Pit excavated by hand down to 1m.
2. Backfill with native material.

TRIAL PIT LOCATION

KOMEX CLARKE BOND TRIAL PIT LOG					
CONTRACT No: 50065		COMPILED BY: J. Farrow		EXCAVATION DATE: July 12, 1995	
TEST PIT No: TP 12		LOCATION: British Gas Site, Wrexham.		CONTRACTOR: Brooks	
NORTHING:		EASTING:		ELEVATION: 36.66	
Depth (m)	Symbol	Odour	DESCRIPTION	OVA (ppm)	WATER LEVEL
0			GRAVEL ON SURFACE		
0.1					
0.4			FILL: Broken bricks/tiles, red brown.		
0.7		mod	CLAY: Grey green-black @ 0.65m concrete platform at eastern end of pit.	0	
0.9		C.T	FILL: Black clinker/oxide/coke		
1.0			SAND: Clayey sand, natural, light brown/yellow.		
1.1					
Trial Pit terminated at 1.1m.					
2.0					
3.0					
4.0					

NOTES:

1. Trial Pit excavated by hand down to 1m.
2. Backfill with native material.

TRIAL PIT LOCATION

KOMEX CLARKE BOND			TRIAL PIT LOG				
CONTRACT No: 50065		COMPILED BY: J. Farrow		EXCAVATION DATE: July 12, 1995			
TEST PIT No: TP 13		LOCATION: British Gas Site, Wrexham.		CONTRACTOR: Brooks			
NORTHING:		EASTING:		ELEVATION: 36.84			
Depth (m)	Symbol	Odour	DESCRIPTION	OVA (ppm)	WATER LEVEL	SAMPLE I.D	DEPTH (m)
0.2			GRAVEL BASE				
0.4		strong	FILL: Sandy fill material, dark brown. Underlain by, clay/claystone fill, red.				
0.5		C.T	SAND: Clayey sand grading to sandy clay, brown/green. Local black carbonaceous material, moist.	0		TP 13-1	0.5
1.0			CLAY: Sandy clay, moist, brown/green. Local black carbonaceous material.				
1.5			SAND: Clayey sand, light green/brown.	0		TP 13-2	1.5
2.0			Trial Pit terminated at 1.5m.				
3.0							
4.0							

NOTES:

1. Trial Pit excavated by hand down to 1m.
2. Backfill with native material.

TRIAL PIT LOCATION

KOMEX CLARKE BOND			TRIAL PIT LOG				
CONTRACT No: 50065		COMPILED BY: J. Farrow		EXCAVATION DATE: July 13, 1995			
TEST PIT No: TP 14		LOCATION: British Gas Site, Wrexham.		CONTRACTOR: Brooks			
NORTHING:		EASTING:		ELEVATION: 36.78			
Depth (m)	Symbol	Odour	DESCRIPTION	OVA (ppm)	WATER LEVEL	SAMPLE I.D	DEPTH (m)
0			GRAVEL ON SURFACE				
0.1			BASE: gravel, loose, dry, yellow				
0.4			CONCRETE WITH REBAR: Concrete /brick platforms.				
1.0			SAND: Loose, medium moist, light brown/orange. Old clay pipe abandoned.	0		TP 14-1	1
1.5							
1.6			CLAY: Gravelly clay (boulder?), firm, plastic, red brown.				
2.0			GRAVEL: Dominantly coarse gravel, loose, saturated	0		TP 14-2	2.0
2.2			@ 2.05m Water level.		▼		
3.0			Trial Pit terminated at 2.2m.				
4.0							

NOTES:

1. Trial Pit excavated by hand down to 1m.
2. Backfill with native material.

TRIAL PIT LOCATION

KOMEX CLARKE BOND				TRIAL PIT LOG			
CONTRACT No: 50065		COMPILED BY: J. Farrow		EXCAVATION DATE: July 13, 1995			
TEST PIT No: TP 15		LOCATION: British Gas Site, Wrexham.		CONTRACTOR: Brooks			
NORTHING:		EASTING:		ELEVATION: 36.55			
Depth (m)	Symbol	Odour	DESCRIPTION	OVA (ppm)	WATER LEVEL	SAMPLE I.D	DEPTH (m)
0			FILL: Gravelly gasworks debris, clinker, ground oxide, black.	0		TP 15-1	0.2
0.15							
0.4		slight	SAND: Medium-fine sand, loose, damp, light brown.				
0.9		C.T	CLAY: Sandy clay, plastic, brown. Large pieces of tree.				
1.0							
1.5			SAND: Loose, moist, light brown/grey.	0		TP 15-2	1.4
			Trial Pit terminated at 1.5m.				
2.0							
3.0							
4.0							

NOTES:

1. Trial Pit excavated by hand down to 1m.
2. Backfill with native material.

TRIAL PIT LOCATION

KOMEX CLARKE BOND			TRIAL PIT LOG				
CONTRACT No: 50065		COMPILED BY: J. Farrow		EXCAVATION DATE: July 13, 1995			
TEST PIT No: TP 16		LOCATION: British Gas Site, Wrexham.		CONTRACTOR: Brooks			
NORTHING:		EASTING:		ELEVATION: 35.71			
Depth (m)	Symbol	Odour	DESCRIPTION	OVA (ppm)	WATER LEVEL	SAMPLE I.D.	DEPTH (m)
0			GRASS				
0.1			TOP SOIL: Sandy, gravelly top soil, brown				
0.2							
			CLAY: Sandy clay, friable, plastic, moist, red brown.	0		TP	0.5
1.0			Clay, stiff, moist, plastic, light brown- red brown.			TP	
1.2				0		16-2	1.2
			Trial Pit terminated at 1.2m.				
2.0							
3.0							
4.0							

NOTES:

1. Trial Pit excavated by hand down to 1m.
2. Backfill with native material.

TRIAL PIT LOCATION

RESERVOIR

TP16

ABOVEGROUND
FEEDSTOCK TANKS

Sheet 1 of 1

KOMEX CLARKE BOND				TRIAL PIT LOG			
CONTRACT No: 50065		COMPILED BY: J. Farrow		EXCAVATION DATE: July 13, 1995			
TEST PIT No: TP 17		LOCATION: British Gas Site, Wrexham.		CONTRACTOR: Brooks			
NORTHING:		EASTING:		ELEVATION: 36.25			
Depth (m)	Symbol	Odour	DESCRIPTION	OVA (ppm)	WATER LEVEL	SAMPLE I.D.	DEPTH (m)
0			GRASS				
0.25			TOP SOIL				
0.4			CLAY: Sandy clay, friable, brown.				
			SAND: Gravelly sand, medium, loose, moist, light brown/yellow.				
1.0				0		TP 17-1	1
1.1			Trial Pit terminated at 1.1m.				
2.0							
3.0							
4.0							

NOTES:

1. Trial Pit excavated by hand down to 1m.
2. Backfill with native material.

TRIAL PIT LOCATION

Sheet 1 of 1

KOMEX CLARKE BOND				TRIAL PIT LOG			
CONTRACT No: 50065		COMPILED BY: J. Farrow		EXCAVATION DATE: July 14, 1995			
TEST PIT No: TP 18		LOCATION: British Gas Site, Wrexham.		CONTRACTOR: Brooks			
NORTHING:		EASTING:		ELEVATION: 36.77			
Depth (m)	Symbol	Odour	DESCRIPTION	OVA (ppm)	WATER LEVEL	SAMPLE I.D	DEPTH (m)
0			ASPHALT				
			BASE				
0.35				0		TP 18-1	0.4
0.6		C.T	FILL: Slag/clinker/oxide material, black.				
1.0		slight C.T	SAND: Clayey, gravelly sand, light brown. Frequent carbonaceous material. Large tree branch and some tree fragments.				
1.4				0		TP 18-2	1.2
2.0		slight sweet	Sand, 10% silt, friable, loose, medium, light brown.	0		TP 18-3	1.5
2.1							
2.4		slight	Sand, medium, loose, saturated, red/brown.				
2.6			Water Level		2.4		
3.0			Trial Pit terminated at 2.60m.				
4.0							

NOTES:

1. Trial Pit excavated by hand down to 1m.
2. Backfill with native material.
3. No clay observed.

TRIAL PIT LOCATION

KOMEX CLARKE BOND**TRIAL PIT LOG**

CONTRACT No: 50065

COMPILED BY: J. Farrow

EXCAVATION DATE: July 14, 1995

TEST PIT No: TP 19

LOCATION: British Gas Site, Wrexham.

CONTRACTOR: Brooks

NORTHING:

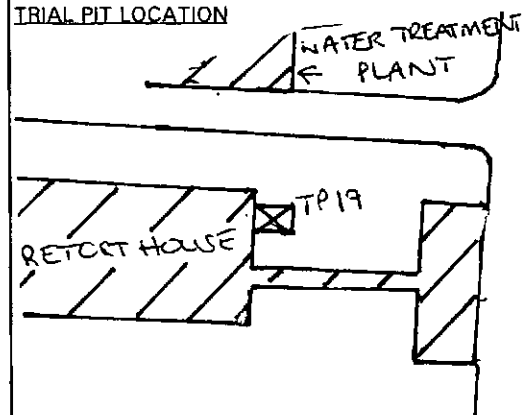
EASTING:

ELEVATION:

Depth (m)	Symbol	Odour	DESCRIPTION	OVA (ppm)	WATER LEVEL	SAMPLE I.O	DEPTH (m)
0			ASPHALT				
0.2			GRAVEL BASE				
0.3			BRICK LAYER, red.				
0.6			FILL: Refuse rubble-bricks/gravel/metal fragments, red.				
1.0			CLAY: Sandy clay, plastic, moist, brown. Mixed in with red bricks.	0		TP 19-1	0.7
1.1							
1.7			Clay, plastic, organic material, gravel (rounded and natural), brown/grey.	0		TP 19-1	1.5
2.0			Trial Pit terminated at 1.7m.				
3.0							
4.0							

NOTES:

1. Trial Pit excavated by hand down to 1m.
2. Backfill with native material.

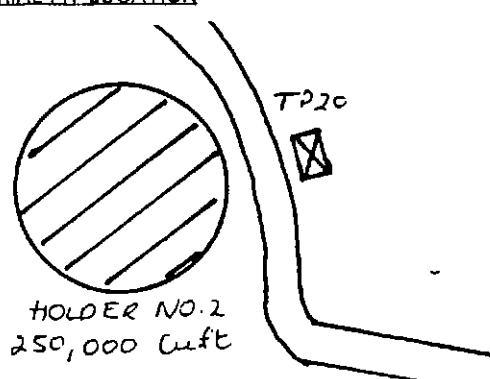
TRIAL PIT LOCATION

KOMEX CLARKE BOND				TRIAL PIT LOG			
CONTRACT No: 50065		COMPILED BY: J. Farrow		EXCAVATION DATE: July 14, 1995			
TEST PIT No: TP 20		LOCATION: British Gas Site, Wrexham.		CONTRACTOR: Brooks			
NORTHING:		EASTING:		ELEVATION: 36.95			
Depth (m)	Symbol	Odour	DESCRIPTION	OVA (ppm)	WATER LEVEL	SAMPLE I.D.	DEPTH (m)
0			GRAVEL				
0.2							
0.35			FILL/CLAY: Clay fill material, crushed bricks, red.				
0.6		C.T	FILL: Black oxide gasworks fill material.	0		TP 20-1	0.5
1.0		C.T Diesel	SAND: Siltstone, natural, moist, yellow brown.				
		C.T HC	'@ 1.0m Fine black stains to sediment. Increasing hydrocarbon odour. Stains ground with sheen.	3		TP 20-2	1
1.6			Sand, loose, medium-fine, grey-black.		▼		
1.8		Strong C.T/HC	@ 1.6m Water level-Patchy coal tar and strong "Rainbow" sheen on surface. Visible coal tar seeping into trial pit.				
2.0			Trial Pit terminated at 1.8m.				
3.0							
4.0							

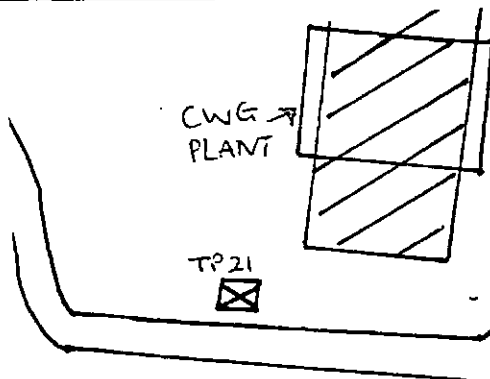
NOTES:

1. Trial Pit excavated by hand down to 1m.
2. Backfill with native material.
3. Quality control samples (5kg) for British Gas.

