



Site Condition Report for Surrender Application EPR/XP3131VK/V002

Deeside Power Station

Deeside Power (UK) Limited

Report No. CRM 343 004 PE R 003



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Permit Surrender Site Condition Report

Project:	Permit Surrender Site Condition Report
For:	Deeside Power (UK) Limited
Status:	Final
Date:	November 2022
Author:	Steph Charnaud, Director of Permitting
Reviewer:	Peter Cumberlidge, Director

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1.0 Introduction

1.1 Overview

- 1.1.1 This Surrender Site Condition Report has been completed for Deeside Power (UK) Limited (hereafter known as the Operator) to surrender their Environmental Permit, for the site referenced EPR/XP3131VK/V002. It provides details of the site condition and the actions which were taken to protect the land and groundwater beneath the Facility during the lifetime of the permit.
- 1.1.2 The Operator wishes to surrender the entire permit for Deeside Power Station. The Power Station is located within Deeside Industrial Estate and occupies approximately 9.7 hectares and sits on land leased from Flintshire County Council.
- 1.1.3 Since the original pre application meeting, detailed in 1.4.1 below, when it was intended to demolish the whole site, the gas turbines have been repurposed to provide Synchronous Compensation Services to the National Grid, so part of the site remains operational.
- 1.1.4 Following discussions with the local inspector it was determined that this operation did not require an Environmental Permit as it did not produce any industrial emissions or discharges. This application, therefore, is for the complete surrender of the permit for the operation of the CCGT plant. Appendix D details the buildings and structures that have been demolished.
- 1.1.5 The facility was first permitted on 30/09/1993 and has been operated firstly by National Power PLC then by Deeside Power Limited from 9th April 2008 and Deeside Power (UK) Limited from 12th June 2014. The permit was last varied on 22nd December 2015 with the variation coming into effect on 1st January 2016. Deeside Power Station generates electricity for export to the National Grid solely from the combustion of natural gas in a Combined Gas Cycle Turbine (CGCT) process.

1.2 Scope of the Report

- 1.2.1 Natural Resources Wales Regulatory Guidance Series Document RGN 9 Surrender states that:
- ‘the test for the surrender of permits for installations, waste facilities, mining waste operations and non-nuclear radioactive substances facilities is given in paragraph 14 of Schedule 5 to the Regulations:*
- The regulator must accept an application to surrender an environmental permit in whole or in part under regulation 25(2) if it is satisfied that the necessary measures have been taken*
-
- (c) to avoid a pollution risk resulting from the operation of the regulated facility; and*
- (d) to return the site of the regulated facility to a satisfactory state, having regard to the state of the site before the facility was put into operation.*
- In addition, for installations subject to Chapter II of the IED, if there has been any significant pollution by relevant hazardous substances we will require the site to be returned to the state established by the baseline report, insofar as it is technically feasible to do so.’*
- 1.2.2 This report, therefore, aims to demonstrate that the site has been returned to a ‘satisfactory state’. Whilst reference is made to a ‘baseline report’ above, this requirement was not in place at the time of permit application, therefore, reference will be made to the Application Report, which was prepared for the 2006 variation application, by Environ UK Ltd. A copy of this report can be found in Appendix A.

1.3 Report Context

- 1.3.1 This Surrender Site Condition Report describes and records the condition of the land included within this Permit including measures to protect land. In accordance with Natural Resources Wales Horizontal Guidance H5: Site Condition Report Template, Version 5.0 October 2014 with Section 4 of this report contains the completed SCR template parts 8-10 with further details and supporting information on current activities and condition of the land prior to the surrender of the site included in Sections 1-7.

1.4 Pre-Application Discussions with Natural Resources Wales

- 1.4.1 Pre-application discussions took place back in August 2017 between Enzygo, Deeside Power (UK) Limited, and Aled Zachery, Regulatory Officer of NRW. During these discussions, it was agreed that a low-risk approach was applicable.
- 1.4.2 Further discussions have been held and the Operator was advised that a low-risk surrender may no longer be appropriate. However, a full review of the guidance was undertaken and there have been no changes since the date of the previous pre-application discussions therefore a low risk surrender application is being submitted.

1.5 Justification of Approach: Low Risk Surrender

- 1.5.1 It is considered that this surrender can be considered to be of 'low risk' on the basis that records were kept of all pollution incidents which occurred onsite and the remediation actions taken. As mentioned in Section 1.4.1 above discussions have taken place with the previous local regulatory officer in relation to the low risk surrender approach.
- 1.5.2 Natural Resources Wales's document 'Environmental Permitting Charging Scheme 2022/23' effective 1st April 2022 states:
- 1.5.3 'If you want to apply for low-risk surrender of any other tier 2 or tier 3 facility for which the operator has received confirmation from NRW that intrusive investigation is not required in accordance with the criteria in box 1 of 'Site condition report – guidance and templates', Version 5 October 2014, the sum of £2593.00.
- 1.5.4 Natural Resources Wales Guidance Document: guidance for applicants H5 'Site Condition Report – guidance and templates', V5, October 2014 states:
- 1.5.5 *'Your risk assessment identified that your activity presented a risk to land or groundwater and one or more of the following applies:-*
- *(a) Your records of the pollution prevention measures employed and their effectiveness at the site are incomplete. For example, if it is feasible that an undetected failure of your pollution prevention measures could have taken place (e.g. low level leakages over a substantial period of time) leading to land or groundwater pollution.*
 - *(b) Your records of the occurrence and remediation of pollution incidents are incomplete.*
 - *(c) The records show compliance issues with respect to matters that may affect the condition of the land such as spills and leaks of polluting substances.'*
- 1.5.6 Records of any potentially polluting incidents which may impact the ground including details of remedial actions have been documented in accordance with procedures within the site's

Environmental Management System (EMS) which is certified to ISO14001 standard (see Section 3.2 Pollution Incidents).

- 1.5.7 The Environmental Permit for Deeside Power Station requires the operator to undertake groundwater monitoring on a periodic basis. Enzygo Limited took additional groundwater samples in August 2017 to supplement monitoring already undertaken by the Operator. The results of this monitoring are detailed in this report and its appendices. The results of this monitoring do not show any evidence of new contamination of groundwater that could be attributed to the activities undertaken by the Operator.
- 1.5.8 The Operator has a lease agreement in place with the County Council of Flintshire for the land which runs from 21st November 1994 until 21st November 2093. By way of supporting information, a copy of the lease is included in Appendix E, which states the conditions which the site has to be returned to.
- 1.5.9 Due to the information given in the site's records it is considered that the site fits low-risk surrender as the regulatory effort is likely to be minimal and within the scope of the application fee for a low-risk surrender.

1.6 Site Location

- 1.6.1 The Facility is located at:

Deeside Power Station
Weighbridge Road
Deeside Industrial Park
Deeside
Flintshire
CH5 2UL

- 1.6.2 The Operator is wishing to surrender the entire permit for the Facility.

1.7 Permitted Activities

- 1.7.1 Deeside Power (UK) Limited currently have one permitted activity associated with the site. Table 1.7.1 below details the activities at the site.

Table 1.7.1: Permitted Activities

Schedule 1 Activity	Description of Activity	Permit Number
SECTION 1.1 A (1) (a)	Burning any fuel in an appliance with a rated thermal input of 50 megawatts or more	EPR/XP3131VK/V002

1.8 Non-permitted Activities

- 1.8.1 There are no non-permitted activities associated with the operation of the site.

2.0 Pre-Operational Site Condition Report

2.1 Site Condition Report Summary

Table 2.1.1: Site Details

Site Details	
Name of the Applicant	Deeside Power (UK) Limited
Activity Address	Deeside Power Station Weighbridge Road Deeside Industrial Park Deeside Flintshire CH5 2UL
National Grid Reference	SJ 29703 71233
Document reference and dates for Site Condition Report at permit application and surrender	<p>Application SCR References:</p> <ul style="list-style-type: none"> Application Site Report for PPC Application – Deeside Power Station February 2006, Environ UK Ltd. <p>Surrender SCR References:</p> <ul style="list-style-type: none"> Geo-environmental Appraisal, Deeside Power Station Decommissioning, September 2017, Enzygo Ltd. CRM 343 004 PE R 004 Surrender Site Condition Report. November 2022, Enzygo Ltd.
Document references for site plans (including location and boundaries)	<p>CRM 343 004 PE D 01 Site Location Plan</p> <p>CRM 343 013 PE D 02 Installation and Surrender Boundary</p> <p>Located in the Drawings Section of this Report.</p>

2.2 Site History

2.2.1 The facility is located within an industrial area. The land on which the Power Station sits was previously the location of a slag recovery operation which was associated with a nearby steelworks. The site was also nominated in an earthworks specification for the reclamation of the steelworks, as an area to be used for the deposit of any toxic materials encountered on the steelworks site.

2.2.2 Since 1994 regular site-side groundwater monitoring has been undertaken. This monitoring has not identified any significant deterioration in groundwater quality.

2.3 Condition of the Land at Permit Issue

- 2.3.1 An application site report for PPC application was completed for the Facility in February 2006. This report is included in Appendix A.
- 2.3.2 Soil samples taken from 14 trial pits as part of a Contaminated Land Assessment Report undertaken by EAG Environ in February 1994, referenced in the Application Site Report, February 2006, showed that contamination of the soil, groundwater and surface water on the site and surrounding area was widespread. Contaminants identified at the site included iron, manganese, zinc, sulphate, sulphide and alkalinity. These contaminants are associated with the 4-5m thick steelworks slag which covered the site.
- 2.3.3 Other non-slag related contaminants were also identified. These contaminants are associated with the tarry materials and demolition arisings which had been deposited in the south-western corner of the site.
- 2.3.4 The groundwater samples demonstrated high alkalinity, consistent with the alkaline soil conditions. Elevated concentrations of ammoniacal nitrogen, metals (including chromium, zinc, manganese, iron, boron and lead), total cyanide and phenols were also present in samples from across the site. These contaminants are commonly associated with coking activities, tarry coking oven wastes and steel slag.
- 2.3.5 The 1994 report states that as a result of the site investigation and discussion between regulatory bodies, identified 'hot spots' of contaminated material were excavated and disposed of off-site during redevelopment of the site. A programme of groundwater monitoring was included within the conditions of the IPC Authorisation at the request of the National Rivers Authority (NRA), now Natural Resources Wales (NRW).

3.0 Operational Phase of the Site Condition Report

3.1 Changes to the Activity

Table 3.1.1: Changes to the Activity

CHANGES TO THE ACTIVITY	
Have there been any changes to the activity boundary?	There have been no changes to the activity boundary
Have there been any changes to the permitted activities?	There have been changes to permitted activities on the site. These are detailed in section 3.1.1 and Table 3.1.2 below.
Have any 'dangerous substances' not identified in the application SCR been used or produced as a result of the permitted activities	No dangerous substances not identified in the Application Site Report have been used on or produced on the area of surrender as a result of the permitted activities.
Checklist of supporting information	N/A

3.1.1 The permit for the facility was initially issued on 30th September 1993 and has undergone 2 transfers and 3 variations since issue. Table 3.1.2 below details these transfers and variations.

Table 3.1.2: Permit History

Permit number/variation number	Variation Date	Variations
AI5944	30/09/1993	
LP3737SW	22/12/2006	Permit varied. All previous conditions were deleted and modern conditions and schedules were added
LP3737SW transferred to EPR/VP3539XK/T001	09/04/2008	Permit transferred to Deeside Power Limited
EPR/VP3539XK/V002	11/03/2013	Natural Resources Wales initiated variation to incorporate Eel Regulations improvement condition
EPR/VP3539XK/V002 transferred to EPR/XP3131VK	12/06/2014	Permit transferred to Deeside Power (UK) Limited
EPR/XP3131VK/V002	22/12/15 (permit came into force 1/1/2016)	Natural Resources Wales initiated review to vary the permit under IED to implement the special provisions for LCP under Chapter III, introducing new ELV's applicable to LCP, referred to in

Permit number/variation number	Variation Date	Variations
		Article 30(2) and set out in Annex V. The permit was updated to modern conditions and consolidated.

3.2 Pollution Incidents

Table 3.2.1: Pollution Incidents That May Have Had an Impact On Land

POLLUTION INCIDENTS THAT MAY HAVE HAD AN IMPACT ON LAND, AND THEIR REMEDIATION	
Summarised in section 3.2 below.	
Checklist of supporting information	'Deeside Power Station Accident and Incident Performance Register' relevant sections included in Table 3.2.2 below

2.1.1 Deeside Power (UK) Limited operate within the remit of an Environmental Management System (EMS), certified to ISO14001. The EMS incorporates a number of procedures and other documents which describe the actions to be taken in the event of a spill. The documents require spills to be remediated, recorded and instruct operational staff on when and how incidents are reported internally and to the Environment Agency. These documents include:

- EMG LMS Emergency Plan;
- EMG LP001 Reporting Procedure in the Event of a Serious Incident;
- EMG LP0005 Procedure to be Adopted in the Case of a Fire;
- EMG LP006 Procedure to be Adopted in the Event of a Spillage or Suspected Breach of the Environmental Permit;
- EMGF003 Fire Checklist;
- EMGF004 Environmental Incident Checklist;
- EMGF008 Notifications to the Environment Agency in the Event of an Incident;

2.1.2 A copy of the Environmental Management System can be found in Appendix F.

2.1.3 Records indicate that there have been 6 incidents recorded since permit submission on 15th August 2003 with the latest occurring in 2014. Table 3.2.2 below includes spills logged on this register which are relevant to the land being surrendered.

Table 3.2.2: Recorded Pollution Incidents

Date	Details	Comments	Remediation
13/09/2007	Fire on GT1 HEB gas turbine	Incident reported to the Environment Agency as a permit breach	All plant and equipment repaired and cleaned. No discharge of oil/fire water to drains
2/6/2009	Sodium Hypochlorite leak from bulk storage tank	Sodium hypochlorite leaked into the bund. EAW as Permit breach	Spill was contained within the bund.
20/9/2009	MCW intake pipe failure leading to water leak	Land off-site was flooded by water. Reported to EAW	Land left to drain

Date	Details	Comments	Remediation
19/7/2011	Oil leak from CT gearbox filling pipe	Program of oil filler pipework inspection. Schedule 6 Report submitted to EAW.	Oil spill cleaned up.
28/8/2011	Insulating oil leak from ST generator transformer	Reported to EA as Permit Breach	Pipework removed, drain valve shut, oil cleaned up
27/05/2014	Oily water spillage from fuel tank demolition	Spill of oil onto ground	Oil removed and disposed of. Soil removed and taken off site to hazardous waste facility. NRW inspected area.

3.3 Measures taken to Protect Land

Table 3.3.1: Measures Taken to Protect Land

MEASURES TO BE TAKEN TO PROTECT THE LAND	
Measures taken to protect the land are explained in Section 3.3	
Checklist of supporting information	<ul style="list-style-type: none"> • Application Site Report for PPC Application – February 2006, Environ UK Ltd in Appendix A • Geo-Environmental Appraisal – September 2017, in Appendix B • Groundwater testing carried out by Enzygo August 2017 in Appendix E

3.3.1 Section 3.2 above details the pollution incidents which have occurred during the lifetime of the site which could have impacted on the site. Table 3.2.2 above specifies the remediation actions that were undertaken following the pollution incidents that had the potential to impact the area to be surrendered.

3.3.2 The area to be surrendered, as mentioned in 2.2 Site History above, was previously the location of a slag recovery operation which was associated with a nearby steelworks. The site was also nominated in an earthworks specification for the reclamation of the steelworks, as an area to be used for the deposit of any toxic materials encountered on the steelworks site.

3.3.3 Due to the previous history of the site the National Rivers Authority, now incorporated into NRW put in place a monitoring program within the site's Permit. The objectives of the monitoring programme were to;

- Assess changes in the groundwater regime, over time, with respect to quality, depth and direction of flow;
- Determine the potential for contaminants to have migrated onto the site, over time from off-site sources;

- Evaluate the potential for off-site migration of contaminants; and
 - Assess the potential impacts on nearby surface water bodies.
- 3.3.4 The results of the groundwater monitoring can be found in Appendix G. As mentioned above the site had a legacy of previous industrial uses, however the monitoring data indicates there has been no diminution of groundwater quality during the period of operation of Deeside Power Station. There is no evidence of any new contamination of groundwater that could be attributed to site operations, based on the results of the groundwater analysis undertaken by Enzygo in 2017. There was a spike in chloride detected in BH6 and BH7 which are on the Southern boundary of the site; it is thought this spike is due to tidal influence.
- 3.3.5 Deeside Power (UK) limited have in place an Environmental Management System certified to ISO14001 standard. Staff are trained in line with section 4.2.2 competence training and awareness in the procedures which the Operator has in place to protect the environment. These include procedures within sections 4.4.6 Operational Control, 4.4.7 Emergency Preparedness and Response and 4.5.1 Checking of the Environmental Management System an outline of which can be found in Appendix G.

4.0 Surrender Site Condition Report

4.1 Decommissioning and Removal of Pollution Risk

Table 4.1.1: Decommissioning and Removal of Pollution Risk

DECOMMISSIONING AND REMOVAL OF POLLUTION RISK	
Decommissioning of the site started in 2018	
Checklist of supporting information	<p>Application Site Report for PPC Application – February 2006, Environ UK Ltd in Appendix A</p> <p>Geo-Environmental Appraisal September 2017, in Appendix B</p> <p>Deeside Power Station Restoration Scheme – September 2018, in Appendix C</p> <p>Specification for the Demolition and Remediation of the Site in Appendix D</p>

4.1.1 Decommissioning of the site commenced in 2018 and completed in 2022. The decommissioning process involves the dismantling and removal of resalable buildings and plant, removal of ‘non-reusable’ plant and structures and partial removal of substructures, followed by site restoration. Full details can be found in the Restoration Scheme document which included in Appendix C.

4.1.2 Appendix D contains the Specification for the Demolition and Remediation of the Site.

4.2 Reference Data and Remediation

Table 4.2.1: Reference Data and Remediation

REFERENCE DATA AND REMEDIATION (WHERE RELEVANT)	
N/A	
Checklist of supporting information	<p>Appendix A - Application Site Report for PPC Application – February 2006, Environ UK Ltd</p> <p>Appendix D – Scope of Works and Specification for the Demolition and Remediation of the Site.</p> <p>Appendix G – Groundwater Testing</p> <p>Appendix H – Diesel Line Clean Certificate, Cokebusters</p> <p>Appendix I – Asbestos Survey</p>

4.2.1 Appendix D contains the Scope of Works and Specification for the Demolition and Remediation of the Site. This document was prepared by Hughes and Salvidge on behalf of Deeside Power (UK) Limited

- 4.2.2 During the decommissioning works underground pipework associated with a previously decommissioned fuel oil storage tank and a pump house was discovered to still be in place. The pipework contained diesel.
- 4.2.3 When the Facility was operational the gas turbines had a dual firing capability and this is what the fuel oil storage tank and pumphouse was utilised for. The fuel oil storage tank and the forwarding pump house were situated remotely from the Power Station and an underground supply and return pipe connected the facility to the gas turbines in the power station building.
- 4.2.4 The pumphouse was decommissioned in the 1990s, with the forwarding pumps removed. The storage tank was dismantled in 2013. It was previously understood that the pipework had been drained and purged however when the pipework was opened up at the flanged ends for inspection prior to demolition it was found to contain diesel up to the flange which was situated above ground level. The fact that diesel was seen up to this level shows that the pipework had not leaked since decommissioning had occurred. Appendix H contains photographs that show the draining of the residual fuel oil, which was undertaken by Cokebusters. Cokebusters pigged the lines then flushed them out. A total of 12000 litres of an oily water mix was extracted from the pipeline and transferred by tanker to a permitted facility operated by Veolia. A certificate of cleanliness issued by Cokebusters can be found in Appendix H.
- 4.2.5 The pipeline was inspected prior to removal, for evidence of corrosion or physical damage. None was observed as can be seen in the photographs in Appendix H.
- 4.2.6 During this work an additional 3no. short pipelines were discovered. These lie between the main storage tank and road tanker unloading points. These pipes were also full of diesel when inspected. It was not deemed cost-effective to fully purge these pipes, instead as much diesel as possible was removed from the pipes, via a suction pump on the tanker and taken to the same Veolia-operated site by tanker. A small submersible pump was then used to pump out most of the remaining diesel into an IBC.
- 4.2.7 These pipes were then closed at one end carefully excavated, lifted out flanged end down. The remaining diesel was then decanted into the IBC, from the open end, with the IBC then taken off site. A total of 900 litres of diesel was removed from these pipelines.
- 4.2.8 No spillages occurred during the removal of the diesel and the pipes, were again in good condition. Photographs in Appendix H show the excavated trenches. The soil in these trenches had no sign of discoloration or pollution.
- 4.2.9 Prior to demolition taking place an asbestos survey was commissioned. A copy can be found in Appendix I. No Asbestos was identified in the buildings examined. If 'hidden' asbestos is found during demolition then it shall be removed by a specialist contractor.

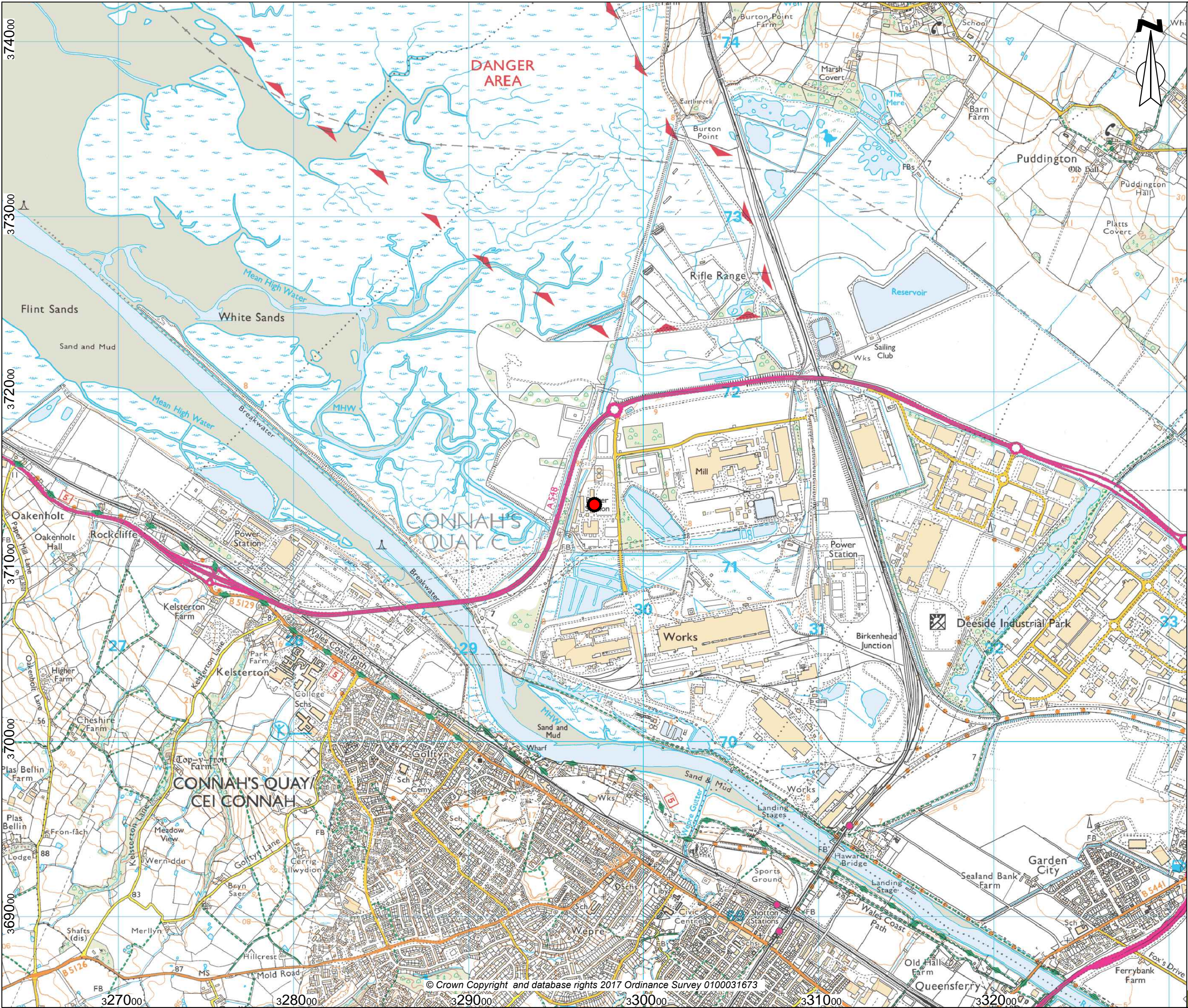
4.3 Statement of Site Condition

Table 4.3.1: Statement of Site Condition

STATEMENT OF SITE CONDITION
<p>Provide a statement about the condition of the land at the site. This should confirm that:</p> <ul style="list-style-type: none"> the permitted activities have stopped; decommissioning is complete, and the pollution risk has been removed; and the land is in a satisfactory condition.

- 4.3.1 The application is to surrender the Environmental Permit held by Deeside Power (UK) Limited.
- 4.3.2 The site will be decommissioned as per the Site Restoration Scheme in Appendix C and the Scope of Work and Specification for the Demolition and Remediation of the site at Deeside CCGT, which can be found in Appendix D
- 4.3.3 The Geo-Environmental Appraisal carried out by Enzygo in September 2017 concluded; The site has a legacy of previous industrial land uses. However, based on the groundwater data available, there appears to have been no diminution of groundwater 'quality' during the period of operation of the power station. There is no evidence of any new contamination of groundwater that could be attributed to site operations, based on the results of the groundwater analyses undertaken by Enzygo in August 2017. There was a 'spike' in chloride concentration in 2017, in BH6 and BH7, which are on the southern boundary. This could be a function of 'tidal' influence. Full details can be found in Appendix B.
- 4.3.4 Made ground soils on site have been excavated and used to create screening bunds and retained landscaped mounds. These soils will be placed back in the excavations and to 'regulate' overall levels, following decommissioning, demolition and removal of selected substructures. Subject to agreement, the eastern site boundary screening bund will be retained. A topsoil strip should be undertaken as part of the enabling earthworks, and these soils will be placed back to complete the reclamation. There are no records or evidence of importation of soils from off-site since construction of the power station.
- 4.3.5 The site is considered to be of high environmental sensitivity as, the site was constructed on made ground; there are potentially contaminative past ground working features within 500m of the site are high risk; current industrial land uses are medium to high risk; railway/works bordering the east of the site; primary; there are secondary and tertiary watercourses within 100m of the site; and, the site is underlain by a secondary aquifer however is not within 500m of a Source Protection Zone.
- 4.3.6 The proposed end use of the site is as restored former industrial land, and as such future sensitivity will be low for end users.

Drawings – Site Location and Site Installation and Surrender Boundary



Key



Site Location
(SJ 2972 7136)



enzygo
environmental consultants

Samuel House, 5 Fox Valley Way, Stocksbridge, Sheffield, S36 2AA

CLIENT:
Deeside Power (UK) Ltd

SCALE: PROJECT REF:
1:20,000@A3 CRM.343.001

DRAWN: CHECKED: DATE:
MG SC Oct 2017

PROJECT:
Deeside Power Station

TITLE:
Site Location Plan

DRAWING NO:
CRM.343.001.PE.R.001

Appendix A – Application Site Condition Report , February 2006, Environ UK



Application Site Report for PPC Application

**Deeside Power Station,
Deeside Industrial Estate,
Flintshire**

February 2006

Prepared by ENVIRON UK Ltd

NOTE THAT THIS REPORT IS TO READ IN
CONJUNCTION WITH THE MAIN SITE
APPLICATION DOCUMENT

Contract/Proposal No:	64-C9599
Issue:	A (Draft)
Author (signature):	Sharon Abram/Elizabeth Savage 
Project Manager/Director (signature):	Sandra Pugh 
Date:	February 2006

This report has been prepared by ENVIRON with all reasonable skill, care and diligence, and taking account of the manpower and resources devoted to it by agreement with the client. This report is confidential to the client, and ENVIRON accepts no responsibility whatsoever to third parties to whom this report, or any part thereof, is made known, unless formally agreed by ENVIRON beforehand. Any such party relies upon the report at their own risk.

ENVIRON disclaims any responsibility to the client and others in respect of any matters outside the agreed scope of the work.

VERSION CONTROL RECORD

ISSUE	DESCRIPTION OF STATUS	DATE	REVIEWER INITIALS	AUTHORS INITIALS
A	First Draft	February 2006	SFP	SA/ES
B	Approved by Deeside Power	February 2006	SA	

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APPENDIX A: FIGURES AND MAPS

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Figure A3 : Geological Map of the Site and Surrounding Area

Figure A4: Drainage Plan

Figure A5: Designated Sites within 10km of Deeside Power

APPENDIX B: SITE RECONNAISSANCE**APPENDIX C: DESK STUDY INFORMATION****APPENDIX D: DATA ASSESSMENT****APPENDIX E: CONCEPTUAL MODEL**

EXECUTIVE SUMMARY

This document represents the Application Site Report for Deeside Power, submitted as part of an application to the Environment Agency (Deeside Power Station, March 2006) for a permit to operate an installation under Regulation 10 of the Pollution Prevention and Control (England and Wales) Regulations 2000.

Records of the site and surrounding areas have been reviewed along with operation site records in order to describe the condition of the site and in particular, to identify any substance in, on or under the land that may constitute a pollution risk to the land. Pollution prevention measures have been identified and an assessment of the pollution potential to land has been undertaken.

Deeside Power is a Combined Cycle Gas Turbine Station (500MW). The process in which electricity is generated involves two gas turbines that burn natural gas. The installation is defined as a combustion process under Part A(1) Section 1.1, Paragraph (a) of The Pollution Prevention and Control Regulations (for England and Wales).

Deeside Power has an Environmental Management System (EMS) that was certified to the international standard ISO 14001 in 1996. As part of this the company operates a preventative maintenance programme for all equipment, devices and structures that are in place to provide pollution abatement, compliance or environmental protection. It includes an emergency plan / disaster recovery system to be actioned in the case of major incidents. Any corrective action required is reported to and implemented by the Management Team and the results are recorded and reviewed on an annual basis.

Deeside Power has a number of dedicated internal storage areas for the raw materials, namely sulphuric acid, sodium hydroxide, sodium hypochlorite, tri-sodium phosphate, hydrazine hydrate, ammonia, fire resistant fluid, lube oil, diesel, detergent and small quantities of solvents and degreaser. There is also a dedicated external area for smaller quantities of raw materials and waste materials in the western section of the site.

In addition to the storage of raw materials and wastes, there are a number of below ground storage tanks, three interceptors, a compressor house and three electrical transformers and a 400 kV banking compound located within the installation boundary.

Bunding and/or secondary containment exists around the bulk storage tanks with the exception of the internal lubrication oil tank, the double-skinned back-up generator fuel tank and the waste detergent tank. Additionally, the fill point of the sodium hypochlorite storage tank is located outside of a banded

area. However, given the internal siting of the lubrication oil tank the building structure will provide containment, and in the case of the generator fuel tank and waste detergent tank, bunding of these tanks will be undertaken as part of the proposed Improvement Programme, as detailed in the main application report. Regular visual inspection is undertaken for all above ground tanks, above ground pipework, bunds, and hardstanding. A more thorough maintenance survey is also undertaken that coincides with plant shutdown. However, integrity testing is not undertaken for any of the storage tanks or pipelines.

All floor areas within the factory are constructed of good quality concrete. The majority of external areas comprise concrete or asphalt hardstanding, which was generally noted to be in excellent condition. However, areas of un-made ground comprising gravels are present within the installation area.

There was evidence of minor acid staining within the cooling water pump house but generally internal housekeeping is of a high standard. Housekeeping within the external waste and chemical storage area was observed to be good, with no significant staining.

There are three wastewater interceptors located within the installation. Two of these are rainwater interceptors via which rainwater runoff passes to surface water via the site's consented point of discharge. However, Deeside Power plans to re-route the rainwater runoff into the Main Cooling Water system prior to the site's consented point of discharge for trade effluent. The third is a Skimovex interceptor connected to the plant effluent drains. Water from this interceptor enters the MCW via the wastewater pit and is then discharged to surface water via the site's consented point of discharge.

Due to the nature of the facility there is a high level of security at the site. There were no reports of the security ever being breached.

Therefore the main potential for future pollution pathways is considered to be:

- Spillages and leakages to un-made ground at the site during the transport of diesel/lube oil across the site;
- Entry of liquid chemicals/wastes into the site process drainage system from unprotected drains in process areas; and
- Leakage from below ground effluent pipework.

The site setting is not considered to be particularly sensitive in that the facility is located in an industrial area, with the underlying aquifer being classified as a minor aquifer. The installation is situated on land which historically was the location of a slag recovery operation associated with a nearby steelworks. The site was also nominated in an earthworks specification for the reclamation of

the steelworks, as an area to be used for the deposit of any toxic materials encountered on the steelworks site. The shallow made ground is comprised of slag, sand and gravel, with contamination of the soil and groundwater at the site, as well as in the surrounding area, being widespread; the contamination generally being associated with the 4-5m thickness of steelworks slag covering the site. Regular site-wide groundwater monitoring is undertaken at the site. This commenced in 1994 and has not identified any significant deterioration in groundwater quality. Site operations are well managed and all potentially polluting materials are stored and used in controlled and contained areas and fall under the remit of the site's ISO14001 environmental management procedures.

As such the conclusion of the ASR is that there is little likelihood of pollution occurring as a result of the installation activities and that reference data will not need to be collected.

1.0 INTRODUCTION

This Application Site Report has been prepared by ENVIRON and Deeside Power Station, Weighbridge Road, Zone 4, Deeside Industrial Estate, Flintshire, CH5 2UL in accordance with the Environment Agency's (EA's) IPPC guidance.

1.1 SITE LOCATION

The facility is located within Deeside Industrial Estate at approximate National Grid Reference 329720, 371360 (Figure A1 of Appendix A). The area of the installation is approximately 9.7 hectares and comprises two gas turbines and one steam turbine, two heat recovery steam generators (HRSG), a 400kV banking compound, a water treatment plant, a cooling tower system, a water intake station, associated offices, car parking areas and workshop. The installation is situated on a generally level plot sloping downwards towards the western boundary of the site.