TRIAL PIT LOCATION



Sheet 1 of 1

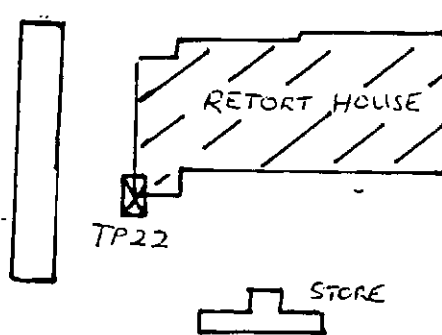
KOMEX CLARKE BOND				TRIAL PIT LOG			
CONTRACT No: 50065		COMPILED BY: J. Farrow		EXCAVATION DATE: July 14, 1995			
TEST PIT No: TP 21		LOCATION: British Gas Site, Wrexham.		CONTRACTOR: Brooks			
NORTHING:		EASTING:		ELEVATION: 36.85			
Depth (m)	Symbol	Odour	DESCRIPTION	OVA (ppm)	WATER LEVEL	SAMPLE I.D	DEPTH (m)
0 0.1			GRAVEL				
1.0		strong C.T	FILL: Rubble- boulders up to 4 ' wide/bricks/metal pipes/metal plates. @ 0.5m Perched water level-no visible contamination. No sign of coal tar.	10	▼	TP 21-1	1.2
1.6			Trial Pit terminated at 1.6m.				
2.0							
3.0							
4.0							
NOTES: 1. Trial Pit excavated by hand down to 1m. 2. Backfill with native material. 3. Possibly Trial Pit is dug inside an underground tank.				TRIAL PIT LOCATION 			

KOMEX CLARKE BOND				TRIAL PIT LOG			
CONTRACT No: 50065		COMPILED BY: J. Farrow		EXCAVATION DATE: July 14, 1995			
TEST PIT No: TP 22		LOCATION: British Gas Site, Wrexham.		CONTRACTOR: Brooks			
NORTHING:		EASTING:		ELEVATION: 36.66			
Depth (m)	Symbol	Odour	DESCRIPTION	OVA (ppm)	WATER LEVEL	SAMPLE I.D	DEPTH (m)
0.1			ASPHALT PAVEMENT				
0.3			CONCRETE BASE				
			FILL: Rubble-gravel/red clay/concrete @ 0.5m Reinforcement steel bar in concrete.				
0.6			CONCRETE				
1.0			CLAY: Sandy, gravelly, moist to damp, orange brown.				
2.0			GRAVEL/CLAY: Damp-wet, orange brown containing clinker, coke looking material (pumice-like).	0		TP 22-1	1.4
2.4							
2.6			CLAY	0		TP 22-2	2.5
3.0			Trial Pit terminated at 2.6m.				
4.0							

NOTES:

1. Trial Pit excavated by hand down to 1m.
2. Backfill with native material.

TRIAL PIT LOCATION



KOMEX CLARKE BOND				TRIAL PIT LOG			
CONTRACT No: 50065		COMPILED BY: J. Farrow		EXCAVATION DATE: July 14, 1995			
TEST PIT No: TP 23		LOCATION: British Gas Site, Wrexham.		CONTRACTOR: Brooks			
NORTHING:		EASTING:		ELEVATION: 36.67			
Depth (m)	Symbol	Odour	DESCRIPTION	OVA (ppm)	WATER LEVEL	SAMPLE I.D	DEPTH (m)
0.0			GRAVEL				
0.1			FILL: bricks/rubble				
0.4		strong HC/CT	@ 0.4m Perched water level, visible hydrocarbon sheen and coal tar spots on surface. Steel bars also found.	3		TP 23-1	0.7
1.0			INSIDE TANK				
1.2			OUTSIDE TANK			TP 23-2	1.2
1.4		strong	SAND: Clayey sand, moist-wet, black-dark brown.	7			
1.9			CLAY/SAND Large boulders, rubble, bricks and gravel.				
2.0		strong	SAND: Medium sand, saturated, loose, 10% silt, dark brown-black. @ 2.0m Concrete wall on tank cuts trench in half.	3		TP 23-3	2.0
2.1			Water Level		2.1		
			Trial Pit terminated at 2.1m.				
3.0							
4.0							

NOTES:

1. Trial Pit excavated by hand down to 1m.
2. Backfill with native material.

TRIAL PIT LOCATION

Sheet 1 of 1

KOMEX CLARKE BOND			TRIAL PIT LOG				
CONTRACT No: 50065		COMPILED BY: J. Farrow		EXCAVATION DATE: July 14, 1995			
TEST PIT No: TP 24		LOCATION: British Gas Site, Wrexham.		CONTRACTOR: Brooks			
NORTHING:		EASTING:		ELEVATION: 36.73			
Depth (m)	Symbol	Odour	DESCRIPTION	OVA (ppm)	WATER LEVEL	SAMPLE I.D	DEPTH (m)
0			GRAVEL				
0.1		slight					
0.4		C.T	FILL: Rubble/brick fill material. Clay with gravel fill material, yellow/Brown.				
1.0			GRAVEL: Chippings fill material, clean looking @ 0.55m Perched water level-relatively clear-cloudy, no sheen, no coal tar.		▼		
1.4			@ 1.3m Gravel with clay (mixed with clean chippings).	0		TP 24-1	1.3
2.0			Trial Pit terminated at 1.4m as caves in prevent further excavation.				
3.0							
4.0							

NOTES: 1. Trial Pit excavated by hand down to 1m. 2. Backfill with native material.	TRIAL PIT LOCATION
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Sheet 1 of 1

KOMEX CLARKE BOND				TRIAL PIT LOG			
CONTRACT No: 50065		COMPILED BY: J. Farrow		EXCAVATION DATE: July 14, 1995			
TEST PIT No: TP 23		LOCATION: British Gas Site, Wrexham.		CONTRACTOR: Brooks			
NORTHING:		EASTING:		ELEVATION: 36.67			
Depth (m)	Symbol	Odour	DESCRIPTION	OVA (ppm)	WATER LEVEL	SAMPLE ID	DEPTH (m)
0.0			GRAVEL				
0.4			FILL: bricks/rubble				
0.4		strong HC/CT	@ 0.4m Perched water level, visible hydrocarbon sheen and coal tar spots on surface. Steel bars also found.	3		TP 23-1	0.7
1.0			INSIDE TANK				
1.2			OUTSIDE TANK			TP 23-2	1.2
1.4		strong	SAND: Clayey sand, moist-wet, black-dark brown.	7			
1.4			CLAY/SAND				
1.9			Large boulders, rubble, bricks and gravel.				
2.0		strong	SAND: Medium sand, saturated, loose, 10% silt, dark brown-black.	3		TP 23-3	2.0
2.1			@ 2.0m Concrete wall on tank cuts trench in half.				
2.1			Water Level		2.1		
2.1			Trial Pit terminated at 2.1m.				
3.0							
4.0							

NOTES:

1. Trial Pit excavated by hand down to 1m.
2. Backfill with native material.

TRIAL PIT LOCATION

Sheet 1 of 1

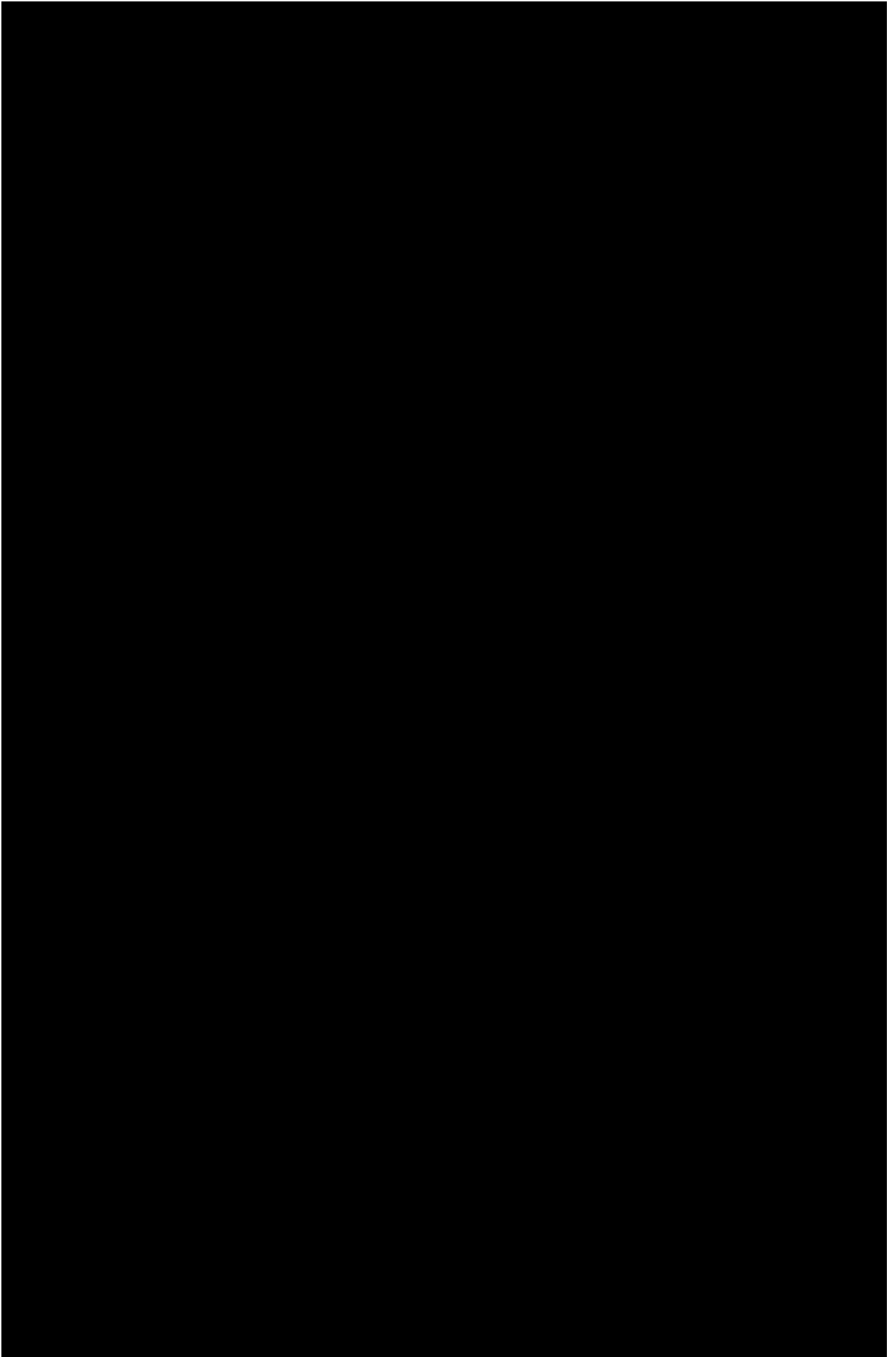
KOMEX CLARKE BOND				TRIAL PIT LOG			
CONTRACT No: 50065		COMPILED BY: J. Farrow		EXCAVATION DATE: July 14, 1995			
TEST PIT No: TP 24		LOCATION: British Gas Site, Wrexham.		CONTRACTOR: Brooks			
NORTHING:		EASTING:		ELEVATION: 36.73			
Depth (m)	Symbol	Odour	DESCRIPTION	OVA (ppm)	WATER LEVEL	SAMPLE I.D.	DEPTH (m)
0			GRAVEL				
0.1		slight					
0.4		C.T	FILL: Rubble/brick fill material. Clay with gravel fill material, yellow/Brown.				
1.0			GRAVEL: Chippings fill material, clean looking @ 0.55m Perched water level-relatively clear-cloudy, no sheen, no coal tar.		▼		
1.4			@ 1.3m Gravel with clay (mixed with clean chippings).	0		TP 24-1	1.3
2.0			Trial Pit terminated at 1.4m as caves in prevent further excavation.				
3.0							
4.0							

NOTES:

1. Trial Pit excavated by hand down to 1m.
2. Backfill with native material.

TRIAL PIT LOCATION

Sheet 1 of 1



KOMEX CLARKE BOND				TRIAL PIT LOG			
CONTRACT No: 50065		COMPILED BY: J. Farrow		EXCAVATION DATE: July 19, 1995			
TEST PIT No: TP 26		LOCATION: British Gas Site, Wrexham.		CONTRACTOR: Brooks			
NORTHING:		EASTING:		ELEVATION:			
Depth (m)	Symbol	Odour	DESCRIPTION	OVA ppm	WATER LEVEL	SAMPLE I.O	DEPTH (m)
0			FILL: Brick, rubble, soil. Some clasts tar stained but dry.				
0.4							
0.7			SAND: Coarse to medium grained, orange brown.	0		TP 26-1	0.6
0.8			GRAVEL: Pebble clasts, coarse sand, wet.		▼		
1.0			@ 0.8m Water flowing in. No odour.				
1.4							
1.5			CLAY: Homogenous, plastic, stiff, clean, brown.			TP	
			Trial Pit terminated at 1.5m.	0		26-2	1.5
2.0							
3.0							
4.0							

NOTES:

1. Trial Pit excavated by hand down to 1m.
2. Backfill with native material.

TRIAL PIT LOCATION

KOMEX CLARKE BOND				TRIAL PIT LOG			
CONTRACT No: 50065		COMPILED BY: J. Farrow		EXCAVATION DATE: July 19, 1995			
TEST PIT No: TP 27		LOCATION: British Gas Site, Wrexha		CONTRACTOR: Brooks			
NORTHING:		EASTING:		ELEVATION: 36.53			
Depth (m)	Symbol	Odour	DESCRIPTION	OVA (ppm)	WATER LEVEL	SAMPLE I.D	DEPTH (m)
0 0.1			TOPSOIL				
1.0			FILL: Brick, rubble, spent oxide, coke chips, clay pieces.				
			Black coking dust, spent oxide, slight coal tar odour, nodules of fused/melted oxide.	0		TP 27-1	1.4
2.0			Brick and clay fill, odour.				
2.6				0		TP 27-2	2.6
3.0			CLAY: Black staining, soft grey.				
3.1			Clay, cleaner, firm, yellow orange.	0		TP 27-3	3.1
4.0			Trial Pit terminated at 3.1m.				