In the surrounding area there are a series of man-made lagoons, developed for the nesting of Terns, located adjacent to the southern installation boundary. These lagoons and the steelworks beyond them are owned by Corus, an international steel and aluminium production company. To the west of the site is the Fingerpost Gutter (a drainage channel feeding into the River Dee), beyond which is the A548 dual carriageway and additional land owned by Corus. The Fingerpost Gutter also flows to the north of the site, beyond which is the A548 (230m north), with undeveloped wasteland further a field. A paper mill operated by Shotton Paper Company Plc is located approximately 400m to the east of the site. There are no schools or hospitals within a 1km radius of the site.

The Environment Agency website "What's in Your Backyard" indicates that the site lies within a tidal or fluvial floodplain. The southern-most area of the site could be affected by flooding from a river that has a 1% or greater chance of flooding each year or the sea that has a 0.5% or greater chance of flooding each year, if there were no flood defences. The remainder of the site shows the additional extent of an extreme flood from rivers or the sea. These outlying areas are likely to be affected by a major flood, with up to a 0.1% chance of such a flood occurring each year if there were no flood defences. Reportedly there has been no flooding at the site historically.

1.2 DETAILS OF INSTALLATION

Deeside Power is a Combined Cycle Gas Turbine Power Station (500MW). The process in which electricity is generated involves two gas turbines that burn natural gas. Filtered ambient air is drawn into the turbines, natural gas is then introduced, which once ignited causes the gases to heat and expand quickly, this in turn powers the turbines. This process generates 165MW per gas turbine. The waste heat in the exhaust gases is fed into a Heat Recovery Steam Generator (HRSG) and water fed from the feed water tanks is converted to steam, which powers the steam turbine. This process produces 170 MW of power.

The power station is indirectly cooled by passing water from the River Dee through condensers and then through cooling towers before return to the condenser. Some cooling water within this closed system is periodically discharged back into the River Dee, with the lost volume in the system being made up with fresh river water. The cooling towers are of the hybrid type designed to minimise cooling tower plumes.

The plant has been undertaking these operations since December 1994 and currently employs approximately 45 people. Deeside Power has an Environmental Management System (EMS) that was certified to the international standard ISO 14001 by Lloyds Register Quality Assurance Limited on 18th June 1996 (certificate number LRQ 0770334) and was certified to ISO14001:2004 by LRQA in January 2006.

The installation is defined as a Combustion process under Part A(1) Section 1.1, Paragraph (a) of The Pollution Prevention and Control Regulations (for England and Wales) due to a thermal input of 1068MW.

The boundary of the installation is marked in Figure A2 in Appendix A. The installation not only includes the gas turbine for the generation of electricity but also directly related activities which have a technical connection and may have an effect on emissions and pollution. Access around the facility has been included within the installation boundary to address any potential likelihood of spillages of materials during collection or delivery.

Associated activities/areas include:

- Water de-ionisation plant
- Effluent treatment plant
- Cooling towers
- Storage and handling of raw materials
- Handling and temporary storage of wastes

- Electricity transformers/sub station (banking compound)
- River water intake station.

These activities are described in detail in Section 2.3 of the main IPPC application document. Offices and laboratory areas although included within the installation area have been excluded from this ASR due to the relatively innocuous nature of these activities.

2.0 OBJECTIVES

The objectives of this report are to satisfy the requirements of the PPC Regulations at the time of permitting by:

- Identifying the environmental setting and land pollution history of the site;
- Identifying activities that will be conducted at the installation that may lead to land pollution;
- Identifying and assessing the preventative measures that are in place to protect the land; and
- Assessing whether there is:
 - 1) little likelihood that land pollution or leaks to land will occur during the future life of the installation; or there is
 - 2) A reasonable possibility that there is potential for current or future land pollution of the land from the installation.

3.0 SITE SETTING AND SOURCES OF DESK STUDY INFORMATION

3.1 INTRODUCTION

The following sections detail the sources of desk study information searched in order to describe the condition of the installation and, in particular, to determine the potential for substances to be present in, on or under the land associated with present and past uses of the site and its surrounding areas.

3.2 ENVIRONMENTAL CONSENTS AND LICENCES, AUTHORISATIONS, PERMITS AND DESIGNATIONS FOR THE SITE AND SURROUNDING AREA

Envirocheck (a publicly available third-party environmental database) was consulted to provide records of any Discharge Consents, Waste Management Licences and IPC Authorisations, PPC Permits, Land Drainage Consents and Abstraction Licences within a 2km radius of the site boundary. Information held on site was inspected with respect to the trade effluent discharge consent granted to Deeside Power, Deeside. A summary of the main findings is presented in Appendix C1.

The Multi-Agency Geographic Information for the Countryside (MAGIC) website (www.magic.gov.uk) was consulted to provide details of any Nature Conservation Designations for the site and within 10 kilometres of the site boundary. The locations of Designated Sites within the vicinity of the site are shown on Figure A5.

3.3 GEOLOGICAL, HYDROGEOLOGICAL AND HYDROLOGICAL DATA

Geological and hydrogeological data for the site was obtained from the following sources:

- British Geological Survey (BGS) map of Flint, Sheet 108, 1:50,000 scale;
- Environment Agency (EA) Groundwater Vulnerability Map Sheet 16, West Cheshire, 1:100,000 scale;
- EA Groundwater Source Protection Zone map sheet from the EA website "What's in your Backyard" page; and

- Borehole logs from the previous investigation undertaken by EAG ENVIRON in 1994.

An excerpt of the relevant geological map is included as Figure A3 in Appendix A. The borehole logs are presented in Appendix C2.

Hydrological data was also obtained from the EA website "What's in your Backyard" page (www.environment-agency.gov.uk) and the Envirocheck third party environmental database. This is reproduced in Appendix C3.

3.4 SITE OPERATIONAL RECORDS, EMERGENCY RESPONSE RECORDS AND RECORDS OF ANY LAND POLLUTION INCIDENTS IN THE VICINITY OF THE SITE

Site management together with information provided by the Environment Agency and Envirocheck were consulted to provide records of any land and controlled water pollution incidents associated with the site and within 1km of the site boundary, the details of which are included within Appendix C4.

Site operational layout plans, including the location and nature of potentially polluting substances and underground services and pipelines (foul and surface water drainage), are shown on Figure A2 and A4 in Appendix A.

4.0 SITE RECONNAISSANCE

4.1 INTRODUCTION

The site reconnaissance was undertaken on 10th November 2005 by environmental consultants from ENVIRON. The site walkover included the entire site area detailed in Figures A2 together with relevant interviews with site management.

The purpose of the reconnaissance was to inspect the site and surrounding area for indicators of potential land pollution. Site infrastructure was visually inspected to assess its competence and potential to cause or have caused releases to land.

Photographs of the key storage areas and associated surface conditions are presented in Appendix B.

4.2 CHEMICAL AND HAZARDOUS SUBSTANCES STORAGE AREAS

Deeside Power has a number of dedicated internal storage areas for the raw materials, namely sulphuric acid, sodium hydroxide, sodium hypochlorite, tri-sodium phosphate, hydrazine hydrate, ammonia, fire resistant fluid, lube oil, diesel and detergent. There is also a dedicated external storage area for smaller quantities of raw materials and waste materials.

In addition to the storage of raw materials and wastes, there is a redundant tank farm (above ground level), a waste oil below ground storage tank, which at the time of the inspection was reportedly planned for decommission, interceptors, transformers and a below ground steel tank for the storage of oily liquid from the transformer bund in the case of an emergency.

All plant and equipment of potential environmental significance are covered by the preventative maintenance programme. Visual inspections of storage areas, bunds, tanks and pipework are undertaken on a weekly basis, with more detailed inspections being undertaken during plant shutdown.

Details of the main chemical and waste storage areas are detailed in Appendix D2.

4.2.1 Internal Sulphuric Acid Storage

Sulphuric acid (H_2SO_4) is used in the water treatment plant to regenerate the ion exchange resins. The sulphuric acid is stored internally in a concrete bunded above-ground storage tank (AST) within the water treatment plant. The capacity of the tank is 20m^3 .

Sulphuric acid is delivered to site by tanker. There is a dedicated unloading area on which the tanker unloads. This is a cambered concrete surfaced area, which is contained by a raised kerb. Any spills in this area are directed to a drain, sited in this containment area, which subsequently drains to the on-site effluent treatment plant. The tank fill point is located on the external wall of the water treatment building. A concrete bunded drainage grid is located below the fill point to ensure that any spilt acid is contained and drained to the water treatment plant. Sulphuric acid is delivered by tanker when necessary, the filling of the tank is supervised by authorised site personnel.

Sulphuric acid is also used in the Main Cooling Water System (MCW) to prevent scaling. The sulphuric acid tank (40m^3) is located internally in the cooling water pump house. The tank is situated above ground within a concrete bund. The tank is filled via a fill point on the external wall of the building. A drainage grid is situated below the fill point, which directs any spills into the MCW system. The tank is fitted with a high level alarm. The automatic acid dosing system for the MCW system is sited internally, adjacent to the acid tank, in a dedicated concrete bunded area, the floor of which is tiled with acid resistant tiles. Delivery of sulphuric acid is supervised by authorised facility personnel.

The bunds in both buildings were noted to be in good condition, with only minor acid staining observed on the base of the bund within the cooling water pump house. Site management report that although the tanks, above ground pipework and bunding are inspected visually on a weekly basis, integrity testing is not undertaken on any of the tanks or pipework.

4.2.2 Internal Sodium Hydroxide Storage

Sodium hydroxide (NaOH) is used in the water treatment plant for the regeneration of the ion exchange resins. The sodium hydroxide is stored internally in a concrete bunded AST within the water treatment plant. The capacity of the tank is 24m^3 . The tank is filled via a fill point on the external wall of the building. Sodium hydroxide is delivered by tanker when necessary, the filling of the tank is supervised by authorised site personnel. The area in which the tanker unloads is bunded by a raised kerb to ensure that any spillages are contained. A drainage grid below the fill point directs any spilt sodium hydroxide into the water treatment plant. The

tank bund and external unloading containment area were noted to be in good condition with no signs of significant staining.

Site management report that although the tank, above ground pipework and bunding are inspected on a weekly basis by visual means, integrity testing is not undertaken.

4.2.3 External Sodium Hypochlorite Storage

Sodium hypochlorite (NaOCl) is used as a biocide in the MCW system, with each dose being injected manually. The sodium hypochlorite is stored in an AST (16m^3), which is housed in a good quality concrete bund, with the walls on three sides extending to a height above the tank to support a metal roof, which covers the tank and bund. The AST is constructed of mild steel and is rubber lined. The tank is fitted with a high level alarm. The fill point is located inside of the bund. The tanker loading area is contained by raised kerbs and a floor gully trap to contain any spillages. The injection of sodium hypochlorite into the MCW system is undertaken using a pump system, which is contained within the tank bund. No evidence of staining of the tank bund or the concrete surfaced area below the fill point was noted, additionally, the tanker unloading area is surfaced with good quality concrete.

A second sodium hypochlorite AST is located within the intake station building. The tank although full, is reportedly planned for decommissioning. The tank is located within a concrete bund that was noted to be in good condition. The fill point for the AST is located on the outside wall. A bunded collection point is located under the fill point to ensure that any spills are contained.

Site management report that although the tanks, above ground pipework and bunding are inspected on a weekly basis by visual means, integrity testing is not undertaken.

4.2.4 Internal Tri-Sodium Phosphate, Hydrazine Hydrate and Ammonia Solution Storage

Tri-sodium phosphate (Na_3PO_4) is used for both pH control and as a coagulant for impurities in the boiler water. This is stored in four 1 tonne IBCs.

Hydrazine hydrate ($\text{N}_2\text{H}_4\text{H}_2\text{O}$) is used for oxygen scavenging in the feed water for the boiler. This is stored in a 1 tonne IBC.

Ammonia solution (ammonium hydroxide) (NH_4OH) is used for pH control in the feed water for the boiler. This is stored in two 1 tonne IBCs.

The aforementioned chemicals are stored within a purpose built concrete and breeze block building, with a corrugated sheet metal roof, access to which is via a roller shutter door situated above ground level on one side of the building. These chemicals are gravity fed to a pump dosing skid that feeds into the boiler. The floor and lower part of the building wall are of concrete construction and act as a bund for the IBCs. The IBCs are delivered as close to this building as possible by the delivery vehicle and are unloaded into the bunded building by use of fork lift trucks. No evidence of significant staining of the lower concrete walls and the concrete surfaced floor was noted during the inspection.

Site management report that although the bunding is inspected on a weekly basis by visual means, integrity testing is not undertaken.

4.2.5 Internal Fire Resistant Fluid Storage

Fire resistant fluid is a phosphate ester used for operating the valves on the steam turbine's hydraulics. This fluid is stored in a 1,250 litre AST within a concrete bunded area on the mezzanine floor within the HRSG building. The tank is topped-up with 205 litre drums. The tank was noted to be in good condition, with no obvious staining of the concrete surrounding the tank observed. A drain, located at one end of the bunded area, allows for the drainage of any spills via a permanently fixed pipe into a 205 litre collection drum sited on the ground floor. A valve at the end of the drain pipe prevents the free flow of any spillages/leaks. The valve remains locked in the closed position unless draining of the pipe and bunded area is required. The concrete surfaced floor area beneath the pipe and collection drum was noted to be in good condition with no obvious signs of staining.

Site management report that although the tank, pipework and bunding are inspected on a weekly basis by visual means, integrity testing is not undertaken.

4.2.6 Internal Lubrication Oil Storage

Lubrication oil is used for plant and machinery lubrication and insulation of electrical transformers. It is stored in a 10,500 litre AST within a concrete bunded area on the mezzanine floor within the HRSG building. The AST gets filled using 205 litre drums. There was no obvious staining of the concrete bunded area surrounding the tank. A drain located at one end of the bunded area allows for the drainage of any spills via a permanently connected pipe into a 205 litre collection drum sited on the ground floor. A valve at the end of the drain pipe prevents the free flow of any spillages. The valve remains locked in the closed position unless draining of the pipe and bunded area is required. The concrete surfaced floor area

beneath the pipe and collection drum was noted to be in good condition with no obvious signs of staining.

Two 20 tonne lube oil ASTs are located within the gas turbine room of the HRSG building. Although the tanks themselves are not bunded, the gas turbine room will act to contain any spills or leaks. Minor leaks of oil from pipe flanges on the concrete floor were observed. Any oil spillages are collected using a vacuum cleaner, which is then emptied into a 205 litre oil drum and emptied into the waste oil tanks (see Section 4.2.13). The tank is filled by tanker when required; this is supervised by authorised facility personnel.

Lubrication oil is also stored in a dedicated lube oil storage building located in the north eastern area of the site. Lube oil is stored in individual 205 litre drums on racking inside the store within a concrete bunded area. No evidence of significant staining of the bund and the surrounding concrete surfaced floor was noted during the inspection.

Site management report that the lube oil store is managed by a contractor, on behalf of Deeside Power. The store is inspected on a weekly basis by visual means by both the contractor and Deeside Power.

4.2.7 Internal Diesel Storage

Diesel is stored in a double-skinned AST (circa 1,280 litre capacity) within the emergency generator unit, sited adjacent to the waste storage compound. This is located on a concrete floor. The tank is topped up, when necessary, by a double skinned bowser with a trigger and hose. There were no signs of staining of the concrete floor. Site management report that although the tank is inspected on a weekly basis by visual means as part of the preventative maintenance programme, integrity testing is not undertaken.

4.2.8 Internal Detergent Storage

Detergent (R-MC Powerguard) is used for gas turbine blade washing. A 1 tonne IBC is stored in a plastic bund within the HRSG building. The concrete surfaced floor area surrounding the bund, which is visually inspected on a weekly basis, was noted to be in good condition with no signs of staining.

4.2.9 External Chemical Storage

An external chemical storage compound is located in the western area of the site adjacent to the waste storage compound. It comprises a caged area with concrete flooring and a corrugated metal roof. Liquid materials stored in this compound include a small number of 1

tonne IBCs containing R-MC Powerguard (detergent for blade washing) and Hertel Antifoam FDP, a chemical used to reduce the build up of foam during recirculation (approximately eighteen 25 litre containers were noted at the time of the inspection), all of which were sited on drip trays. At the time of site reconnaissance staining of this concrete surfaced compound, which was noted to be in very good condition, was not observed.

The housekeeping in this area is generally of a high standard with no evidence of any spills or staining. Although this compound is not bunded all liquid wastes are stored on drip trays to prevent the release of liquid chemicals. Visual inspection of the storage compound and hardsurfacing is undertaken on a weekly basis.

4.2.10 External Waste Storage

An external waste storage compound is located in the western area of the site adjacent to the chemical storage compound. This compound comprises a caged area with concrete flooring and a corrugated metal roof. There is a waste compactor located in this area for general non-hazardous wastes. This waste is collected by Biffa, a licensed waste contractor, when necessary.

Also sited in this compound are:

- three 1,100 litre wheelie bins for the storage of waste paper and cardboard. These are collected on a monthly basis by Biffa for recycling.
- A self-bunded plastic waste oil AST (approximately 2,000 litre capacity) for the disposal of waste oils, greases and lubricants. Waste oil is collected by Orcol Fuels Ltd, an oil recycling and disposal contractor.
- Various quantities of used batteries, oily rags and old laboratory chemicals stored in 205 litre drums. At the time of inspection there were approximately eight 205 litre drums, all of which were located on a drip tray. These wastes are all collected for disposal by Biffa.
- Various pieces of electrical equipment (computers etc) stored on the concrete floor off this compound. These are stripped down as much as possible and the remaining components are collected by Biffa.

The housekeeping in this area is generally of a high standard with no evidence of any spills or staining. Although this compound is not bunded, with the exception of waste oil which is stored in a self-bunded tank, all liquid wastes are stored on drip trays to prevent the release of

liquid wastes. Weekly visual inspection of the storage compound and hardsurfacing is undertaken on a weekly basis.

In addition to the aforementioned wastes there is an open top waste skip, sited just to the north of the waste compound, for the disposal of metal waste and engineering scrap metal. This scrap metal is collected for re-cycling by Chaloners of Wrexham.

An additional waste skip is stored on tarmac in the area to the east of the cooling towers. This skip is used for general non-hazardous waste. There is also a waste paper skip adjacent to the administration building for paper and cardboard. These wastes are collected by BIFFA for disposal, and in the case of paper and cardboard for recycling.

4.2.11 Internal Waste Storage

Waste detergent from the turbine blade washing is stored in a 6m³ tank located within the HRSG building. There is no dedicated secondary containment for this tank, however, this tank is located away from doorways to external areas and in the event of a spillage the building structure would provide containment. Furthermore, the tank was noted to be in good condition and is visually inspected on a regular basis, although integrity testing of the tank and associated pipework is not undertaken. There are drains located within the building that lead to an interceptor. Should any detergent enter these drains it will affect the efficiency of the interceptor. As part of the Improvement Programme, as detailed in the main application report, it is the intention to provide suitable bunding for this tank.

Waste detergent is treated as hazardous waste and is collected by Biffa, a licensed waste contractor, using a suction tanker, when necessary. The waste detergent is filtered and treated as a liquid effluent.

A waste oil AST (1.2m³) is sited in the Lube Oil Store, in the northern site area. The tank is sited in a concrete bund, which was noted to be in a good state of repair with no evidence of significant staining of the bund or the surrounding concrete surfaced area. The tank is filled by manually pumping oil from 205 litre drums.

Waste lube oil is treated as hazardous waste and is collected for off-site recovery for fuel by a licensed waste contractor, when necessary.

Site management report that although the tank and bunding are inspected by visual means on a weekly basis, integrity testing is not undertaken.

4.2.12 Redundant Tank Farm

In the northern area of the site is a redundant oil tank farm, comprising two ASTs (each with a capacity of 9,000m³). The tanks are sited in a concrete bund. The tanks originally held fuel oil, to be used as back up fuel for the plant in the case of an emergency, however this fuel was not needed and the tanks were emptied in December 1998. During the site inspection evidence of staining of the concrete bund was not noted. Reportedly the tanks and below ground delivery pipework were never integrity tested.

4.2.13 Redundant Waste Oil Tank

A below ground steel storage tank is located within the waste compound, which was installed in 1996. Reportedly decommissioning of the tank is planned. Waste oil was emptied directly into this tank via a grid situated at the ground surface. Site management reported that integrity testing had not been conducted on the tank. At the time of the inspection there was no evidence of significant staining of the concrete surfaced floor of the waste compound.

4.2.14 Emergency Containment Tank

A below ground steel tank, installed during the construction of the site, is sited adjacent to the oil-filled transformer units, located in the southern site area. Liquid collected in the concrete bund serving the transformer units is drained to the MCW via a 'Skimovex' oil interceptor. In the event of an oil leak from the transformer units an in-line density valve will detect the oil and divert the drainage from the bund to the below ground tank, which is used for emergency containment purposes. The tank is inspected visually on every shift to assess if any oily liquid has been diverted to it. Integrity testing of the tank has not been undertaken. Such an emergency has not occurred on site to date.

4.2.15 Compressor

A compressor is situated in a dedicated room located at the intake station situated to the south west of the main site. Compressed air is used to blow silt away from the river water intake point. The compressor, which is reported to be oil free, does have an oil separator through which the compressor blow down passes, the resultant 'oil free' blow down is then discharged to the intake sump. Any oily residue is collected in a 25 litre container for disposal via the site waste oil tank. The compressor and blow down container are inspected on a weekly basis. At the time of the inspection there was no evidence of significant staining of the concrete surfaced floor of the compressor room.

4.2.16 Transformers and Associated Electrical Equipment

Three oil filled electrical transformers are situated in the southern site area. These are housed externally within secure cages, each unit being sited on a concrete plinth within a bunded area. The transformers were noted to be in good condition. No staining of the concrete bund was noted. The transformer units and bund are visually inspected on a daily basis.

The transformers units are linked via overhead cables to a banking compound adjacent to the southern boundary of the site. This banking compound houses electrical switch gear and is owned by Deeside Power, but maintained by National Grid.

A switch room and transformer are present at the intake station. These are located in a brick building with a concrete floor of good condition. All equipment was noted to be in very good condition with no staining of the concrete floor observed.

Deeside Power holds a letter from ABB (the original developers of the installation) that confirms that none of the electrical gear contains polychlorinated biphenyls (PCBs).

4.2.17 Internal Solvent Storage

Very small volumes of solvents are used for the degreasing of mechanical equipment during equipment repair/maintenance. Degreasing is undertaken in the workshop, which is located towards the western site boundary, in a dedicated small-scale Safetykleen degreasing unit. The unit consists of a 205l drum of solvent. The solvent is re-circulated through the system until it is 'dirty'. The waste solvent is then collected by Safetykleen for recycling/disposal, and is replaced by a new 205l drum of solvent. Visual inspection of the solvent unit and areas of hardstanding are undertaken at least on a monthly basis.

The degreasing unit is sited on a good quality concrete floor inside the workshop. There was no evidence of leaks or spills from this unit during the inspection and the unit was noted to be in good condition.

4.2.18 Resin Regeneration Effluent Tanks

Two GRP 20m³ above ground storage tanks are situated in the water treatment plant. The tank is filled from the ion exchange unit by fixed above ground pipework. These tanks, which are not bunded, are used for the collection of ion resin regeneration effluent. The effluent in the main is water with acid and caustic residues, generally with a pH of 5.5 – 6.6. This water

is discharged into the wastewater pit and then to the MCW system via below ground pipework.

The tanks, pipework and concrete floor of the building were noted to be in good condition, with no signs of significant staining.

Site management report that the tanks, above ground pipework and internal concrete surfacing are inspected on a weekly basis by visual means, however integrity testing of the tanks and pipework (below and above ground) is not undertaken.

4.3 HARDSTANDING AND BUNDS

All internal floor areas, which date back to the construction of the power station in the 1990s, are constructed of concrete. The floors were observed to be in good condition throughout the installation, with evidence of only minor acid staining and oil spillages. Generally internal housekeeping is of a high standard.

The majority of external areas comprise concrete or asphalt hardstanding, all of which is in good condition, with only narrow strips of un-made ground surfaced with gravel surrounding a number of operational areas, including the chemical and waste storage compounds.

Housekeeping within the external waste and chemical storage areas was observed to be good, with no significant staining noted. Although these areas are not bunded, liquid chemicals and wastes are stored on drip trays to prevent uncontrolled releases to adjacent strips of unsurfaced ground. The compounds are also visually inspected on a weekly basis. As such, there is considered to be little likelihood of pollution occurring in these areas.

The majority of ASTs on site are adequately bunded. Exceptions to this include the internal lubrication oil tanks, located in the gas turbine room, the internal waste blade wash detergent tank and the back-up generator diesel tank (double skinned), which were observed to have no secondary containment.

Bunded areas are visually inspected on a weekly basis as part of the planned maintenance programme, although these inspections are not formalised and there is no regular integrity testing.

Box 5 requirements in the H7 Guidance require that bunded areas are:

- Impermeable and resistant to the stored materials
- Have no outlet

- Have pipework routed within the bunded areas with no penetration of contained surfaces
- Are designed to catch leaks from tanks and fittings
- Have a capacity greater than 110% of the largest tank or 25% of the total tankage, whichever is the greater
- Are subject to regular visual inspection
- Have fill points within the bund or otherwise provide adequate containment for filling facilities
- Are subject to a routine programme of quarterly visual inspections and annual water testing to confirm integrity, where appropriate.

It is considered that current site practices do meet all of these requirements, with only a few exceptions, namely:

- Bunding does not exist for all of the above ground storage and process tanks/areas, however where bunding is absent, it is for those tanks that are sited internally in buildings hence there is little likelihood of pollution as a result of leaks or spillages from these tanks as the building infrastructure will provide containment. With regard to the generator diesel tank, although this tank has no secondary containment it is double-skinned and in a good state of repair, with no reported leaks or spills from this tank. As part of the Improvement Programme suitable containment for the waste turbine blade wash tank, will be provided.
- Annual water testing of bunded areas does not take place.

4.4 VEGETATION

Vegetated areas exist along the southern, western, northern and north eastern boundaries of the installation. Additionally, unsurfaced ground exists in:

- the north eastern site area; and
- the area around the cooling towers located in the north western site area.

4.5 SITE SECURITY

Due to the nature of the facility there is high scale security at the site. The facility is surrounded by a metal perimeter fence and there is a security gatehouse at the entrance to the site. There were no reports of site security ever being breached.

4.6 SURFACE WATER FEATURES

There are no surface water features located on the site. The closest surface water courses are the Fingerpost Gutter, which runs adjacent to the western boundary of the site, Broken Bank Brook, which runs adjacent to the southern boundary of the site, and the River Dee, which lies approximately 730m south-west of the site.

4.7 NATURE OF THE STORAGE AND HANDLING OF MATERIALS

Deliveries of chemicals and collections of waste are carried out under the supervision of authorised staff. The Environmental Management System contains written procedures for these activities as follows:

- ENV\LP005 – Removal of Waste from Site
- ENV\LP007 – Procedure to be Adopted in the Event of a Spillage and/or a Breach of IPC Authorisation
- DEA\POI\ROU\GC_06 and DEA\POI\ROU\PA_06 – Procedures for the supervision of chemical deliveries

4.8 SURFACE WATER AND FOUL DRAINAGE

The layout of the foul and surface water drainage systems is presented in Figure A4.

All sanitary and cleaning waste water drains via the foul water drains to the municipal foul water sewer.

All process wastewater and boiler blow down from the HRSG drains into the effluent treatment pits and then into the MCW system, ultimately being discharged into the River Dee under consent.

Surface water runoff is currently pumped via oil interceptors and then discharged, by gravity, into the Fingerpost Drain under consent. Deeside Power plan to redirect the surface water runoff via interceptors into the MCW system.

All interceptors are visually inspected on a daily basis, these inspections are logged. The interceptors are cleaned when necessary.

The effluent treatment pits (wastewater pit, neutralisation pit and outfall pit), in which the neutralisation of wastewater is undertaken, if necessary, are located to the south of the

cooling towers. These pits are sunk into the ground. HRSG blowdown initially drains into the neutralisation pit; Water Treatment Plant (WTP) effluent drains into the wastewater pit; and building drainage discharges to the wastewater pit after passing through the 'Skimovex' interceptor. There are two pumps in the wastewater pit that pump wastewater, HRSG blowdown and WTP effluent into the MCW system; purge water from the MCW system is then passed into the outfall pit, which then discharges purge water by gravity into the River Dee. The neutralisation pit is linked via a valve to the wastewater pit. This valve can be shut off if necessary, allowing for the neutralisation of wastewater prior to discharge into the wastewater pit, however neutralisation of wastewater is rarely required. Both the wastewater pit and the outfall pit are continuously monitored for pH and temperature.

The effluent pits are of concrete construction, the concrete walls of which are of substantial thickness (375mm). Visual inspection of the pit walls, where exposed, is undertaken on a weekly basis. A full visual inspection of the pits is undertaken when the pits are fully drained during the removal of silt; this was last completed in February 2006. Reportedly no evidence of degradation/cracks in the pit walls was noted at this time.

5.0 ASSESSMENT OF LAND POLLUTION POTENTIAL

5.1 POLLUTING SUBSTANCES AND RELEVANT ACTIVITIES

A list of all substances used and stored on site together with a list of all waste streams arising at the site are contained in Appendix D1. An assessment of their pollution potential has been made based upon their properties and environmental fate. Information on the chemical behaviour, toxicology and potential degradation products has been included where this information is provided in the relevant Materials Safety Data Sheet or Technical Data Sheet. For some materials, there is less information available than for others. A summary of the available information is presented below.

5.1.1 Diesel

Diesel is a clear colourless liquid, typically composed of a hydrocarbon mix together with (often proprietary) additives. It is flammable with a flash point at typically 52°C.

If released into the environment diesel will float on water and spread on the surface; on release to soils, there is some mobility, but adsorption is the predominant physical process. Diesel is toxic to most invertebrates and slightly toxic to fish and may cause long term adverse effects in the environment.

The lighter components of diesel will volatilise and in air undergo photolysis to give half-lives of less than a day. Photooxidation of liquid hydrocarbons on the water surface also contribute to the loss process. Slow to moderate degradation is likely in soils and water. There is the potential for bioaccumulation, however metabolic processes may reduce this tendency.

5.1.2 Sodium Hypochlorite

Sodium hypochlorite is a colourless liquid with a strong odour. It has sensitivity to both light and heat and readily decomposes on heating to around 40°C.

Sodium hypochlorite is an oxidizing agent, so reacts vigorously with many reducing agents. Products of the reaction with amines and ammonia may be both toxic and explosive.

Sodium hypochlorite's direct environmental impact is minimal, although it is readily absorbed into soil it is quickly broken down due to its high reactivity. There is negligible ecotoxicity.

5.1.3 Sodium Hydroxide

Sodium hydroxide is a white semi-transparent solid. It is stable, but hygroscopic (attracts moisture from the atmosphere) and has a melting point of 318°C. Sodium hydroxide is water soluble, but produces a very exothermic (releases heat) reaction.

Sodium hydroxide is toxic to aquatic life through an immediate raise in pH to toxic levels. However it is biodegradable and has negligible/no bioaccumulation potential and negligible ecotoxicity.

5.1.4 Sulphuric Acid

Sulphuric acid is a colourless oily liquid when concentrated and a colourless liquid when dilute. Sulphuric acid is stable but is hygroscopic and is miscible with water in all proportions however this produces an exothermic reaction.

Sulphuric acid is toxic to aquatic life through an immediate raise in pH to toxic levels. It is readily absorbed into soil, however it is biodegradable and has a negligible/no bioaccumulation potential and negligible ecotoxicity.

5.1.7 Ammonia Solution (Ammonium Hydroxide)

Ammonium hydroxide is a colourless solution that is miscible with water in all proportions. It is stable, but may absorb carbon dioxide from the air.

If released into aquatic environments it may promote eutrophication. It is very toxic to aquatic organisms and is fatal to aquatic life due to the pH shift, being caustic even in dilute form. This material is biodegradable and is not expected to significantly bioaccumulate.

5.1.8 Hydrazine Hydrate

Hydrazine hydrate is a colourless, fuming, corrosive liquid with an ammonia-like odour. It decomposes on heating or exposure to UV to form ammonia, hydrogen and nitrogen.

Hydrazine hydrate on release into soils is not expected to biodegrade and may leach into groundwater, however, it is expected to quickly evaporate.

Should it enter water, this material is not expected to biodegrade, and is expected to quickly evaporate. This material is not expected to significantly bioaccumulate. Hydrazine hydrate is however, very toxic to aquatic organisms and may cause long-term adverse effects to the aquatic environment.

5.1.9 Tri-Sodium Phosphate

Tri-sodium phosphate is white solid odourless crystal that is soluble in water. It is stable under normal conditions but in combustion emits toxic fumes.

Tri-sodium phosphate is biodegradable and has no bioaccumulation potential. It has negligible ecotoxicity.

5.1.10 Lubrication Oil

Lubrication oil is a blend of synthetic hydrocarbons and additives. It is a light amber liquid with a slight odour that has negligible solubility in water.

Lubrication oil is practically non-toxic and biodegradable. If released into the environment it will float on water and spread on the surface. It is a non-volatile substance. It is not expected to be ectoxic to fish, daphnia and algae.

5.1.11 Fire Resistant Fluid

Fire resistant fluid is used in the steam turbines is a blend of triaryl phosphates and additives. It is a yellow odourless liquid that has negligible solubility in water.

Lubrication oil is practically non-toxic and biodegradable. If released into the environment it will float on water and spread on the surface. It is toxic to marine organisms and is expected to be toxic to aquatic organisms.

5.1.12 Blade Wash Detergent (R-MC Powerguard)

The blade wash detergent is used to clean the blades of the gas turbines. The detergent is a proprietary formulation based on 10-25% non-ionic surface active agent belonging to the ethoxylated fatty amine family. It is an easy flowing, medium amber colour liquid with a mildly sweet odour. It is non-flammable and has 100% water solubility.

Blade wash detergent (R-MC Powerguard) is categorised as non-toxic and contains no ingredients that are considered carcinogenic. The detergent is biodegradable in accordance with OECD 301D. The product has a low ecological toxicity and bioaccumulation.

5.1.13 Hertel Antifoam FDP

Hertel Antifoam FDP is a chemical used to reduce the build up of foam during water recirculation. It is a polydimethylsiloxane, off-white, viscous emulsion, which has a slight odour. The antifoam is stable, non-flammable and disperses in water.

Hertel Antifoam FDP is a slight irritant of the eyes. The ecological affects of the material are not known.

5.1.14 Degreasing Solvent (SK Odourless)

The degreasing solvent is used in Safetykleen degreasing units for the degreasing of machine parts. The degreasing solvent used in these units is an isoparaffin (>95%) based solvent, this being a colourless liquid with a characteristic odour and a solubility in water of <0.1%.

It has an aspiration hazard and if the vapour is inhaled in concentrations above the maximum exposure limit, irritation to the eyes and the respiratory system may occur. Headaches, dizziness, anaesthetic and other central nervous system effects may occur. Frequent prolonged exposure to the skin may cause irritation and dermatitis.

The solvent is insoluble in water. In soil the product has only slight mobility and will partially evaporate; it biodegrades slowly but can degrade rapidly in air. Additionally, there is also potential for bioaccumulation.

5.1.15 Historical Contamination Issues

A historical review of the site and surroundings has been completed using available historical maps. This is presented in Section 6.5 of this report and selected historical maps are reproduced in Appendix C4.

5.2 PREVENTATIVE MEASURES

The pollution preventative measures (physical infrastructure and those relating to testing, inspection and maintenance) for each relevant activity associated with the potentially polluting substances have been identified and their extent and condition assessed as part of the walkover survey of the site. A summary of the overall management of these preventative measures is discussed below. Procedures are also in place to monitor emissions, both to air and to water.

Deeside Power has an Environmental Management System (EMS) that was certified to the international standard ISO 14001 by Lloyd's Register Quality Assurance Limited on 18th June 1996 (certificate number LRQ 0770334). This is discussed in full in Section 2.1 of the main application. Salient points are summarised below.

The company operates a preventative maintenance programme for all equipment, devices and structures that are in place to provide pollution abatement, compliance or environmental protection. This includes the following:

- visual inspections of storage tanks and all aboveground pipework are undertaken on a weekly basis. In house maintenance is undertaken as required;
- regular inspection of all areas where potentially polluting materials are stored or handled;
- general housekeeping is ongoing;
- regular inspection of all areas where potentially polluting materials are stored or handled. Drums and IBCs of chemicals are inspected at least once a week, in accordance with PPG26 (Storage & Handling of Drums & Intermediate Bulk Containers);
- General visual and maintenance checks of compressors including oil level is undertaken at least once a week. Servicing by specialist external contractors is undertaken on a regular basis;
- inspection of interceptors is undertaken daily, with the cleaning of interceptors undertaken when required (at least annually); and
- monitoring of the consented effluent discharge in accordance with the discharge authorisation.

Any corrective action required is reported to and implemented by the Environment Management Team. The results are recorded and reviewed on an annual basis.

As part of its Environmental Management System, Deeside Power has an emergency plan / disaster recovery system to be actioned in the case of major incidents such as fires, pollution incidents, major plant failures etc. The plan details key staff, procedures for actioning of the plan, responsibilities for emergency functions and important contact details.

In addition to the emergency plan, Deeside Power has established procedures to respond to emergency situations. This is detailed within Section 2.8.2 of the main application.

5.3 ASSESSMENT OF THE LIKELIHOOD OF LAND POLLUTION

Appendix D2 contains an assessment of the likelihood of environmental pollution from the installation. The information is presented in tabular form and addresses measures that Deeside Power have implemented to prevent accidents and limit consequences.

The major risks to land pollution from the hazardous materials used at Deeside Power are:

- Hazardous liquid spillage and entry into groundwater or surface water during delivery of chemicals, storage or handling/movement around the site;
- Escape of hazardous waste materials to groundwater or surface water during storage or collection for off-site disposal;
- Release of process chemicals from the plant during normal operation due to leakage;
- Release of hazardous materials to the River Dee above discharge consent limits;
- Vandalism; and
- Fire.

The first three risks are reduced by the preventative maintenance programme, procedures for spill prevention, spill control and staff training. The risk of release of effluent to surface water above the consented discharge limits is reduced by regular monitoring of the effluent prior to discharge for the consented discharge parameters.

All floor areas within operational areas of the installation are constructed of concrete, observed to be in good condition. All materials are handled by suitably trained personnel and all deliveries and collections of materials and wastes are supervised by authorised site personnel. Housekeeping across the site is of a high standard.

Secondary containment exists for the majority of chemical storage areas. Where secondary containment is not provided, containment by building infrastructure will reduce the risk of potential contamination of as a result of uncontrolled releases.

This assessment has not identified relevant activities where there is reasonable possibility that there is or will be current or future pollution of the land from the installation. Reference data will not need to be collected.

6.0 CONCEPTUAL SITE MODEL

6.1 GEOLOGY AND HYDROGEOLOGY

The geological sequence underlying the site is as follows:

- Made Ground.
- Marine Deposits.
- Lower Langsettian (Westphalian A) Coal Measures, mudstones, siltstones, sandstones with coals and seatracks

This can be seen in plan form in Figure A3, which is taken from the BGS map 1:50,000 scale, Sheet 108, Flint.

6.1.1 Made Ground

The BGS map for the site indicates that the site is underlain by Made Ground. Historical maps indicate that the site was reclaimed from mud flats around the 1960s, from which time the site was developed with railway lines and industrial buildings until the mid 1980s (the site history is presented in full in Section 6.5.1). Borehole logs from a ground investigation undertaken by EAG ENVIRON in 1994 confirm the presence made ground directly beneath the site to depths of between 0.9m and 5.0m below ground level, comprising sand, gravel and extensive deposits of furnace slag.

There may be potential for perched groundwater to be present within granular horizons in the made ground underlying the site.

6.1.2 Marine Alluvium

The BGS map for the site indicates that the site is further underlain by marine deposits; these comprise undifferentiated, organic-rich clay, silt, sand and gravel. The ground investigation conducted by EAG ENVIRON confirmed the presence of approximately 5.0m of estuarine alluvium underlying the site. This alluvium comprised laminated silt and fine sand.

6.1.3 Lower Langsettian (Westphalian A) Coal Measures

According to the BGS map for the site the underlying solid geology comprises Lower Langsettian Coal Measures; mudstones, siltstones, sandstones with coals and seatearths. The boreholes excavated during the ground investigation in 1994 did not extend to the solid strata.

6.1.4 Regional Groundwater

Both the alluvium deposits and deeper Coal Measures at the site are designated as minor aquifers by the EA. Minor aquifers are formations of variable permeability. Although they seldom produce large quantities of water for abstraction, they may be important for local supplies and for supplying base flow to rivers.

The alluvium soils have a high leaching potential with little ability to attenuate diffuse source pollutants and in which non-adsorbed diffuse source pollutants and liquid discharges have the potential to move rapidly to underlying strata or to shallow groundwater.

Groundwater in the site area is considered to be moderately sensitive. Although the site is not within a Groundwater Source Protection Zone, is not abstracted widely and lies 730m north-east of the River Dee, there are two interconnected drains, Broken Bank Drain and Fingerpost Drain, which lie adjacent to the west and south of the site respectively and discharge into the River Dee. These drains are likely to be in hydraulic continuity with the groundwater in the area and have the potential to be impacted by off-site migration of contaminated groundwater, if present.

The Groundwater Monitoring Programme carried out by EAG ENVIRON between March 1995 and November 1997 identified groundwater levels over the site ranging between 3.36m and 5.03m bgl. The monitoring data indicated that groundwater flow has up to three components, to the south-west, to the west and to the north-west. However, the predominant direction of flow is westerly, towards the nearby watercourse, the Fingerpost Drain, located along the site's western boundary. It therefore seems likely that the groundwater within the alluvial deposits underlying the site is in hydraulic continuity with this watercourse. The Groundwater Monitoring Programme is an ongoing programme of groundwater monitoring and analysis, with the latest groundwater levels (November 2005) ranging between 1.04m bgl to 5.51m bgl.

6.2 SURFACE WATER FEATURES

The surface water features in the vicinity of the site are shown on Figure A1 in Appendix A. The installation's drainage systems and discharge points are shown on Figure A4.

6.2.1 Broken Bank Drain and Fingerpost Drain

The closest surface water features are Broken Bank Drain (south) and Fingerpost Drain (west), which flow along the western boundary of the site. There is no water quality monitoring data available for these water bodies.

6.2.2 River Dee

The River Dee lies approximately 730m south-west of the site at its closest point, flowing in a north-westerly direction. According to the Environment Agency website, from a survey conducted along the entire stretch of the Dee Estuary in 2000, the water quality was designated as good.

6.3 OTHER RECEPTORS

Figure A5 in Appendix A contains details of environmentally significant receptors within a 10km radius of the site.

6.4 LAND POLLUTION HISTORY

6.4.1 Historical Maps

Historical maps of the site and surroundings have been obtained. Historical uses of the site and surroundings are presented in Table 6.1 below and selected historical maps are reproduced in Appendix C4.

Table 6.1: History of the Site and Surroundings

Date and Scale	Site	Surroundings
1874 1:2,500	The entire site was located on a bank of sand and mud.	The majority of the surrounding area was also sand and mud. An embankment running north to south was located adjacent to the western boundary of the site.
1882 1:10,560	No significant changes to the site were apparent.	There were a number of sporadic areas of marsh located in the wider surrounds. The embankment was annotated the high water mark of ordinary tides.
1900 1:10,560	No significant changes to the site were apparent.	The areas of marsh were annotated as being liable to floods. The embankment adjacent to the western boundary was annotated with a number of gaps in it. The River Dee was annotated 730m south-west of the site.
1913 1:10,560	The high water mark of ordinary tides had moved to cover the majority of the site with only the south-eastern corner of the site beyond the tide mark. No other significant changes were apparent.	The areas that were formerly annotated as marshes were annotated as saltings.
1938 1:10,560	An unidentified watercourse had been developed running along the western and northern boundaries of the site. No other significant changes to the site were apparent.	Howardon Bridge Steel Works had developed 800m south-east of the site.
1954 1:10,560	A small building had developed in the central northern area of the site.	The gaps in the embankment adjacent to the western boundary of the site appeared to have been filled. An unidentified water channel had been developed 50m south of the site. Howardon Bridge Steel Works was no longer annotated but the buildings had expanded and a number of railway sidings had developed. One of the railway lines entered one of two large sand pits that had also developed 550m and 650m south-east of the site. A number of small unidentified buildings had been constructed 30m and 350m east, and 500m south-east.
1964 1:2,500	A number of small buildings had developed in the central area of the site with a number of railway sidings encroaching on to the site from the east. Three cranes were annotated in this area also. To the north of this development a pond was annotated, possibly a remnant of the unidentified watercourse which no longer flowed across the northern part of the site. A pond was also annotated in the south-western corner of the site. Part of a building and some railway lines also encroached onto the northern boundary of the site.	A drain ran along the western boundary of the site, beyond an embankment, 10m south of the site. Ponds were located 120m south-west and 70m east of the site. A number of unidentified buildings, roads and railway lines were located in the area adjacent to the northern and eastern boundaries of the site. A large tank was sited 100m east of the site and a chimney 220m east. A slag heap and a number of small unidentified buildings were annotated 120m north-west of the site.
1969 1:10,560	No significant changes to the site were apparent.	The larger scale of this map indicates that the unidentified buildings, roads and railways were part of a large unidentified works located adjacent to the site. A number of large water bodies had developed to the south, east and north of the site, appearing to be in association with this works, the nearest of which was located 40m east of the site. The slag heap located 120m north-west of the site had expanded and the associated buildings were annotated as a works. The buildings associated with the works 800m south-east of the site had been extended and reconfigured. A large area of marsh and smaller areas of sand and mud were annotated to the west of the site.
1978 1:2,500	Some buildings and railway lines located on the site, had been reconfigured and a number of the embankments had been removed. The pond in the south-western corner was no longer shown and the pond in the northern	A pond 60m east of the site appeared to have been infilled. No further changes in the surrounding area were apparent.

Table 6.1: History of the Site and Surroundings

Date and Scale	Site	Surroundings
	section of the site had been re-channelled to form a drain.	
1983 1:10,000	No significant changes to the site were apparent.	The water bodies to the south of the site had been reconfigured. A large works had developed 430m south of the site. The slag heap to the north-west of the site had increased in size. The boundary of the slag heap was 90m north-west of the site by this date. A cooling tower was annotated 850m east of the site.
1985 1:2,500	All of the buildings and railway lines had been removed. The drain at the northern end of the site also appeared to have been infilled.	The buildings and railway lines to the north of the site were absent. The slag heap 90m north-west of the site was no longer shown.
1993 1:2,500	No significant changes to the site were apparent.	Buildings that had been located 200m east of the site had been removed. No further changes were apparent.
1999 1:10,000	A power station had developed on site with the majority of the associated buildings constructed on the western half of the site. Two large tanks were located in the northern area of the site.	An unidentified building had developed 20m north of the site. The A548 dual carriageway had developed 70m west of the site and another main road developed adjacent to the eastern boundary of the site. The configuration of the works 400m east of the site had altered. Some of the water bodies that had been located 150m south-west of the site appeared to have been infilled. A refuse tip was annotated 320m south-west of the site.

The site was reclaimed from marshland that surrounded the River Dee and was first developed in the 1950s. From that time until the mid 1980s the site formed part of a large steel works approximately 800m south-east of the site, with a number of railway lines and small industrial buildings located on the site, which by 1985 were absent. By 1999, the current power station had been constructed on the site.

The surroundings have also had an industrial history, with Hawarden Bridge Steel Works present 800m south-east of the site by 1938, a works (unknown use) developed adjacent to the site in the 1960s, a works (unknown use) developed 120m north-west of the site also in the 1960s and a works (unknown use) developed 430m south of the site by 1983.

There is the potential for contaminants to be present in the soils and groundwater underlying the site relating to historical activities. These may include heavy metals, ash, clinker, coal, fuel oils, lubricants, solvents and asbestos.

6.4.2 Envirocheck Database

According to the Envirocheck database there have been two pollution incidents to controlled waters on site. The first occurred in January 1992 and involved crude sewage from a burst pipe at the British Steel pump house. This was classified by the Environment Agency as a category 2 (significant) incident. The second incident occurred in January 1996 and involved

a mechanical failure releasing crude sewage. This incident was designated as category 3 (minor incident). These incidents appear to be associated with British Steel and are not a result of Deeside Power's activities. A further twelve incidents have occurred within a 1km radius, of which the majority were classified as category 3 (minor) incidents.

No incidents within a 1km radius of the site have been recorded on the Substantiated Pollution Incident Register.

6.5 SUMMARY CONCEPTUAL SITE MODEL (CSM)

6.5.1 Introduction

The findings of the desk study and site reconnaissance (detailed above) have been used to develop the conceptual site model (CSM) for the site. Uncertainties in the CSM are identified and their significance discussed.

6.5.2 Graphical Representation of the CSM

A graphical representation of the CSM has been produced and is shown in Appendix E1.

Deeside Power has dedicated storage areas for raw and waste materials, including acids and alkalis, diesel and lube oil and liquid wastes.

It is considered that current site practices do not require the collection of reference data as part of the Site Protection and Monitoring Programme (SPMP) due to the following:

- secondary containment is provided for the majority of storage tanks/areas. Where secondary containment does not exist for those materials stored inside buildings, the building infrastructure will act to contain any uncontrolled releases;
- regular visual inspection of storage areas, bunds, tanks and pipework is undertaken;
- good housekeeping and maintenance practises will reduce the risk of uncontrolled releases;
- the majority of the operational areas are hardsurfaced, which will act to reduce the risk of contamination of the underlying strata in the event of an uncontrolled release;

- the facility has a certified ISO14001 EMS. The site's EMS includes the training of facility personnel in environmental issues pertinent to the facility; and
- there is an ongoing groundwater monitoring programme, which commenced in 1994. It is apparent that groundwater quality has not deteriorated over the monitoring period and for a number of the analytes the concentrations monitored in the groundwater have in fact reduced in concentration.

Furthermore, the land pollution history and environmental setting of the site is considered to reduce the sensitivity of pollution to groundwater and surface water in the event of a release, given that:

- the site and surroundings have had a long history of potentially contaminative land uses. A previous investigation conducted by EAG ENVIRON in 1994 identified the presence of contamination on site generally associated with the 4-5m thickness of steelworks slag covering the site; and
- the site is situated on a minor aquifer, which is not widely abstracted, and is not located within a designated Source Protection Zone;

The following practices will form an essential part of the SPMP:

- formalised regular visual inspection of areas of hard standing, bunds, tanks, pipework and storage areas; and
- regular integrity testing of all bunded areas, tanks and pipework.

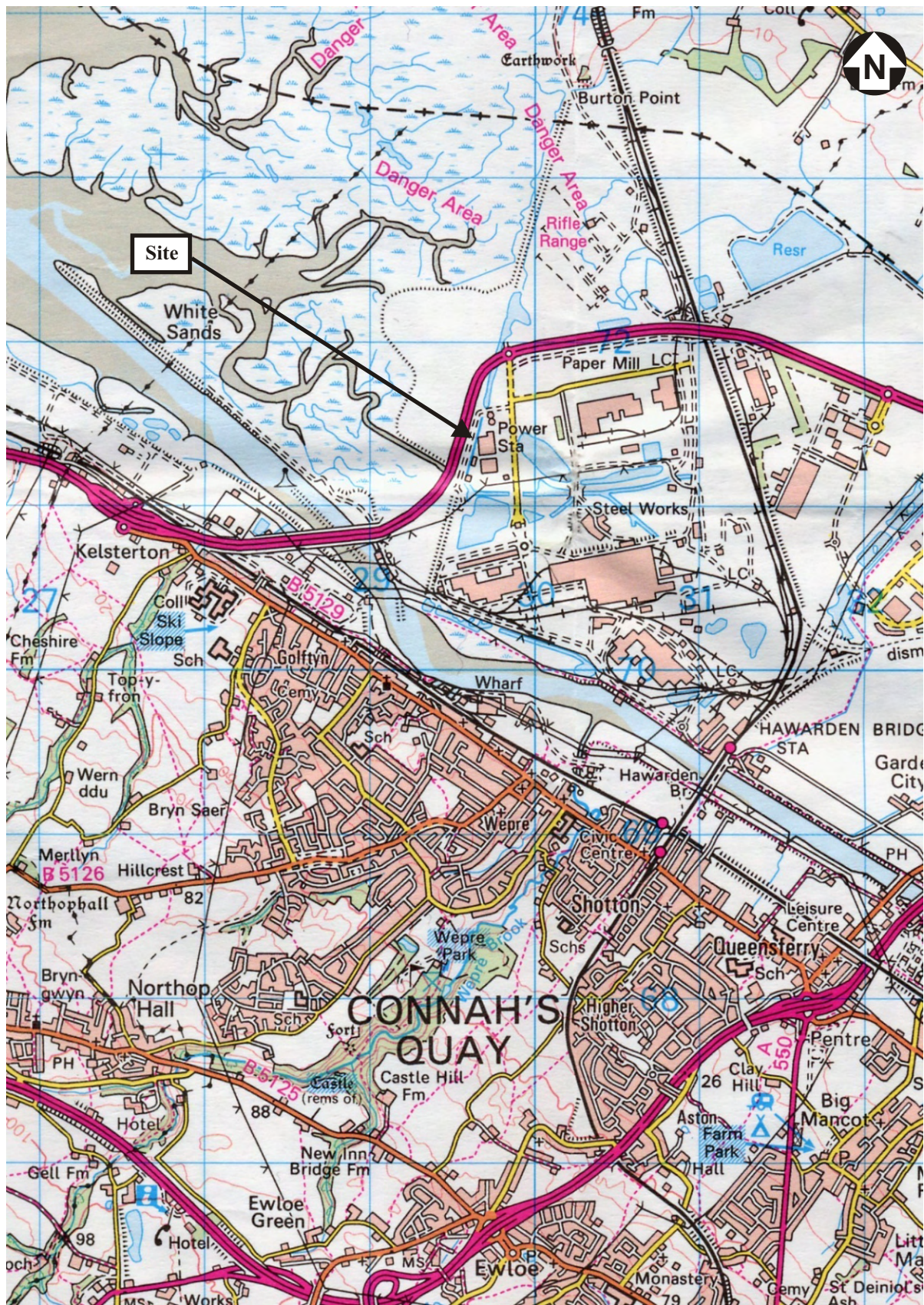
6.5.3 Uncertainties in the CSM

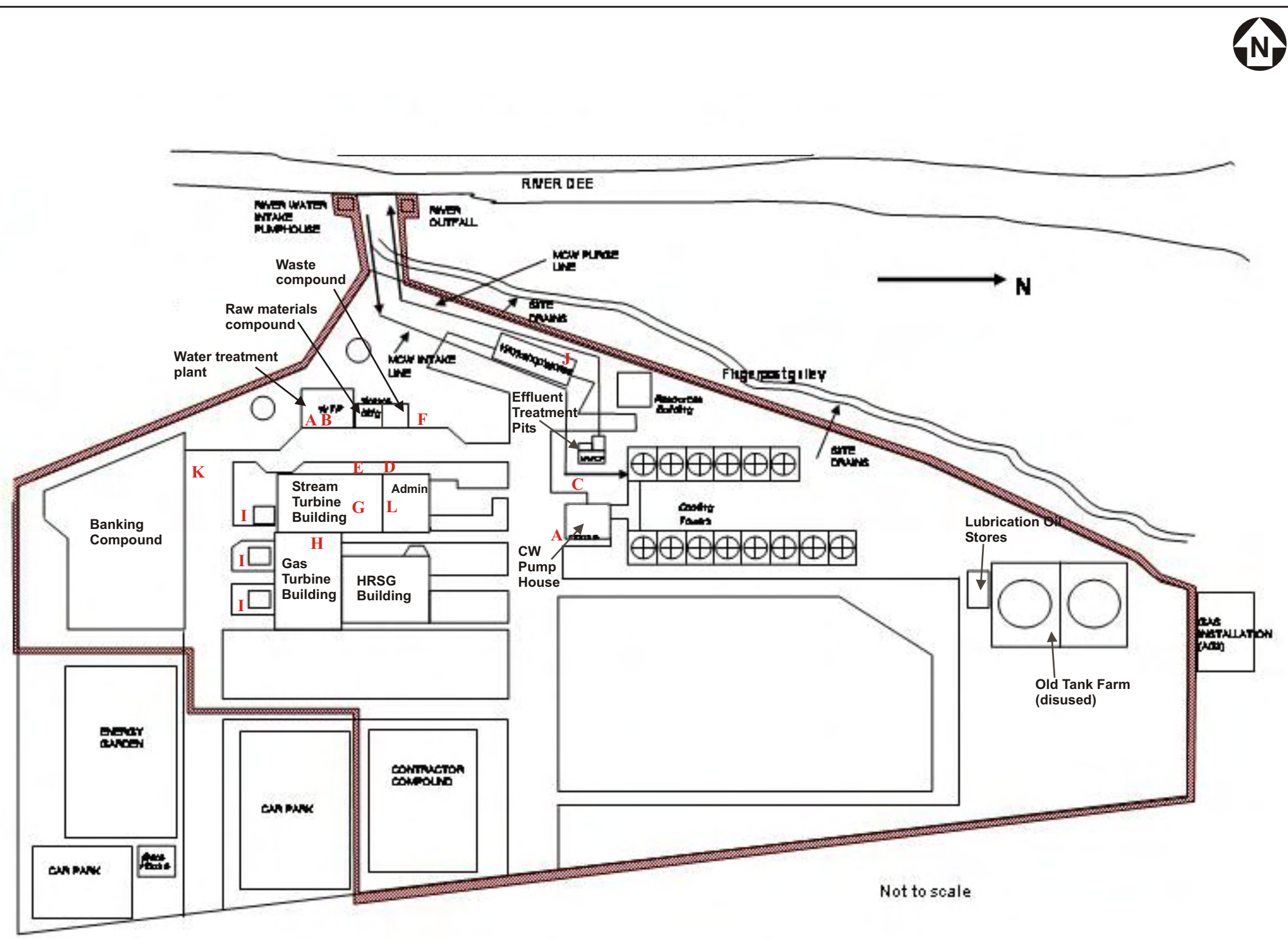
In developing the conceptual model for the site, the following uncertainties and assumptions have been identified:


- that the site is underlain by alluvial silt and sand;
- Groundwater is in continuity with the Fingerpost Drain, Broken Bank Drain and the River Dee/Dee Estuary.


APPENDIX A : FIGURES AND MAPS

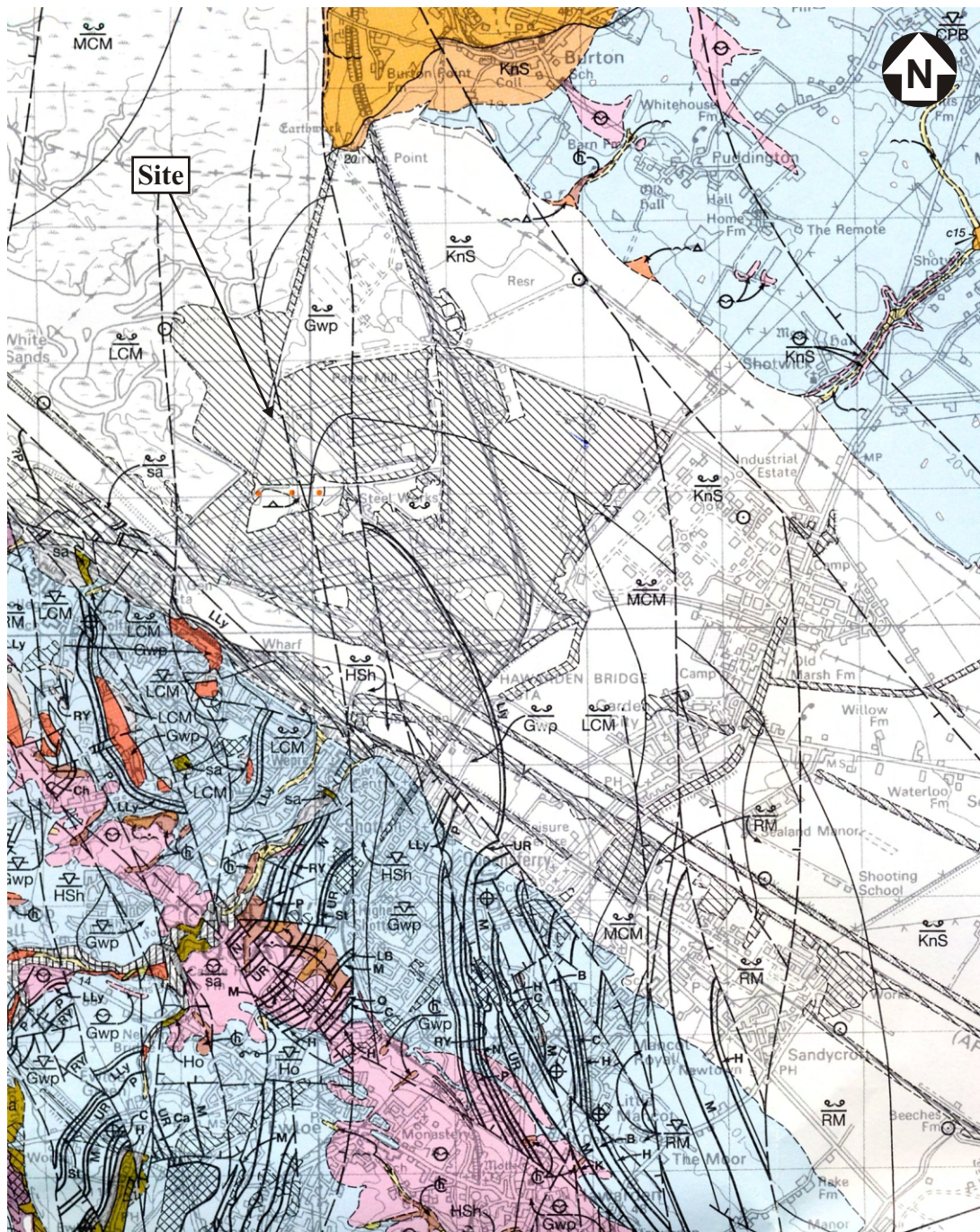
Figure A1
Site Location Plan









- Key:**
-  Installation Boundary
 - A** sulphuric acid tanks
 - B** sodium hydroxide tank
 - C** sodium hypochlorite tank
 - D** trisodium phosphate IBC storage
 - E** hydrazine hydrate and ammonia IBC storage
 - F** emergency generator
 - G** fire resistant fluid and lube oil (mezzanine floor) tanks
 - H** lube oil (ground floor) tank
 - I** transformers
 - J** solvents
 - K** below ground tank for the storage of diverted oily water from the transformer bund

	
ASR: Deeside Power, Flintshire	
Figure A2 Potentially Polluting Raw Material and Waste Storage Areas	
Client: Deeside Power	
Project No.: 64-C9599	
Not To Scale	
Date: February 2006	



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-  Made Ground on original ground surface
-  Marine Deposits
-  Lower Coal Measures (Langsettian)
-  Fault at surface, crossmark indicates downthrow side

ENVIRON

Application Site Report for PPC: Deeside Power, Flintshire

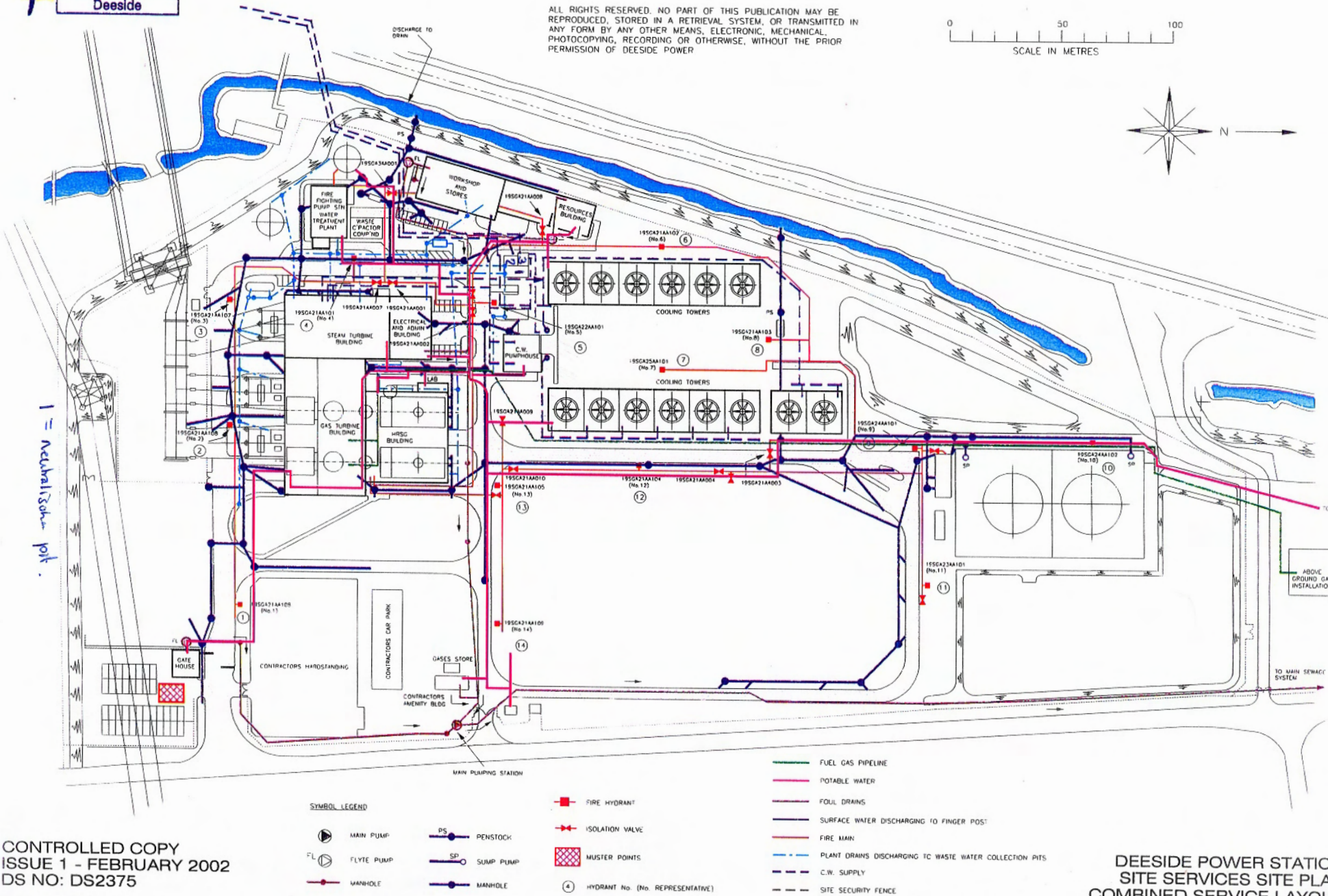
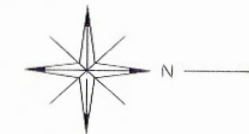
Figure A3

Geological Map of the Site and Surrounding Area.