NOTES:

1. Trial Pit excavated by hand down to 1m.
2. Backfill with native material.

TRIAL PIT LOCATION

Sheet 1 of 1

KOMEX CLARKE BOND			TRIAL PIT LOG				
CONTRACT No: 50065		COMPILED BY: J. Farrow		EXCAVATION DATE: July 19, 1995			
TEST PIT No: TP 28		LOCATION: British Gas Site, Wrexham.		CONTRACTOR: Brooks			
NORTHING:		EASTING:		ELEVATION: 33.99			
Depth (m)	Symbol	Odour	DESCRIPTION	OVA (ppm)	WATER LEVEL	SAMPLE I.D	DEPTH (m)
0			TOPSOIL/BRICK FILL	0		TP 28-1	0.2
0.2							
0.3			FILL: Black spent oxide.				
0.4			CLAY: Stiff, plastic, homogenous, brown.				
			Trial Pit terminated at 0.4m.				
1.0							
2.0							
3.0							
4.0							

NOTES: 1. Trial Pit excavated by hand down to 1m. 2. Backfill with native material.	TRIAL PIT LOCATION
--	----------------------------------

Sheet 1 of 1

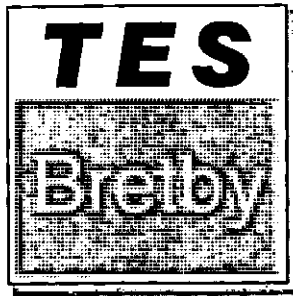
KOMEX CLARKE BOND				TRIAL PIT LOG			
CONTRACT No: 50065		COMPILED BY: J. Farrow		EXCAVATION DATE: July 19, 1995			
TEST PIT No: TP 29		LOCATION: British Gas Site, Wrexham.		CONTRACTOR: Brooks			
NORTHING:		EASTING:		ELEVATION: 37.27			
Depth (m)	Symbol	Odour	DESCRIPTION	OVA (ppm)	WATER LEVEL	SAMPLE I.D	DEPTH (m)
0.1			TOPSOIL				
0.5			FILL: Spent oxide @ 0.2m Brick fragments, tar lumps.			TP 29-1	0.6
1.0		C.T	CLAY: Dry, friable, black staining. @ 0.8m Large brick.	0.8		TP 29-2	1.7
2.0		more strong	Blackness increases with depth.				
2.9			Damp @ 2.8m Wet, strong odour.	1.1	▼	TP 29-3	2.8
3.0			Clay, stiff, homogenous, brown.				
3.1			Trial Pit terminated at 3.1m.				
4.0							

NOTES: 1. Trial Pit excavated by hand down to 1m. 2. Backfill with native material.	TRIAL PIT LOCATION
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Sheet 1 of 1

APPENDIX V
LABORATORY DATA

SOIL ANALYSES



TES Bretby Ltd., P.O. Box 100, Burton-on-Trent, DE15 0XD
Telephone: 01283 554400 Fax: 01283 554422

CBP BRISTOL	
JOB No.	
PARTNER	
15 JUL 1995	
15000	000
PASSED TO	
ACTION BY	

Our Ref : J2D/CL3141
Your Ref:
14 August 1995

Mr J Farrow
Komex Clarke Bond
129 Cumberland Road
Bristol
BS1 6UY

Dear Mr Farrow

SOILS ANALYSIS - B/Gas Wrexham

Please find attached analytical results for the samples from the above site, tabulated as follows:

Table 1 Sample Identification
Table 2 Results
Table 3 PAH
Table 4 Phenol Analysis

The cost of this analysis will be £3,216.62 (exclusive of VAT).

An invoice for this work will follow under separate cover.

The work was carried out in accordance with TES Bretby Ltd. Standard Terms and Conditions of Contract.

Please contact me if you require any further information.

Yours sincerely


P.D. Thornewill
Project Co-ordinator
01283-554416

TES Bretby Ltd.

Job number: 3141 Table 1

Identification of samples from B/Gas Wrexham

Assessed area	ID No. EFS/CL	Sample	Depth(m) from to		Description
B/Gas Wrexham	9510268	T/P /0014/1	1.00		
B/Gas Wrexham	9510266	T/P /0014/2	2.00		
B/Gas Wrexham	9510269	T/P /0018/1	0.35		
B/Gas Wrexham	9510270	T/P /0018/1D	0.35		
B/Gas Wrexham	9510267	T/P /0018/2	1.20		
B/Gas Wrexham	9510271	T/P /0018/3	1.50		
B/Gas Wrexham	9510273	T/P /0019/1	0.70		
B/Gas Wrexham	9510265	T/P /0019/2	1.50		
B/Gas Wrexham	9510277	T/P /0020/1	0.50		
B/Gas Wrexham	9510281	T/P /0020/2	1.00		
B/Gas Wrexham	9510280	T/P /0020/3	1.60		
B/Gas Wrexham	9510282	T/P /0021/1	1.20		
B/Gas Wrexham	9510272	T/P /0021/1D	1.40		
B/Gas Wrexham	9510264	T/P /0022/1	1.40		
B/Gas Wrexham	9510274	T/P /0022/2	2.50		
B/Gas Wrexham	9510283	T/P /0023/1	0.70		
B/Gas Wrexham	9510275	T/P /0023/1D	0.70		
B/Gas Wrexham	9510278	T/P /0023/2	1.20		
B/Gas Wrexham	9510276	T/P /0023/3	2.00		
B/Gas Wrexham	9510279	T/P /0024/1	1.30		



TEST REPORT



Komex Clarke Bond
129 Cumberland Road
Bristol
BS1 6UY

Testing
No. 1252
/1411
/1253
Report No. 3141 Table 2 Sheet 1 of 5

Extended Analysis Results

Site: B/Gas Wrexham

ID Number	CL9510268	CL9510266	CL9510269	CL9510270
Customer reference	T/P	T/P	T/P	T/P
Depth (m)	0014 1 1.00	0014 2 2.00	0018 1 0.35	0018 1D 0.35
Date logged	18/07/95	18/07/95	18/07/95	18/07/95

NAMAS accredited	Test No.	CL9510268	CL9510266	CL9510269	CL9510270
Aluminium	ICPSSS11	8550	12100	9210	10200
Arsenic	ICPSSS11	8	14	27	19
Boron	ICPB41	1	1	1	1
Cadmium	ICPSSS11	1	1	<1	1
Chromium (total)	ICPSSS11	19	27	18	18
CN- (free)	ISECN51	<1	<1	1	2
Cobalt	ICPSSS11	6	11	15	11
Copper	ICPSSS11	24	65	127	69
Iron	ICPSSS11	25900	37300	35700	32900
Lead	ICPSSS11	27	60	68	50
Loss on Ignition %	CL3	5.1	5.6	43.2	52.4
Manganese	ICPSSS11	290	1080	384	196
Mercury	ICPSSS11	<2	<2	3	<2
Moisture Content %	CL4;CL5	9.6	11.1	24.8	30.4
Molybdenum	ICPSSS11	<2	<2	9	6
Nickel	ICPSSS11	17	33	53	28
Vanadium	ICPSSS11	24	40	61	45
Zinc	ICPSSS11	45	102	117	48

not NAMAS accredited		CL9510268	CL9510266	CL9510269	CL9510270
Ammonia		<5	<5	7	20
Chloride		<12	<12	<12	19
Cyanide (AR)		<10	<10	<10	<10
Elemental Sulphur		<100	<100	178	190
pH (AR)		7.5	7.6	7.4	6.6
Selenium		<0.5	<0.5	1.5	1.0

Results expressed as mg/kg Air Dried unless stated

Approved by: J Pollard
J Pollard Project Co-ordinator

Date of Issue: 04/08/95

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TEST REPORT



Komex Clarke Bond
129 Cumberland Road
Bristol
BS1 6UY

Testing

No. 1252
/1411
/1253

Report No. 3141 Table 2 Sheet 2 of 5

Extended Analysis Results

Site: B/Gas Wrexham

ID Number	CL9510267	CL9510271	CL9510273	CL9510265
Customer reference	T/P 0018 2	T/P 0018 3	T/P 0019 1	T/P 0019 2
Depth (m)	1.20	1.50	0.70	1.50
Date logged	18/07/95	18/07/95	18/07/95	18/07/95

NAMAS accredited	Test No.	CL9510267	CL9510271	CL9510273	CL9510265
Aluminium	ICPSSS11	10600	16400	11900	17200
Arsenic	ICPSSS11	8	20	10	14
Boron	ICPB41	1	1	1	1
Cadmium	ICPSSS11	1	2	1	1
Chromium (total)	ICPSSS11	15	25	18	28
CN- (free)	ISECN51	4	2	2	<1
Cobalt	ICPSSS11	6	11	10	16
Copper	ICPSSS11	25	81	20	22
Iron	ICPSSS11	22700	42700	25800	40500
Lead	ICPSSS11	31	38	48	39
Loss on Ignition %	CL3	5.1	6.2	6.2	6.8
Manganese	ICPSSS11	379	569	509	979
Mercury	ICPSSS11	<2	<2	<2	<2
Moisture Content %	CL4;CL5	14.9	9.8	16	16.7
Molybdenum	ICPSSS11	<2	<2	<2	<2
Nickel	ICPSSS11	16	32	23	30
Vanadium	ICPSSS11	25	43	32	45
Zinc	ICPSSS11	56	83	62	80

not NAMAS accredited		CL9510267	CL9510271	CL9510273	CL9510265
Ammonia		65	25	115	65
Chloride		37	12	51	87
Cyanide (AR)		<10	<10	<10	<10
Elemental Sulphur		210	142	322	122
pH (AR)		6.8	6.6	8.4	7.5
Selenium		<0.5	<0.5	<0.5	<0.5

Results expressed as mg/kg Air Dried unless stated

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TEST REPORT



Komex Clarke Bond
129 Cumberland Road
Bristol
BS1 6UY

Testing

No. 1252
/1411
/1253
Report No. 3141 Table 2 Sheet 3 of 5

Extended Analysis Results

Site: B/Gas Wrexham

ID Number	CL9510277	CL9510281	CL9510280	CL9510282
Customer reference	T/P	T/P	T/P	T/P
Depth (m)	0020 1 0.50	0020 2 1.00	0020 3 1.60	0021 1 1.20
Date logged	18/07/95	18/07/95	18/07/95	18/07/95

NAMAS accredited	Test No.	CL9510277	CL9510281	CL9510280	CL9510282
Aluminium	ICPSSS11	17700	11500	8320	11000
Arsenic	ICPSSS11	11	10	7	34
Boron	ICPB41	1	1	1	1
Cadmium	ICPSSS11	<1	1	<1	<1
Chromium (total)	ICPSSS11	22	25	22	40
CN- (free)	ISECN51	<1	<1	2	2
Cobalt	ICPSSS11	18	10	7	8
Copper	ICPSSS11	105	22	23	169
Iron	ICPSSS11	39400	30300	26000	29300
Lead	ICPSSS11	20	24	25	394
Loss on Ignition %	CL3	34.5	2.7	4.2	17
Manganese	ICPSSS11	209	360	264	377
Mercury	ICPSSS11	<2	<2	<2	<2
Moisture Content %	CL4;CL5	18.1	17.5	22.4	17
Molybdenum	ICPSSS11	9	<2	<2	2
Nickel	ICPSSS11	47	25	21	659
Vanadium	ICPSSS11	79	28	22	49
Zinc	ICPSSS11	31	57	46	251

not NAMAS accredited		CL9510277	CL9510281	CL9510280	CL9510282
Ammonia		10	65	20	6
Chloride		13	24	<12	<12
Cyanide (AR)		<10	<10	<10	19
Elemental Sulphur		292	<100	238	<100
pH (AR)		8.4	7.7	7.6	10.4
Selenium		1.0	<0.5	<0.5	0.7
TPH (AR)		708	<20	<20	70

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J Pollard Project Co-ordinator

Date of Issue: 04/08/95

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TEST REPORT



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Testing

No. 1252
/1411
/1253

Report No. 3141 Table 2 Sheet 4 of 5

Extended Analysis Results

Site: B/Gas Wrexham

ID Number	CL9510272	CL9510264	CL9510274	CL9510283
Customer reference	T/P 0021 1D	T/P 0022 1	T/P 0022 2	T/P 0023 1
Depth (m)	1.40	1.40	2.50	0.70
Date logged	18/07/95	18/07/95	18/07/95	18/07/95

NAMAS accredited	Test No.	CL9510272	CL9510264	CL9510274	CL9510283
Aluminium	ICPSSS11	11300	11500	19500	7700
Arsenic	ICPSSS11	18	14	14	23
Boron	ICPB41	1	1	1	1
Cadmium	ICPSSS11	1	1	1	1
Chromium (total)	ICPSSS11	23	22	34	19
CN- (free)	ISECN51	1	<1	<1	5
Cobalt	ICPSSS11	10	10	16	8
Copper	ICPSSS11	176	33	45	187
Iron	ICPSSS11	33700	32900	41000	27300
Lead	ICPSSS11	130	113	54	333
Loss on Ignition %	CL3	10.5	8.3	7.6	19
Manganese	ICPSSS11	591	556	564	640
Mercury	ICPSSS11	<2	<2	<2	<2
Moisture Content %	CL4;CL5	12.4	18.4	26.8	18.9
Molybdenum	ICPSSS11	<2	<2	<2	2
Nickel	ICPSSS11	106	26	47	26
Vanadium	ICPSSS11	41	32	51	34
Zinc	ICPSSS11	119	74	107	592

not NAMAS accredited		CL9510272	CL9510264	CL9510274	CL9510283
Ammonia		<5	5	<5	27
Chloride		50	<12	<12	44
Cyanide (AR)		<10	<10	<10	<10
Elemental Sulphur		<100	124	192	256
pH (AR)		8.9	9	7.8	9.5
Selenium		<0.5	<0.5	<0.5	<0.5
TPH (AR)					8370

Results expressed as mg/kg Air Dried unless stated

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TEST REPORT



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Testing

No. 1252
/1411
/1253

Report No. 3141 Table 2 Sheet 5 of 5

Extended Analysis Results

Site: B/Gas Wrexham

ID Number	CL9510275	CL9510278	CL9510276	CL9510279
Customer reference	T/P	T/P	T/P	T/P
Depth (m)	0023 1D 0.70	0023 2 1.20	0023 3 2.00	0024 1 1.30
Date logged	18/07/95	18/07/95	18/07/95	18/07/95

NAMAS accredited	Test No.	CL9510275	CL9510278	CL9510276	CL9510279
Aluminium	ICPSSS11	8510	12100	10300	5140
Arsenic	ICPSSS11	22	18	12	5
Boron	ICPB41	2	1	1	1
Cadmium	ICPSSS11	3	1	1	1
Chromium (total)	ICPSSS11	22	23	20	11
CN- (free)	ISECN51	6	4	2	<1
Cobalt	ICPSSS11	11	12	13	6
Copper	ICPSSS11	100	53	94	25
Iron	ICPSSS11	27600	34300	29200	15400
Lead	ICPSSS11	523	133	64	162
Loss on Ignition %	CL3	20.4	7.7	5.3	20.8
Manganese	ICPSSS11	574	493	421	312
Mercury	ICPSSS11	<2	<2	<2	<2
Moisture Content %	CL4;CL5	19.2	15.2	16.9	8.1
Molybdenum	ICPSSS11	<2	<2	<2	<2
Nickel	ICPSSS11	28	40	29	17
Vanadium	ICPSSS11	37	39	30	14
Zinc	ICPSSS11	886	176	116	213

not NAMAS accredited		CL9510275	CL9510278	CL9510276	CL9510279
Ammonia		29	57	78	11
Chloride		19	<12	<12	<12
Cyanide (AR)		<10	<10	<10	<10
Elemental Sulphur		226	1740	324	<100
pH (AR)		9.5	9.4	9	8.6
Selenium		<0.5	<0.5	<0.5	<0.5
TPH (AR)		3190	<20	<20	<20