Client:	Deeside Power	Project No.:	64-C9599
Scale:	1:50,000	Date:	February 2006

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0 50 100
SCALE IN METRES



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ISSUE 1 - FEBRUARY 2002
DS NO: DS2375

DEESIDE POWER STATION
SITE SERVICES SITE PLAN
COMBINED SERVICE LAYOUT

ENVIRON

ASR:
Deeside Power, Flintshire

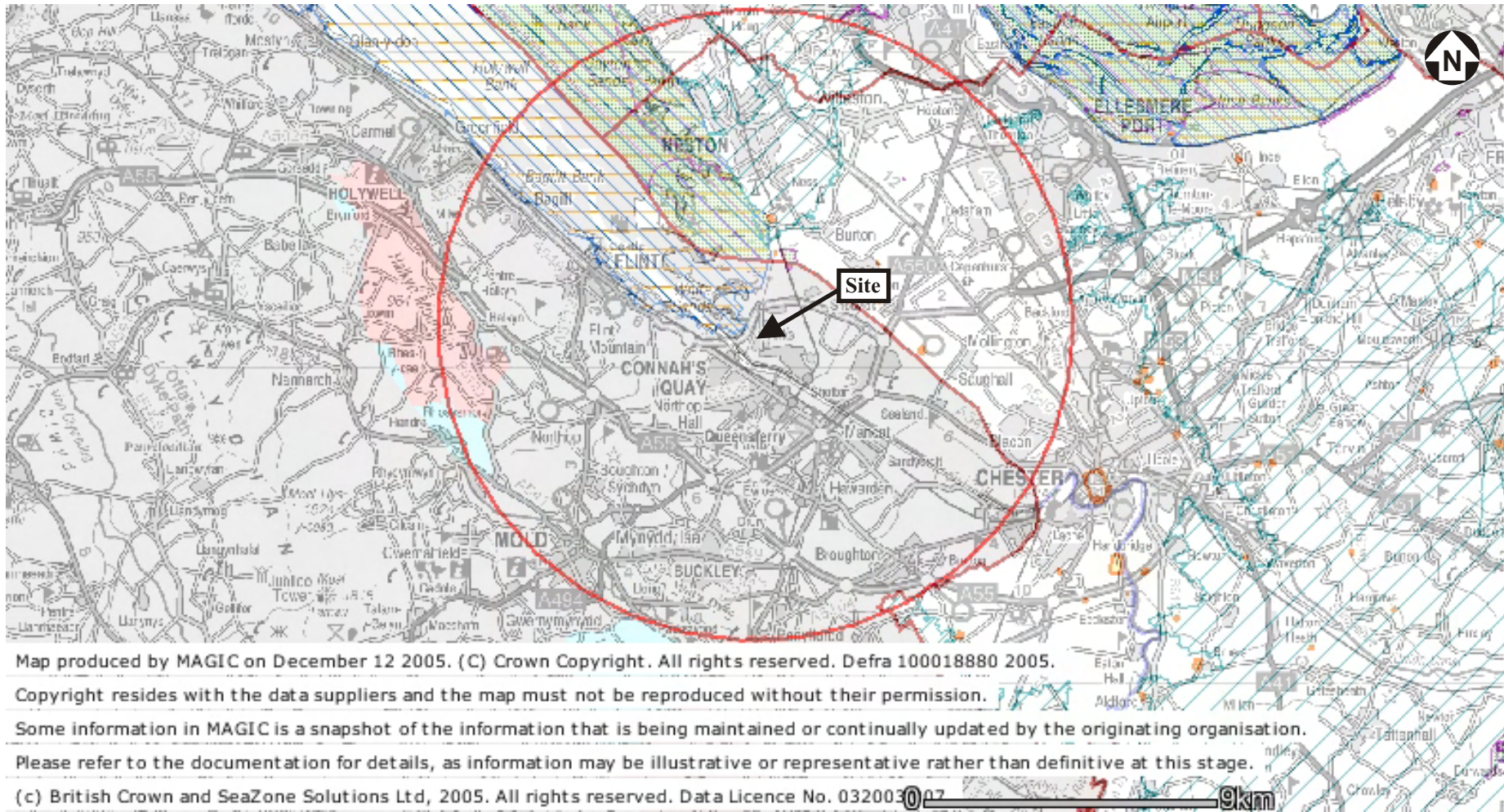
Figure A4
Drainage Plan

Client: Deeside Power

Project No.: 64-C9599

Not To Scale

Date: February 2006



- Highlighted Feature
- Bathing Waters Directive
- Not Classified
- Closed
- Fall
- Guideline
- Imperative
- Scheduled Monuments
- Protected Wreck Sites
- Nitrate Vulnerable Zones
- Local Nature Reserves
- Biosphere Reserves
- National Nature Reserves
- Ramsar Sites
- Special Protection Areas
- Special Areas of Conservation
- Sites of Special Scientific Interest Units
- Sites of Special Scientific Interest
- Common Land
- World Heritage Sites
- Nitrate Sensitive Areas
- Areas of Outstanding Natural Beauty
- Environmentally Sensitive Areas
- National Parks (proposed)
- National Parks
- Moorland Line
- Less Favoured Areas
- Severely Disadvantaged
- Disadvantaged

APPENDIX B : SITE RECONNAISSANCE



Photo 1: Skimovex interceptor.



Photo 2: Wastewater pit.

Title:	Environmental Site Assessment	Approved:	Project-No.:	Date:
Site:	Deeside Power	SA	64C9599	February 2006
Client:	Deeside Power	ENVIRON		Annex B



Photo 3: External fill point for sulphuric acid and caustic soda, sited on external wall of water treatment plant.



Photo 4: Internal sulphuric acid and sodium hydroxide storage tanks within the water treatment plant

Title:	Environmental Site Assessment	Approved:	Project-No.:	Date:
Site:	Deeside Power	SA	64C9599	February 2006
Client:	Deeside Power	ENVIRON		Annex B



Photo 5: Tri-sodium phosphate unloading area adjacent to internal storage area.



Photo 6: Contained sulphuric acid unloading area.

Title:	Environmental Site Assessment	Approved:	Project-No.:	Date:
Site:	Deeside Power	SA	64C9599	February 2006
Client:	Deeside Power	ENVIRON		Annex B

APPENDIX C: DESK STUDY INFORMATION

C1 ENVIRONMENTAL CONSENTS, LICENCES, AUTHORISATIONS AND PERMITS FOR SITE AND SURROUNDING AREA

C1.1 Discharge Consents

The facility has a consent to discharge to the surface water, which is covered under the IPC authorisation for the facility (refer to *Section C1.2* below). There are four (4) current discharge consents operating within 1km of the site. Shotton Paper Mill operates two consents, the closest of which (Reference CM0208101, Permit Version 3) is located 50m to the south west and relates to the discharge of trade effluent to a freshwater stream/river; the second (Reference CM0099001, Permit Version 2) is located 70m to the south west where an unspecified discharge is released to the Dee Estuary. The Welsh Development Agency has two consents (Reference CG0351001, Permit Version 1 and CG0351002, Permit Version 1) both of which relate to sewerage network pumping stations situated respectively in Area A4 and Area 4a of the Deeside Industrial Park. The first consent is located 75m to the north and the second is situated 595m to the north east of the site, both relate to the release of unspecified discharges into a culvert leading to Broken Bank.

C1.2 IPC / IPPC

There is one (1) Integrated Pollution Control (IPC) associated with the site (Permit Reference BY5366). This authorises Deeside Power Development Company Ltd to operate combustion processes associated with the fuel and power industry.

Within the wider surrounds there are a number of Integrated Pollution Prevention and Control (IPPC) authorised processes. These are summarised in the Table C1 below:

Table C1: IPPC Permits within 1km of the site				
Company	Direction and distance from site	Permit Reference	Activity Code	Activity Description
Corus UK Ltd	470m south	BR7321ik	2.1 A(2) ©	Ferrous Metals: Applying protective fused metal coatings to greater than 2 tonnes/hour of steel.
			2.3 A(1) (A)	Surface treating metals and plastics; using electrolytic/chemical greater than 30 cubic metres.
			6.4 A(2) (A)	Coating, Printing and Textiles; using organic solvents greater than 150kg/hr or 200 T/A unless 6.4 A(1).
		GP3030be	1.1 A(1) (A)	Combustion; any fuel greater or equal to 50Mw.
			5.2 A(1) (A)	Waste landfilling; greater than 10T/D with capacity greater than 25,000T excluding inert waste.
Shotton Paper Company Plc	550m east	BJ9690	1.1 A(1) (A)	Combustion; any fuel greater or equal to 50Mw
			6.1 A(1) (B)	Paper, pulp and board; producing paper/board greater than 20T/D

Table C1: IPPC Permits within 1km of the site

Company	Direction and distance from site	Permit Reference	Activity Code	Activity Description
Upm-Kymmene UK Ltd	700m east	BT4885it	1.1 A(1) (A)	Combustion; any fuel greater or equal to 50Mw

C1.4 Water Abstractions

There are a number of water abstractions within the wider surrounds. These are discussed in further detail in Table C2 below;

Table C2: Water Abstractions

Operator	Direction / Distance From Site	Licence Number	Permit Version	Location	Abstraction	Source
British Steel Plc	735m south west	24/67/10/0053	Not Supplied	Not available	Metal: process water	Tidal
National Power Plc	740m south west	24/67/10/0117	100/101	River Dee	Electricity, general Use	Tidal
Powergen Plc	1140m west	24/67/10/0124	100/101/102	Dee Estuary	Production of energy / electricity, general Use	Tidal
Wt Banks & Co	1460m north east	24/67/10/0111	100/102	Burton and Puddington arterial ditch	General agriculture	Surface
British Steel Plc	1815m south east	24/67/10/0053	Not Supplied	Not available	Metal: process water	Tidal

C1.5 BGS Recorded Landfill Sites

There is one BGS Recorded Landfill site located 345m to the north of the site. The site is located at Broken Bank near to Shotton Steelworks. No other further information in relation to this landfill was available.

C1.6 Licensed Waste Management Facilities (Landfill Boundaries)

There are three (3) licensed waste management facilities (landfill boundaries) within 1km of the site. The first, licensed to Corus UK Ltd (Licence Number 37049), is located 160m to the south west and is known as British Steel No 2 Landfill. This was noted to be active and is categorised as a large (equal to or greater than 75,000 tonnes per year) industrial waste landfill. The second (Licence Number 37035) is located 230m to the north and is licensed to Flintshire Waste Management and Contract Services. The site is the former British Steel landfill and is categorised as a medium (equal to or greater than 25,000 and less than 75,000 tonnes per year) sized landfill tanking non-biodegradable wastes (not construction). This landfill is described as inactive. The final landfill (Licence Number 37015) is located 300m to

the south west and is known as British Steel Landfill No 1. This is again operated by Corus UK Ltd and is described as an active, medium sized industrial waste landfill.

C1.7 Registered Landfill Sites

There are five (5) registered landfill sites within a 1km radius of the site:

- British Steel No 1 Landfill. This is located circa 40m to the south west and is licensed to British Steel (Licence reference NOW-422-L). The landfill is described as medium (equal to or greater than 25,000 and less than 75,000 tonnes per year) sized, and is licensed to accept site-derived wastes. The landfill is operational.
- Ex-British Steel landfill site. This is licensed to Flintshire Contract Services (Licence reference NOW-419-L) and is described as small (equal to or greater than 10,000 and less than 25,000 tonnes per year). The landfill is operational with no known restriction on waste types authorised for deposit at the site. This site is located approximately 100m to the north east of the installation.
- British Steel Corporation landfill. This landfill (Licence Reference 141/85) is located circa 200m to the south west and is operated by British Steel Corporation. The landfill is described as medium sized (equal to or greater than 25,000 and less than 75,000 tonnes per year) and is authorised for the deposit of site-derived wastes only (the database notes that the licence has been succeeded).
- British Steel Corporation landfill (Broken Bank Tip). The landfill (licence reference 124/84) is present 240m to the north of the installation. The landfill is described as being a medium sized landfill (equal to or greater than 25,000 and less than 75,000 tonnes per year), licensed only to accept site-derived wastes. The licence is described as having lapsed or cancelled.
- Broken Bank Landfill Site No 2 (Licence reference NOW-438-L). This landfill is located 280m to the south west, and infilling has yet to commence. The site is licensed to British Steel Plc and is described as being very large (equal to or greater than 250,000 tonnes per year). The landfill is licensed to accept site-derived wastes only.

C2 BOREHOLE DATA

The following borehole logs in the vicinity of the site have been obtained from the previous investigation, conducted by ENVIRON in 1994.

BOREHOLE No. 1

DATE STARTED 14/6/93

LABORATORY TESTS	SOIL GAS (ppm)	SAMPLE DEPTH (m)	SAMPLE TYPE
------------------	----------------	------------------	-------------

SAMPLE & NUMBER

DEPTH IN METRES

SOIL TYPE

DESCRIPTION

MADE GROUND : MIXED SLAG REMOVED AS GRAVEL, GRIT,
SAND SIZED PIECES
VERY HARD

GRAVEL SIZED SLAG PIECES

WATER INFLOW AT 4.6m

BROWN SILT & SAND MIXING IN AT 5.0m

BROWN & GREY SILTY SAND

GREY SILT & SAND

BOREHOLE COMPLETED AT 7.0m (16/6/93)
STANDPIPE INSTALLED
REST WATER LEVEL 4.68m

1.5

S1

3.5

S2

7.0

S3

5.0

5.6

7.0

BOREHOLE No. 2

DATE STARTED 10/6/93

LABORATORY TESTS	SOIL GAS (ppm)	SAMPLE DEPTH (m)	SAMPLE TYPE	SAMPLE & NUMBER	DEPTH IN METRES	SOIL TYPE	DESCRIPTION
		1.0		S1	1		MADE GROUND : SOME CLAY AT SURFACE OVER BROKEN SLAG , GRAVEL - COBBLE SIZE
					2		VERY HARD TO 3.0m
		3.4		S2	3		BECOMING LIGHT GREY SAND & FINE SLAG GRAVEL WITH SOME SILT / SAND
					4		OCCASIONAL LARGE SLAG BOULDERS WATER INFLOW 4.1m
					5		PUSHING BOULDER TO 5.0m
					6		BROWN SILT BECOMING DARKER WITH DEPTH SOME SAND
		7.0		S3	7		BOREHOLE COMPLETED AT 7.0m STANDPIPE INSTALLED REST WATER LEVEL 3.83m
					8		
					9		
					10		

BOREHOLE No. 3

DATE STARTED 10/6/93

LABORATORY TESTS

SOIL GAS (ppm)

SAMPLE DEPTH (m)

SAMPLE TYPE

SAMPLE & NUMBER

DEPTH IN METRES

SOIL TYPE

DESCRIPTION

MADE GROUND : CEMENTED SLAG

BROWN SAND & GREY SLAG GRAVEL

BROWN SILTY SAND (POSSIBLY REPLACED NATURAL MATERIAL)

WATER INFLOW AT 4.8m

BLACK SILTY ORGANIC CLAY WITH ROOTS, PLANT FIBRE ETC.
PUNGENT ODOUR

BOREHOLE COMPLETED AT 7.0m
STANDPIPE INSTALLED
REST WATER LEVEL 4.5m

0.7

S1

0.7

4.5

S2

5.7

6.4

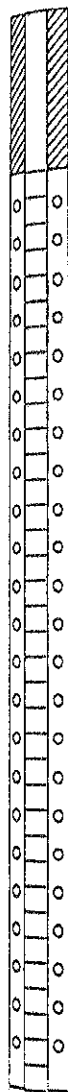
S3

7.0

BOREHOLE No. 4

DATE STARTED 11 / 6 / 93

LABORATORY TESTS	SOIL GAS (ppm)	SAMPLE DEPTH (m)	SAMPLE TYPE	SAMPLE & NUMBER	DEPTH IN METRES	SOIL TYPE	DESCRIPTION
		1.1	S1		0		MADE GROUND : CEMENTED SLAG
					1	1.1	BECOMING MIXED CLAY / SAND / SLAG GRAVEL
		3.0	S2		2		
					3		GRAVEL SIZED SLAG
					4		
					4.45		WATER INFLOW AT 4.45m
					4.8		
					5	5.1	BLACK SILT & SLAG FRAGMENTS
					6		BLACK SILT / CLAY . PUNGENT ODOUR
		6.5	S3		7	7.0	
							BOREHOLE COMPLETED AT 7.0m STANDPIPE INSTALLED REST WATER LEVEL 4.58m
					8		
					9		
					10		



BOREHOLE No. 5

DATE STARTED



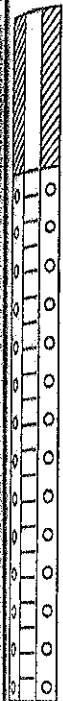
LABORATORY TESTS	SOIL GAS (ppm)	SAMPLE DEPTH (m)	SAMPLE TYPE	SAMPLE & NUMBER	DEPTH IN METRES	SOIL TYPE	DESCRIPTION
		1.0		SI	1		MADE GROUND : SLAG GRAVEL & SAND SOME COBBLE / BOULDER SLAG PIECES
					2		
					3		3.0 INCLUDING BROWN SAND & SILT BELOW 3.0m
					4		
		5.0		S2	5	5.0	WATER INFLOW AT 4.5m
		6.0		S3	6		BLACK SILT & SAND & SMALL SLAG PIECES. TARRY ODOUR
					7	7.0	BLACK SILTY SAND . NO SLAG NATURAL ORGANIC ODOUR
					8		BOREHOLE COMPLETED AT 7.0m STANDPIPE INSTALLED REST WATER LEVEL 4.90m
					9		
					10		

BOREHOLE No. 6

DATE STARTED

LABORATORY TESTS	SOIL GAS (ppm)	SAMPLE DEPTH (m)	SAMPLE TYPE	SAMPLE & NUMBER	DEPTH IN METRES
------------------	----------------	------------------	-------------	-----------------	-----------------

SOIL TYPE	DESCRIPTION
0	MADE GROUND : SAND, BROKEN SLAG GRAVEL
0.9	
1	GREY / BLACK ORGANIC SILTY SAND INITIALY WITH SOME GRAVEL
1.3	WATER INFLOW AT 1.3m
2	CONTINUING VARIABLE SAND / SILT TO BASE
3	
4	
4.5	
5	BOREHOLE COMPLETED AT 4.5m
5	STANDPIPE INSTALLED (4.0m)
5	REST WATER LEVEL 0.96m
6	
7	
8	
9	
10	



		0.7	S1
		1.4	S2
		4.2	S3

LABORATORY TESTS	SOIL GAS (ppm)	SAMPLE DEPTH (m)	SAMPLE TYPE
------------------	------------------	------------------	-------------

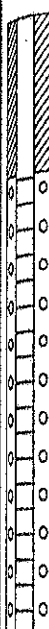
BOREHOLE No. 7

DATE STARTED 17/6/93

		0.4	S1
		1.5	S2
		4.0	S3

SAMPLE & NUMBER	DEPTH IN METRES
-----------------	-----------------

SOIL TYPE	DESCRIPTION
0	MADE GROUND : SLAG, GRAVEL & SILT
1	CONTINUING VERY HARD (LITTLE RETURN UNTIL 2.5m)
2	WATER INFLOW AT 1.75m
2.5	BECOMING GREY SILTY & SAND
4.0	BOREHOLE COMPLETED AT 4.0m STANDPIPE INSTALLED REST WATER
5	
6	
7	
8	
9	
10	



BOREHOLE No. 8

DATE STARTED 17/6/93

LABORATORY TESTS	SOIL GAS (ppm)	SAMPLE DEPTH (m)	SAMPLE TYPE	SAMPLE & NUMBER	DEPTH IN METRES	SOIL TYPE	DESCRIPTION
		0.7		S1	0		MADE GROUND : BROKEN SLAG (VERY HARD) BECOMING BLACK GRANULAR SLAG. SLIGHT ORGANIC ODOUR
		2.0		S2	2	2.0	BECOMING BLACK SILT & SAND ORGANIC ODOUR WATER INFLOW AT 2.0m
		4.0		S3	4	4.5	BOREHOLE COMPLETED AT 4.5m STANDPIPE INSTALLED
					5		
					6		
					7		
					8		
					9		
					10		



LABORATORY TESTS	SOIL GAS (ppm)	SAMPLE DEPTH (m)	SAMPLE TYPE
------------------	----------------	------------------	-------------

BOREHOLE No. 9

DATE STARTED 8/6/93

SOIL TYPE	DESCRIPTION
0	MADE GROUND : LIGHT BROWN SAND. OCCASIONAL GRAVEL
1.0	
1	MADE GROUND : DARK BROWN SLAG GRAVEL, BRICK & SAND. SOME TAR & TARRY ODOUR
2	BECOMING DARK BROWN SILTY SAND SOME GRAVEL, BRICK, SHELLS
2.8	
3	GREY / BROWN SILTY SAND WITH SOME GRAVEL
4	
5	WATER INFLOW AT 4.6m CONTINUING VARIABLE SAND SILT TO BASE
6	
7	
7.7	
8	
9	COMPLETED AT 9.0m STANDPIPE INSTALLED 7.0m REST WATER LEVEL 4.38m
10	



BOREHOLE No. 10

DATE STARTED 9/6/93

LABORATORY TESTS	SOIL GAS (ppm)	SAMPLE DEPTH	SAMPLE TYPE	SAMPLE & NUMBER	DEPTH IN METRES	SOIL TYPE	DESCRIPTION
		0.6		S1	0		MADE GROUND : BROWN SAND SLAG GRAVEL BRICK & WOOD
					1	1.4	
					2		LOOSE BROWN SAND (POSSIBLE MADE GROUND)
		3.4		S2	2.5		BECOMING BROWN SILTY SAND WITH SOME GRAVEL
					3		
					4		WATER INFLOW AT 4.5m
					5	5.0	
					6		BECOMING BLACK ORGANIC SILT WITH SOME SAND ORGANIC ODOUR
		6.4		S3	7	7.0	
					8		BOREHOLE COMPLETED AT 7.0m STANDPIPE INSTALLED REST WATER LEVEL 4.18m
					9		
					10		

BOREHOLE No. 11

DATE STARTED 16 / 6 / 93

LABORATORY TESTS	SOIL GAS (ppm)	SAMPLE DEPTH	SAMPLE TYPE	SAMPLE & NUMBER	DEPTH IN METRES	SOIL TYPE	DESCRIPTION
		1.0		S1	0		MADE GROUND : SOFT SANDY CLAY WITH ROOTS. SOME SLAG GRAVEL
					1	1.2	LIGHT BROWN SILTY SAND
					2		GRAVEL AT 2.0m
		4.1		S2	4		BECOMING DARK BROWN SAND WITH SHELLS
					5	4.9	BLACK ORGANIC SILTY CLAY ORGANIC ODOUR WATER INFLOW AT 5.4m
					6		BECOMING GREY ORGANIC SILT WITH SAND
		6.9		S3	7		
					7.5		BOREHOLE COMPLETED AT 7.5m STANDPIPE INSTALLED REST WATER LEVEL 4.36m
					8		
					9		
					10		

BOREHOLE No. 12

DATE STARTED 16/6/93

LABORATORY TESTS	SOIL GAS (ppm)	SAMPLE DEPTH	SAMPLE TYPE	SAMPLE & NUMBER	DEPTH IN METRES	SOIL TYPE	DESCRIPTION
		0.5		S1	0	MADE GROUND	MADE GROUND : SLAG GRAVEL. SOME CLAY SAND ROOTS
					0.9		
					1	BROWN SILTY SAND	BROWN SILTY SAND . INITIALLY WITH GRAVEL
					2		
					3		
		3.5		S2	4		
					5		WATER INFLOW AT 5.0m
					5.7		
					6	BLACK SILTY ORGANIC CLAY	BLACK SILTY ORGANIC CLAY WITH ROOTS & PLANT MATTER ORGANIC ODOUR
		6.7		S3	7		
					7.0		BOREHOLE COMPLETED AT 7.0m STANDPIPE INSTALLED REST WATER LEVEL 4.88m
					8		
					9		
					10		

C3 HYDROLOGICAL AND HYDROGEOLOGICAL DATA

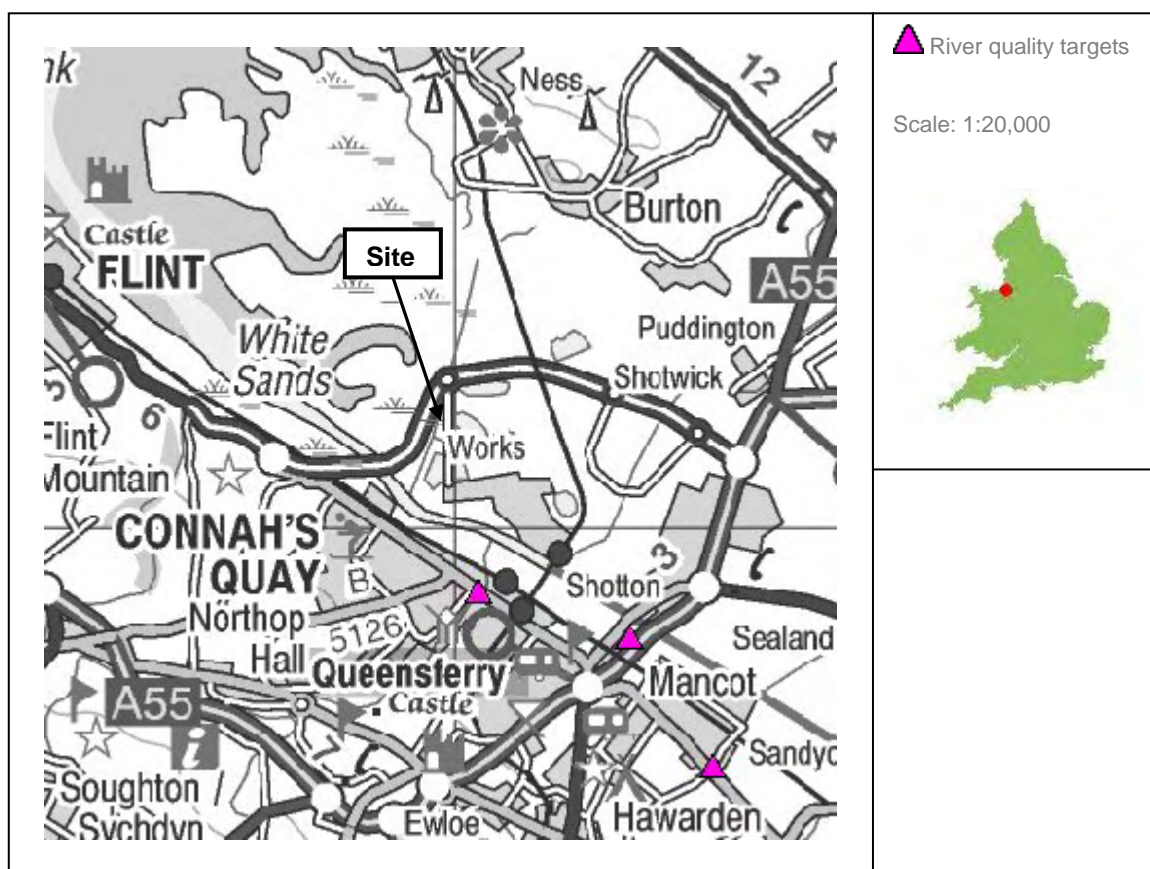
Hydrological and hydrogeological data was gathered from the Environment Agency's (EA) website (www.environment-agency.gov.uk) and also the Envirocheck database.

To access the information on the EA's website, please refer to the 'What's in Your Backyard' pages of the website and enter the site postcode (CH5 2UL).

The information is reproduced below:

River Quality

There are three surface water quality monitoring points within 1km of the site. No further information on the quality of water sampled at these points was available from the Environment Agency.



Flood Risk

The majority of the site lies within an area deemed by the EA to be at risk of flooding in an extreme flood from rivers or the sea. These areas are likely to be affected by a major flood, with up to a 0.1% (1 in 1000) chance of occurring each year. The southern part of the site is affected by flooding, either from rivers or the sea, if there were no flood defences. The installation area is at risk of flooding from the sea by a flood that has a 0.5% (1 in 200) or greater chance of happening each year, or from a river by a flood that has a 1% (1 in 100) or greater chance of happening each year.



Groundwater Source Protection Zones

The site does not lie within a groundwater Source Protection Zone (SPZ). This means that the EA does not restrict activities which may pollute water supplies in the immediate and surrounding area.

C4 POLLUTION INCIDENTS TO LAND AND CONTROLLED WATERS

C4.1 Pollution Incidents to Controlled Waters

A number of pollution incidents have occurred within a 1km radius of the site. None of these appear to relate to Deeside Power's operations. These are summarised in Table C3 below:

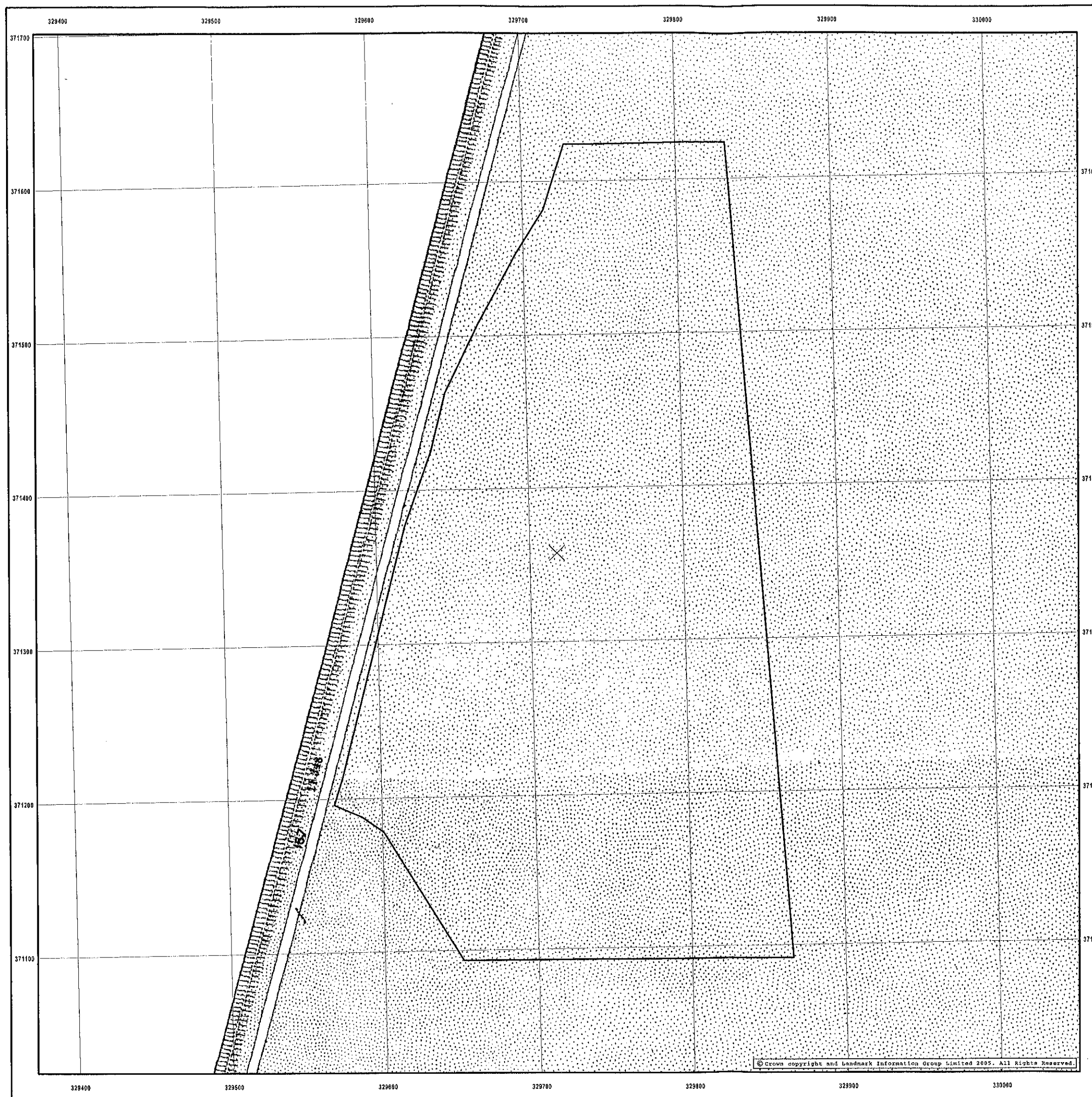
Table C3: Pollution Incidents to Controlled Waters						
Location	Direction / Distance from site	Pollutant	Incident Date	Incident Reference	Receiving water	Severity
British Steel – Pump house	SW, 0m	Crude sewage	21/01/1992	2454	Not Given	2 – Significant
British Steel	SW, 0m	Crude sewage	10/01/1996	27273	Not Given	3 – Minor
Shotton Paper	SE, 40m	Farm effluent	11/06/1991	2820	Not Given	3 – Minor
British Steel	W, 95m	Unknown	05/03/1997	31419	Not Given	3 – Minor
Backford Hill	N, 280m	Crude sewage	23/04/1997	32141	Not Given	3 – Minor
Shotton	NE, 410m	Algae	20/08/1996	29771	Not Given	3 – Minor
Not available	N, 505m	Unknown	17/04/1997	31895	Not Given	3 – Minor
Power station leading to River Dee	S, 595m	Farm effluent	14/06/1992	4511	Not Given	3 – Minor
Summers Jetty	SW, 745m	Unknown	04/05/1995	23941	Not Given	3 – Minor
Shotton	SW, 755m	Oils – petrol	30/12/1995	27081	Not Given	3 – Minor
Not available	SE, 795m	Unknown	26/11/1996	30558	Not Given	3 – Minor
The border of National Power and British Steel	E, 935m	Mud/Clay/Silt	31/10/1995	26456	Not Given	3 – Minor
Weighbridge Road, Deeside	E, 970m	Crude Sewage	19/06/1991	2883	Not Given	2 – Significant
Power station, Deeside Ind Est	SW, 975m	Farm land run off	23/11/1994	21760	Not Given	3 – Minor

C4.2 Substantiated Pollution Incident Register

There are no pollution incidents recorded on the Substantiated Pollution Incident Register, within a 1km radius of the site.

C4.3 Historical Potential for Pollution

Historical land uses of the site and surroundings are detailed within Section 6.5.1 of this report. Selected historical maps are presented in the following pages.



ENVIRON

CLIENT DETAILS Envirocheck Order No. EC15377751_1_1
(11-Nov-2005 13:37)
Customer Ref: Ms E Savage, Deeside ES
Environ UK Limited
Port of Liverpool Building Pier Head
LIVERPOOL
L3 1BY

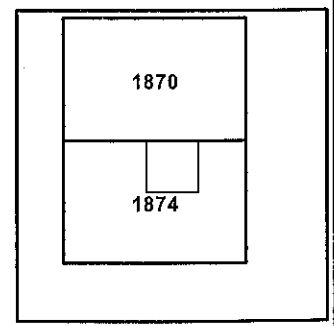
SITE DETAILS Grid Reference 329720 371360
Deeside Power Station
Deeside

Historical Map Legend

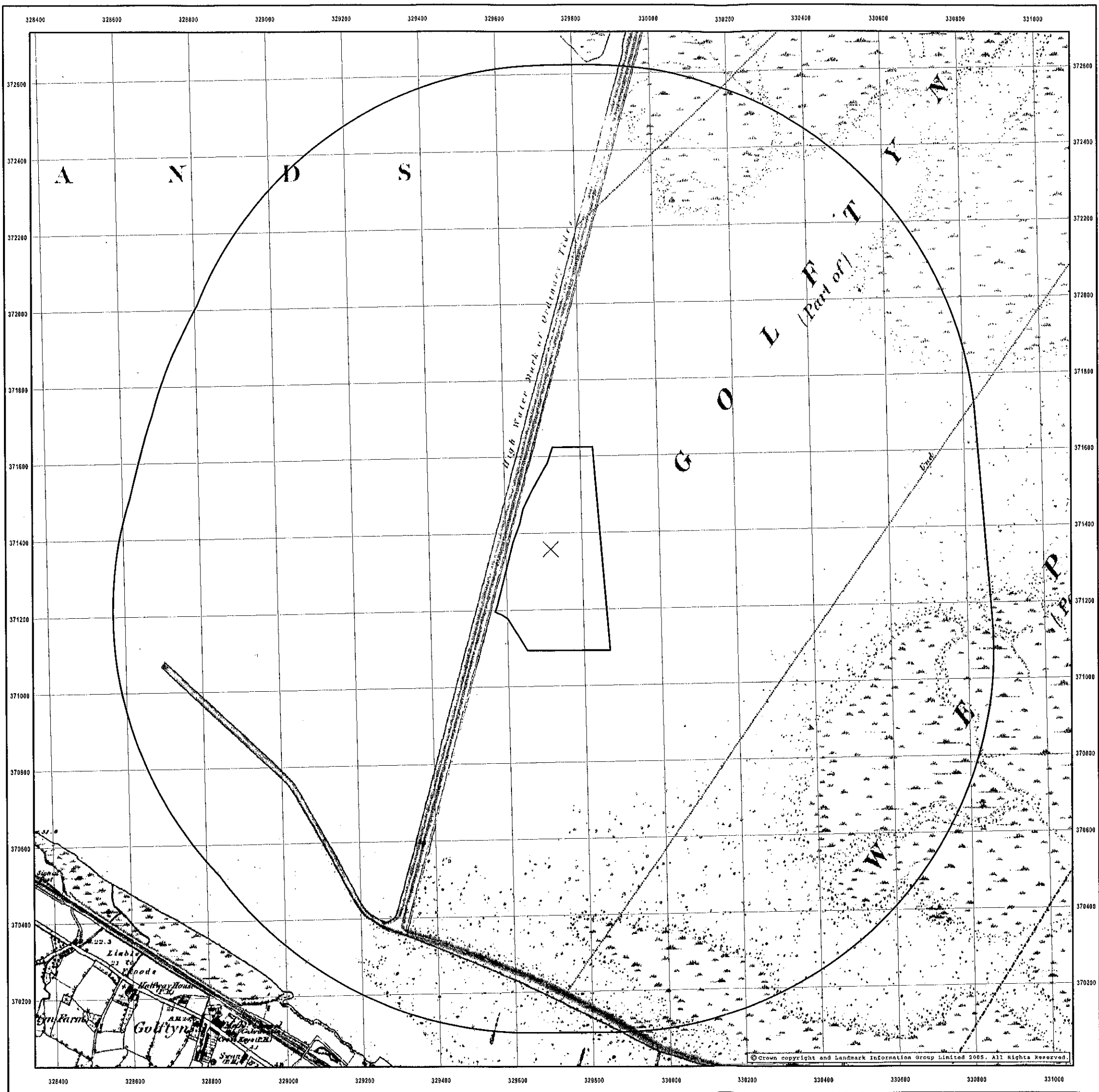
Quarry	Sand Pit	Marsh	Reeds
Gravel Pit	Clay Pit	Rough Pasture	Furze
Refuse Heap	Shingle	Osiers	Ford
Railway crossing River or Canal	Railway crossing Road	Level Crossing	
Embankment	Cutting	Road crossing Railway	
Road over single Stream	Road over River or Canal	Arrow denotes flow of Water	

Ordnance Survey County Series 1
The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1895 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given on the right is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

FLINTSHIRE
Published 1870 to 1874
Source map scale - 1:2,500



Date(s) of Publication 4 of 26



ENVIRON

CLIENT DETAILS Envirocheck Order No. EC15377751_1_1
(11-Nov-2005 13:30)

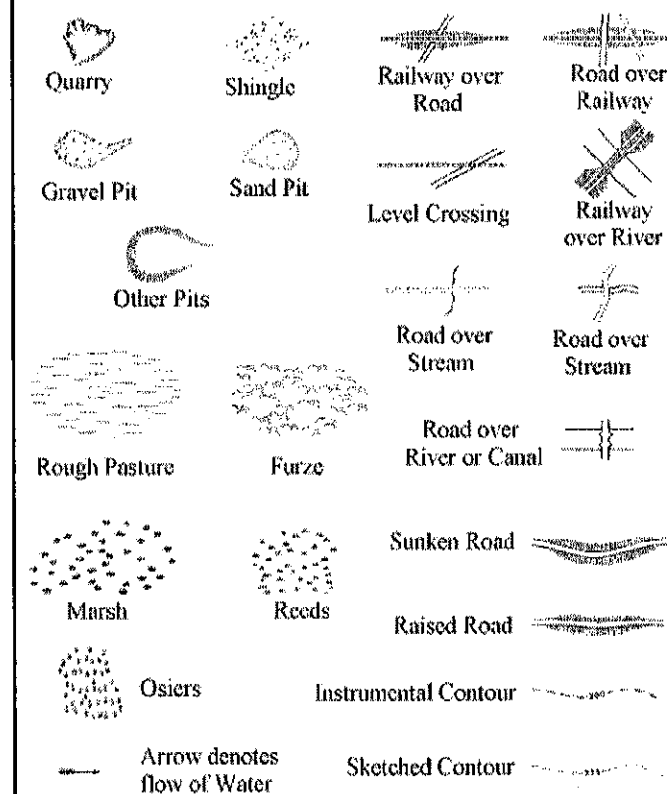
Customer Ref: Ms E Savage, Deeside ES
Environ UK Limited
Port of Liverpool Building Pier Head
LIVERPOOL
L3 1BY

SITE DETAILS Grid Reference 329720 371360

Deeside Power Station

Deeside

Historical Map Legend



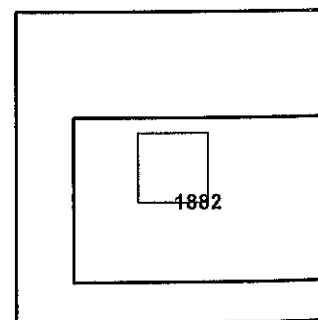
Ordnance Survey County Series

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given on the right therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

FLINTSHIRE
Published 1882

Source map scale - 1:10,560



Date(s) of Publication 17 of 26



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ENVIRON

CLIENT DETAILS Envirocheck Order No. EC15377751_1_1
(11-Nov-2005 13:40)

Customer Ref: Ms E Savage, Deeside ES
Environ UK Limited
Port of Liverpool Building Pier Head
LIVERPOOL
L3 1BY

SITE DETAILS Grid Reference 329720 371360

Deeside Power Station

Deeside

Historical Map Legend

Quarry	Shingle	Railway over Road	Road over Railway
Gravel Pit	Sand Pit	Level Crossing	Railway over River
Other Pits		Road over Stream	Road over Stream
Rough Pasture	Furze	Road over River or Canal	Road over River or Canal
Marsh	Reeds	Sunken Road	Sunken Road
Osiers		Raised Road	Raised Road
		Instrumental Contour	Instrumental Contour
Arrow denotes flow of Water		Sketched Contour	Sketched Contour

Ordnance Survey County Series

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given on the right therefore is often some years later than the surveyed date. Before 1939, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

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FLINTSHIRE
Published 1900

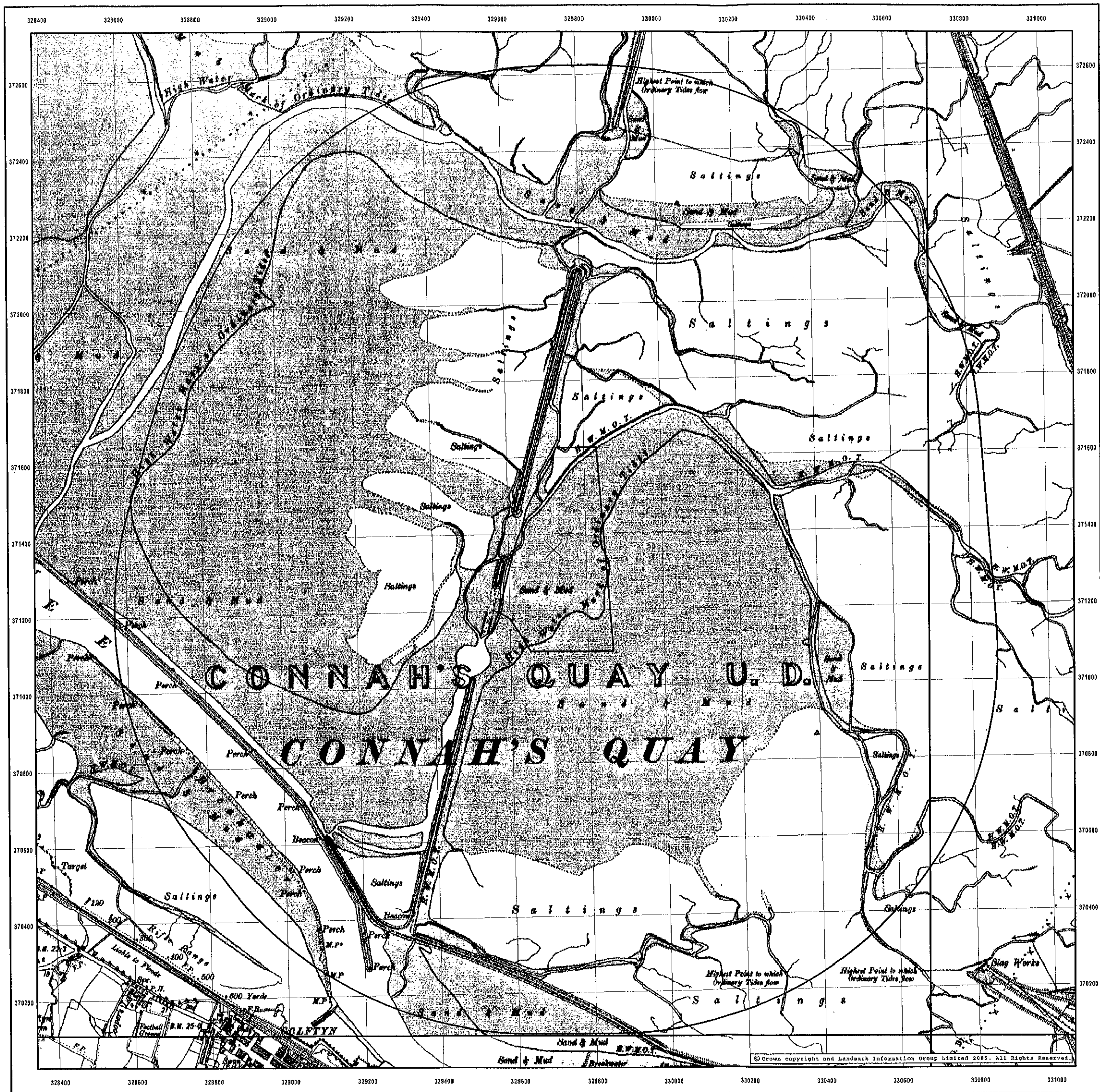
Source map scale - 1:10,560

1900	1900
1900	1900

Date(s) of Publication 18 of 26



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ENVIRON

CLIENT DETAILS Envirocheck Order No. EC15377751_1_1
(11-Nov-2005 13:40)

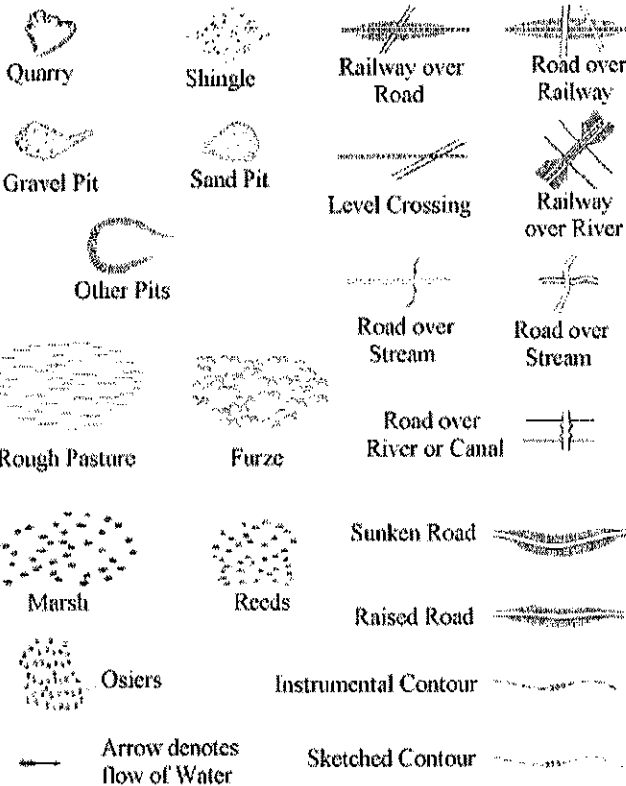
Customer Ref: Ms E Savage, Deeside ES
Environ UK Limited
Port of Liverpool Building Pier Head
LIVERPOOL
L3 1BY

SITE DETAILS Grid Reference 329720 371360

Deeside Power Station

Deeside

Historical Map Legend



Ordnance Survey County Series

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given on the right therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

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FLINTSHIRE
Published 1913

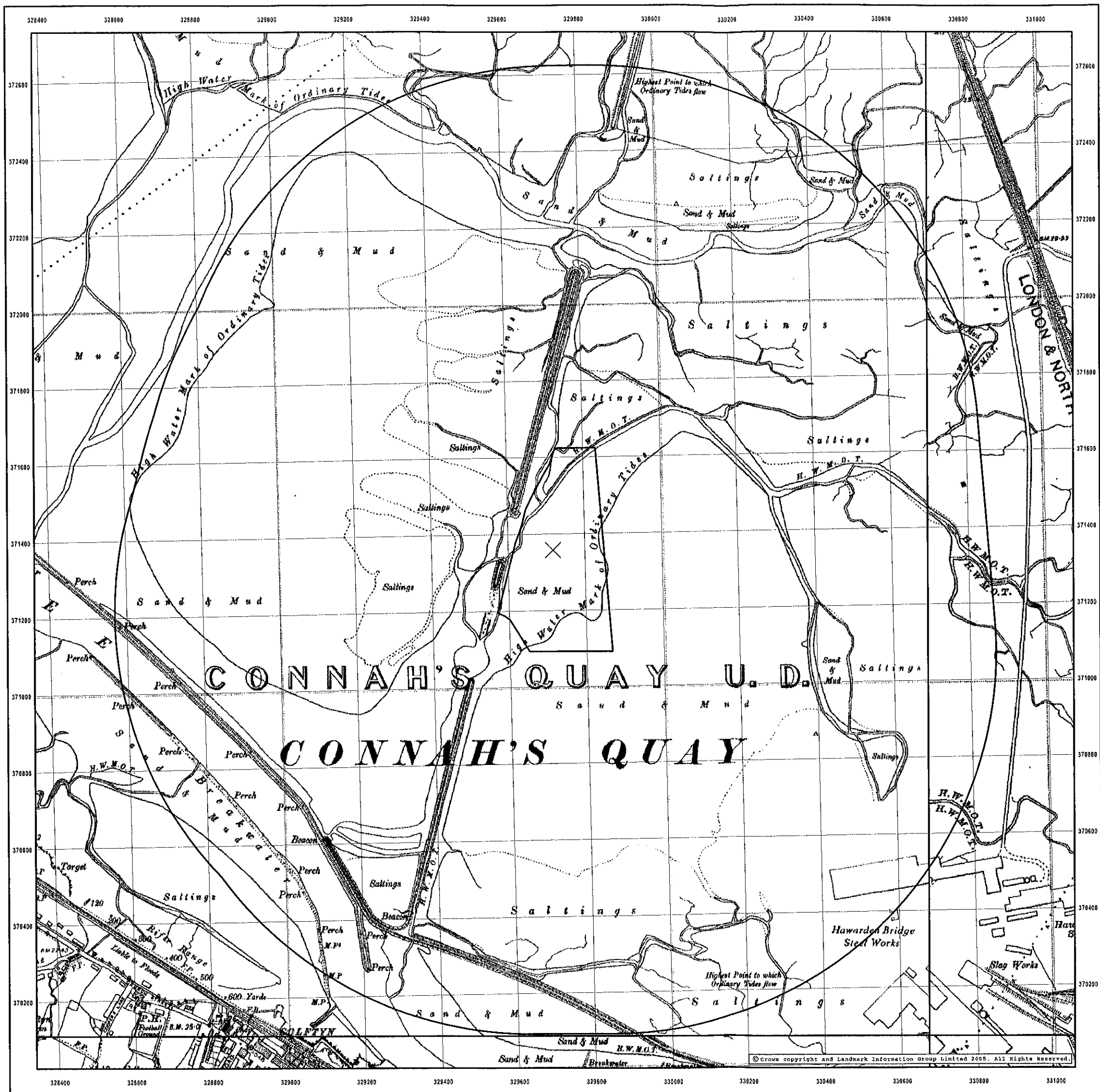
Source map scale - 1:10,560

1913	1913
1913	1913

Date(s) of Publication 19 of 26



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ENVIRON

CLIENT DETAILS Envirocheck Order No. EC15377751_1_1
(11-Nov-2005 12:40)

Customer Ref: Ms E Savage, Deeside ES
Environ UK Limited
Port of Liverpool Building Pier Head
LIVERPOOL
L3 1BY

SITE DETAILS Grid Reference 329720 371360

Deeside Power Station

Deeside

Historical Map Legend

Quarry	Shingle	Railway over Road	Road over Railway
Gravel Pit	Sand Pit	Level Crossing	Railway over River
Other Pits		Road over Stream	Road over Stream
Rough Pasture	Furze	Road over River or Canal	Road over River or Canal
Marsh	Reeds	Sunken Road	Sunken Road
Osiers	Instrumental Contour	Raised Road	Raised Road
Arrow denotes flow of Water	Sketched Contour		

Ordnance Survey County Series

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given on the right therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

FLINTSHIRE
Published 1938

Source map scale - 1:10,560

1938	1938
1938	1938

Date(s) of Publication 20 of 28



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ENVIRON

CLIENT DETAILS Envirocheck Order No. EC15377751_1_1
(11-Nov-2005 13:46)

Customer Ref: Ms E Savage, Deeside ES
Environ UK Limited
Port of Liverpool Building Pier Head
LIVERPOOL
L3 1BY

SITE DETAILS Grid Reference 329720 371360

Deeside Power Station

Deeside

Historical Map Legend

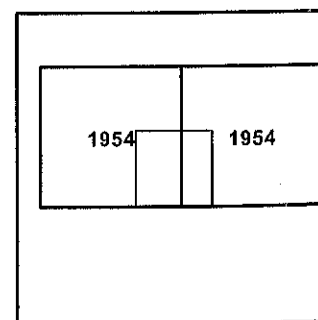
Chalk Pit, Clay Pit, or Quarry	Non-coniferous Trees	Bracken
Gravel Pit	Coniferous Trees	Heath
Sand Pit	Scrub	Rough Grassland
Disused Pit or Quarry	Lake, Loch or Pond	Reeds
Refuse or Slag Heap	Pylon	Saltings
	Electricity Transmission Line	Marsh
Direction of Flow of Water	Shingle	
Cutting	Sand	
Road Under	Road Over	Embankment
Level Crossing	Foot Bridge	Standard Gauge Multiple Track
		Standard Gauge Single Track
		Siding, Tramway or Mineral Line
		Narrow Gauge

Ordinance Survey Plan
The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1954 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given on the right therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

ORDNANCE SURVEY PLAN
Published 1954

Source map scale - 1:10,560



Date(s) of Publication 21 of 20



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ENVIRON

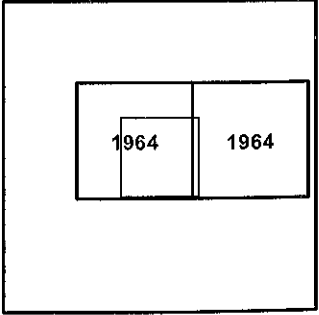
CLIENT DETAILS Envirocheck Order No. EC15377751_1_1
 Customer Ref: Ms E Savage, Deeside ES
 Environ UK Limited
 Port of Liverpool Building Pier Head
 LIVERPOOL
 L3 1BY

SITE DETAILS Grid Reference 329720 371360
 Deeside Power Station
 Deeside

Historical Map Legend			
Inactive Quarry, Chalk Pit or Clay Pit	Active Quarry, Chalk Pit or Clay Pit	Culvert	
Slope	Slope		
Pylon	Electricity Transmission Line	Direction of Water flow	Coppice, Osier
Marsh	Saltings	Orchard Tree	Reeds
Rough Grassland	Scrub	Heath	Bracken
Coniferous Tree (Surveyed)	Coniferous Tree (Not Surveyed)	Non-coniferous Tree (Surveyed)	Non-coniferous Tree (Not Surveyed)

Ordnance Survey Plan
 The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given on the right is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

ORDNANCE SURVEY PLAN
 Published 1964
 Source map scale - 1:2,500



Date(s) of Publication 1 of 25





ENVIRON

CLIENT DETAILS Envirocheck Order No. **EC15377751_1_1**
(11-Nov-2005 13:40)

Customer Ref: Ms E Savage, Deaside ES
Environ UK Limited
Port of Liverpool Building Pier Head
LIVERPOOL
L3 1BY

SITE DETAILS Grid Reference **329720 371360**

Deaside Power Station

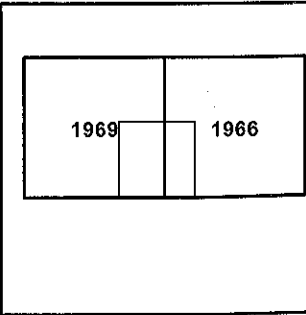
Deaside

Historical Map Legend

Chalk Pit, Clay Pit, or Quarry	Non-coniferous Trees	Bracken
Gravel Pit	Coniferous Trees	Heath
Sand Pit	Scrub	Rough Grassland
Disused Pit or Quarry	Lake, Loch or Pond	Reeds
Refuse or Slag Heap	Pylon	Saltings
Direction of Flow of Water		Marsh
Cutting	Shingle	Sand
Embankment	Standard Gauge Multiple Track	
Road Under	Road Over	Level Crossing
Foot Bridge	Standard Gauge Single Track	Siding, Tramway or Mineral Line
Narrow Gauge		

Ordnance Survey Plan 2
The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given on the right therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.
In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

ORDNANCE SURVEY PLAN
Published 1966 to 1969
Source map scale - 1:10,560



Date(s) of Publication 22 of 26



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ENVIRON

CLIENT DETAILS Envirocheck Order No. EC15377751_1_1
(11-Nov-2005 10:30)

Customer Ref: Ms E Savage, Deeside ES
Environ UK Limited
Port of Liverpool Building Pier Head
LIVERPOOL
L3 1BY

SITE DETAILS Grid Reference 329720 371360

Deeside Power Station

Deeside

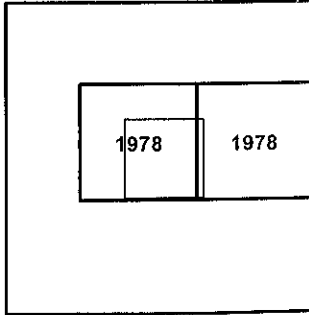
Historical Map Legend

Inactive Quarry, Chalk Pit or Clay Pit	Active Quarry, Chalk Pit or Clay Pit	Culvert
Slope	Slope	
Pylon	Electricity Transmission Line	Direction of Water flow
Coppice, Osier	Marsh	Saltings
Orchard Tree	Reeds	Rough Grassland
Scrub	Heath	Bracken
Coniferous Tree (Surveyed)	Coniferous Tree (Not Surveyed)	Non-coniferous Tree (Surveyed)
Non-coniferous Tree (Not Surveyed)		

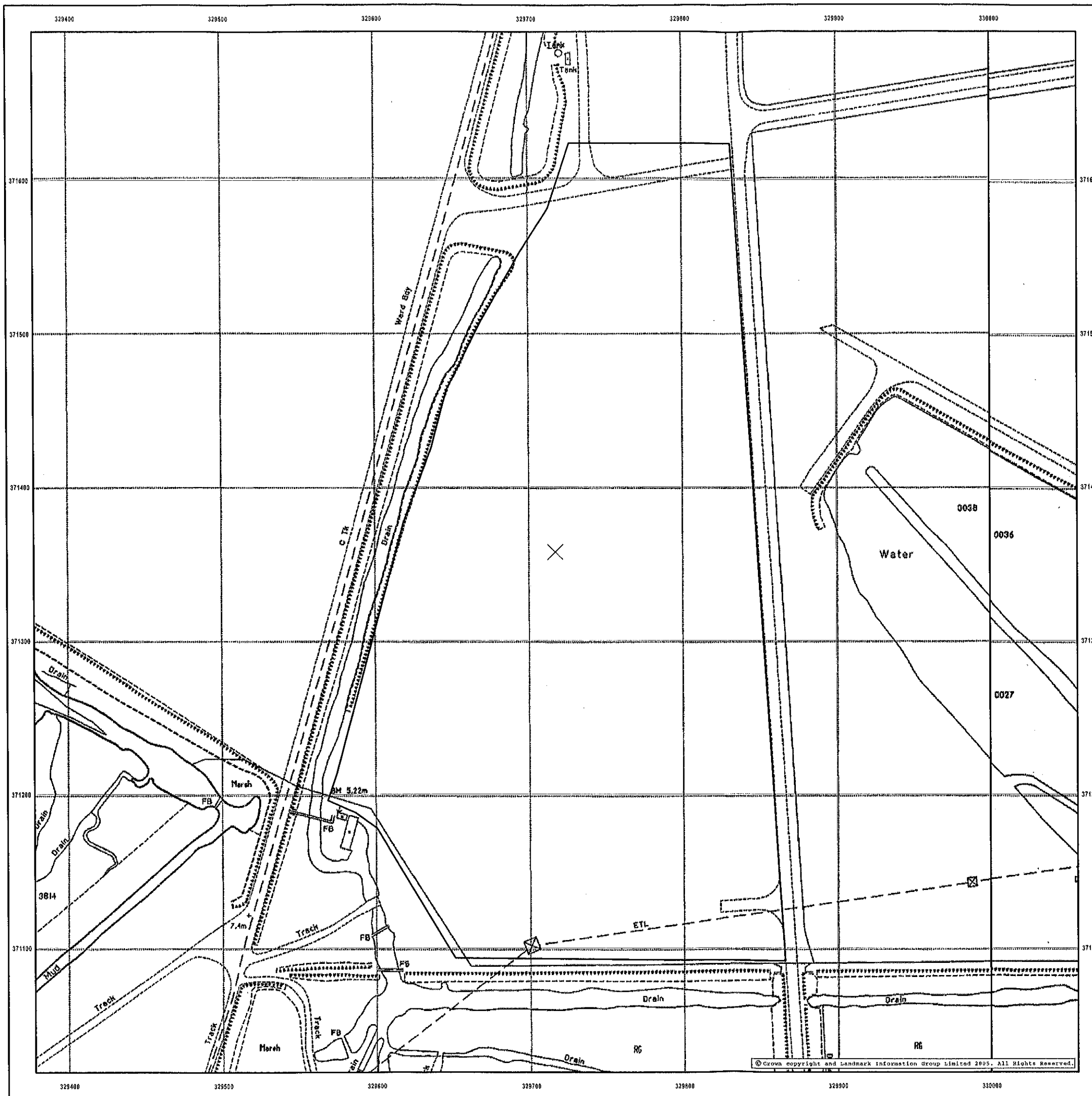
Additional SIMs

The SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') are further, minor editions of mapping which were produced and published in between the main editions as an area was updated. They date from 1947 to 1991, and contain detailed information on buildings, roads and land-use. These maps were produced at both 1:2,500 and 1:1,250 scales.

ORDNANCE SURVEY PLAN
Published 1978
Source map scale - 1:2,500



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CLIENT DETAILS

Envirocheck Order No. EC15377751_1_1
(11-Nov-2005 13:35)

Customer Ref: Ms E Savage, Deeside ES
Environ UK Limited
Port of Liverpool Building Pier Head
LIVERPOOL
L3 1BY

SITE DETAILS

Grid Reference	329720	371360
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Deeside Power Station

Deeside

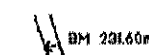
Historical Map Legend



Slope



Slope



Bench Mark



Wells



Buildings with Building Seed



Direction of
Water flow



Pylon



Electricity Transmission Line

Administrative Boundaries



Civil parish/community boundary



District boundary



County boundary

Boundary post/stone



Boundary mereing symbol (note: these always appear in opposed pairs or groups of three)

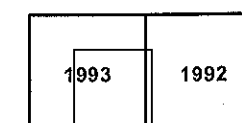
Large-Scale National Grid Data

Large Scale National Grid Data superseded SLM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1992, and continued to be produced until 1999. These maps were the fore-runners of digital mapping and so provide detailed information on houses and roads, but tend to show less topographic features such as vegetation. These maps were produced at both 1:2,500 and 1:1,250 scales.