Results expressed as mg/kg Air Dried unless stated

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J Pollard Project Co-ordinator

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TEST REPORT



Komex Clarke Bond
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Testing
No. 1252/
1411

Job No. 3141 Table 3 Sheet 1 of 5

Poly Aromatic Hydrocarbons

Method No. P2S

Site: B/Gas Wrexham

ID Number	CL9510268	CL9510266	CL9510269	CL9510270
Customer reference	T/P	T/P	T/P	T/P
Depth (m)	0014 1 1.00	0014 2 2.00	0018 1 0.35	0018 1D 0.35
Date logged	18/07/95	18/07/95	18/07/95	18/07/95

Poly Aromatic Hydrocarbons	CL9510268	CL9510266	CL9510269	CL9510270
Naphthalene	<1	<1	5	18
Acenaphthylene	<1	<1	2	14
Acenaphthene	<1	<1	1	3
Fluorene	<1	<1	2	16
Phenanthrene	3	3	6	48
Anthracene	<1	<1	4	19
Fluoranthene	<1	1	6	36
Pyrene	<1	2	5	31
Chrysene	<1	<1	4	18
Benzo(a)anthracene	<1	<1	1	15
Benzo(b)fluoranthene	<1	<1	5	28
Benzo(k)fluoranthene	#	#	#	#
Benzo(a)pyrene	<1	<1	3	17
Indeno(123-cd)pyrene	<2	<2	3	15
Dibenzo(ah)anthracene	*	*	*	*
Benzo(ghi)perylene	<1	<1	1	10

Results expressed as mg/kg Air Dried unless stated

#-co-eluted with Benzo(b)Fluoranthene

*-co-eluted with Indeno(123-cd)Pyrene

Approved by: J Pollard
J Pollard Project Co-ordinator

Date of Issue: 09/08/95

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TEST REPORT



Testing

No. 1252/
1411

Komex Clarke Bond
129 Cumberland Road
Bristol
BS1 6UY

Job No. 3141 Table 3 Sheet 2 of 5

Poly Aromatic Hydrocarbons

Method No. P2S

Site: B/Gas Wrexham

ID Number	CL9510267	CL9510271	CL9510273	CL9510265
Customer reference	T/P	T/P	T/P	T/P
Depth (m)	0018 2 1.20	0018 3 1.50	0019 1 0.70	0019 2 1.50
Date logged	18/07/95	18/07/95	18/07/95	18/07/95

Poly Aromatic Hydrocarbons	CL9510267	CL9510271	CL9510273	CL9510265
Naphthalene	<1	<1	<1	<1
Acenaphthylene	<1	<1	1	<1
Acenaphthene	<1	<1	<1	<1
Fluorene	<1	<1	1	<1
Phenanthrene	3	3	5	2
Anthracene	<1	<1	<1	<1
Fluoranthene	2	<1	2	<1
Pyrene	2	<1	3	<1
Chrysene	<1	<1	2	<1
Benzo(a)anthracene	<1	<1	<1	<1
Benzo(b)fluoranthene	<1	<1	<2	<1
Benzo(k)fluoranthene	#	#	#	#
Benzo(a)pyrene	<1	<1	<1	<1
Indeno(123-cd)pyrene	<2	<2	<2	<2
Dibenzo(ah)anthracene	*	*	*	*
Benzo(ghi)perylene	<1	<1	<1	<1

Results expressed as mg/kg Air Dried unless stated

#-co-eluted with Benzo(b)Fluoranthene

*-co-eluted with Indeno(123-cd)Pyrene

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TEST REPORT



Komex Clarke Bond
129 Cumberland Road
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BS1 6UY

Testing
No. 1252/
1411

Job No. 3141 Table 3 Sheet 3 of 5

Poly Aromatic Hydrocarbons

Method No. P2S

Site: B/Gas Wrexham

ID Number	CL9510277	CL9510281	CL9510280	CL9510282
Customer reference	T/P	T/P	T/P	T/P
Depth (m)	0020 1 0.50	0020 2 1.00	0020 3 1.60	0021 1 1.20
Date logged	18/07/95	18/07/95	18/07/95	18/07/95

Poly Aromatic Hydrocarbons	CL9510277	CL9510281	CL9510280	CL9510282
Naphthalene	17	4	4	4
Acenaphthylene	5	2	<1	3
Acenaphthene	2	<1	<1	<1
Fluorene	2	1	1	4
Phenanthrene	12	6	4	13
Anthracene	6	3	<1	8
Fluoranthene	8	2	2	16
Pyrene	8	3	2	27
Chrysene	6	2	2	8
Benzo(a)anthracene	4	<1	<1	5
Benzo(b)fluoranthene	9	<2	<1	15
Benzo(k)fluoranthene	#	#	#	#
Benzo(a)pyrene	5	<1	<1	14
Indeno(123-cd)pyrene	4	<2	<2	10
Dibenzo(ah)anthracene	*	*	*	*
Benzo(ghi)perylene	2	<1	<1	12

Results expressed as mg/kg Air Dried unless stated
#-co-eluted with Benzo(b)Fluoranthene
*-co-eluted with Indeno(123-cd)Pyrene

Approved by: J Pollard
J Pollard Project Co-ordinator

Date of Issue: 09/08/95

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TEST REPORT



Testing

No. 1252/
1411

Komex Clarke Bond
129 Cumberland Road
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BS1 6UY

Job No. 3141 Table 3 Sheet 4 of 5

Poly Aromatic Hydrocarbons

Method No. P2S

Site: B/Gas Wrexham

ID Number	CL9510272	CL9510264	CL9510274	CL9510283
Customer reference	T/P	T/P	T/P	T/P
Depth (m)	0021 1D 1.40	0022 1 1.40	0022 2 2.50	0023 1 0.70
Date logged	18/07/95	18/07/95	18/07/95	18/07/95

Poly Aromatic Hydrocarbons	CL9510272	CL9510264	CL9510274	CL9510283
Naphthalene	<1	<1	<1	10
Acenaphthylene	<1	<1	<1	8
Acenaphthene	<1	<1	1	40
Fluorene	<1	<1	1	50
Phenanthrene	4	3	4	96
Anthracene	<1	<1	<1	44
Fluoranthene	2	1	2	73
Pyrene	3	<1	2	78
Chrysene	2	<1	<1	27
Benzo(a)anthracene	<1	<1	<1	32
Benzo(b)fluoranthene	2	<1	<1	33
Benzo(k)fluoranthene	#	#	#	#
Benzo(a)pyrene	<1	<1	<1	19
Indeno(123-cd)pyrene	<2	<2	<2	15
Dibenzo(ah)anthracene	*	*	*	*
Benzo(ghi)perylene	<1	<1	<1	9

Results expressed as mg/kg Air Dried unless stated

#-co-eluted with Benzo(b)Fluoranthene

*-co-eluted with Indeno(123-cd)Pyrene

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TEST REPORT



Testing

No. 1252/
1411

Komex Clarke Bond
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Bristol
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Job No. 3141 Table 3 Sheet 5 of 5

Poly Aromatic Hydrocarbons

Method No. P2S

Site: B/Gas Wrexham

ID Number	CL9510275	CL9510278	CL9510276	CL9510279
Customer reference	T/P	T/P	T/P	T/P
Depth (m)	0023 1D 0.70	0023 2 1.20	0023 3 2.00	0024 1 1.30
Date logged	18/07/95	18/07/95	18/07/95	18/07/95

Poly Aromatic Hydrocarbons	CL9510275	CL9510278	CL9510276	CL9510279
Naphthalene	7	3	4	<1
Acenaphthylene	9	3	<1	<1
Acenaphthene	39	<1	2	<1
Fluorene	57	7	2	<1
Phenanthrene	97	25	6	3
Anthracene	44	10	3	<1
Fluoranthene	78	25	3	1
Pyrene	85	24	3	1
Chrysene	27	12	2	<1
Benzo(a)anthracene	31	10	<1	<1
Benzo(b)fluoranthene	36	18	4	<2
Benzo(k)fluoranthene	#	#	#	#
Benzo(a)pyrene	21	9	1	<1
Indeno(123-cd)pyrene	16	8	<2	<2
Dibenzo(ah)anthracene	*	*	*	*
Benzo(ghi)perylene	9	4	<1	<1

Results expressed as mg/kg Air Dried unless stated

#-co-eluted with Benzo(b)Fluoranthene

*-co-eluted with Indeno(123-cd)Pyrene

Approved by: J Pollard
J Pollard Project Co-ordinator

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TEST REPORT



Testing

No. 1252/
1411

Komex Clarke Bond
129 Cumberland Road
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Job No. 3141 Table 4 Sheet 1 of 5

Phenol Analysis

Method No. P1S

Site: B/Gas Wrexham

ID Number	CL9510268	CL9510266	CL9510269	CL9510270
Customer reference	T/P 0014 1	T/P 0014 2	T/P 0018 1	T/P 0018 1D
Depth (m)	1.00	2.00	0.35	0.35
Date logged	18/07/95	18/07/95	18/07/95	18/07/95

Phenol Analysis	CL9510268	CL9510266	CL9510269	CL9510270
Phenol	2	<1	1	4
2-Chlorophenol	<1	<1	<1	<1
2-Methylphenol	2	<1	2	3
4-Methylphenol	3	<1	2	6
2-Nitrophenol	2	<1	<1	2
2,4-Dimethylphenol	2	<1	1	4
2,4-Dichlorophenol	<1	<1	<1	5
4-Chlorophenol	ND	ND	ND	ND
4-Chloro-3-Methylphenol	<1	<1	1	<1
2,4,6-Trichlorophenol	<1	<1	<1	2
2,4-Dinitrophenol	3	<1	<1	2
4-Nitrophenol	<1	<1	2	4
2-Methyl-4,6-Dinitrophenol	<1	3	<1	4
Pentachlorophenol	<1	<1	<1	<1

Results expressed as mg/kg Air Dried unless stated
N.D. - Not Determined

Approved by: J Pollard
J Pollard Project Co-ordinator

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TEST REPORT



Testing

No. 1252/
1411

Komex Clarke Bond
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Bristol
BS1 6UY

Job No. 3141 Table 4 Sheet 2 of 5

Phenol Analysis

Method No. P1S

Site: B/Gas Wrexham

ID Number	CL9510267	CL9510271	CL9510273	CL9510265
Customer reference	T/P	T/P	T/P	T/P
Depth (m)	0018 2 1.20	0018 3 1.50	0019 1 0.70	0019 2 1.50
Date logged	18/07/95	18/07/95	18/07/95	18/07/95

Phenol Analysis	CL9510267	CL9510271	CL9510273	CL9510265
Phenol	<1	2	<1	<1
2-Chlorophenol	<1	<1	<1	<1
2-Methylphenol	<1	2	<1	<1
4-Methylphenol	<1	2	<1	<1
2-Nitrophenol	<1	<1	<1	<1
2,4-Dimethylphenol	<1	1	<1	<1
2,4-Dichlorophenol	<1	<1	<1	<1
4-Chlorophenol	ND	ND	ND	ND
4-Chloro-3-Methylphenol	<1	1	<1	<1
2,4,6-Trichlorophenol	<1	<1	<1	<1
2,4-Dinitrophenol	<1	1	<1	<1
4-Nitrophenol	<1	4	<1	<1
2-Methyl-4,6-Dinitrophenol	<1	3	3	<1
Pentachlorophenol	<1	1	<1	<1

Results expressed as mg/kg Air Dried unless stated
N.D. - Not Determined

Approved by: J Pollard
J Pollard Project Co-ordinator

Date of Issue: 09/08/95

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TEST REPORT



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Testing
No. 1252/
1411

Job No. 3141 Table 4 Sheet 3 of 5

Phenol Analysis

Method No. P1S

Site: B/Gas Wrexham

ID Number	CL9510277	CL9510281	CL9510280	CL9510282
Customer reference	T/P 0020 1	T/P 0020 2	T/P 0020 3	T/P 0021 1
Depth (m)	0.50	1.00	1.60	1.20
Date logged	18/07/95	18/07/95	18/07/95	18/07/95

Phenol Analysis	CL9510277	CL9510281	CL9510280	CL9510282
Phenol	1	<1	1	<1
2-Chlorophenol	4	<1	<1	<1
2-Methylphenol	3	<1	1	<1
4-Methylphenol	2	<1	1	<1
2-Nitrophenol	<1	<1	1	<1
2,4-Dimethylphenol	2	<1	<1	<1
2,4-Dichlorophenol	<1	<1	<1	<1
4-Chlorophenol	ND	ND	ND	ND
4-Chloro-3-Methylphenol	2	<1	<1	<1
2,4,6-Trichlorophenol	<1	<1	<1	<1
2,4-Dinitrophenol	11	<1	<1	<1
4-Nitrophenol	6	<1	<1	3
2-Methyl-4,6-Dinitrophenol	4	<1	<1	<1
Pentachlorophenol	8	<1	<1	<1

Results expressed as mg/kg Air Dried unless stated
N.D. - Not Determined

Approved by: S Pollard
J Pollard Project Co-ordinator

Date of Issue: 09/08/95

TES Breiby Ltd. accepts no responsibility for the sampling related to the above results.

TES Breiby Ltd., P.O. Box 100, Burton-on-Trent, DE15 0XD
Telephone: 0283 554400 Fax: 0283 554422



TEST REPORT



Testing
No.