ORDNANCE SURVEY PLAN

Published 1992 to 1993

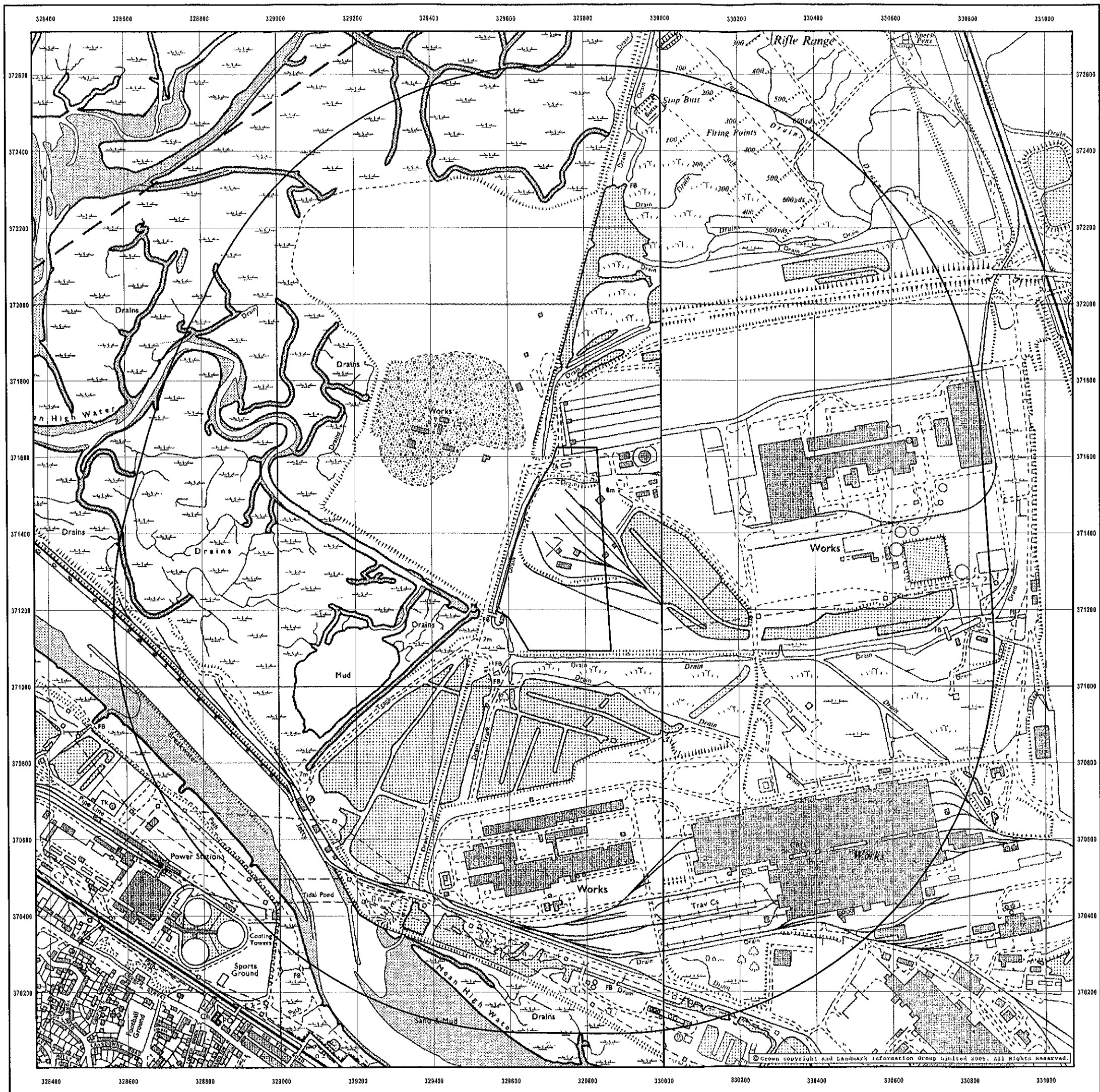
Source map scale - 1:2,500



Date(s) of Publication 12 of 20



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ENVIRON

CLIENT DETAILS Envirocheck Order No. **EC15377751_1_1**
(11-Nov-2003 13:41)

Customer Ref: Ms E Savage, Deeside ES
Environ UK Limited
Port of Liverpool Building Pier Head
LIVERPOOL
L3 1BY

SITE DETAILS Grid Reference **329720 371360**

Deeside Power Station

Deeside

Historical Map Legend

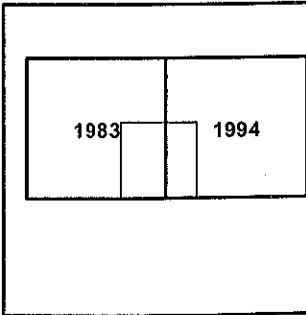
Chalk Pit, Clay Pit, or Quarry	Non-coniferous Trees	Bracken
Gravel Pit	Coniferous Trees	Heath
Sand Pit	Scrub	Rough Grassland
Disused Pit or Quarry	Lake, Loch or Pond	Reeds
Refuse or Slag Heap	Pylon	Saltings
	Electricity Transmission Line	Marsh
Direction of Flow of Water	Shingle	
Cutting	Sand	
Road 'T' Under	Road Over	Embankment
Level Crossing	Foot Bridge	Standard Gauge Multiple Track
		Standard Gauge Single Track
		Siding, Tramway or Mineral Line
		Narrow Gauge

Ordnance Survey Plan 2

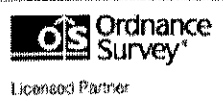
The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given on the right therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

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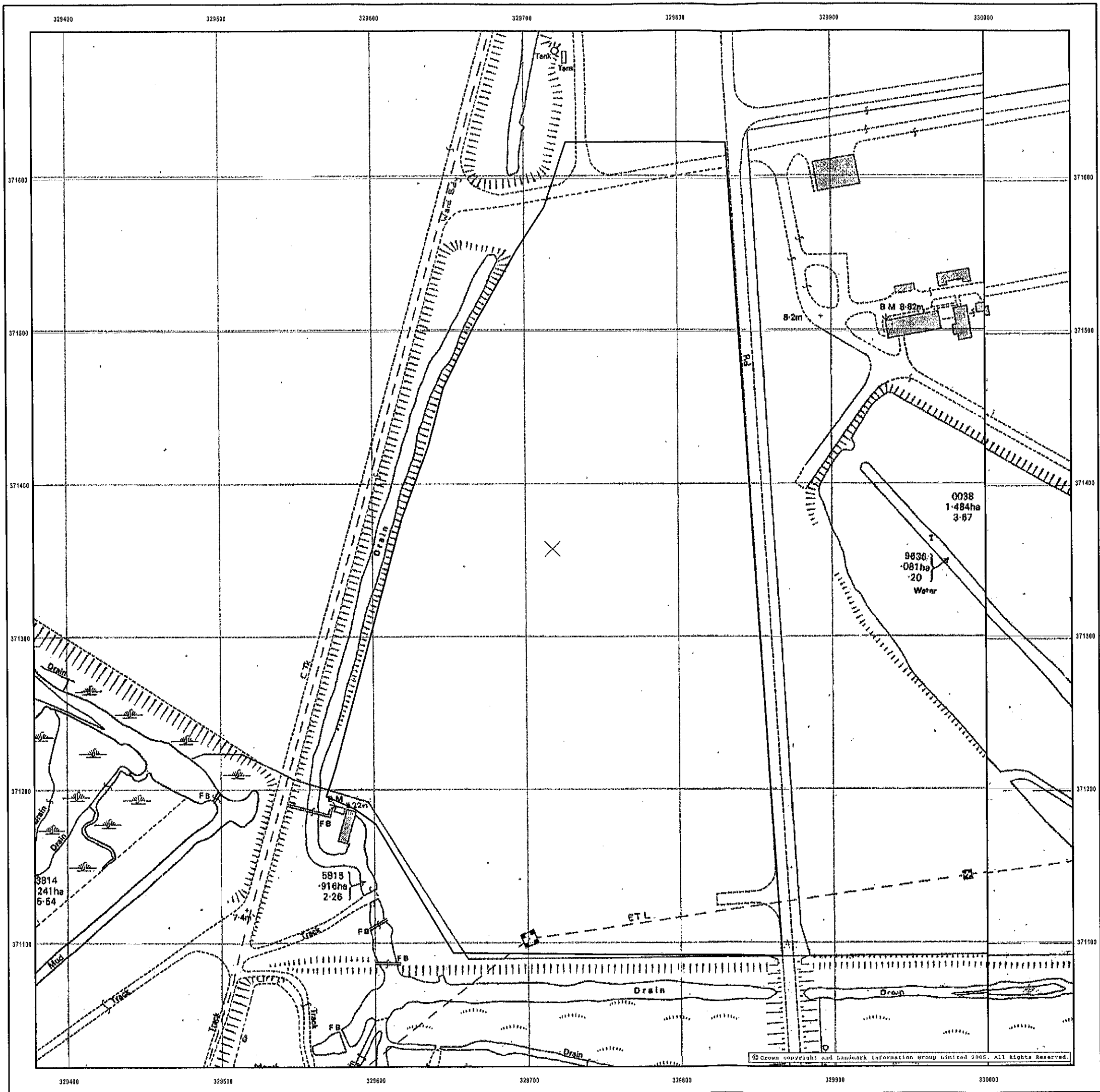
ORDNANCE SURVEY PLAN
Published 1983 to 1994
Source map scale - 1:10,000



Date(s) of Publication 25 of 26



Produced by Landmark Information Group Limited. Tel: 0870 850 6870 Fax: 0870 850 6871



ENVIRON

CLIENT DETAILS Envirocheck Order No. EC15377751_1_1
(11-Nov-2005 13:28)

Customer Ref: Ms E Savage, Deeside ES
Environ UK Limited
Port of Liverpool Building Pier Head
LIVERPOOL
L3 1BY

SITE DETAILS Grid Reference 329720 371360

Deeside Power Station

Deeside

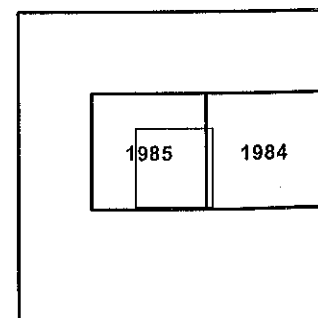
Historical Map Legend

Inactive Quarry, Chalk Pit or Clay Pit	Active Quarry, Chalk Pit or Clay Pit	Culvert
Slope	Slope	
Pylon	Electricity Transmission Line	Direction of Water flow
Marsh	Saltings	Orchard Tree
Rough Grassland	Scrub	Heath
Coniferous Tree (Surveyed)	Coniferous Tree (Not Surveyed)	Non-coniferous Tree (Surveyed)
Non-coniferous Tree (Not Surveyed)		

Additional SIMs

The SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') are further, minor editions of mapping which were produced and published in between the main editions as an area was updated. They date from 1947 to 1991, and contain detailed information on buildings, roads and land-use. These maps were produced at both 1:2,500 and 1:1,250 scales.

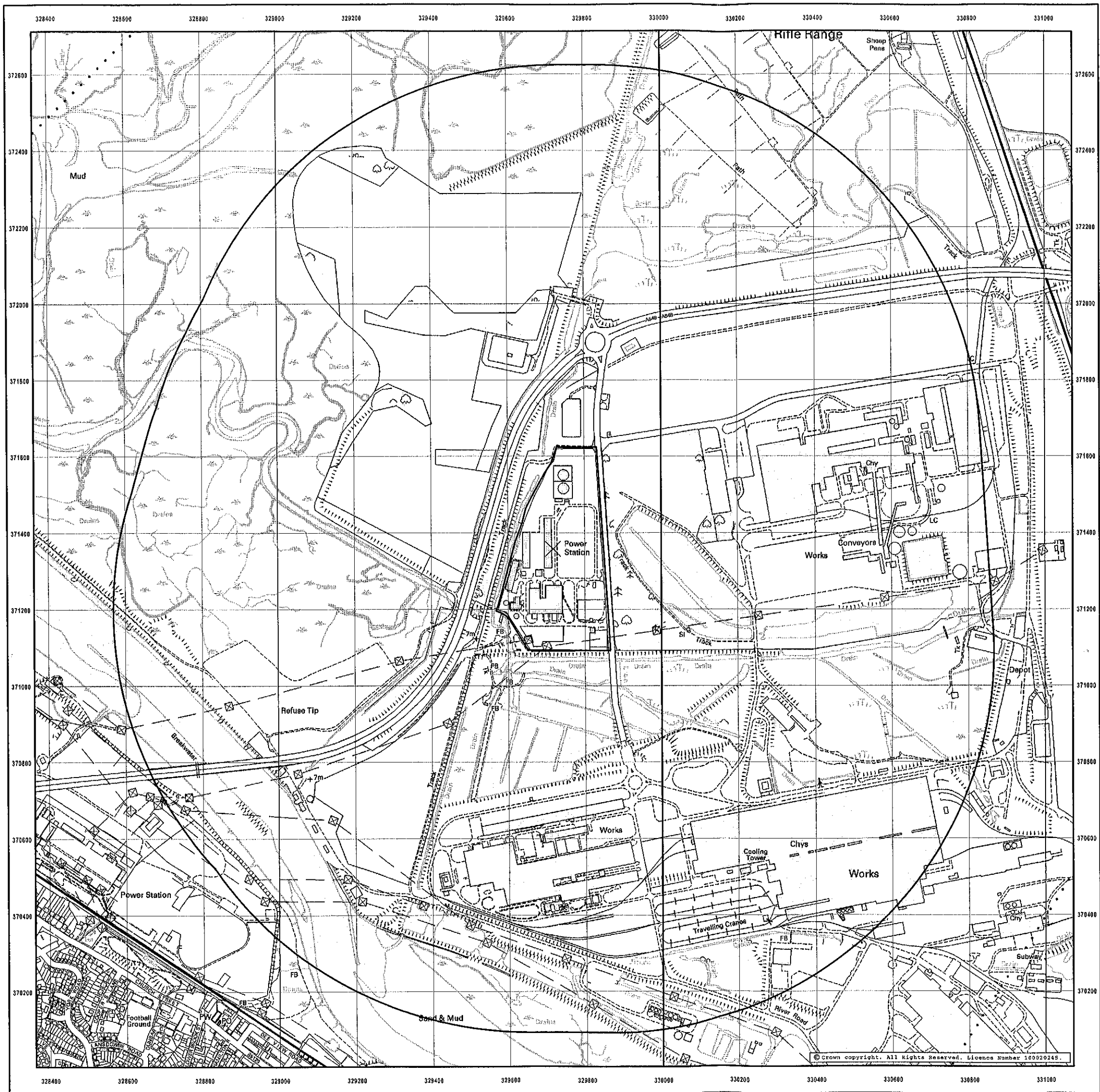
ORDNANCE SURVEY PLAN
Published 1984 to 1985
Source map scale - 1:2,500



Date(s) of Publication 11 of 26



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ENVIRON

CLIENT DETAILS Envirocheck Order No. **EC15377751_1_1**
(11-Nov-2009 13:41)

Customer Ref: Ms E Savage, Deeside ES
Environ UK Limited
Port of Liverpool Building Pier Head
LIVERPOOL
L3 1BY

SITE DETAILS Grid Reference **329720 371360**

Deeside Power Station

Deeside

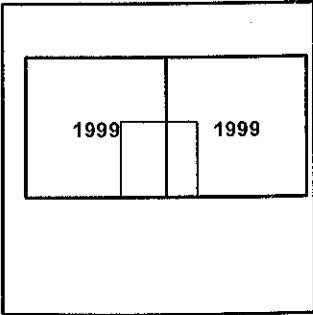
Historical Map Legend

	Non-coniferous Trees		Pylon
	Coniferous Trees		Telephone Line (where shown)
	Orchard		Electricity Transmission Line (with poles)
	Rough Grassland		Gravel Pit
	Heath		Shingle
	Scrub		Refuse Tip or Slag Heap
	Marsh, Salt Marsh or Reeds		Sand
	County Boundary (England only)		Sand Pit
	Civil Parish or Community Boundary		Slopes
	Constituency Boundary		District, Unitary, Metropolitan, London Borough Boundary

10K Raster Mapping

The historical maps shown were produced from the Ordnance Survey's 1:10,000 colour raster mapping. These maps are derived from Landplan[®] which replaced the old 1:10,000 maps originally published in 1970. The data is highly detailed showing buildings, fences and field boundaries as well as all roads, tracks and paths. Road names are also included together with the relevant road number and classification. Boundary information depiction includes county, unitary authority, district, civil parish and constituency.

ORDNANCE SURVEY PLAN
Published 1999
Source map scale - 1:10,000



Date(s) of Publication 26 of 26



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C5 EXISTING SITE INVESTIGATION, ASSESSMENT AND REMEDIATION RECORDS

The following section summarises the site investigations and sampling works which have been carried out at the site to date. The following reports have been reviewed:

- Contaminated Land Assessment Report (R-C408.D) – EAG ENVIRON, February 1994;
- Groundwater Monitoring Programme (March 1995-November 1997) Summary Report – EAG ENVIRON, May 1998; and
- Groundwater Monitoring December 2005, Letter Report – ENVIRON, January 2006 (Summary of Groundwater Monitoring Programme to date)

Contaminated Land Assessment Report (R-C408.D) – EAG ENVIRON, February 1994

Desk based research revealed that the site had historically been the location of a slag recovery operation associated with a nearby steelworks. The site was also nominated in an earthworks specification for the reclamation of the steelworks, as an area to be used for the deposit of any toxic materials encountered on the steelworks site.

The excavation of twelve boreholes was undertaken, ten of which were on the main National Power part of the site and two of which were on the British Gas portion of the site (adjacent to the north of the installation). Permanent groundwater monitoring wells were installed in each well. Fourteen trial pits were also excavated. Analysis of soil and ground water samples for a wide range of total and leachable contaminants identified as being potentially present at the site was undertaken.

Borehole logs (copies of which are presented in Appendix C2) from the ground investigation indicate that up to 5m of made ground is present directly beneath the site, comprising sand, gravel and extensive deposits of furnace slag. The site is then further underlain by approximately 5m of estuarine alluvium. Underlying the alluvium is a relatively thin layer of silty, sandy and gravelly Boulder Clay, which overlies Coal Measures (Westphalian A) of Upper Carboniferous age.

Contamination of the soil, groundwater and surface water on the site and surrounding area is widespread. Contaminants identified at the site included iron, manganese, zinc, sulphate, sulphide and alkalinity. The contamination was generally associated with the 4-5m thickness of steelworks slag covering the site, with some evidence of the downward movement of

contaminants into the natural strata, in particular high levels of iron and manganese. Leachability testing indicated that most of the contaminants were present in relatively non-mobile, stable, non-leachable forms.

Two areas of the site were identified as being contaminated by non-slag related contaminants. Tarry materials and demolition arisings appeared to have been deposited in the south-western corner of the site and tarry material was also encountered in the central area of the site.

In general, the groundwater samples demonstrated high alkalinity, consistent with the alkaline soil conditions. Elevated concentrations of ammoniacal nitrogen, metals (including chromium, zinc, manganese, iron, boron and lead), total cyanide and phenols were also present in samples from across the site. Ammoniacal nitrogen, phenols and cyanide are associated with coking activities and accord with tarry coking oven wastes near to these sample locations. Overall the initial results indicated that groundwater quality at the site was relatively poor, although it was not considered sufficiently contaminated to warrant remedial action. Groundwater was recorded at 4-5m below ground level and as such is not in direct contact with the majority of the fill on site.

As a result of the site investigation and discussions between regulatory authorities, identified "hot spots" of contaminated material were excavated and disposed of off site during redevelopment of the site. A programme of groundwater monitoring was included within the conditions of the IPC Authorisation at the request of the National Rivers Authority (NRA), now the Environment Agency.

Groundwater Monitoring Programme (March 1995-November 1997) Summary Report – EAG ENVIRON, May 1998,

This monitoring programme involved quarterly groundwater sampling in the first year from the twelve boreholes installed by EAG ENVIRON in 1994, with biannual sampling events being undertaken in the following two years. The objectives of the monitoring programme were to:

- assess changes in the groundwater regime, over time, with respect to quality, depth and direction of flow;
- determine the potential for contaminants to have migrated onto the site, over time from off site sources;
- evaluate the potential for off site migration of contaminants; and

- assess the potential impacts on nearby surface water bodies.

The analytical strategy was based upon the range of contaminants thought likely to be present on-site (as identified in the historical research and previous site investigation), the need to assess the mobility of contaminants and the potential impacts of contamination on current and future site occupants and the environment in general.

Groundwater levels at the site ranged between 3.36m to 5.03m bgl. The monitoring data indicated that the predominant direction of groundwater flow was westerly, towards the nearby watercourse, the Fingerpost Drain, located along the site's western boundary. It therefore seemed likely that the groundwater within the alluvial deposits underlying the site is in hydraulic continuity with this watercourse.

Visual and olfactory evidence of contamination in the form of oily product and a strong hydrocarbon odour was consistently noted in BH7 on the south-western boundary of the site. Visual evidence of hydrocarbon contamination was also observed in BH6 on one occasion and BH8 on three occasions. A tarry product was noted at the base of the well of BH9 and a faint hydrocarbon odour was noted during the November 1996 visit. A tarry/hydrocarbon odour was noted in BH10 during the May 1997 and November 1997 visits. The groundwater samples taken from BH1 in January and November 1996 and May 1997 turned green within the sampling vessel that contained sulphuric acid preservative. This reaction indicated elevated concentrations of iron present within these samples.

The main contaminants identified within the groundwater included sulphate, ammoniacal nitrogen, cyanide, iron, mineral oils, PAHs and asphaltenes. Groundwater quality remained fairly constant throughout the monitoring programme.

Groundwater was generally alkaline with elevated concentrations of sulphate. This accords with leaching from steelworks slag present at the site, which is typically both alkaline and contains elevated levels of sulphate. Concentrations of iron were generally elevated with respect to the Drinking Water Quality (DWQ) standard. Total cyanide concentrations were generally elevated with respect to the DWQ standard. Concentrations of ammonia were also generally elevated with respect to the DWQ standard. Elevated concentrations of solvent extractable matter (SEM) were found to be widespread across the site. These elevated concentrations are attributable to historical contamination of the site by steelworks and coke oven by-product waste. There was no evidence to suggest that current activities at the site are resulting in contamination of the groundwater, or aggravating the existing situation.

**Groundwater Monitoring November 2005, Letter Report – ENVIRON, January 2006
(Summary of Groundwater Monitoring Programme to date)**

The annual groundwater monitoring programme commenced following the original ground investigation in 1994.

Eleven of the twelve boreholes originally installed in 1994 remain intact and have been sampled annually since 1998. These samples are analysed for a range of analytes, namely pH, cyanide, sulphate, ammonia, chloride, a range of metals, total petroleum hydrocarbons (TPH) and a range of semi-volatile organic compounds (SVOCs). The programme has been undertaken in order to determine whether on-site historical contaminants are impacting upon groundwater quality at the site.

The analytes generally recorded concentrations either below the relevant detection limit or below the accepted guidelines. The main contaminants appeared to be sulphate, cyanide, ammoniacal nitrogen and chloride which were present at elevated concentrations in the majority of the boreholes across the site. However, when compared to the results from previous monitoring visits there generally appears to have been minimal temporal variation.

Notable exceptions include:

- sulphate concentrations, some of which have slightly increased (six out of eleven boreholes) and some have slightly decreased (five out of eleven boreholes) when compared to those in 2004;
- cyanide concentrations in three of the eleven boreholes had slightly increased in concentration since 2004;
- chloride concentrations had increased across the site in comparison with previous monitoring results in approximately half of the boreholes. This may be a result of saline intrusion from the Dee Estuary; and
- chromium concentrations within eight of the eleven boreholes shared an increase in concentration since 2004. The most notable example is BH9, which increased from <0.010mg/l (2004) to 0.098mg/l (2005).

Groundwater levels across the site ranged from 1.04m bgl (metres below ground level) (BH6) to 5.51m bgl (BH5). Generally, the groundwater levels remained fairly constant, with very little change from the previous monitoring exercise in 2004.

Overall, there has been little temporal variation in the majority of the main contaminants at the site with the exception of chloride, chromium, total cyanide and sulphate. From the results it is apparent that those parameters which have remained elevated are attributable to historical contamination of the site by steelworks and coke oven by-product waste. There is no evidence to suggest that current activities at the site are resulting in contamination of the groundwater, or aggravating the existing situation.

APPENDIX D: DATA ASSESSMENT

D1 POTENTIALLY POLLUTING SUBSTANCES

Materials	Active Ingredient
Sulphuric Acid	Sulphuric acid 96% w/w
Lubricants	Mineral oil, triaryl phoshate
Diesel	Petroleum hydrocarbons
Ammonium hydroxide (5% ammonia in water)	ammonia
Hydrazine Hydrate (5% hydrazine hydrate in water)	hydrazine
Tri-sodium phosphate (3% tri-sodium phosphate in water)	Sodium, phoshate
Sodium Hypochlorite	Chlorine, sodium hydroxide, sodium carbonate
Sodium	Sodium hydroxide, sodium carbonate, sodium chloride, sodium sulphate
R-MC Powerguard	10-25% non-ionic surface active agent belonging to the ethoxylated fatty amine family
Aquaserve Antifoam FDP	Polydimethylsiloxane emulsion
Fire Resistant Fluid	Triaryl phosphates
Degreasing Solvent	Isoparafins (>95%)

D2 ASSESSMENT OF LAND POLLUTION POTENTIAL

D2 - Assessment of likelihood of pollution

Site Operation or Site Zone	Substance	Relevant Activity	Potential for Pollution from the relevant activity	1. Records of pollution	2. Existence of pollution prevention measures	Nature of Primary Containment	Testing and Inspection of Primary Containment	Nature of Secondary Containment	Testing and Inspection of secondary containment	Nature of Tertiary Containment	Testing and Inspection of Tertiary Containment	3. Adequacy of pollution prevention measures Yes/No	4. Are the proposed Integrity testing of pollution prevention measures Adequate Yes/No	5. Is there an adequate documented management system to demonstrate operator management and competence with the relevant activity?	The assessment on the likelihood of pollution and hence the need to collect reference samples will be made on the questions set in the GREEN columns on this table and supported by the information provided. To make the case that there is little likelihood of pollution the Applicant will need to provide the following answers: Green Column 1 - No past pollution incidents or spillages Green Column 2 - Yes pollution prevention measures exist for each relevant activity Green Column 3 - Yes pollution prevention measures are adequate Green Column 4 - Yes adequate integrity testing undertaken or proposed Green Column 5 – Yes there is an adequate management system IF THE ABOVE CRITERIA CANNOT BE SATISFIED THEN THERE IS THE REASONABLE POSSIBILITY OF POLLUTION AND THE OPERATOR WILL NEED TO COLLECT REFERENCE DATA IN THE SITE PROTECTION AND MONITORING PROGRAMME	
Name Unit Operation and refer to the relevant section of the Permit Site Report containing its description	Name substance, provide CAS RN if appropriate as well as manufacturers product name. Volume stored. For mixtures provide breakdown of polluting substances and percentage by volume.	Detail the relevant activity for each substance where the location, pollution risk or pollution prevention measures differ	Detail the failure mechanism and potential pollution arising from the loss of primary containment	Detail any incidents of pollution or spills from the relevant activity. This can be based on visual assessment during site reconnaissance, installation or other records and data sources. Have measures been put in place to ensure no further pollution incidents?	Do pollution prevention measures exist for each element of the relevant activity ?	Detail the nature of the storage vessel, including volume, location and provide unique reference number and indicate which site plan it is shown on	Provide details of a testing and inspection programme or reference to a separate document, e.g. pressure tests, leak tests, material thickness checks etc.	Detail the nature of the secondary containment.	Provide details of a testing and inspection programme or reference to a separate document, e.g. pressure tests, leak tests, material thickness checks etc.	Detail the nature of the tertiary Containment	Provide details of a testing and inspection programme or reference to a separate document, e.g. pressure tests, leak tests, material thickness checks etc.	Do the pollution prevention measures and testing and inspection programme comply with the indicative requirements set out in Box 5? If yes then justify how.				
															Little Likelihood of Pollution ?	Reasonable Possibility of Pollution ?
Internal Sulphuric Acid Storage-Section 4.2.1	Sulphuric acid is used in the water treatment plant for the regeneration of ion exchange resins (18 m3 capacity above ground tank) and in the main cooling water system (MCW) to prevent scaling (40 m3 capacity above ground tank). The above ground storage tanks are located internally, one in the water treatment plant and one in the cooling water pump house. Stored within single skinned steel tanks within concrete bunds.	1. Off-loading from delivery lorry to storage tanks.	Leakage from the tanker or associated pipeline during filling or leakage from the storage tank fill point.	No evidence/records of spills or leaks.	Yes	All deliveries are supervised by authorised staff and EMS contains written procedures for deliveries (DEA\POI\ROU\GC 06 (water treatment plant) DEA\POI\ROU\PA 06 (MCW)). Deliveries are undertaken in hardsurfaced areas, the delivery area for the MCW tank is bunded. Tanker maintenance is the responsibility of the supplier. The MCW tank is fitted with high level alarm. Tank fill points, although located outside of the bunds, have drainage grids below to ensure the drainage of any spills/leaks back into the respective systems.	Tanker complies with British Standards. Regular visual inspections of tanks are made.	Concrete bunds of approximately 22m3 (WTP) and 48m3 (MCW) capacity enclosing the tanks. Fill points located outside of bunds but provided with catchment grid, which ensures drainage of any spills/leaks back into respective process systems.	Weekly visual inspections of bunds takes place.	Tanks located internally on concrete surfaced areas.	Weekly visual inspection of areas of hardstanding takes place. Concrete observed to be in good condition.	No - currently no integrity testing of tanks takes place but is proposed.	Yes - Proposed measures incorporate integrity testing of tanks, bund and pipework, which will be incorporated into the EMS.	Yes. Unloading procedure documented in EMS procedures DEA\POI\ROU\GC 06 (water treatment plant) DEA\POI\ROU\PA 06 (MCW). EMS also includes details of the preventative maintenance programme and spill procedure (ENV\L007).	✓	-
		2. Storage.	Failure of containment leading to spillage to land	Only minor evidence of acid spills on concrete surfaced floor inside bund in cooling water pump house.	Yes	Sulphuric acid stored within single skinned steel tanks within concrete bunds. Tank volumes 18m3 and 40m3.	Weekly visual inspections of tanks are made for evidence of leaks or areas which require maintenance.	Concrete bunds of approximately 22m3 (WTP) and 48m3 (MCW) capacity enclosing the tanks. Fill points located outside of bunds but provided with catchment grid, which ensures drainage of any spills/leaks back into respective process systems.	Visual inspection of bunds takes place once a week.	Tanks located internally on concrete surfaced areas.	Weekly visual inspection of areas of hardstanding takes place. Concrete observed to be in good condition.	No - no integrity testing of tanks takes place but is proposed.	Yes - Proposed measures incorporate integrity testing of tanks, bund and pipework, which will be incorporated into the EMS.	EMS includes details of the preventative maintenance programme and spill procedure (ENV\L007).	✓	-
		3. Transport of chemicals to process area .	Damage and leakage of above ground pipework.	Only minor evidence of acid spills on concrete surfaced floor inside bund in cooling water pump house.	Yes.	Sulphuric acid is pumped via above ground pipework to the relevant process.	Weekly visual inspections of pipework are made for evidence of leaks or areas which require maintenance.	Above ground pipework feeds directly into the buildings. Secondary containment is provided by building structure for internal pipework.	Internal concrete in good condition. No internal surface water drains.	None.	None.	No - no integrity testing of pipework is undertaken but is proposed.	Yes - Proposed measures incorporate integrity testing of pipework.	EMS includes details of the preventative maintenance programme and spill procedure (ENV\L007).	✓	-

D2 - Assessment of likelihood of pollution

Site Operation or Site Zone	Substance	Relevant Activity	Potential for Pollution from the relevant activity	1. Records of pollution	2. Existence of pollution prevention measures	Nature of Primary Containment	Testing and Inspection of Primary Containment	Nature of Secondary Containment	Testing and Inspection of secondary containment	Nature of Tertiary Containment	Testing and Inspection of Tertiary Containment	3. Adequacy of pollution prevention measures Yes/No	4. Are the proposed Integrity testing of pollution prevention measures Adequate Yes/No	5. Is there an adequate documented management system to demonstrate operator management and competence with the relevant activity?	The assessment on the likelihood of pollution and hence the need to collect reference samples will be made on the questions set in the GREEN columns on this table and supported by the information provided. To make the case that there is little likelihood of pollution the Applicant will need to provide the following answers: Green Column 1 - No past pollution incidents or spillages Green Column 2 - Yes pollution prevention measures exist for each relevant activity Green Column 3 - Yes pollution prevention measures are adequate Green Column 4 - Yes adequate integrity testing undertaken or proposed Green Column 5 – Yes there is an adequate management system IF THE ABOVE CRITERIA CANNOT BE SATISFIED THEN THERE IS THE REASONABLE POSSIBILITY OF POLLUTION AND THE OPERATOR WILL NEED TO COLLECT REFERENCE DATA IN THE SITE PROTECTION AND MONITORING PROGRAMME	
Name Unit Operation and refer to the relevant section of the Permit Site Report containing its description	Name substance, provide CAS RN if appropriate as well as manufacturers product name. Volume stored. For mixtures provide breakdown of polluting substances and percentage by volume.	Detail the relevant activity for each substance where the location, pollution risk or pollution prevention measures differ	Detail the failure mechanism and potential pollution arising from the loss of primary containment	Detail any incidents of pollution or spills from the relevant activity. This can be based on visual assessment during site reconnaissance, installation or other records and data sources. Have measures been put in place to ensure no further pollution incidents?	Do pollution prevention measures exist for each element of the relevant activity ?	Detail the nature of the storage vessel, including volume, location and provide unique reference number and indicate which site plan it is shown on	Provide details of a testing and inspection programme or reference to a separate document, e.g. pressure tests, leak tests, material thickness checks etc.	Detail the nature of the secondary containment.	Provide details of a testing and inspection programme or reference to a separate document, e.g. pressure tests, leak tests, material thickness checks etc.	Detail the nature of the tertiary Containment	Provide details of a testing and inspection programme or reference to a separate document, e.g. pressure tests, leak tests, material thickness checks etc.	Do the pollution prevention measures and testing and inspection programme comply with the indicative requirements set out in Box 5? If yes then justify how.				
Internal Sodium Hydroxide Storage - Section 4.2.2	Sodium hydroxide is used in the water treatment plant for the regeneration of ion exchange resins. Sodium hydroxide is stored in a 24m3 capacity steel above ground storage tank sited within a concrete bund in the water treatment plant.	1. Off-loading from delivery lorry to storage tanks.	Leakage from the tanker or associated pipeline during filling or leakage from the storage tank fill point.	No evidence/records of spills or leaks.	Yes	All deliveries are supervised by authorised staff and EMS contains written procedures for deliveries (DEA\PO\ROU\PA 06). Deliveries undertaken in hardsurfaced bunded area (raised kerb and floor gully drain). Tanker maintenance is the responsibility of the supplier. The tank is fitted with high level alarm. The fill point is located outside of bund, on the wall of the external delivery area, which is provided with a catchment grid, which ensures drainage of any spills/leaks into the MCW.	Tanker complies with British Standards. Weekly visual inspections of the tank are made.	Concrete bund of approximately 27m3 capacity enclosing the tank. Fill point located outside of bund, on wall of external delivery area, which is provided with catchment grid, which ensures drainage of any spills/leaks into the MCW.	Weekly visual inspection of bund takes place.	Tank located internally on concrete surfaced area.	Weekly visual inspection of areas of hardstanding takes place. Concrete observed to be in good condition.	No - currently no integrity testing of tank and pipework takes place but is proposed.	Yes - Proposed measures incorporate integrity testing of tank, bund and pipework, which will be incorporated into the EMS.	Yes. Unloading procedure documented in EMS procedure DEA\PO\ROU\PA 06. EMS also includes details of the preventative maintenance programme.	✓	-
		2. Storage.	Failure of containment leading to spillage to land	No evidence/records of spills or leaks.	Yes	Sodium hydroxide stored within a single skinned steel tank within a concrete bund. Tank volume 24m3.	Weekly visual inspections of tank are made for evidence of leaks or areas which require maintenance.	Concrete bund of approximately 27m3 capacity enclosing the tank. Fill point located outside of bund, on wall of external delivery area, which is provided with catchment grid, which ensures drainage of any spills/leaks into the MCW.	Weekly visual inspection of bund takes place.	Tank located internally on concrete surfaced area.	Weekly visual inspection of areas of hardstanding takes place. Concrete observed to be in good condition.	No - no integrity testing of tank takes place but is proposed.	Yes - Proposed measures incorporate integrity testing of tank, bund and pipework, which will be incorporated into the EMS.	EMS also includes details of the preventative maintenance programme and spill procedure (ENV\L007).	✓	-
		3. Transport of chemicals to process area .	Damage and leakage of above ground pipework.	No evidence/records of spills or leaks.	Yes.	Sodium hydroxide is pumped via above ground pipework to the process.	Weekly visual inspections of pipework are made for evidence of leaks or areas which require maintenance.	Above ground pipework is inside the building. Secondary containment is provided by building structure.	Internal concrete in good condition. No internal surface water drains.	None.	None.	No - no integrity testing of pipework is undertaken but is proposed.	Yes - Proposed measures incorporate integrity testing of pipework.	EMS includes details of the preventative maintenance programme and spill procedure (ENV\L007).	✓	-

D2 - Assessment of likelihood of pollution

Site Operation or Site Zone	Substance	Relevant Activity	Potential for Pollution from the relevant activity	1. Records of pollution	2. Existence of pollution prevention measures	Nature of Primary Containment	Testing and Inspection of Primary Containment	Nature of Secondary Containment	Testing and Inspection of secondary containment	Nature of Tertiary Containment	Testing and Inspection of Tertiary Containment	3. Adequacy of pollution prevention measures Yes/No	4. Are the proposed Integrity testing of pollution prevention measures Adequate Yes/No	5. Is there an adequate documented management system to demonstrate operator management and competence with the relevant activity?	The assessment on the likelihood of pollution and hence the need to collect reference samples will be made on the questions set in the GREEN columns on this table and supported by the information provided. To make the case that there is little likelihood of pollution the Applicant will need to provide the following answers: Green Column 1 - No past pollution incidents or spillages Green Column 2 - Yes pollution prevention measures exist for each relevant activity Green Column 3 - Yes pollution prevention measures are adequate Green Column 4 - Yes adequate integrity testing undertaken or proposed Green Column 5 – Yes there is an adequate management system IF THE ABOVE CRITERIA CANNOT BE SATISFIED THEN THERE IS THE REASONABLE POSSIBILITY OF POLLUTION AND THE OPERATOR WILL NEED TO COLLECT REFERENCE DATA IN THE SITE PROTECTION AND MONITORING PROGRAMME	
Name Unit Operation and refer to the relevant section of the Permit Site Report containing its description	Name substance, provide CAS RN if appropriate as well as manufacturers product name. Volume stored. For mixtures provide breakdown of polluting substances and percentage by volume.	Detail the relevant activity for each substance where the location, pollution risk or pollution prevention measures differ	Detail the failure mechanism and potential pollution arising from the loss of primary containment	Detail any incidents of pollution or spills from the relevant activity. This can be based on visual assessment during site reconnaissance, installation or other records and data sources. Have measures been put in place to ensure no further pollution incidents?	Do pollution prevention measures exist for each element of the relevant activity ?	Detail the nature of the storage vessel, including volume, location and provide unique reference number and indicate which site plan it is shown on	Provide details of a testing and inspection programme or reference to a separate document, e.g. pressure tests, leak tests, material thickness checks etc.	Detail the nature of the secondary containment.	Provide details of a testing and inspection programme or reference to a separate document, e.g. pressure tests, leak tests, material thickness checks etc.	Detail the nature of the tertiary Containment	Provide details of a testing and inspection programme or reference to a separate document, e.g. pressure tests, leak tests, material thickness checks etc.	Do the pollution prevention measures and testing and inspection programme comply with the indicative requirements set out in Box 5? If yes then justify how.				
															Time Likelihood of Pollution ?	Reasonable Possibility of Pollution ?
External Sodium Hypochlorite Store - Section 4.2.3	Sodium hypochlorite is used as a biocide in the mains water cooling system. Sodium hypochlorite is stored in a single skinned above ground storage tank (17m3) sited within a concrete bund. On three sides of the bund are breezeblock walls which extend to a height above the tank and act to support a steel roof over the tank and bund.	1. Off-loading from delivery lorry to storage area.	Leakage from the tanker or associated pipeline during filling or leakage from the storage tank fill point.	No evidence/records of spills or leaks.	Yes	All deliveries are supervised by authorised staff and EMS contains written procedures for deliveries (DEA\POH\ROU\PA 06). Deliveries undertaken in hardsurfaced area with a floor gully to minimise risk of liquid releases from delivery area. Tanker maintenance is the responsibility of the supplier. The tank is fitted with high level alarm. The tank fill point is located inside of the bund.	Tanker complies with British Standards. Weekly visual inspections of the tank are made.	Concrete bund of approximately 28m3 capacity enclosing the tank. Fill point located inside of bund.	Weekly visual inspection of bund takes place.	Tank located externally on concrete surfaced area.	Weekly visual inspection of areas of hardstanding takes place. Concrete observed to be in good condition.	No - currently no integrity testing of tank takes place but is proposed.	Yes - Proposed measures incorporate integrity testing of tank, bund and pipework, which will be incorporated into the EMS.	Yes. Tanker unloading procedure documented in EMS procedure (DEA\POH\ROU\PA 06). EMS also includes details of the preventative maintenance programme and spill procedure (ENVL007).	✓	-
		2. Storage.	Failure of containment leading to spillage to land	No evidence/records of spills or leaks.	Yes	Sodium hypochlorite is stored within a single skinned rubber lined steel tank within a concrete bund. Tank volume 17m3.	Weekly visual inspections of the tank are made for evidence of leaks or areas which require maintenance.	Concrete bund of approximately 28m3 capacity enclosing the tank. Fill point located inside of bund. The hardsurfaced delivery area with floor gully to minimise risk of liquid releases from the delivery area.	Weekly visual inspection of bund takes place.	Tank located externally on concrete surfaced area.	Weekly visual inspection of areas of hardstanding takes place. Concrete observed to be in good condition.	No - no integrity testing of tank takes place but is proposed.	Yes - Proposed measures incorporate integrity testing of tank, bund and pipework, which will be incorporated into the EMS.	EMS includes details of the preventative maintenance programme and spill procedure (ENVL007).	✓	-
		3. Transport of chemicals to process area.	Damage and leakage of above ground pipework.	No evidence/records of spills or leaks.	Yes.	Sodium hypochlorite is pumped by use of a dosing pump, sited in the bund, via above ground pipework to the process.	Weekly visual inspections of pipework are made for evidence of leaks.	Above ground pipework feeds directly into the building. Secondary containment is provided by building structure for internal pipework.	Internal concrete in good condition. No internal surface water drains.	None.	None.	No - no integrity testing of pipework is undertaken but is proposed.	Yes - Proposed measures incorporate integrity testing of pipework.	EMS includes details of the preventative maintenance programme and spill procedure (ENVL007).	✓	-

D2 - Assessment of likelihood of pollution

Site Operation or Site Zone	Substance	Relevant Activity	Potential for Pollution from the relevant activity	1. Records of pollution	2. Existence of pollution prevention measures	Nature of Primary Containment	Testing and Inspection of Primary Containment	Nature of Secondary Containment	Testing and Inspection of secondary containment	Nature of Tertiary Containment	Testing and Inspection of Tertiary Containment	3. Adequacy of pollution prevention measures Yes/No	4. Are the proposed Integrity testing of pollution prevention measures Adequate Yes/No	5. Is there an adequate documented management system to demonstrate operator management and competence with the relevant activity?	The assessment on the likelihood of pollution and hence the need to collect reference samples will be made on the questions set in the GREEN columns on this table and supported by the information provided. To make the case that there is little likelihood of pollution the Applicant will need to provide the following answers: Green Column 1 - No past pollution incidents or spillages Green Column 2 - Yes pollution prevention measures exist for each relevant activity Green Column 3 - Yes pollution prevention measures are adequate Green Column 4 - Yes adequate integrity testing undertaken or proposed Green Column 5 – Yes there is an adequate management system IF THE ABOVE CRITERIA CANNOT BE SATISFIED THEN THERE IS THE REASONABLE POSSIBILITY OF POLLUTION AND THE OPERATOR WILL NEED TO COLLECT REFERENCE DATA IN THE SITE PROTECTION AND MONITORING PROGRAMME		
Name Unit Operation and refer to the relevant section of the Permit Site Report containing its description	Name substance, provide CAS RN if appropriate as well as manufacturers product name. Volume stored. For mixtures provide breakdown of polluting substances and percentage by volume.	Detail the relevant activity for each substance where the location, pollution risk or pollution prevention measures differ	Detail the failure mechanism and potential pollution arising from the loss of primary containment	Detail any incidents of pollution or spills from the relevant activity. This can be based on visual assessment during site reconnaissance, installation or other records and data sources. Have measures been put in place to ensure no further pollution incidents?	Do pollution prevention measures exist for each element of the relevant activity ?	Detail the nature of the storage vessel, including volume, location and provide unique reference number and indicate which site plan it is shown on	Provide details of a testing and inspection programme or reference to a separate document, e.g. pressure tests, leak tests, material thickness checks etc.	Detail the nature of the secondary containment.	Provide details of a testing and inspection programme or reference to a separate document, e.g. pressure tests, leak tests, material thickness checks etc.	Detail the nature of the tertiary Containment	Provide details of a testing and inspection programme or reference to a separate document, e.g. pressure tests, leak tests, material thickness checks etc.	Do the pollution prevention measures and testing and inspection programme comply with the indicative requirements set out in Box 5? If yes then justify how.					
																Little Likelihood of Pollution ?	Reasonable Possibility of Pollution ?
Internal Tri-Sodium Phosphate, Hydrazine Hydrate and Ammonia Storage - Section 4.2.4	These chemicals are used as water treatment chemicals in the boiler. These are each stored in IBCs sited within a concrete bund within a purpose built building annexed to the steam turbine building.	1. Off-loading from delivery lorry to storage area.	Damage to containers during handling causing spillage of chemicals to land.	No evidence/records of spills or leaks.	Yes.	All chemicals are supplied and stored in original containers provided by the chemical supplier.	Original containers provided by chemicals supplier comply with British Standards. Weekly visual inspection of IBCs takes place.	Delivery lorry parks close to access doors. Unloading is undertaken on a concrete surfaced delivery area and is supervised by authorised personnel. Trained forklift truck personnel transport IBCs to storage area in accordance with EMS procedure DEA\PO1\RCU\LFN 03. Concrete and tarmac hardstanding provides secondary containment externally and building structure provides secondary containment internally. Hardstanding is in good condition . No internal surface water drains.	Weekly visual inspection of concrete hardstanding.	None.	None.	Yes - areas of hardstanding are considered to provide adequate containment in the event of a spill/leak.	Yes - proposed measures incorporate integrity testing of the bund, which will be incorporated into the EMS.	Yes. IBC unloading procedure documented in EMS (DEA\PO1\RCU\LFN 03). EMS also includes details of the preventative maintenance programme and spill procedure (ENV\L007).	✓	-	
		2. Storage	Failure of containment leading to spillage to land.	No evidence/records of spills or leaks.	Yes.	All chemicals are supplied and stored in original containers provided by chemical supplier.	Original containers provided by chemicals supplier comply with British Standards. Weekly visual inspection of IBCs takes place.	Building structure provides secondary containment, lower wall of building on all four sides is concrete. IBCs stored on concrete hardstanding. Concrete in good condition. No internal surface water drains.	Weekly visual inspection of concrete hardstanding takes place for evidence of leaks/spills, together with maintenance when necessary	None.	None.	Yes - building is considered to provide adequate containment in the event of a spill/leak.	Yes - proposed measures incorporate integrity testing of the bund, which will be incorporated into the EMS.	Yes. IBC unloading procedure documented in EMS (DEA\PO1\RCU\LFN 03). EMS also includes details of the preventative maintenance programme and spill procedure (ENV\L007).	✓	-	
		3. Transport of chemicals to process areas.	Damage to containers during handling causing spillage of chemicals to land.	No evidence/records of spills or leaks.	Yes.	All chemicals are supplied and stored in original containers provided by chemical supplier.	Original containers provided by chemicals supplier comply with British Standards and are visually inspected on a weekly basis.	All transport of chemicals is undertaken on the hardsurfaced areas. Hardstanding is in good condition.	Weekly visual inspection of concrete bund/hardstanding is undertaken.	None.	None.	Yes - building is considered to provide adequate containment in the event of a spill/leak.	Yes	EMS also includes details of the preventative maintenance programme and spill procedure (ENV\L007).	✓	-	
Internal Fire Resistant Fluid Storage - Section 4.2.5	Fire Resistant fluid is used for operating valves on the steam turbine's hydraulics. Fire Resistant Fluid is stored in a single skinned 1,250 litre above ground storage tank sited within a concrete bunded area on the mezzanine floor inside the HRSG building.	1. Off-loading from storage area to tank.	Spillage/leakage from drums during filling of tank. Damage to containers during handling causing spillage of chemicals to land.	No evidence/records of spills or leaks.	Yes	Topping up of tank is undertaken by trained personnel of a sub-contracted company, who manages Deeside Powers main oil requirements. Topping up is undertaken on hardsurfaced areas. All chemicals are supplied and stored in original containers provided by chemical supplier.	Weekly visual inspections of the tank are made.	Concrete bund (capacity 15.5m3) . Fill point located inside of bund.	Weekly visual inspection of bund takes place.	Tank located internally. Building has concrete surfaced floor.	Weekly visual inspection of areas of hardstanding takes place. Concrete observed to be in good condition.	No - currently no integrity testing of tank and pipework takes place but is proposed.	Yes - Proposed measures incorporate integrity testing of tank and pipework, which will be incorporated into the EMS.	EMS includes details of the preventative maintenance programme and spill procedure (ENV\L007).	✓	-	

D2 - Assessment of likelihood of pollution

Site Operation or Site Zone	Substance	Relevant Activity	Potential for Pollution from the relevant activity	1. Records of pollution	2. Existence of pollution prevention measures	Nature of Primary Containment	Testing and Inspection of Primary Containment	Nature of Secondary Containment	Testing and Inspection of secondary containment	Nature of Tertiary Containment	Testing and Inspection of Tertiary Containment	3. Adequacy of pollution prevention measures Yes/No	4. Are the proposed Integrity testing of pollution prevention measures Adequate Yes/No	5. Is there an adequate documented management system to demonstrate operator management and competence with the relevant activity?	The assessment on the likelihood of pollution and hence the need to collect reference samples will be made on the questions set in the GREEN columns on this table and supported by the information provided. To make the case that there is little likelihood of pollution the Applicant will need to provide the following answers: Green Column 1 - No past pollution incidents or spillages Green Column 2 - Yes pollution prevention measures exist for each relevant activity Green Column 3 - Yes pollution prevention measures are adequate Green Column 4 - Yes adequate integrity testing undertaken or proposed Green Column 5 – Yes there is an adequate management system IF THE ABOVE CRITERIA CANNOT BE SATISFIED THEN THERE IS THE REASONABLE POSSIBILITY OF POLLUTION AND THE OPERATOR WILL NEED TO COLLECT REFERENCE DATA IN THE SITE PROTECTION AND MONITORING PROGRAMME	
Name Unit Operation and refer to the relevant section of the Permit Site Report containing its description	Name substance, provide CAS RN if appropriate as well as manufacturers product name. Volume stored. For mixtures provide breakdown of polluting substances and percentage by volume.	Detail the relevant activity for each substance where the location, pollution risk or pollution prevention measures differ	Detail the failure mechanism and potential pollution arising from the loss of primary containment	Detail any incidents of pollution or spills from the relevant activity. This can be based on visual assessment during site reconnaissance, installation or other records and data sources. Have measures been put in place to ensure no further pollution incidents?	Do pollution prevention measures exist for each element of the relevant activity ?	Detail the nature of the storage vessel, including volume, location and provide unique reference number and indicate which site plan it is shown on	Provide details of a testing and inspection programme or reference to a separate document, e.g. pressure tests, leak tests, material thickness checks etc.	Detail the nature of the secondary containment.	Provide details of a testing and inspection programme or reference to a separate document, e.g. pressure tests, leak tests, material thickness checks etc.	Detail the nature of the tertiary Containment	Provide details of a testing and inspection programme or reference to a separate document, e.g. pressure tests, leak tests, material thickness checks etc.	Do the pollution prevention measures and testing and inspection programme comply with the indicative requirements set out in Box 5? If yes then justify how.				
															Little Likelihood of pollution ?	Reasonable Possibility of Pollution ?
		2. Storage.	Failure of containment leading to spillage to land	No evidence/records of spills or leaks.	Yes	Fire resistant fluid is stored within a single skinned steel tank within a concrete bunded area sited internally on a mezzanine floor. Tank volume 1.25m3.	Weekly visual inspections of the tank are made for evidence of leaks or areas which require maintenance.	Concrete bund (capacity 15.5m3) . Fill point located inside of bund . Drain in one end of bund permanently connected to a drainage pipe with a valve. Any bund contents are drained via the bund drain to a 205l drum sited on the ground floor of the building. The pipe valve remains in a closed position to prevent unmanned drainage from the bund.	Weekly visual inspection of bund and drainage pipe/valve takes place.	Tank and collection drum located internally. Building has concrete surfaced floor.	Weekly visual inspection of areas of hardstanding takes place. Concrete observed to be in good condition.	No - no integrity testing of tank takes place but is proposed.	Yes - Proposed measures incorporate integrity testing of tank and pipework, which will be incorporated into the EMS.	EMS includes details of the preventative maintenance programme and spill procedure (ENV/L007).	✓	-
		3. Transport of chemicals to process area.	Spillage from drums during transportation .	No evidence/records of spills or leaks.	Yes.	Fire resistant fluid is topped-up when required by 205l drums transferred by trained FLT drivers to the process area. This is undertaken by authorised third party contractor.	Original containers provided by chemicals supplier comply with British Standards. Weekly visual inspection of drums takes place.	Above ground pipework feeds directly into the building. Secondary containment is provided by building structure and externally by hardstanding.	Weekly visual inspection of hardstanding takes place. Hardstanding in good condition.	None.	None.	Yes - building infrastructure is considered to provide adequate containment.	Yes.	EMS includes details of the preventative maintenance programme and spill procedure (ENV/L007).	✓	-
Internal Lubrication Oil Storage - Section 4.2.6	Lubrication oil is used for plant and machinery lubrication and for insulation in the electricity transformers. Lubrication oil is stored in a single skinned above ground storage tank (10,500 litre) sited within a concrete bunded area on the mezzanine floor inside the steam turbine building. Two single skinned above ground storage tanks (each 20 tonne) are sited within the gas turbine hall inside the HRSG building. Individual 205l drums of lubrication oil are stored on racking within the Lube Oil Storage building.	1. Off-loading from delivery lorry to storage area.	Spillage/leakage from drums during delivery. Damage to containers during handling causing spillage of chemicals to land. Leakage from tanker or associated pipeline during filling of the two 20T tanks or leakage from the fill points of the torage tanks.	No evidence/records of spills or leaks.	Yes	Deliveries are supervised by trained personnel of a sub-contracted company, who manages Deeside Powers main oil requirements. Deliveries undertaken on hardsurfaced areas. Drums - all chemicals are supplied and stored in original containers provided by chemical supplier. Tanker maintenance is the responsibility of the supplier. The tank located in the steam turbine building is bunded, the 20T tanks in the HRSG building are not bunded.	Original containers provided by chemicals supplier comply with British Standards. Weekly visual inspection of drums takes place. Tanker complies with British Standards. Regular visual inspections of the tanks are made.	Building infrastructure will provide secondary containment.	Weekly visual inspection of concrete surfacing takes place.	None.	Weekly visual inspection of areas of hardstanding takes place. Concrete observed to be in good condition.	No - currently no integrity testing of tanks and bunds takes place but is proposed.	Yes - Proposed measures incorporate integrity testing of tank, bund and pipework, which will be incorporated into the EMS.	Yes. Tanker unloading procedure documented in EMS procedure EMP01 . EMS also includes details of the preventative maintenance programme and spill procedure (ENV/L007).	✓	-

D2 - Assessment of likelihood of pollution

Site Operation or Site Zone	Substance	Relevant Activity	Potential for Pollution from the relevant activity	1. Records of pollution	2. Existence of pollution prevention measures	Nature of Primary Containment	Testing and Inspection of Primary Containment	Nature of Secondary Containment	Testing and Inspection of secondary containment	Nature of Tertiary Containment	Testing and Inspection of Tertiary Containment	3. Adequacy of pollution prevention measures Yes/No	4. Are the proposed Integrity testing of pollution prevention measures Adequate Yes/No	5. Is there an adequate documented management system to demonstrate operator management and competence with the relevant activity?	The assessment on the likelihood of pollution and hence the need to collect reference samples will be made on the questions set in the GREEN columns on this table and supported by the information provided. To make the case that there is little likelihood of pollution the Applicant will need to provide the following answers: Green Column 1 - No past pollution incidents or spillages Green Column 2 - Yes pollution prevention measures exist for each relevant activity Green Column 3 - Yes pollution prevention measures are adequate Green Column 4 - Yes adequate integrity testing undertaken or proposed Green Column 5 – Yes there is an adequate management system IF THE ABOVE CRITERIA CANNOT BE SATISFIED THEN THERE IS THE REASONABLE POSSIBILITY OF POLLUTION AND THE OPERATOR WILL NEED TO COLLECT REFERENCE DATA IN THE SITE PROTECTION AND MONITORING PROGRAMME		
Name Unit Operation and refer to the relevant section of the Permit Site Report containing its description	Name substance, provide CAS RN if appropriate as well as manufacturers product name. Volume stored. For mixtures provide breakdown of polluting substances and percentage by volume.	Detail the relevant activity for each substance where the location, pollution risk or pollution prevention measures differ	Detail the failure mechanism and potential pollution arising from the loss of primary containment	Detail any incidents of pollution or spills from the relevant activity. This can be based on visual assessment during site reconnaissance, installation or other records and data sources. Have measures been put in place to ensure no further pollution incidents?	Do pollution prevention measures exist for each element of the relevant activity ?	Detail the nature of the storage vessel, including volume, location and provide unique reference number and indicate which site plan it is shown on	Provide details of a testing and inspection programme or reference to a separate document, e.g. pressure tests, leak tests, material thickness checks etc.	Detail the nature of the secondary containment.	Provide details of a testing and inspection programme or reference to a separate document, e.g. pressure tests, leak tests, material thickness checks etc.	Detail the nature of the tertiary Containment	Provide details of a testing and inspection programme or reference to a separate document, e.g. pressure tests, leak tests, material thickness checks etc.	Do the pollution prevention measures and testing and inspection programme comply with the indicative requirements set out in Box 5? If yes then justify how.					
																Little Likelihood of Pollution ?	Reasonable Possibility of Pollution ?
		2. Storage.	Failure of containment leading to spillage to land	No evidence/records of spills or leaks.	Yes	Lubrication oil is stored within 3 single skinned steel tanks, one within a concrete bunded area sited internally on a mezzanine floor (10,500 litre capacity), the other two sited internally on a concrete surfaced area (each having a 20 tonne capacity). Drums - all chemicals are supplied and stored in original containers provided by chemical supplier. The drums are sited internally on racking.	Weekly visual inspections of tanks and drum storage area are made for evidence of leaks or areas which require maintenance.	Tanks - concrete bunds approximately 15.5m3 capacity. Fill point are located inside of bund. 2x20T tanks - building infrastructure will provide secondary containment. Drums - building infrastructure will provide secondary containment.	Weekly visual inspection of bunds and hardsurfaced areas takes place. Hardsurfaced areas in good condition.	Tanks are located internally on concrete surfaced areas. Drums - none.	Weekly visual inspection of areas of hardstanding takes place. Concrete observed to be in good condition.	Yes - building is considered to provide adequate containment in the event of a spill/leak.	Yes. Proposed measures incorporate integrity testing of tanks and pipework.	EMS includes details of the preventative maintenance programme and spill procedure (ENVL007).	✓	-	
		3. Transport of chemicals to process area.	Damage and leakage of above ground pipework and drums.	No evidence/records of spills or leaks.	Yes.	Tanks - lubrication oil is pumped via above ground pipework to the process. Drums - drums are transported by trained forklift truck drivers from the internal storage area to process areas.	Tanks - weekly visual inspections of pipework are made for evidence of leaks or areas which require maintenance. Drums - containers comply with British Standards and are visually inspected on a weekly basis. All storage areas are visually inspected on a weekly basis for evidence of leaks or spills.	Tanks - above ground pipework is sited with the building. Secondary containment is provided by building structure for internal pipework. Drums - building structure and external hardsurfaced areas provide secondary containment.	Weekly visual inspection of bunds and hardsurfaced areas takes place. Hardsurfaced areas in good condition.	Tanks located internally on concrete surfaced areas. Drums - none.	Weekly visual inspection of areas of hardstanding takes place. Concrete observed to be in good condition.	No - no integrity testing is undertaken but is proposed.	Yes - Proposed measures incorporate integrity testing of tanks and pipework.	EMS includes details of the preventative maintenance programme and spill procedure (ENVL007).	✓	-	
Internal Diesel Storage Area - Section 4.2.7	Diesel is stored within a double-skinned steel above ground tank located within the back-up generator unit, located near to the waste storage compound. The generator tank is sited within a metal unit which is bolted to a concrete pad. The pad is surrounded by gravel surfaced ground.	1. Storage.	Failure of containment leading to spillage to land	No evidence of leaks or spills on concrete surfaced floor inside back-up generator unit.	Yes	Diesel stored within a double-skinned steel tank sited on concrete plinth. Tank volume 1.3m3.	Weekly visual inspections of tank are made for evidence of leaks .	Double-skinned tank. Fill point on top of tank not bunded. Bunding of tank is planned, as detailed in Improvement Programme.	Weekly visual inspection of tank takes place once a week.	Concrete plinth will provide some secondary containment.	Weekly visual inspection of hardsurfaced areas is undertaken.	No - no integrity testing of tank takes place but is proposed.	Yes - Proposed measures incorporate integrity testing of tanks, bund and pipework, which will be incorporated into the EMS.	EMS includes details of the preventative maintenance programme and spill procedure (ENVL007).	✓	-	

D2 - Assessment of likelihood of pollution

Site Operation or Site Zone	Substance	Relevant Activity	Potential for Pollution from the relevant activity	1. Records of pollution	2. Existence of pollution prevention measures	Nature of Primary Containment	Testing and Inspection of Primary Containment	Nature of Secondary Containment	Testing and Inspection of secondary containment	Nature of Tertiary Containment	Testing and Inspection of Tertiary Containment	3. Adequacy of pollution prevention measures Yes/No	4. Are the proposed Integrity testing of pollution prevention measures Adequate Yes/No	5. Is there an adequate documented management system to demonstrate operator management and competence with the relevant activity?	The assessment on the likelihood of pollution and hence the need to collect reference samples will be made on the questions set in the GREEN columns on this table and supported by the information provided. To make the case that there is little likelihood of pollution the Applicant will need to provide the following answers: Green Column 1 - No past pollution incidents or spillages Green Column 2 - Yes pollution prevention measures exist for each relevant activity Green Column 3 - Yes pollution prevention measures are adequate Green Column 4 - Yes adequate integrity testing undertaken or proposed Green Column 5 – Yes there is an adequate management system IF THE ABOVE CRITERIA CANNOT BE SATISFIED THEN THERE IS THE REASONABLE POSSIBILITY OF POLLUTION AND THE OPERATOR WILL NEED TO COLLECT REFERENCE DATA IN THE SITE PROTECTION AND MONITORING PROGRAMME	
Name Unit Operation and refer to the relevant section of the Permit Site Report containing its description	Name substance, provide CAS RN if appropriate as well as manufacturers product name. Volume stored. For mixtures provide breakdown of polluting substances and percentage by volume.	Detail the relevant activity for each substance where the location, pollution risk or pollution prevention measures differ	Detail the failure mechanism and potential pollution arising from the loss of primary containment	Detail any incidents of pollution or spills from the relevant activity. This can be based on visual assessment during site reconnaissance, installation or other records and data sources. Have measures been put in place to ensure no further pollution incidents?	Do pollution prevention measures exist for each element of the relevant activity ?	Detail the nature of the storage vessel, including volume, location and provide unique reference number and indicate which site plan it is shown on	Provide details of a testing and inspection programme or reference to a separate document, e.g. pressure tests, leak tests, material thickness checks etc.	Detail the nature of the secondary containment.	Provide details of a testing and inspection programme or reference to a separate document, e.g. pressure tests, leak tests, material thickness checks etc.	Detail the nature of the tertiary Containment	Provide details of a testing and inspection programme or reference to a separate document, e.g. pressure tests, leak tests, material thickness checks etc.	Do the pollution prevention measures and testing and inspection programme comply with the indicative requirements set out in Box 5? If yes then justify how.				
															Little Likelihood of pollution ?	Reasonable Possibility of Pollution ?
		2. Dispensing of fuel to tank.	Failure of containment of bowser, dispensing hose and nozzle leading to spillage to land.	No evidence of leaks or spills on concrete surfaced floor inside back-up generator unit.	Yes.	Double-skinned bowser, flexible pipework and nozzle.	Visual inspection of double-skinned delivery bowser, delivery hose and associated equipment during filling operation.	Double-skinned bowser.	Weekly visual inspection of bowser.	Some containment provided by concrete hardstanding within generator unit and external hardstanding area on which the bowser is sited. Concrete is in good condition. All surface water drainage is directed through an interceptor prior to discharge.	Weekly visual inspection of concrete hardstanding and maintenance of interceptors .	Yes	Yes	EMS includes details of the preventative maintenance programme and spill procedure (ENV/L007).	✓	-
Internal Detergent Storage Area - Section 4.2.8	Located within the HRSG building. Detergent is stored in an IBC, which is located on a plastic bunded stillage. Used for gas turbine blade washing.	1. Off-loading from delivery lorry to storage area.	Damage to container (IBC) during handling causing spillage of chemicals to land.	No evidence/records of spills or leaks.	Yes.	All chemicals are supplied and stored in original containers provided by chemical supplier.	Original containers provided by chemicals supplier comply with British Standards. Weekly visual inspection of IBC takes place.	Unloading is undertaken on concrete surfaced area and is supervised by authorised personnel. Trained forklift truck personnel transport the IBC to the storage area. Concrete hardstanding provides secondary containment externally and plastic bund provides secondary containment internally. Concrete hardstanding is in good condition .	Weekly visual inspection of bunded stillage takes place.	IBC located internally on concrete surfaced area.	Weekly visual inspections of concrete hardstanding.	Yes - bunded stillage and building infrastructure are considered adequate to provide containment.	Yes - proposed measures incorporate integrity testing of bunded stillage which will be incorporated into the EMS.	EMS also includes details of the preventative maintenance programme and spill procedure (ENV/L007).	✓	-
		2. Storage.	Failure of containment leading to spillage to land.	No evidence/records of spills or leaks.	Yes.	All chemicals are supplied and stored in original containers provided by chemical supplier.	Original containers provided by chemicals supplier comply with British Standards. Weekly visual inspection of IBC takes place.	Plastic bund provides secondary containment,	Weekly visual inspection of bund takes place.	IBC located internally on concrete surfaced area.	Weekly visual inspections of concrete hardstanding.	Yes - bunded stillage and building infrastructure are considered adequate to provide containment.	Yes - proposed measures incorporate integrity testing of bunded stillage which will be incorporated into the EMS.	EMS also includes details of the preventative maintenance programme and spill procedure (ENV/L007).	✓	-
		3. Transport of chemicals to process area.	Damage to containers during handling causing spillage of chemicals to land.	No evidence/records of spills or leaks.	Yes.	Chemicals are supplied and stored in original containers provided by chemical supplier.	Original containers provided by chemicals supplier comply with British Standards and are visually inspected on a weekly basis.	All transport is undertaken on the concrete surfaced areas. Concrete hardstanding is in good condition.	Weekly visual inspection of IBC takes place.	IBC located internally on concrete surfaced area.	Weekly visual inspections of concrete hardstanding.	Yes - adequate containment is provided by building infrastructure.	Yes	EMS also includes details of the preventative maintenance programme and spill procedure (ENV/L007).	✓	-

D2 - Assessment of likelihood of pollution

Site Operation or Site Zone	Substance	Relevant Activity	Potential for Pollution from the relevant activity	1. Records of pollution	2. Existence of pollution prevention measures	Nature of Primary Containment	Testing and Inspection of Primary Containment	Nature of Secondary Containment	Testing and Inspection of secondary containment	Nature of Tertiary Containment	Testing and Inspection of Tertiary Containment	3. Adequacy of pollution prevention measures Yes/No	4. Are the proposed Integrity testing of pollution prevention measures Adequate Yes/No	5. Is there an adequate documented management system to demonstrate operator management and competence with the relevant activity?	The assessment on the likelihood of pollution and hence the need to collect reference samples will be made on the questions set in the GREEN columns on this table and supported by the information provided. To make the case that there is little likelihood of pollution the Applicant will need to provide the following answers: Green Column 1 - No past pollution incidents or spillages Green Column 2 - Yes pollution prevention measures exist for each relevant activity Green Column 3 - Yes pollution prevention measures are adequate Green Column 4 - Yes adequate integrity testing undertaken or proposed Green Column 5 – Yes there is an adequate management system IF THE ABOVE CRITERIA CANNOT BE SATISFIED THEN THERE IS THE REASONABLE POSSIBILITY OF POLLUTION AND THE OPERATOR WILL NEED TO COLLECT REFERENCE DATA IN THE SITE PROTECTION AND MONITORING PROGRAMME	
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External Chemical Storage Area - Section 4.2.9	The chemical compound is located externally adjacent to the waste storage compound. The compound is a caged roofed area and is used for the storage of chemicals in small-sized individual containers and in IBCs.	1. Off-loading from delivery lorry to storage area.	Damage to containers during handling causing spillage of chemicals to land.	No evidence/records of spills or leaks.	Yes.	All chemicals are supplied and stored in suitable containers.	Weekly visual inspection of IBCs and containers takes place.	Unloading is undertaken on concrete surfaced area and is supervised by authorised personnel. Trained forklift truck personnel transport containers to storage area. Concrete hardstanding provides secondary containment externally, and in the case of solid chemicals internally. Plastic bunded stillages provide secondary containment for liquid chemicals in the compound. Concrete hardstanding is in good condition . No internal surface water drains in storage area.	Weekly visual inspection of storage area and bunded stillages takes place.	Containers and bunded stillage are located on concrete surfaced area.	Weekly visual inspections of concrete hardstanding.	Yes - adequate containment is provided.	Yes	EMS includes details of the preventative maintenance programme and spill procedure (ENV/L007).	✓	-
		2. Storage.	Failure of containment leading to spillage to land.	No evidence/records of spills or leaks.	Yes.	All chemicals are supplied and stored in suitable containers.	Weekly visual inspection of IBC and containers takes place.	Plastic bunded stillages provide secondary containment for liquid chemicals,	Weekly visual inspection of bunded stillages takes place.	Containers and bunded stillages located on concrete surfaced area.	Weekly visual inspections of concrete hardstanding.	Yes - adequate containment is provided.	Yes.	EMS includes details of the preventative maintenance programme and spill procedure (ENV/L007).	✓	-
		3. Transport of chemicals to process area.	Damage to containers during handling causing spillage of chemicals to land.	No evidence/records of spills or leaks.	Yes.	All chemicals are supplied and stored in suitable containers.	Weekly visual inspection of containers takes place.	All transport is undertaken on the hardsurfaced areas. Hardstanding is in good condition.	Weekly visual inspection of hardstanding is undertaken.	None.	None.	Yes - adequate containment is provided.	Yes	EMS includes details of the preventative maintenance programme and spill procedure (ENV/L007).	✓	-
External Waste Storage Area - Section 4.2.10	Located adjacent to chemical storage compound. The compound is a caged roofed area and is used for the storage of waste oils in a self-bunded above ground storage tank, 205l drums of oily rags, old laboratory chemicals, used batteries, and waste electrical equipment. Also sited here is waste paper and cardboard , which are stored in 3 wheelee bins.	1. Delivery of wastes to external waste storage area.	Failure of containment leading to spillage to land.	No evidence/records of spills or leaks.	Yes.	Containers transported by trained forklift truck personnel from process areas to the waste storage area. Small individual containers are carried by personnel to the waste storage area.	Weekly visually inspection of containers.	Hardstanding provides secondary containment for solid waste materials. Bunded stillages provide secondary containment for liquid waste chemicals. The waste oil tank is self-bunded. There is no surface water drainage in the waste storage compound.	Areas of hardstanding are in good condition and are visually inspected on a weekly basis. The bunded stillages for liquid wastes and the waste oil tank are visually inspected on a weekly basis.	Concrete hardstanding for liquid wastes and the waste oil tank. None for solid wastes.	Weekly visual inspections of concrete hardstanding.	Yes - adequate containment is provided.	Yes	EMS includes details of the preventative maintenance programme and spill procedure (ENV/L007).	✓	-
		2. Storage	Failure of containment leading to spillage to land.	No evidence/records of spills or leaks.	Yes	Waste oil stored in self-bunded above ground tank (2,000 litre). Oily rags, old laboratory chemicals and used batteries are stored in individual 205l drums.	Containers are visually inspected on a weekly basis for evidence of leaks or spills.	Concrete hardstanding of compound provides secondary containment for solid wastes. Bunded stillages provides secondary containment for liquid wastes. Waste oil tank is self-bunded. There is no surface water drainage in the waste storage compound.	Weekly visual inspection of hardstanding, tank and bunded stillages is undertaken.	Concrete hardstanding for liquid wastes and the tank. None for solid wastes.	Weekly visual inspections of concrete hardstanding.	Yes - adequate containment is provided.	Yes	Procedures documented in EMS under ENV/LP005 - Removal of Waste from Site and spill procedure (ENV/L007).	✓	-