1252/
1411

Komex Clarke Bond
129 Cumberland Road
Bristol
BS1 6UY

Job No. 3141 Table 4 Sheet 4 of 5

Phenol Analysis

Method No. P1S

Site: B/Gas Wrexham

ID Number	CL9510272	CL9510264	CL9510274	CL9510283
Customer reference	T/P	T/P	T/P	T/P
	0021 1D	0022 1	0022 2	0023 1
Depth (m)	1.40	1.40	2.50	0.70
Date logged	18/07/95	18/07/95	18/07/95	18/07/95

Phenol Analysis	CL9510272	CL9510264	CL9510274	CL9510283
Phenol	<1	<1	<1	3
2-Chlorophenol	<1	<1	<1	<1
2-Methylphenol	<1	<1	<1	2
4-Methylphenol	<1	<1	<1	2
2-Nitrophenol	<1	<1	<1	<1
2,4-Dimethylphenol	<1	<1	<1	1
2,4-Dichlorophenol	<1	<1	<1	<1
4-Chlorophenol	ND	ND	ND	ND
4-Chloro-3-Methylphenol	<1	<1	<1	2
2,4,6-Trichlorophenol	<1	<1	<1	2
2,4-Dinitrophenol	<1	2	<1	3
4-Nitrophenol	<1	<1	<1	5
2-Methyl-4,6-Dinitrophenol	<1	<1	3	4
Pentachlorophenol	<1	<1	<1	1

Results expressed as mg/kg Air Dried unless stated
N.D. - Not Determined

Approved by: J Pollard
J Pollard Project Co-ordinator

Date of Issue: 09/08/95

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TEST REPORT



Testing
No.

1252/
1411

Komex Clarke Bond
129 Cumberland Road
Bristol
BS1 6UY

Job No. 3141 Table 4 Sheet 5 of 5

Phenol Analysis

Method No. P1S

Site: B/Gas Wrexham

ID Number	CL9510275	CL9510278	CL9510276	CL9510279
Customer reference	T/P 0023 1D	T/P 0023 2	T/P 0023 3	T/P 0024 1
Depth (m)	0.70	1.20	2.00	1.30
Date logged	18/07/95	18/07/95	18/07/95	18/07/95

Phenol Analysis	CL9510275	CL9510278	CL9510276	CL9510279
Phenol	<1	2	<1	<1
2-Chlorophenol	<1	<1	<1	<1
2-Methylphenol	<1	2	<1	<1
4-Methylphenol	<1	2	1	<1
2-Nitrophenol	<1	<1	<1	<1
2,4-Dimethylphenol	<1	1	1	<1
2,4-Dichlorophenol	<1	<1	<1	<1
4-Chlorophenol	ND	ND	ND	ND
4-Chloro-3-Methylphenol	<1	1	<1	<1
2,4,6-Trichlorophenol	<1	<1	<1	<1
2,4-Dinitrophenol	1	<1	<1	<1
4-Nitrophenol	<1	2	3	<1
2-Methyl-4,6-Dinitrophenol	<1	<1	3	<1
Pentachlorophenol	<1	<1	<1	<1

Results expressed as mg/kg Air Dried unless stated
N.D. - Not Determined

Approved by: S Pollard
J Pollard Project Co-ordinator

Date of Issue: 09/08/95

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TEST REPORT

Komex Clarke Bond
129 Cumberland Road
Bristol
BS1 6UY

Report No. 3141
Table 5
Sheet 1 of 2

Site : B/Gas Wrexham

BTEX Analysis

Client Reference	Reference	Analyte(s)	Result(s)	Units
T/P 0023/1D @ 0.70m	CL/9510275	Benzene Toluene Ethyl Benzene Xylenes	<0.1 <0.1 <0.1 <0.1	mg/kg mg/kg mg/kg mg/kg
T/P 0023/3 @ 2.00m	CL/9510276	Benzene Toluene Ethyl Benzene Xylenes	<0.1 <0.1 <0.1 <0.1	mg/kg mg/kg mg/kg mg/kg
T/P 0020/1 @ 0.50m	CL/9510277	Benzene Toluene Ethyl Benzene Xylenes	<0.1 <0.1 <0.1 <0.1	mg/kg mg/kg mg/kg mg/kg
T/P 0023/2 @ 1.20m	CL/9510278	Benzene Toluene Ethyl Benzene Xylenes	<0.1 <0.1 <0.1 <0.1	mg/kg mg/kg mg/kg mg/kg
T/P 0024/1 @ 1.30m	CL/9510279	Benzene Toluene Ethyl Benzene Xylenes	<0.1 <0.1 <0.1 <0.1	mg/kg mg/kg mg/kg mg/kg

This analysis was sub-contracted

Approved by: J Pollard
J Pollard Project Co-ordinator

Date of Issue 02/08/95

TEST REPORT

Komex Clarke Bond
129 Cumberland Road
Bristol
BS1 6UY

Report No. 3141
Table 5
Sheet 2 of 2

Site : B/Gas Wrexham

BTEX Analysis

Client Reference	Reference	Analyte(s)	Result(s)	Units
T/P 0020/3 @ 1.60m	CL/9510280	Benzene	<0.1	mg/kg
		Toluene	<0.1	mg/kg
		Ethyl Benzene	<0.1	mg/kg
		Xylenes	<0.1	mg/kg
T/P 0020/2 @ 1.00m	CL/9510281	Benzene	<0.1	mg/kg
		Toluene	<0.1	mg/kg
		Ethyl Benzene	<0.1	mg/kg
		Xylenes	<0.1	mg/kg
T/P 0021/1 @ 1.20m	CL/9510282	Benzene	<0.1	mg/kg
		Toluene	<0.1	mg/kg
		Ethyl Benzene	<0.1	mg/kg
		Xylenes	<0.1	mg/kg
T/P 0023/1 @ 0.70m	CL/9510283	Benzene	<0.1	mg/kg
		Toluene	1.0	mg/kg
		Ethyl Benzene	0.5	mg/kg
		Xylenes	2.9	mg/kg

This analysis was sub-contracted

Approved by: J Pollard
J Pollard Project Co-ordinator

Date of Issue 02/08/95

TEST REPORT

Testing
No. 1252

Report No: 3141

Appendix 1

Materials/ Products Tested	Analytical Parameters	Method Number	Test Method
SOILS, SEDIMENTS and SLUDGES	Metals	ICPSSS11	Documented In-house Method based on Blue Book Methods for the Examination of Waters and Associated Materials. Determination of Metals in Soils, Sediments and Sewage Sludge and Plants using ICP - OES
	Boron	ICPB41	Documented In-house Method based on MAFF Method No 8 for the Determination of Water Soluble Boron by ICP-OES
	Mercury	CVAAHG55	Documented In-house Method using Cold Vapour Atomic Absorption Spectrometry
	Cadmium Copper Lead Nickel Zinc	ICPEXA42	Documented In-house Method based on MAFF Method No 10 for the Determination of EDTA Extractable Metals by ICP-OES
	Selenium	AASSE47	Documented In-house Method based on US EPA 7740 using Graphite Furnace Atomic Absorption Spectrometry
	Fluoride	ISEFSS57	Documented In-house Method for the Determination of Water Soluble Fluoride using Ion Selective Electrode based on Methods for the Examination of Waters and Associated Materials
	Nitrate Nitrogen	ISENIS44	Documented In-house Method for the Determination of Nitrate using Ion Selective Electrode based on MAFF Method No 52
	Ammoniacal Nitrogen	SAMMKA43	Documented In-house Method for the Determination of Ammoniacal Nitrogen using an Ammonia gas sensing probe based on MAFF Method No 53
	Sulphate (acid soluble)	ICPACSS8	Documented In-house Method, preparation based on BS 1377. Determination of Acid Soluble Sulphate by ICP-OES evaluation based on total sulphur content
	Sulphate (water soluble)	ICPWAS46	Documented In-house Method, preparation based on BS 1377. Determination of Water Soluble Sulphate by ICP-OES evaluation based on total sulphur content
	Polyaromatic Hydrocarbons	PAHSC50	Documented In-house Screening Method using Ultra Violet Spectrophotometry
	Oil	FTIRMO48	Documented In-house Method using a Freon Extract and FTIR Spectrometry based on Standard Methods for the Examination of Water and Wastewater
	Toluene Extractable Material (TEM)	TEM56	Documented In-house Method by Gravimetric Determination using Soxhlet Extraction
	Phenols	P1S	Documented In-house Method based on US EPA 8040 using Gas Chromatography
	PCB's	P3S	Documented In-house Method based on US EPA 8080 using Gas Chromatography
	Polynuclear Aromatic Hydrocarbons (PNAHs)	P2S	Documented In-house Method based on US EPA 8100 using Gas Chromatography

TEST REPORT

Testing
No. 1252

Report No: 3141

Materials/ Products Tested	Analytical Parameters	Method Number	Test Method
SOILS, SEDIMENTS, SLUDGES and WATERS			
Potable and surface	Total Cyanide and Sulphide	ICTSCN28	Documented In-house Method using Ion Chromatography
Wastewater	Free Cyanide	ISECN51	Documented In-house Method for the Determination of Free Cyanide by Ion Selective Electrode based on SMEWW
WATERS			
Minewaters	Metals	ICPMINE14	Documented In-house Method using ICP-OES
Wastewaters	Polynuclear Aromatic Hydrocarbons (PNAHs)	P2W	Documented In-house Method based on US EPA 610 using Gas Chromatography
	Phenols	P1W	Documented In-house Method based on US EPA 604 using Gas Chromatography
Potable, Surface and Saline	Oil	FTIROIL25	Documented In-house Method using FTIR Spectrometry based on SMEWW 5520 C
Potable, Surface and Sewage	Ammonia	ISEAMM22	Documented In-house Method based on SMEWW 4500-NH3F, G using an ammonia gas sensing probe
Potable and Surface	Sulphide	ISESW24	Documented In-house Method using Ion Selective Electrode
Potable and Surface	Nitrate	UVN26	Documented In-house Method using UV/VIS Spectrometry based on SMEWW 4500-NO ₃ B
Potable and Wastewaters	Metals	ICPPWW13	Documented In-house Method using ICP-OES
Potable and Wastewater	Ammonia	AMMKA40	Documented In-house Method by Multiple Known Addition using an Automated Probe based on SMEWW
Potable and Wastewater	Nitrate	ISENITW54	Documented In-house Method by Multiple Known Addition using an Automated Ion Selective Electrode based on SMEWW
Potable and Wastewater	Fluoride	ISEF52	Documented In-house Method by Multiple Known Addition using an Automated Ion Selective Electrode based on SMEWW
POLLUTANTS and EFFLUENTS (Atmospheric)			
Air Samples	Metals	ICPFF12	Documented In-House method using ICP-OES

SMEWW = Standard Methods for the Examination of Water and Wastewater, 1989, 17th Edition

TEST REPORT

Report No: 3141

Testing No. 1252

Materials/ Products Tested	Analytical Parameters	Method Number	Test Method
DUST and PARTICULATES			
Dust Gauges and Environmental Deposits	Qualitative Characterisation Size and Quantity	SEMDG7	Documented In-house Method using SEM/EDXA and Optical Stereo Microscopy
Powders and Slurries	Sub sieve particle size (<251 um)	MALVPS16	Documented In-house Laser Diffraction Method
Stonedust Powders	Total silicon content	QXDUST3	Documented In-house Method using Wavelength Dispersive XRF
Solids	Qualitative determination of elements from Sodium to Uranium in the Periodic Table	SEMQUAL6	Documented In-house Method using SEM/EDXA
Air Samples	Quartz in airborne dust	FTIROZ15	Documented In-House Method based on MDHS 37, 1984
MECHANICAL PRODUCTS AND PLANT			
Filtered Oil Debris	Metals	ICPOD10	Documented In-house Method using ICP-OES
Wear Debris from Oils	Metallic Debris, Size and Quantity	SEMWDPA and SEMWDC5	Documented In-house Method using SEM/EDXA
FUELS			
Coal	Mercury	CVAHGS55	Documented In-house Method using Cold Vapour Atomic Absorption Spectrometry
Coal	Lead Cadmium Arsenic	AASLCAC18	Documented In-house Method using Graphite Furnace Atomic Absorption Spectrometry
Coal	Heavy Metals	ICPCOAL9	Documented In-house Method using ICP - OES
Coal Powders	Chlorine	XRFOXP29	Documented In-house Method based on method described in Analyst: November 1990, Vol 115 using Wavelength Dispersive XRF
Coal Powders: Pressed Pellets	Elemental Analysis	XRFOX2 and XRFARL1	Documented In-house Method based on method described in Analyst: November 1990, Vol 115 using Wavelength Dispersive XRF
Siliceous Materials	Elemental Analysis	ICPASH8	Documented In-house Method based on Analyst: June 1985: Vol 10 by ICP - OES



TEST REPORT



Testing
No.

1411

Report Number : 3141

Test Method Reference Number	Type of Test	Test Method
SP 1	Determination of loss of moisture on Air Drying and preparation of sample to minus 2.8mm	Documented In-House Method based on BS 1017:Part 1:1989:Section 5
SP 2	Preparation of sample to minus 212 μ	Documented In-House Method Based on BS 1017:Part 1:1989:Section 5
SP 3	Determination of Hardgrove grindability index of hard coal	BS 1016:Part 20:1981
SP 6	Preparation of sample to minus 1mm and minus 212 μ	Documented In-House Method Based on BS 1017:Part 1:1989:Section 5
SP 7	Determination of flow moisture	Documented In-House Methods Based on IMO Code of Safe Practice for Solid Bulk Cargoes:1991 Edition (Utilising IMO Table and Vibrating Platform)
SP 8	Determination of size analysis by sieve testing	Documented In-House Method Based on BS 1016:Part 17:1979
SP 9	Determination of abrasion index	BS 1016 Part 111:1993
SP 12	Determination of float and sink characteristics	Documented In-House Method based on BS 7067:1990



TEST REPORT



Testing
No. 1253

Page 1 of 1

Appendix 2

Report Number : 3141

Test Method Reference Number	Analysis Parameter	Test Method
CL2 *	Total Moisture	Documented In-House Methods based on BS 1016 Part 1:1973.
CL4 *	Moisture Content of analysis sample (-212 um)	Documented In-House Method based on BS 1016 Part 104 Section 104.1:1991
CL5 * CL3	Ash Content	Documented In-House Method using Leco MAC 400 Documented In-House Method based on BS 1016 Part 104 Section 104.4:1991
CL9 & CL1 CL13 CL12	Sulphur Content Calorific Value	Documented In-House Method using instrumental analysis by Leco SC 132 and SC 432 analysers BS 1016 Part 6:1977 Eschka method Documented In-House Method based on Isothermal method to BS 1016 Part 105:1992 using Parr 1261 and 1241 calorimeters

*Note: Moisture content reported as percentage of the As Received test mass, not as a percentage of the Air-Dried mass.



TEST REPORT



Komex Clarke Bond
29 Cumberland Road
Bristol
BS1 6UY

Report W/EXR/951221 Table 5
Sheet 1 of 3 Report Date 11/08/95 Testing
No. 1252

Client: KOMEX CLARKE BOND
Site : WREXHAM

Job No 3141

ID Number	W/EX/..	954905	954906	954907	954908
Sample Reference		DW 1	RW 1	MW 3	MW 4
Sample Date		14/07/95	14/07/95	14/07/95	14/07/95
NAMAS accredited					
Total Sulphur as SO4	ICPPWW13	1410	100	61	219
Calcium as Ca	ICPPWW13	407	84	84	367
Magnesium as Mg	ICPPWW13	45	12	11	84
Barium as Ba	ICPPWW13	0.03	0.06	0.07	1.56
Strontium as Sr	ICPPWW13	0.75	0.14	0.23	3.44
Sodium as Na	ICPPWW13	78	35	20	291
Potassium as K	ICPPWW13	15	7	7	11
Nickel as Ni	ICPPWW13	<0.02	<0.02	<0.02	<0.02
Chromium as Cr	ICPPWW13	<0.02	<0.02	<0.02	0.03
Cadmium as Cd	ICPPWW13	<0.01	<0.01	<0.01	<0.01
Copper as Cu	ICPPWW13	0.03	<0.01	<0.01	<0.01
Lead as Pb	ICPPWW13	<0.03	0.16	<0.03	<0.03
Zinc as Zn	ICPPWW13	<0.01	0.06	<0.01	<0.01
Manganese as Mn	ICPPWW13	11.2	<0.01	0.64	3.64
Iron as Fe	ICPPWW13	0.18	<0.01	0.10	0.08
Aluminium as Al	ICPPWW13	0.04	<0.01	<0.01	<0.01
Arsenic as As	ICPPWW13	<0.04	<0.04	<0.04	<0.04
Ammonia as N	AMMKA40	150	2.0	0.3	0.7
Cyanide (Free) as CN	ISECN51	<0.1	<0.1	<0.1	1.2 *
Cyanide (Total) as CN	ICTSCN28	0.2	<0.1	<0.1	<0.1
Sulphide (Free) as S	ISESW24	<0.2	<0.2	<0.2	<0.2
Oil	FTIROIL2	<1	<1	<1	1
not NAMAS accredited					
pH units		6.7	7.5	7.0	6.9
Conductivity uS/cm @ 25C		3400	668	516	1940
Suspended Solids		6030	38	3030	3520
Chloride as Cl		63	53	18	38
Mercury as Hg		<0.05	<0.05	<0.05	<0.05
Selenium as Se		<0.01	0.04	<0.01	0.02
Thiocyanate as SCN		4.6	0.2	<0.2	0.3
Total Organic Carbon		34	7.5	4.0	34

Results expressed as mg/l unless stated.

* Analysis subject to interferences

P. Thompson
N A.L. Smith (Head of Waters)

Tests marked "Not NAMAS Accredited" in this report are not included in the
NAMAS Accreditation Schedule for our laboratory.

TES Bretby Ltd. accepts no responsibility for the sampling related to the above results.

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TEST REPORT



Komex Clarke Bond
129 Cumberland Road
Bristol
BS1 6UY

Report W/EXR/951221 Table 5
Sheet 2 of 3 Report Date 11/08/95 Testing
No. 1252

Client: **KOMEX CLARKE BOND**
Site : **WREXHAM**

Job No 3141

ID Number	W/EX/..	954909	954910	954911	954912
Sample Reference		MW 5	MW 6	MW 7	TP 23
Sample Date		14/07/95	14/07/95	14/07/95	14/07/95

NAMAS accredited	Test No.	954909	954910	954911	954912
Total Sulphur as SO ₄	ICPPWW13	45	104	221	45
Calcium as Ca	ICPPWW13	78	139	316	27
Magnesium as Mg	ICPPWW13	10	27	71	1
Barium as Ba	ICPPWW13	0.17	0.22	0.12	0.02
Strontium as Sr	ICPPWW13	0.22	0.35	0.87	0.19
Sodium as Na	ICPPWW13	23	21	39	34
Potassium as K	ICPPWW13	9	5	8	46
Nickel as Ni	ICPPWW13	<0.02	<0.02	<0.02	<0.02
Chromium as Cr	ICPPWW13	<0.02	<0.02	<0.02	<0.02
Cadmium as Cd	ICPPWW13	<0.01	<0.01	<0.01	<0.01
Copper as Cu	ICPPWW13	<0.01	<0.01	<0.01	<0.01
Lead as Pb	ICPPWW13	<0.03	<0.03	<0.03	<0.03
Zinc as Zn	ICPPWW13	<0.01	<0.01	<0.01	<0.01
Manganese as Mn	ICPPWW13	1.08	0.83	5.01	0.02
Iron as Fe	ICPPWW13	0.13	0.03	0.08	0.20
Aluminium as Al	ICPPWW13	<0.01	<0.01	<0.01	0.12
Arsenic as As	ICPPWW13	<0.04	<0.04	<0.04	<0.04
Ammonia as N	AMMKA40	3.9	3.6	6.4	22
Cyanide (Free) as CN	ISECN51	1.2 *	2.0 *	2.5 *	<0.1
Cyanide (Total) as CN	ICTSCN28	<0.1	<0.1	<0.1	2.8
Sulphide (Free) as S	ISESW24	<0.2	<0.2	<0.2	<0.2
Oil	FTIROIL2	1	1	2	1620

not NAMAS accredited		954909	954910	954911	954912
pH units		7.0	7.2	7.0	9.4
Conductivity uS/cm @ 25C		560	995	1970	460
Suspended Solids		24000	12200	5220	734
Chloride as Cl		22	33	38	37
Mercury as Hg		<0.05	<0.05	<0.05	<0.05
Selenium as Se		<0.01	<0.01	0.01	0.01
Thiocyanate as SCN		<0.2	0.2	0.3	0.8
Total Organic Carbon		7.3	10	39	56

Results expressed as mg/l unless stated.

* Analysis subject to interferences


A.L. Smith (Head of Waters)

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TEST REPORT



Komex Clarke Bond
129 Cumberland Road
Bristol
BS1 6UY

Report W/EXR/951221 Table 5
Sheet 3 of 3 Report Date 11/08/95 Testing
No. 1252

Client: KOMEX CLARKE BOND
Site : WREXHAM

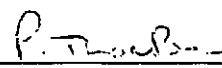
Job No 3141

ID Number
Sample Reference
Sample Date

W/EX/.. 955098
RW 2
19/07/95

NAMAS accredited		Test No.	955098			
Total Sulphur as SO ₄	ICPPWW13	63				
Calcium as Ca	ICPPWW13	67				
Magnesium as Mg	ICPPWW13	14				
Barium as Ba	ICPPWW13	0.05				
Strontium as Sr	ICPPWW13	0.05				
Sodium as Na	ICPPWW13	34				
Potassium as K	ICPPWW13	11				
Nickel as Ni	ICPPWW13	<0.02				
Chromium as Cr	ICPPWW13	<0.02				
Cadmium as Cd	ICPPWW13	<0.01				
Copper as Cu	ICPPWW13	<0.01				
Lead as Pb	ICPPWW13	<0.03				
Zinc as Zn	ICPPWW13	<0.01				
Manganese as Mn	ICPPWW13	0.03				
Iron as Fe	ICPPWW13	0.05				
Aluminium as Al	ICPPWW13	<0.01				
Arsenic as As	ICPPWW13	<0.04				
Ammonia as N	AMMKA40	1.7				
Cyanide (Free) as CN	ISECN51	<0.1				
Cyanide (Total) as CN	ICTSCN28	<0.1				
Sulphide (Free) as S	ISESW24	<0.2				
Oil	FTIROIL2	1				
not NAMAS accredited			955098			
pH units			7.3			
Conductivity uS/cm @ 25C			578			
Suspended Solids			18			
Chloride as Cl			41			
Mercury as Hg			<0.05			
Selenium as Se			0.02			
Thiocyanate as SCN			<0.2			
Total Organic Carbon			12			

Results expressed as mg/l unless stated.


A.L. Smith (Head of Waters)

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TEST REPORT



Komex Clarke Bond
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BS1 6UY

Report W/EXR/951221 Table 6
Sheet 1 of 3 Report Date: 11/08/95 Testing
No. 1252

Client: **KOMEX CLARKE BOND**
Site: **WREXHAM**

Poly Aromatic Hydrocarbons
Method No. P2W

Job No 3141

ID Number	W/EX/..	954905	954906	954907	954908
Sample Reference		DW 1	RW 1	MW 3	MW 4
Sample Date		14/07/95	14/07/95	14/07/95	14/07/95

ANALYSIS				
Naphthalene	<0.01	<0.01	<0.01	<0.02
Acenaphthylene	<0.01	<0.01	<0.01	0.05
Acenaphthene	<0.01	<0.01	<0.01	0.02
Fluorene	0.01	<0.01	<0.01	0.03
Phenanthrene	<0.01	0.02	<0.01	0.08
Anthracene	<0.01	<0.01	<0.01	<0.02
Fluoranthene	<0.01	<0.01	<0.01	<0.02
Pyrene	<0.01	<0.01	<0.01	<0.02
Benzo(a)Anthracene	<0.01	<0.01	<0.01	<0.02
Chrysene	<0.01	<0.01	<0.01	<0.02
Benzo(b)Fluoranthene	<0.01	<0.01	)	<0.02
Benzo(k)Fluoranthene	<0.01	<0.01	)<0.02	<0.02
Benzo(a)Pyrene	<0.01	<0.01	<0.01	<0.02
Indeno(123-cd)Pyrene	<0.01	<0.01	)	<0.02
Dibenzo(ah)Anthracene	<0.01	<0.01	)<0.02	<0.02
Benzo(ghi)Perylene	<0.01	<0.01	<0.01	<0.02

Results expressed as mg/l except where stated


S.J. Jones (Senior Analyst)

TES Bretby Ltd. accepts no responsibility for the sampling related to the above results.

TES Bretby Ltd., P.O. Box 100, Burton-on-Trent, DE15 0XD
Telephone: 01283 554400 Fax: 01283 554422



TEST REPORT



Komex Clarke Bond
129 Cumberland Road
Bristol
BS1 6UY

Report W/EXR/951221 Table 6
Sheet 2 of 3 Report Date: 11/08/95 Testing

No. 1252

Client: KOMEX CLARKE BOND
Site: WREXHAM

Poly Aromatic Hydrocarbons Method No. P2W

Job No 3141

ID Number	W/EX/..	954909	954910	954911	954912
Sample Reference		MW 5	MW 6	MW 7	TP 23
Sample Date		14/07/95	14/07/95	14/07/95	14/07/95

ANALYSIS				
Naphthalene	<0.01	<0.01	0.02	0.85
Acenaphthylene	<0.01	<0.01	0.05	0.11
Acenaphthene	<0.01	<0.01	0.03	0.32
Fluorene	<0.01	<0.01	0.04	0.19
Phenanthrene	<0.01	<0.01	0.09	0.57
Anthracene	<0.01	<0.01	<0.02	0.39
Fluoranthene	<0.01	<0.01	<0.02	0.41
Pyrene	<0.01	<0.01	<0.02	0.43
Benzo(a)Anthracene	<0.01	<0.01	<0.02	<0.10
Chrysene	<0.01	<0.01	<0.02	0.27
Benzo(b)Fluoranthene	<0.01	<0.01	<0.02	)
Benzo(k)Fluoranthene	<0.01	<0.01	<0.02	)0.20
Benzo(a)Pyrene	<0.01	<0.01	<0.02	0.11
Indeno(123-cd)Pyrene	<0.01	<0.01	<0.02	)
Dibenzo(ah)Anthracene	<0.01	<0.01	<0.02	)<0.20
Benzo(ghi)Perylene	<0.01	<0.01	<0.02	<0.10

Results expressed as mg/l except where stated

P. S. Jones

(P S.J. Jones (Senior Analyst)

TES Bretby Ltd. accepts no responsibility for the sampling related to the above results.

TES Bretby Ltd., P.O. Box 100, Burton-on-Trent, DE15 0XD
Telephone: 01283 554400 Fax: 01283 554422



TEST REPORT



Komex Clarke Bond
129 Cumberland Road
Bristol
BS1 6UY

Report W/EXR/951221 Table 6
Sheet 3 of 3 Report Date: 11/08/95

Testing
No. 1252

Client: KOMEX CLARKE BOND
Site: WREXHAM

Poly Aromatic Hydrocarbons
Method No. P2W

Job No 3141

ID Number	W/EX/..	955098			
Sample Reference		RW 2			
Sample Date		19/07/95			

ANALYSIS				
Naphthalene	<0.02			
Acenaphthylene	<0.02			
Acenaphthene	<0.02			
Fluorene	<0.02			
Phenanthrene	<0.02			
Anthracene	<0.02			
Fluoranthene	<0.02			
Pyrene	<0.02			
Benzo(a)Anthracene	<0.02			
Chrysene	<0.02			
Benzo(b)Fluoranthene	<0.02			
Benzo(k)Fluoranthene	<0.02			
Benzo(a)Pyrene	<0.02			
Indeno(123-cd)Pyrene	<0.02			
Dibenzo(ah)Anthracene	<0.02			
Benzo(ghi)Perylene	<0.02			

Results expressed as mg/l except where stated

S.J. Jones (Senior Analyst)

TES Bretby Ltd. accepts no responsibility for the sampling related to the above results.

TES Bretby Ltd., P.O. Box 100, Burton-on-Trent, DE15 0XD
Telephone: 01283 554400 Fax: 01283 554422



TEST REPORT



Komex Clarke Bond
129 Cumberland Road
Bristol
BS1 6UY

Report W/EXR/951221 Table 7
Sheet 1 of 3 Report Date: 11/08/95

Testing
No. 1252

Client: KOMEX CLARKE BOND
Site: WREXHAM

Phenol Analysis

Method No. P1W

Job No 3141

ID Number	W/EX/..	954905	954906	954907	954908
Sample Reference		DW 1	RW 1	MW 3	MW 4
Sample Date		14/07/95	14/07/95	14/07/95	14/07/95

ANALYSIS				
Phenol	<0.01	<0.01	<0.01	<0.01
2-Chlorophenol	<0.01	0.03	<0.01	0.04
2-Methylphenol	0.01	0.02	0.01	0.03
3/4-Methylphenol	<0.01	0.02	<0.01	<0.01
2-Nitrophenol	<0.01	<0.01	<0.01	0.05
2,4-Dimethylphenol	<0.01	0.01	<0.01	0.03
2,4-Dichlorophenol	<0.01	0.02	<0.01	<0.01
4-Chlorophenol	N.D	N.D	N.D	N.D
4-Chloro-3-Methylphenol	<0.01	0.01	<0.01	0.02
2,4,6-Trichlorophenol	0.01	0.02	<0.01	0.03
2,4-Dinitrophenol	0.10	0.02	<0.01	0.25
4-Nitrophenol	0.03	0.02	<0.01	0.05
2-Methyl-4,6-Dinitrophenol	0.03	0.03	<0.01	<0.01
Pentachlorophenol	<0.01	<0.01	<0.01	0.04

Results expressed as mg/l except where stated

P. Thier

S.J. Jones (Senior Analyst)

TES Bretby Ltd. accepts no responsibility for the sampling related to the above results.

TES Bretby Ltd., P.O. Box 100, Burton-on-Trent, DE15 0XD
Telephone: 01283 554400 Fax: 01283 554422



TEST REPORT



Komex Clarke Bond
129 Cumberland Road
Bristol
BS1 6UY

Report W/EXR/951221 Table 7
Sheet 2 of 3 Report Date: 11/08/95

Testing
No. 1252

Client: **KOMEX CLARKE BOND**
Site: **WREXHAM**

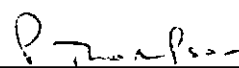
Phenol Analysis
Method No. P1W

Job No 3141

ID Number	W/EX/..	954909	954910	954911	954912
Sample Reference		MW 5	MW 6	MW 7	TP 23
Sample Date		14/07/95	14/07/95	14/07/95	14/07/95

ANALYSIS				
Phenol	0.01	0.02	<0.02	1.28
2-Chlorophenol	0.02	0.01	0.05	0.68
2-Methylphenol	0.03	0.02	0.03	1.45
3/4-Methylphenol	0.01	0.01	0.02	1.70
2-Nitrophenol	0.02	<0.01	0.05	0.79
2,4-Dimethylphenol	<0.01	0.01	0.03	0.79
2,4-Dichlorophenol	<0.01	0.01	<0.02	0.99
4-Chlorophenol	N.D	N.D	N.D	N.D
4-Chloro-3-Methylphenol	<0.01	<0.01	<0.02	0.30
2,4,6-Trichlorophenol	0.01	<0.01	<0.02	<0.20
2,4-Dinitrophenol	<0.01	0.03	0.29	0.78
4-Nitrophenol	<0.01	0.03	0.06	1.12
2-Methyl-4,6-Dinitrophenol	0.03	<0.01	0.06	0.86
Pentachlorophenol	<0.01	<0.01	0.05	0.91

Results expressed as mg/l except where stated


S.J. Jones (Senior Analyst)

TES Bretby Ltd. accepts no responsibility for the sampling related to the above results.

TES Bretby Ltd., P.O. Box 100, Burton-on-Trent, DE15 0XD
Telephone: 01283 554400 Fax: 01283 554422



TEST REPORT



Komex Clarke Bond
129 Cumberland Road
Bristol
BS1 6UY

Report W/EXR/951221 Table 7
Sheet 3 of 3 Report Date: 11/08/95

Testing
No. 1252

Client: **KOMEX CLARKE BOND**
Site: **WREXHAM**

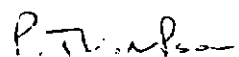
Phenol Analysis
Method No. P1W

Job No 3141

ID Number	W/EX/..	955098			
Sample Reference		RW 2			
Sample Date		19/07/95			

ANALYSIS				
Phenol	<0.02			
2-Chlorophenol	<0.02			
2-Methylphenol	<0.02			
3/4-Methylphenol	<0.02			
2-Nitrophenol	<0.02			
2,4-Dimethylphenol	<0.02			
2,4-Dichlorophenol	<0.02			
4-Chlorophenol	N.D			
4-Chloro-3-Methylphenol	<0.02			
2,4,6-Trichlorophenol	<0.02			
2,4-Dinitrophenol	<0.02			
4-Nitrophenol	<0.02			
2-Methyl-4,6-Dinitrophenol	<0.02			
Pentachlorophenol	<0.02			

Results expressed as mg/l except where stated


S.J. Jones (Senior Analyst)

TES Bretby Ltd. accepts no responsibility for the sampling related to the above results.

TES Bretby Ltd., P.O. Box 100, Burton-on-Trent, DE15 0XD
Telephone: 01283 554400 Fax: 01283 554422

TEST REPORT

Client : Komex Clarke Bond

Table 8

Site : Wrexham

Page 1 of 3

Report Date : 11 August 1995

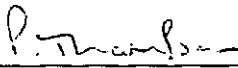
Job No 3141

Sample ID Number W/EX/	954905	954906	954907
Sample Reference	DW 1	RW 1	MW 3
Sample Date	14/07/95	14/07/95	14/07/95

ANALYSIS			
Benzene	<0.01	<0.01	<0.01
Toluene	<0.01	<0.01	<0.01
Ethylbenzene	<0.01	<0.01	<0.01
Xylene	<0.01	<0.01	<0.01

Results expressed as mg/l except where stated

This analysis was sub-contracted to a NAMAS Laboratory


P A L Smith (Head of Waters)

TEST REPORT

Client : Komex Clarke Bond

Table 8

Site : Wrexham

Page 2 of 3

Report Date : 11 August 1995

Job No 3141

Sample ID Number W/EX/	954908	954909	954910
Sample Reference	MW 4	MW 5	MW 6
Sample Date	14/07/95	14/07/95	14/07/95

ANALYSIS			
Benzene	<0.01	<0.01	<0.01
Toluene	<0.01	<0.01	<0.01
Ethylbenzene	<0.01	<0.01	<0.01
Xylene	<0.01	<0.01	<0.01

Results expressed as mg/l except where stated

This analysis was sub-contracted to a NAMAS Laboratory


A L Smith (Head of Waters)

TEST REPORT

Client : Komex Clarke Bond

Table 8

Site : Wrexham

Page 3 of 3

Report Date : 11 August 1995

Job No 3141

Sample ID Number W/EX/	954911	954912	955098
Sample Reference	MW 7	TP 23	RW 2
Sample Date	14/07/95	14/07/95	19/07/95

ANALYSIS			
Benzene	<0.01	<0.01	<0.01
Toluene	<0.01	<0.01	<0.01
Ethylbenzene	<0.01	<0.01	<0.01
Xylene	<0.01	<0.01	<0.01

Results expressed as mg/l except where stated

This analysis was sub-contracted to a NAMAS Laboratory


P. L. Smith (Head of Waters)



TEST REPORT



Report No: W/CX2/751221

Testing
No. 1252

Materials/ products tested	Analytical Parameters	Method Number	Test Method
WATERS			
Minewaters	Metals	ICPMINE14	Documented In-House Method using ICP-OES
Wastewaters	Polynuclear Aromatic Hydrocarbons (PNAHs)	P2W	Documented In-House Method based on US EPA 610 using Gas Chromatography
	Phenols	P1W	Documented In-House Method based on US EPA 604 using Gas Chromatography
Potable, Surface and Saline	Oil	FTIROIL25	Documented In-House Method using FTIR Spectrometry based on SMEWW 5520 C
Potable, Surface and Sewage	Ammonia	ISEAMM22	Documented In-House Method based on SMEWW 4500-NH3F, G using an ammonia gas sensing probe
Potable and Surface	Sulphide	ISESW24	Documented In-House Method using Ion Selective Electrode
Potable and Surface	Nitrate	UVN26	Documented In-House Method using UV/VIS Spectrometry based on SMEWW 4500-NO ₃ -B
Potable and Wastewaters	Metals	ICPPWW13	Documented In-House Method using ICP-OES
Potable and Wastewater	Ammonia	AMMKA40	Documented In-House Method by Multiple Known Addition using an Automated Probe based on SMEWW
Potable and Wastewater	Nitrate	ISENITW54	Documented In-House Method by Multiple Known Addition using an Automated Ion Selective Electrode based on SMEWW
Potable and Wastewater	Fluoride	ISEF52	Documented In-House Method by Multiple Known Addition using an Automated Ion Selective Electrode based on SMEWW
Potable and surface	Total Cyanide and Sulphide	ICTSCN28	Documented In-House Method using Ion Chromatography
Wastewater	Free Cyanide	ISECN51	Documented In-House Method for the Determination of Free Cyanide by Ion Selective Electrode based on SMEWW

ENVIRONMENTAL FIELD SERVICES CHARGES

Job number: CL/3141 Proposal Number:

Date: 14/08/95

Order Number (if applicable):

Job Type: Contaminated Land

Charge Ref No: 95/Jul/C5E/314

Charging location: Komex Clarke Bond

Code:

Site:

B/Gas Wrexham

Mr J Farrow

Komex Clarke Bond

129 Cumberland Road

Bristol

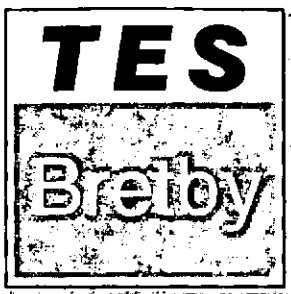
BS1 6UY

Analysis	No.	Unit £ Charge
Ammonia	20	3.96
Boron	20	2.64
Boron Prep	20	2.64
Chloride	20	4.00
Cyanide (AR)	20	4.00
Elemental Sulphur	20	5.20
Free CN-	20	3.60
Loss on Ignition	20	1.36
Metals Analysis	20	10.00
Moisture Content %	20	2.00
pH (AR)	20	1.44
Preparation	20	6.00
Selenium	20	5.00
TPH (AR)	9	7.50
Phenol - GC	20	17.60
PAH - GC	20	17.60
BTEX	9	28.50
Water analysis 1	9	19.18
Water analysis 2	9	32.30
Water - PAH	9	22.00
Water - Phenol	9	22.00
Water - BTEX	9	32.50

Charge £ 3,216.62 (exclusive of VAT)

D. Thomas
 Authorised by: J Pollard

WATER ANALYSES



TES Bretby Ltd., P.O. Box 100, Burton-on-Trent, DE15 0XD
Telephone: 01283 554400 Fax: 01283 554422

Mr R Croft
Komex Clarke Bond
129 Cumberland Road
Bristol
BS1 6UY

Our Ref PT/7812

13 November 1995

Dear Mr Croft

ANALYSIS OF WATER SAMPLES

As requested, three water samples from the Wrexham Site have been analysed. The samples were taken on 30 October 1995 and they have been analysed according to the schedule supplied.

Details of the sampling points and the results of analysis for these samples are given in tables 1 - 4, appended. These results confirm those previously faxed to yourself on 8 and 10 November 1995.

An invoice for £344.40 + VAT to cover the analysis of these samples will follow.

If I can be of any further assistance please do not hesitate to contact me.

Yours sincerely

A handwritten signature in dark ink, appearing to read 'A L Smith'.

A L Smith
Head of Environmental Testing
TES Bretby Ltd
Direct Dial 01283-554493
Fax 01283-554422

CBP BRISTOL	
JOB No.	
PARTNER	
14/11/95	
DATE	TIME
PAGE NO.	
ACTION BY	



TEST REPORT



Komex Clarke Bond
129 Cumberland Road
Bristol
BS1 6UY

Report W/EXR/951934 Table 1
Sheet 1 of 1 Report Date 08/11/95

Testing
No. 1252

Client: KOMEX CLARKE BOND
Site : WREXHAM

ID Number Sample Reference Sample Date	W/EX/..	957812 Sample 01 30/10/95	957813 Sample 02 30/10/95	957814 Sample 03 30/10/95	
NAMAS accredited					
	Test No.	957812	957813	957814	
pH units	WSLM3	7.8	8.0	7.1	
Conductivity uS/cm @ 25C	WSLM2	896	901	3050	
Chloride as Cl	WSLM1	70	72	72	
Total Sulphur as SO4	ICPPWW13	127	120	1420	
Calcium as Ca	ICPPWW13	123	122	454	
Magnesium as Mg	ICPPWW13	18	18	61	
Barium as Ba	ICPPWW13	0.10	0.10	0.04	
Strontium as Sr	ICPPWW13	0.27	0.27	0.87	
Sodium as Na	ICPPWW13	46	44	70	
Potassium as K	ICPPWW13	6	6	12	
Nickel as Ni	ICPPWW13	<0.02	<0.02	0.03	
Chromium as Cr	ICPPWW13	<0.02	<0.01	0.04	
Chromium (Hexavalent)	WSLM6	<0.01	<0.01	<0.01	
Cadmium as Cd	ICPPWW13	<0.01	<0.01	<0.01	
Copper as Cu	ICPPWW13	<0.01	<0.01	<0.01	
Lead as Pb	ICPPWW13	0.04	0.04	0.06	
Zinc as Zn	ICPPWW13	<0.01	<0.01	0.02	
Manganese as Mn	ICPPWW13	0.06	0.04	17.3	
Iron as Fe	ICPPWW13	0.02	0.01	0.24	
Aluminium as Al	ICPPWW13	0.04	0.04	0.03	
Arsenic as As	ICPPWW13	<0.03	<0.03	<0.03	
Ammonia as N	AMMKA40	0.3	<0.2	105	
Cyanide (Free) as CN	ISECN51	<0.1	<0.1	<0.1	
Cyanide (Total) as CN	ICTSCN28	<0.1	<0.1	<0.1	
Thiocyanate as SCN	WSLM5	<0.2	<0.2	0.9	
Sulphide (Free) as S	ISESW24	<0.2	<0.2	<0.2	
not NAMAS accredited					
		957812	957813	957814	
Boron as B		0.29	0.28	0.60	
Mercury as Hg		<0.05	<0.05	<0.05	
Selenium as Se		<0.01	<0.01	<0.01	

Results expressed as mg/l unless stated.

Sample 01: River Sample 1
Sample 02: River Sample 2
Sample 03: River Sample 3

A.L. Smith (Head of Waters)

Tests marked "Not NAMAS Accredited" in this report are not included in the
NAMAS Accreditation Schedule for our laboratory.

TES Bretby Ltd. accepts no responsibility for the sampling related to the above results.
TES Bretby Ltd., P.O. Box 100, Burton-on-Trent, DE15 0XD
Telephone: 01283 554400 Fax: 01283 554422



TEST REPORT



Komex Clarke Bond
129 Cumberland Road
Bristol
BS1 6UY

Report W/EXR/951934 Table 2
Sheet 1 of 1 Report Date: 08/11/95

Testing
No. 1252

Client: KOMEX CLARKE BOND
Site: WREXHAM

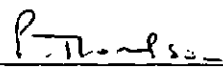
Poly Aromatic Hydrocarbons
Method No. P2W

ID Number	W/EX/..	957812	957813	957814
Sample Reference		Sample 01	Sample 02	Sample 03
Sample Date		30/10/95	30/10/95	30/10/95

ANALYSIS				
Naphthalene	<0.01	<0.01	<0.02	
Acenaphthylene	<0.01	<0.01	<0.02	
Acenaphthene	<0.01	<0.01	<0.02	
Fluorene	<0.01	<0.01	<0.02	
Phenanthrene	<0.01	<0.01	<0.02	
Anthracene	<0.01	<0.01	<0.02	
Fluoranthene	<0.01	<0.01	<0.02	
Pyrene	<0.01	<0.01	<0.02	
Benzo(a)Anthracene	<0.01	<0.01	<0.02	
Chrysene	<0.01	<0.01	<0.02	
Benzo(b)Fluoranthene	<0.01	<0.01	<0.02	
Benzo(k)Fluoranthene	<0.01	<0.01	<0.02	
Benzo(a)Pyrene	<0.01	<0.01	<0.02	
Indeno(123-cd)Pyrene	)	)	)	
Dibenzo(ah)Anthracene	)<0.02	)<0.02	)<0.04	
Benzo(ghi)Perylene	<0.01	<0.01	<0.02	

Results expressed as mg/l except where stated

Sample 01: River Sample 1
Sample 02: River Sample 2
Sample 03: River Sample 3


S.J. Jones (Senior Analyst)



TEST REPORT



Komex Clarke Bond
129 Cumberland Road
Bristol
BS1 6UY

Report W/EXR/951934 Table 3
Sheet 1 of 1 Report Date: 08/11/95

Testing
No. 1252

Client: KOMEX CLARKE BOND
Site: WREXHAM

Phenol Analysis

Method No. P1W

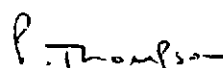
ID Number	W/EX/..	957812	957813	957814	
Sample Reference		Sample 01	Sample 02	Sample 03	
Sample Date		30/10/95	30/10/95	30/10/95	

ANALYSIS				
Phenol	<0.01	<0.01	<0.02	
2-Chlorophenol	<0.01	<0.01	<0.02	
2-Methylphenol	<0.01	<0.01	<0.02	
3/4-Methylphenol	<0.01	<0.01	<0.02	
2-Nitrophenol	<0.01	<0.01	<0.02	
2,4-Dimethylphenol	<0.01	<0.01	<0.02	
2,4-Dichlorophenol	<0.01	<0.01	<0.02	
4-Chlorophenol	N.D	N.D	N.D	
4-Chloro-3-Methylphenol	<0.01	<0.01	<0.02	
2,4,6-Trichlorophenol	<0.01	<0.01	<0.02	
2,4-Dinitrophenol	<0.01	<0.01	0.13	
4-Nitrophenol	<0.01	<0.01	<0.02	
2-Methyl-4,6-Dinitrophenol	<0.01	<0.01	0.04	
Pentachlorophenol	<0.01	<0.01	0.02	

Results expressed as mg/l except where stated

Sample 01: River Sample 1
Sample 02: River Sample 2
Sample 03: River Sample 3

N.D = Not Determined


S.J. Jones (Senior Analyst)

TEST REPORT

Client : Komex Clarke Bond

Table 4

Site : Wrexham

Report Date : 10 November 1995

Page 1 of 1

Sample ID Number W/EX/	957812	957813	957814
Sample Reference	River Sample 1	River Sample 2	River Sample 3
Sample Date	30/10/95	30/10/95	30/10/95

ANALYSIS			
Benzene	<0.5	<0.5	<0.5
Ethyl Benzene	<2	<2	<2
Toluene	<5	<5	<5
Xylene	<2	<2	<2

Results expressed as $\mu\text{g/l}$ except where stated

This analysis was sub-contracted.


A L Smith (Head of Waters)

TEST REPORT

Testing
No.

1252

Report No: W/CX2/951934

Materials/ products tested	Analytical Parameters	Method Number	Test Method
WATERS			
Minewaters	Metals	ICPMINE14	Documented In-House Method using ICP-OES
Wastewaters	Polynuclear Aromatic Hydrocarbons (PNAHs)	P2W	Documented In-House Method based on US EPA 610 using Gas Chromatography
	Phenols	P1W	Documented In-House Method based on US EPA 604 using Gas Chromatography
	Free Cyanide	ISECN51	Documented In-House Method for the Determination of Free Cyanide by Ion Selective Electrode based on SMEWW
Potable, Surface and Saline	Oil	FTIROIL25	Documented In-House Method using FTIR Spectrometry based on SMEWW 5520 C
Potable, Surface and Sewage	Ammonia	ISEAMM22	Documented In-House Method based on SMEWW 4500-NH3F, G using an ammonia gas sensing probe
Potable and Surface	Sulphide	ISESW24	Documented In-House Method using Ion Selective Electrode
	Total Cyanide and Sulphide	ICTSCN28	Documented In-House Method using Ion Chromatography
	Nitrate	UVN26	Documented In-House Method using UV/VIS Spectrometry based on SMEWW 4500-NO ₃ -B
Potable and Wastewaters	Metals	ICPPWW13	Documented In-House Method using ICP-OES
	Ammonia	AMMKA40	Documented In-House Method by Multiple Known Addition using an Automated Probe based on SMEWW
	Nitrate	ISENITW54	Documented In-House Method by Multiple Known Addition using an Automated Ion Selective Electrode based on SMEWW
	Fluoride	ISEF52	Documented In-House Method by Multiple Known Addition using an Automated Ion Selective Electrode based on SMEWW
Potable, Wastewaters, Effluents, Minewaters	Chloride	WSLM1	Documented In-House Method based on BS6068:2.37:1990
	Conductivity	WSLM2	Documented In-House Method based on BS6068:2.35:1989
	pH	WSLM3	Documented In-House Method based on BS2690:1984 Pt 109
	Phenol Index	WSLM4	Documented In-House Method based on BS6068:2.12:1990



TEST REPORT



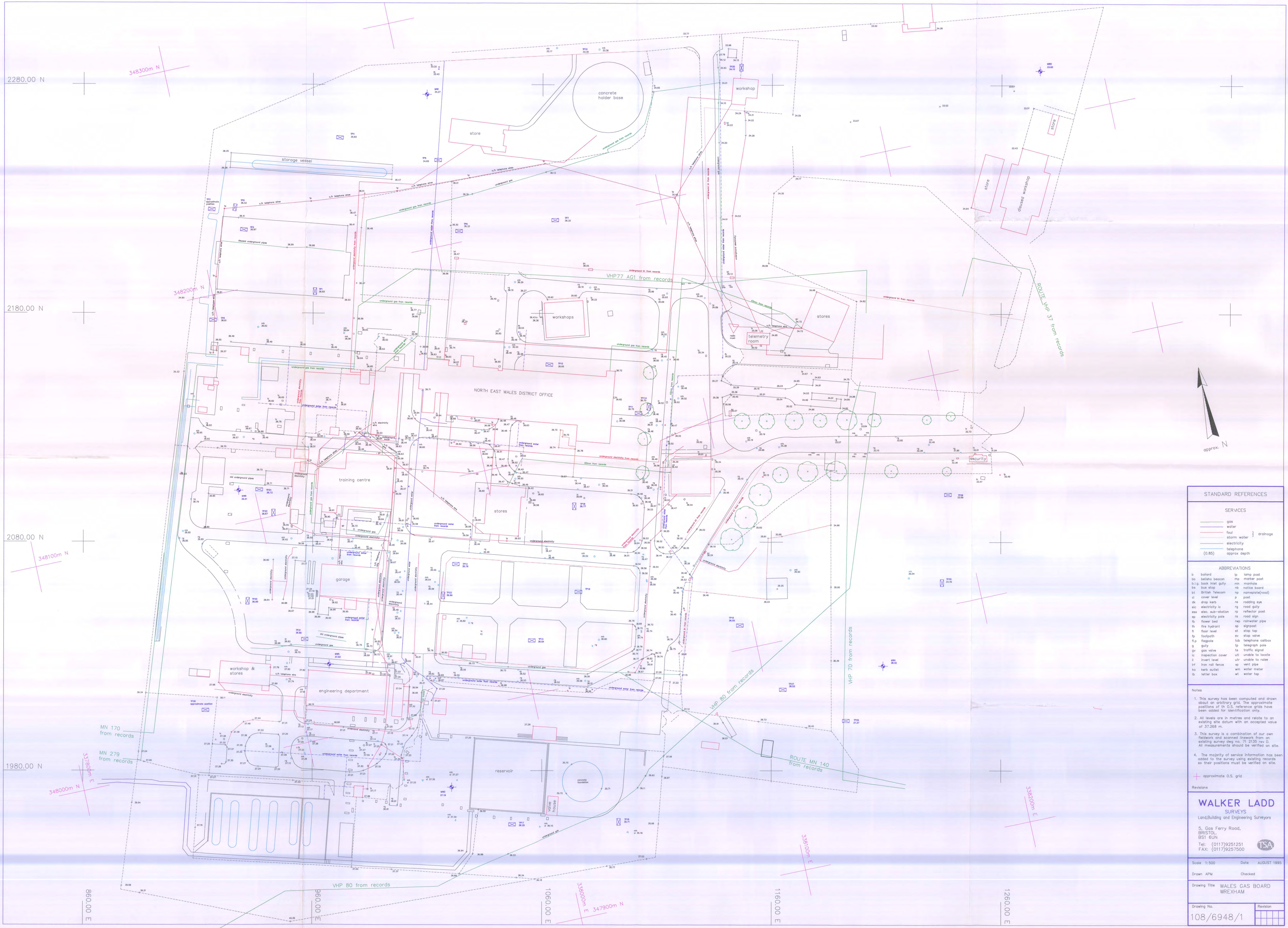
Testing
No. 1252

Report No: WLE1951934

Materials/ products tested	Analytical Parameters	Method Number	Test Method
Potable, Wastewaters, Effluents, Minewaters	Thiocyanate	WSLM5	Documented In-House Method based on Method for the Examination of Waters and Associated Material 1985 ISBN 0 11751934 0
	Chromium(vi)	WSLM6	Documented In-House Colourimetric Method based on EPA 218.4 and 218.5
	Cyclohexane Extractable Material	WSLM7	Documented In-House Gravimetric Method
	Chemical Oxygen Demand	WSLM11	Documented In-House Colourimetric Chromium Oxidation Method based on BS6068:2.34:1988
	Total Alkalinity	WSLM12	Documented In-House Method based on BS2690:1984:Pt109
	Total Organic/ Inorganic Carbon	WSLM13	Documented In-House Method using instrumental technique
	Nitrite	WSLM14	Documented In-House colourimetric method based on BS6068:2.16:1984
	Suspended Solids	WSLM10	Documented In-House Method based on BS2690:1981:Pt120
	Total Hardness	WSLM15	Documented In-House Method based on BS6068:2.9:1984
	Total and Ferrous Iron	WSLM16	Documented In-House Colourimetric Method based on BS6068:2.2:1983
	Total Acidity	WSLM17	Documented In-House Method based on BS2690:1984 Pt 109

APPENDIX VI

SURVEYORS 1:500 SCALE SITE PLAN



STANDARD REFERENCES

SERVICES

- gas
- water
- foul
- storm water
- electricity
- telephone
- (0.85) approx depth

ABBREVIATIONS

b	ballard	lp	lamp post
bs	building beacon	mp	market post
b.g.	back inlet gully	mh	manhole
bs	bus stop	nb	notice board
bt	British Telecom	np	non-potable (cold)
cl	cover level	p	post
dk	drop kerb	re	rodding eye
elec	electricity	rg	road gully
ess	elec. sub-station	rp	reflector post
ep	electricity pole	ra	road sign
fb	flower bed	rg	rainwater pipe
fh	fire hydrant	sp	signpost
fl	floor level	st	stop tap
fp	footpath	sv	stop valve
flp	flagpole	tab	telephone callbox
g	gully	tp	telegraph pole
gv	gas valve	ts	traffic signal
ic	inspection cover	uti	unable to locate
i	invert level	unl	unable to raise
pf	from rail fence	vp	vent pipe
ko	kerb outlet	wm	water meter
lb	letter box	wt	water tap

Notes

- This survey has been compiled and drawn about an arbitrary grid. The approximate positions of the O.S. reference grids have been added for identification only.
- All levels are in metres and relate to an existing site datum with an accepted value of 37.268 m.
- This survey is a combination of our own fieldwork and scanned inverts from an existing survey dwg no. 71 2135 rev D. All measurements should be verified on site.
- The majority of service information has been added to the survey using existing records so their positions must be verified on site.

+ approximate O.S. grid

Revisions

No.	Description	Date
1	As issued	10/08/2010

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Scale 1:500 Date AUGUST 1995

Drawn APM Checked

Drawing Title **WALKER LADD SURVEYS**
WALKER LADD SURVEYS

Drawing No. 108/6948/1 Revision