D2 - Assessment of likelihood of pollution

Site Operation or Site Zone	Substance	Relevant Activity	Potential for Pollution from the relevant activity	1. Records of pollution	2. Existence of pollution prevention measures	Nature of Primary Containment	Testing and Inspection of Primary Containment	Nature of Secondary Containment	Testing and Inspection of secondary containment	Nature of Tertiary Containment	Testing and Inspection of Tertiary Containment	3. Adequacy of pollution prevention measures Yes/No	4. Are the proposed Integrity testing of pollution prevention measures Adequate Yes/No	5. Is there an adequate documented management system to demonstrate operator management and competence with the relevant activity?	The assessment on the likelihood of pollution and hence the need to collect reference samples will be made on the questions set in the GREEN columns on this table and supported by the information provided. To make the case that there is little likelihood of pollution the Applicant will need to provide the following answers: Green Column 1 - No past pollution incidents or spillages Green Column 2 - Yes pollution prevention measures exist for each relevant activity Green Column 3 - Yes pollution prevention measures are adequate Green Column 4 - Yes adequate integrity testing undertaken or proposed Green Column 5 – Yes there is an adequate management system IF THE ABOVE CRITERIA CANNOT BE SATISFIED THEN THERE IS THE REASONABLE POSSIBILITY OF POLLUTION AND THE OPERATOR WILL NEED TO COLLECT REFERENCE DATA IN THE SITE PROTECTION AND MONITORING PROGRAMME	
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															Little Likelihood of pollution ?	Reasonable Possibility of Pollution ?
		3. Removal of wastes.	Failure of containment leading to spillage to land.	No evidence/records of spills or leaks.	Yes	Waste oil stored in self-bunded above ground tank. Oily rags, old laboratory chemicals and used batteries are stored in individual 205l drums.	Weekly visual inspection of the tank and containers for evidence of leaks or spills.	Containers removed by a specialist waste disposal contractor. Trained forklift truck drivers load containers into lorry on a hardsurfaced area, supervised by authorised personnel. Waste oil is pumped from the tank by a specialist waste contractor. This is supervised by authorised personnel.	Weekly visual inspection of hardstanding is undertaken.	None.	None.	Yes	Yes.	Procedures documented in EMS under ENVL P005 - Removal of Waste from Site.	✓	-
Internal Waste Storage - Section 4.2.11	Waste turbine blade wash is stored internally in a 6m3 above ground tank in the HRSG building. A waste oil above ground tank (1.2m3) is sited in the Lube Oil storage building.	1. Delivery of liquid wastes to internal waste storage tanks.	Turbine blade wash - failure of above ground delivery pipework. Waste oil - spillage/leakage from drums leading to spillage to land.	No evidence/records of spills or leaks.	Yes	Turbine blade wash is stored in a 6m3 above ground storage tanks. Waste oils are stored in an above ground storage tank.	Tanks are inspected visually on a weekly basis.	Turbine blade wash tank - building infrastructure and concrete hardsurfacing provides secondary containment. Concrete noted to be in good condition. Process water drains are present in this area. Tank will be bunded, as detailed in the Improvement Programme. Waste oil - tank sited in a concrete bund (2.9m3 capacity) which was noted to be in good condition. No surface water drains in area.	Weekly visual inspection of bund and concrete hardstanding.	Waste oil - tank located internally on concrete surfacing. Turbine blade wash - none.	Waste oil - weekly visual inspection of concrete hardstanding. Turbine blade wash - none.	Yes	Yes - Proposed measures incorporate integrity testing of tanks, bund and pipework, which will be incorporated into the EMS.	EMS includes details of the preventative maintenance programme and spill procedure (ENVL007).	✓	-

D2 - Assessment of likelihood of pollution

Site Operation or Site Zone	Substance	Relevant Activity	Potential for Pollution from the relevant activity	1. Records of pollution	2. Existence of pollution prevention measures	Nature of Primary Containment	Testing and Inspection of Primary Containment	Nature of Secondary Containment	Testing and Inspection of secondary containment	Nature of Tertiary Containment	Testing and Inspection of Tertiary Containment	3. Adequacy of pollution prevention measures Yes/No	4. Are the proposed Integrity testing of pollution prevention measures Adequate Yes/No	5. Is there an adequate documented management system to demonstrate operator management and competence with the relevant activity?	The assessment on the likelihood of pollution and hence the need to collect reference samples will be made on the questions set in the GREEN columns on this table and supported by the information provided. To make the case that there is little likelihood of pollution the Applicant will need to provide the following answers: Green Column 1 - No past pollution incidents or spillages Green Column 2 - Yes pollution prevention measures exist for each relevant activity Green Column 3 - Yes pollution prevention measures are adequate Green Column 4 - Yes adequate integrity testing undertaken or proposed Green Column 5 – Yes there is an adequate management system IF THE ABOVE CRITERIA CANNOT BE SATISFIED THEN THERE IS THE REASONABLE POSSIBILITY OF POLLUTION AND THE OPERATOR WILL NEED TO COLLECT REFERENCE DATA IN THE SITE PROTECTION AND MONITORING PROGRAMME		
Name Unit Operation and refer to the relevant section of the Permit Site Report containing its description	Name substance, provide CAS RN if appropriate as well as manufacturers product name. Volume stored. For mixtures provide breakdown of polluting substances and percentage by volume.	Detail the relevant activity for each substance where the location, pollution risk or pollution prevention measures differ	Detail the failure mechanism and potential pollution arising from the loss of primary containment	Detail any incidents of pollution or spills from the relevant activity. This can be based on visual assessment during site reconnaissance, installation or other records and data sources. Have measures been put in place to ensure no further pollution incidents?	Do pollution prevention measures exist for each element of the relevant activity ?	Detail the nature of the storage vessel, including volume, location and provide unique reference number and indicate which site plan it is shown on	Provide details of a testing and inspection programme or reference to a separate document, e.g. pressure tests, leak tests, material thickness checks etc.	Detail the nature of the secondary containment.	Provide details of a testing and inspection programme or reference to a separate document, e.g. pressure tests, leak tests, material thickness checks etc.	Detail the nature of the tertiary Containment	Provide details of a testing and inspection programme or reference to a separate document, e.g. pressure tests, leak tests, material thickness checks etc.	Do the pollution prevention measures and testing and inspection programme comply with the indicative requirements set out in Box 5? If yes then justify how.					
																Little Likelihood of Pollution ?	Reasonable Possibility of Pollution ?
		2. Storage.	Failure of containment leading to spillage to land.	No evidence/records of spills or leaks.	Yes	Turbine blade wash and waste oil are stored in above ground storage tanks.	Tanks inspected visually on a weekly basis.	Turbine blade wash tank - concrete hardsurfacing provides secondary containment. Concrete noted to be in good condition. Process water drains are present in the area. As part of the Improvement Programme the tank will be bunded. Waste oil - tank sited in a concrete bund which was noted to be in good condition. No surface water drains in area.	Weekly visual inspection of bund and concrete hardstanding.	Waste oil - tank located internally on concrete surfacing. Turbine blade wash - none.	Waste oil - weekly visual inspection of concrete hardstanding. Turbine blade wash - none.	Yes	Yes - Proposed measures incorporate integrity testing of tanks, bund and pipework, which will be incorporated into the EMS.	EMS includes details of the preventative maintenance programme and spill procedure (ENVL007).	✓	-	
		3. Removal of waste.	Failure of containment leading to spillage to land.	No evidence/records of spills or leaks.	Yes.	Tanks emptied by tanker. Tanker loading undertaken on hardsurfaced areas. Primary containment provided by tanker and associated pipework.	Tankers comply with British Standards. All loading activities are supervised by authorised personnel in accordance with EMS procedures. Loading areas are visually inspected on a weekly basis. Tanker maintenance is the responsibility of the waste contractor.	Concrete hardstanding of loading areas provides secondary containment.	Concrete hardstanding in good condition in loading areas. Weekly visual inspection of hardstanding is undertaken.	None.	None	Yes	Yes	Procedures documented in EMS under ENVLP005 - Removal of Waste from Site.	✓	-	
Internal Ion Regeneration Effluent Tanks - Section 2.4.18	Two water effluent tanks for the ion regeneration process. Tanks are located internally in the Water Treatment building. Effluent is fairly innocuous, being in the main water with acid and caustic residues.	1. Delivery of effluent to internal waste storage tanks.	Damage and leakage of above ground delivery pipework.	No evidence/records of spills or leaks.	Yes	Effluent is piped via above ground pipework to internally sited single-skinned above ground tanks. The tanks are not bunded.	Weekly visual inspections of the tanks and associated pipework are made for evidence of leaks or areas which require maintenance.	Secondary containment is provided by building infrastructure.	Internal concrete in good condition. Weekly visual inspection of hardstanding is undertaken.	None	None	No - no integrity testing of tanks and pipework is undertaken but is proposed.	Yes - proposed measures incorporate integrity testing of tanks and pipework, which will be incorporated into the EMS.	EMS includes details of the preventative maintenance programme and spill procedure (ENVL007).	✓	-	
		2. Storage.	Failure of containment leading to spillage to land.	No evidence/records of spills or leaks.	Yes	Effluent stored in two 20m3 single-skinned tanks.	Weekly visual inspections of the tanks and associated pipework are made for evidence of leaks or areas which require maintenance.	Secondary containment is provided by building infrastructure.	Internal concrete in good condition. Weekly visual inspection of hardstanding is undertaken.	None	None	No - no integrity testing of tanks and pipework is undertaken but is proposed.	Yes - proposed measures incorporate integrity testing of tanks and pipework, which will be incorporated into the EMS.	EMS includes details of the preventative maintenance programme and spill procedure (ENVL007).	✓	-	
		3. Removal of waste.	Failure of containment leading to spillage to land.	No evidence/records of leaks.	Yes	Effluent is pumped via below ground steel pipework into the MCW system. Pipework was installed circa 1992/1993.	No	None	None	None	None	No - no integrity testing of pipework is undertaken but is proposed.	Yes - proposed measures incorporate integrity testing of pipework, which will be incorporated into the EMS.	EMS includes details of the preventative maintenance programme.	✓	-	

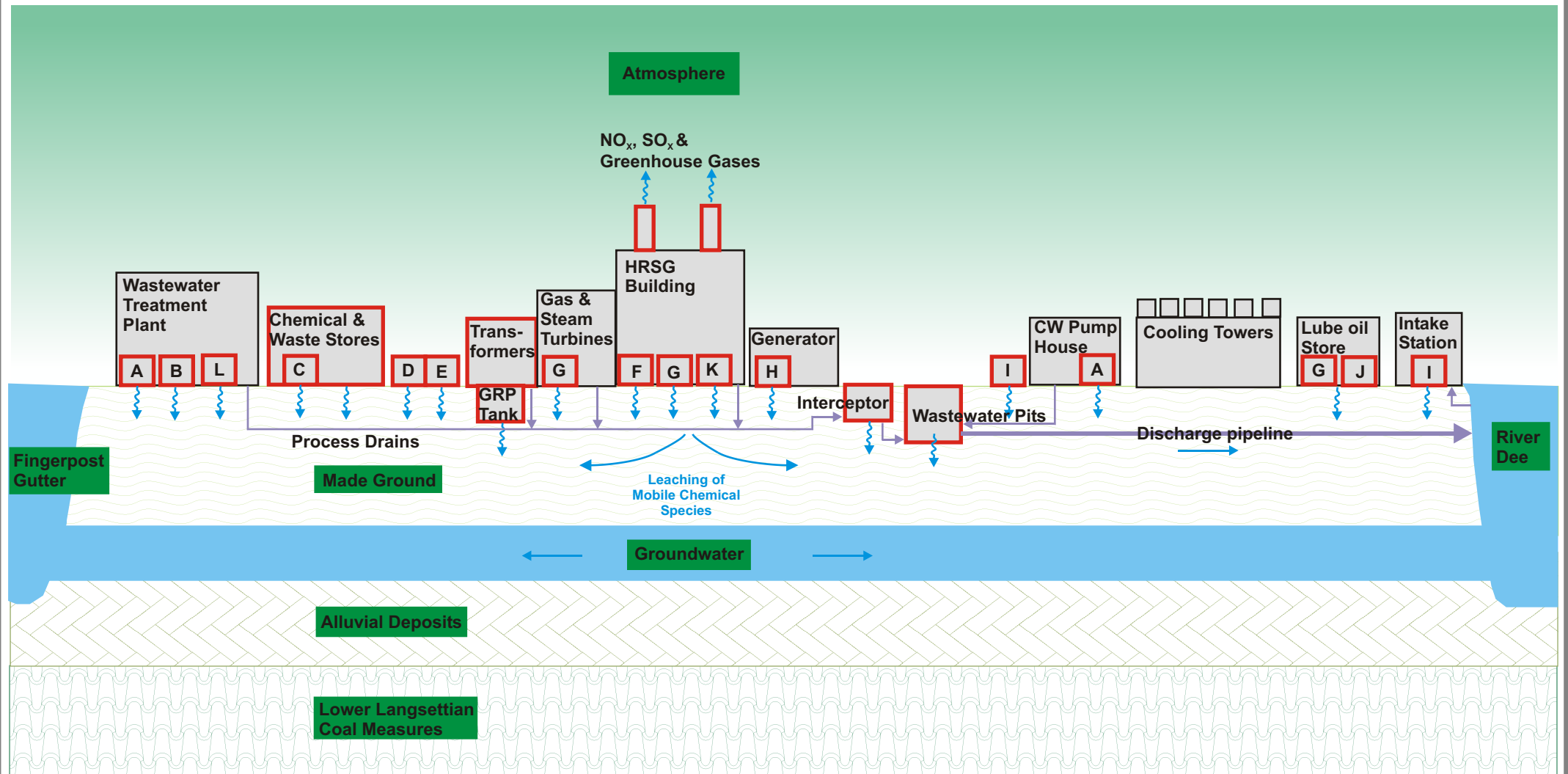
D2 - Assessment of likelihood of pollution

Site Operation or Site Zone	Substance	Relevant Activity	Potential for Pollution from the relevant activity	1. Records of pollution	2. Existence of pollution prevention measures	Nature of Primary Containment	Testing and Inspection of Primary Containment	Nature of Secondary Containment	Testing and Inspection of secondary containment	Nature of Tertiary Containment	Testing and Inspection of Tertiary Containment	3. Adequacy of pollution prevention measures Yes/No	4. Are the proposed Integrity testing of pollution prevention measures Adequate Yes/No	5. Is there an adequate documented management system to demonstrate operator management and competence with the relevant activity?	The assessment on the likelihood of pollution and hence the need to collect reference samples will be made on the questions set in the GREEN columns on this table and supported by the information provided. To make the case that there is little likelihood of pollution the Applicant will need to provide the following answers: Green Column 1 - No past pollution incidents or spillages Green Column 2 - Yes pollution prevention measures exist for each relevant activity Green Column 3 - Yes pollution prevention measures are adequate Green Column 4 - Yes adequate integrity testing undertaken or proposed Green Column 5 – Yes there is an adequate management system IF THE ABOVE CRITERIA CANNOT BE SATISFIED THEN THERE IS THE REASONABLE POSSIBILITY OF POLLUTION AND THE OPERATOR WILL NEED TO COLLECT REFERENCE DATA IN THE SITE PROTECTION AND MONITORING PROGRAMME	
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															Little Likelihood of Pollution ?	Reasonable Possibility of Pollution ?
Internal Solvent Storage - Section 2.4.17	Safetykleen solvent bath with 1 x 205l drum of solvent for the degreasing of small mechanical parts. Bath sited in workshop.	1. Off-loading from delivery lorry to storage area.	Damage to containers (drum) during handling causing spillage of chemicals to land.	No evidence/records of spills or leaks.	Yes.	All chemicals are supplied and stored in original containers provided by chemical supplier.	Original containers provided by chemicals supplier comply with British Standards. Weekly visual inspection of drum takes place.	Unloading is undertaken on concrete surfaced area and is supervised by authorised personnel. Supplier delivers drum to storage area. Concrete hardstanding provides secondary containment externally and internally. Concrete hardstanding is in good condition . No internal surface water drains.	Weekly visual inspection of concrete hardstanding takes place.	None	None	Yes	Yes	EMS includes details of the preventative maintenance programme and spill procedure (ENV/L007).	✓	-
		2. Storage.	Failure of containment leading to spillage to land.	No evidence/records of spills or leaks.	Yes.	All chemicals are supplied and stored in original containers provided by chemical supplier.	Original containers provided by chemicals supplier comply with British Standards. Weekly visual inspection of drum takes place.	Concrete hardstanding will provide secondary containment,	Weekly visual inspection of concrete hardstanding takes place.	None	None	Yes - building is considered to provide some containment in the event of a spill/leak.	Yes	EMS includes procedure in event of spillage (ENV/LP007)	✓	-
		3. Removal of waste.	Damage to containers during handling causing spillage of chemicals to land.	No evidence/records of spills or leaks.	Yes.	Waste solvent is stored in original container provided by chemical supplier.	Original containers provided by chemicals supplier comply with British Standards and are visually inspected on a weekly basis.	All transport is undertaken on the concrete surfaced areas. Concrete hardstanding is in good condition.	Weekly visual inspection of concrete hardstanding is undertaken.	None	None	Yes - externally hardsurfaced areas are considered to provide containment in the event of a spill/leak.	Yes	EMS includes procedure in event of spillage (ENV/LP007)	✓	-
Electricity Transformers - Section 4.2.16	Three oil-filled electricity transformers are located in the southern site area, housed externally within secure caged areas within a contained area. Transformers have not been topped up to date.	1. Storage.	Failure of containment leading to spillage to land.	No evidence/records of spills or leaks.	Yes.	Single skinned metal transformer units.	Daily visual inspection of the transformer units.	Transformers are sited in a concrete bund. Drain in one end of bund allows drainage of any bund contents to the site process drains via an interceptor. Prior to interceptor is an in-line density valve to ensure any significantly oily water is diverted to a below ground storage tank.	Daily visual inspection of transformers and weekly visual inspection of concrete bunding and in-line density valve.	None	None	No - no integrity testing of drainage pipework takes place but is proposed.	Yes - Proposed measures incorporate integrity testing of drainage pipework, which will be incorporated into the EMS.	EMS includes procedure in event of spillage (ENV/LP007)	✓	-
Below Ground Emergency Tank - Section 2.4.14	The below ground steel tank is for the emergency storage of oil should a breach of the oil-filled transformers occurs. To date there has not been such an emergency.	1. Operation	Failure of containment leading to spillage to land of oil.	Breach of the transformer units has not occurred hence tank has not been used to date.	Yes	Single-skinned steel tank.	Weekly visual internal inspection of tank.	None	None	None	None	No - integrity testing of tank is not undertaken but is proposed. Tank has not been used to date.	Yes - proposed measures incorporate integrity testing of tank and pipework, which will be incorporated into the EMS.	EMS includes procedure in event of spillage (ENV/LP007)	✓	-

D2 - Assessment of likelihood of pollution

Site Operation or Site Zone	Substance	Relevant Activity	Potential for Pollution from the relevant activity	1. Records of pollution	2. Existence of pollution prevention measures	Nature of Primary Containment	Testing and Inspection of Primary Containment	Nature of Secondary Containment	Testing and Inspection of secondary containment	Nature of Tertiary Containment	Testing and Inspection of Tertiary Containment	3. Adequacy of pollution prevention measures Yes/No	4. Are the proposed Integrity testing of pollution prevention measures Adequate Yes/No	5. Is there an adequate documented management system to demonstrate operator management and competence with the relevant activity?	The assessment on the likelihood of pollution and hence the need to collect reference samples will be made on the questions set in the GREEN columns on this table and supported by the information provided. To make the case that there is little likelihood of pollution the Applicant will need to provide the following answers: Green Column 1 - No past pollution incidents or spillages Green Column 2 - Yes pollution prevention measures exist for each relevant activity Green Column 3 - Yes pollution prevention measures are adequate Green Column 4 - Yes adequate integrity testing undertaken or proposed Green Column 5 - Yes there is an adequate management system IF THE ABOVE CRITERIA CANNOT BE SATISFIED THEN THERE IS THE REASONABLE POSSIBILITY OF POLLUTION AND THE OPERATOR WILL NEED TO COLLECT REFERENCE DATA IN THE SITE PROTECTION AND MONITORING PROGRAMME	
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Effluent Treatment Pits - Section 4.8	Three concrete pits located to the south of the cooling towers. Used to temporarily store process wastewater for chemical neutralisation, if needed, prior to discharge to the River Dee via the consented discharge point.	1. Storage.	Failure of containment leading to spillage to land.	No evidence/records of spills or leaks.	Yes	Concrete below ground pits (installed circa 1992/1993). Concrete is approximately 15 inches thick. Concrete walls visually inspected on a weekly basis where walls are exposed. Inspection of entire pits is undertaken when tanks are emptied for silt removal. Silt removal was last undertaken 4 years ago, no evidence of degradation of pit walls was identified.	Weekly visual inspection of pits, where pit walls are exposed. Inspection of entire pits is undertaken when tanks are emptied for silt removal. Silt removal was last undertaken 4 years ago, no evidence of degradation of pit walls was identified.	None	None	None	None	Yes - pits inspected on a weekly basis where pit walls are exposed and are fully inspected during required silt removal.	Yes - proposed measures incorporate formalised visual inspections of pits, which will be incorporated into the EMS.	Yes. EMS includes details of preventative maintenance programme.	✓	-
		2. Delivery of effluent to and from pits.	Damage/breach of below ground pipework	No evidence/records of spills or leaks.	Yes	Single-skinned below ground steel pipework installed circa 1992/1993.	None, but integrity testing of pipework is proposed.	None	None	None	None	No - no integrity testing of below ground pipework. Integrity testing proposed.	Yes - proposed measures incorporate integrity testing of pipework, which will be incorporated into the EMS.	Yes. EMS includes details of preventative maintenance programme.	✓	-

APPENDIX E: CONCEPTUAL MODEL



Key:

A - Sulphuric Acid AST
 B - Sodium Hydroxide AST
 C - Waste Oil UST & AST
 D - Tri-sodium Phosphate AST

E - Hydrazine Hydrate & Ammonia ASTs
 F - Fire Resistant Fluid AST
 G - Lubrication Oil ASTs
 H - Diesel AST

I - Sodium Hypochlorite AST
 J - Waste oil AST
 K - Waste Blade Wash AST
 L - Regeneration Effluent ASTs

— Process Drains
 ■ Potential Sources
 ■ Potential Pathways
 ■ Potential Receptors

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Figure E1
Conceptual Site Model
Deeside Power

Client	Deeside Power		
Scale	NTS	Date	February 2006
Project No	64-C9599	Drawn by	ES

Appendix B – Geo-Environmental Appraisal, Enzygo



Geo-Environmental Appraisal

Deeside Power Station Decommissioning

For:

Engie

CRM.343.001.GE.R.001.A

Contact Details:

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tel: 0114 321 5151
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www: enzygo.com

Geo-Environmental Appraisal

Project:	Deeside Power Station Decommissioning
For:	Engie
Ref:	CRM.343.001.GE.R.001.A
Status:	Final
Date:	October 2017
Author:	Dr James Griffiths- MSc (Hons) , PhD , FGS . Senior Geo-Environmental Engineer
Reviewer:	Dr Stephen Black- BSc (Hons) , MSc , PhD . Associate Director

Disclaimer:

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We disclaim any responsibility to the client and others in respect of any matters outside the scope of the above.

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Enzygo Limited Registered in England No. 6525159

Registered Office Stag House Chipping Wotton-Under-Edge Gloucestershire GL12 7AD

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1.0 INTRODUCTION

Commission

- 1.1 Enzygo Limited has been commissioned by Engie to prepare a Geo-Environmental Appraisal (Due Diligence) for their site 'Deeside Power Station', Weighbridge Road, Deeside, Flintshire, CH5 2UL.

Project

- 1.2 Engie are proposing to decommission their Power Station at Deeside. This will involve the dismantling and removal of saleable buildings and plant, removal of 'non-reusable' plant and structures and partial removal of substructures, followed by site restoration.
- 1.3 The decommissioning will involve addressing regulatory land use planning, environmental permitting and associated leasehold conditions between Flintshire County Council (FCC), Natural Resources Wales (NRW – formerly Environment Agency Wales) and Engie.

Scope

- 1.4 The Geo-Environmental Appraisal comprises:
1. Review of historic reports provided by Engie (cited below), with the key issue being the assessment of groundwater status.
 2. Obtain up-to-date Emap dataset, including: Enviro-insight, Geo-insight reports and historic OS mapping.
 3. Undertaking a topographic survey, to create a ground model and groundwater model for comparison with historic datasets.

Objectives

- 1.5 These are:
- Review historical plans, geology, hydrogeology and site sensitivity information to complete a Desk Study. An Emap/Groundsure report has been obtained, which is included in Appendix 1;
 - Assess the status of the site (with respect principally to contamination in groundwater) prior to, during and at 'decommissioning stage';

- To produce ground surface (level) models, prior to construction and at decommissioning stage, to estimate materials balance and volumetrics for site restoration.
- To make recommendations for remedial/restoration works (prior to compiling an RSMS (Remedial Strategy and Method Statement)).

Risk Classification

1.6 Enzygo has utilised the available information, together with our experience to assess the likely liabilities/risks land (and groundwater) quality issues. Definitions of the risk terms used are provided in the table on the following page.

Risk	Description
Dismissed	Liabilities/risks have been dismissed.
Negligible	No significant liabilities/risks have been identified, which could affect the site.
Low	No significant liabilities/risks have been identified, which could affect the entire site, although some local remediation mitigation may be required.
Moderate	Some significant liabilities/risks have been identified, which may substantially affect the site. Remediation will be required and further investigation is considered necessary to identify and quantify the risk.
High	Significant potential liabilities/risks have been identified and remediation is required, supported by further intrusive ground investigation. Formal detailed risk assessment will be required.

1.7 Where significant liabilities/risks are identified, these are discussed within the report.

2.0 SITE SETTING

Site Description

Table 1) Site location details

Item	Description
Site Address	Deeside Power Station, Weighbridge Road, Deeside, Flintshire, CH5 2UL.
Site Area (overall)	12.85ha (approx. 31.75 Acres)
National Grid Reference	Approximate centre of the site: 329745mE, 371390mN.

Current Site Description

- 2.1 The following description has been compiled from the 2006 Application Site Report (ASR) by Environ, and an Enzygo staff walkover.
- 2.2 The power station is located within Deeside Industrial Estate. The overall area of the site is approximately 12.85 hectares. Infrastructure within the site boundary consists of two gas turbines, one steam turbine, two heat recovery steam generators (HRSG), a 400kV banking compound, a water treatment plant, a cooling tower system, a water intake station, associated offices, car parking areas and workshop. The installation is situated on a generally level plot sloping downwards towards the western boundary of the site. A separate secure parcel in the north is occupied by National Grid plant.

Surrounding Area

- 2.3 Land uses surrounding the site are summarised in Table 2 below:

Table 2) Surrounding land uses

Direction	Land Use
North	Weighbridge Road (A548), with tidal flats of the River Dee beyond.
East	UPM Shotton – materials recovery facility.
South	Lagoons, used as wild bird habitat.
West	Weighbridge Road (A548), with tidal flats of the River Dee beyond.

3.0 SITE HISTORY

3.1 A review of historical Ordnance Survey maps and information pertinent to the Site and within a 250m radius is summarised below:

Table 3) Historical land uses

Map/Imagery Date	On Site	Surrounding Area (within 250m)
1874 (1:2,500)	The site was an undeveloped area of sand and mud on the bank of the River Dee.	A majority of the area surrounding the site also consisted of sand and mud banks. There was a north-south embankment adjacent the western site boundary.
1882 (1:10,560)	No significant changes.	Some areas of march in the surrounding area. Embankment marked as the high-water mark of ordinary tides.
1900 (1:10,560)	No significant changes.	A quay is noted 69m south of the site. The marshy areas labelled as 'liable to flooding'. A number of gaps are marked in the embankment. The River Dee is marked as being located 730m south-west of the site.
1913 (1:10,560)	The high-water mark for ordinary tides have moved to cover the majority of the site (with the exception of the southeastern corner). No other significant changes are noted.	The areas formerly marked as 'marches' and now marked as 'saltings'.
1914 (1:10,560)	No significant changes.	No significant changes.
1936 (1:10,560)	Unidentified watercourses have been developed running along the northern and western site boundaries. No other significant changes are noted.	A quay is noted 220m south of the site. Howardon Bridge Steel Works had been constructed 800m south-east of the site.
1945 (aerial imagery)	No significant changes.	No significant changes.
1954 (1:10,560)	A small building has been constructed in the central part of the site.	Gaps filled in embankment. An unidentified water channel has been 'constructed' 50m south of the site. Noted expansion in the buildings associated with Howardon Bridge Steel Works and railway sidings added. One of the railway lines entered one of the two large sand pits, which had been excavated 550m and 650m south-east of the site. A number of small buildings have been erected 30m and 350m east and 500m southeast of the site.
1964 (1:2,500)	Several small buildings have been constructed in the centre of the site. Some of the railway sidings to the east have encroached onto the site.	A drain is present along the western site boundary. Ponds were located 70m east and 120m southwest of the site. A number of unidentified buildings, various roads, railway

	Three cranes are present on site. Two ponds are present, one to the north and the other in the southwestern corner of the site. Part of one of the buildings to the east and a railway line also encroach onto the site.	sidings and railway lines have been constructed to the north and east of the site. A large tank was sited 100m east and a chimney 220m east of the site. There were also a number of small unidentified buildings and a slag heap present 120m to the north west of the site.
1969 (1:10,560)	No significant changes.	Large unidentified works are located adjacent to the site. Several large water bodies have developed to the south, east and north of the site (nearest 40m east). The slag heap 120m to the north-west had expanded and the associated small buildings are now labelled 'works'. A large area of marshland and small areas of sand are annotated on the map to the west. Buildings associated with the works 800m southeast have been expanded/modified.
1970 (1:10,560)	No significant changes.	No significant changes.
1978 (1:2,500)	The buildings and railway lines on the site had been modified. A number of the embankments had also been removed. The pond in the southwestern corner had apparently been re-channelled to form a drain.	A pond 60m to the east had been infilled. No further significant changes are apparent.
1981 (1:10,000)	No significant changes.	Drainage channel to the west was no longer present. The area of the slag heap to the west of the site had expanded.
1983 (1:10,000)	No significant changes.	A large works had developed to 430m to the south of the site. The water bodies to the south of the site have been reconfigured. A cooling tower was annotated 850m east of the site.
1985 (1:2,500)	All buildings and railway lines within the site boundary had been removed. The drain at the northern end of the site had apparently been infilled.	The railway lines to the north of the site had been removed. The slag heap to the west of the site was no longer marked.
1993 (1:2,500)	No significant changes.	Buildings that had been located 200m east of the site had been removed. No other changes were apparent.
1999 (1:10,000)	Deeside Power Station is shown on the site, with the majority of buildings shown on the western and southwestern part of the site. Two large tanks are located in the northern part of the site (fuel oil storage), and a number of smaller tanks in the western part of the site.	An unidentified building had been erected 20m north of the site (National Grid?). The A548 dual carriageway had been developed 70m west of the site, with a large roundabout immediately north. The works 400m east had been slightly reconfigured and some of the water bodies to the south had been infilled. A refuse tip was marked 320m southwest of the site.
2002 (1:10,000)	No significant changes.	Some additional buildings had been added to the works 400m to the east. No other changes were apparent.
2005 (aerial imagery)	Internal boundaries on site removed.	Further reconfiguration of buildings associated with the works 400m to the east.
2006 (aerial imagery)	No significant changes.	No significant changes.
2007 (aerial imagery)	No significant changes.	No significant changes.
2009 (aerial)	No significant changes.	Minor reconfiguration of buildings associated

imagery)		with the works 400m to the east.
2015 (aerial imagery)	No significant changes.	New roadway (North Rd), constructed ~380m south of the site.
2016 (aerial imagery)	No significant changes.	No significant changes.

- 3.2 The Groundsure report indicates that several 'unspecified tanks' existed on the site (1978 map edition x 2, 1983 map edition x 2, 1993 map edition x 2, 1997 map edition x 1); plus, one 'tank' (1997 map edition). There are two other unspecified tanks within 250m of the site. The use(s) are unclear, though they could have been used for fuel storage for plant.
- 3.3 The only feature listed under 'historical energy features' is the power station itself (1997 map edition).
- 3.4 There are numerous areas of potentially infilled land, which have been identified within 250m of the site; including unspecified pits, refuse heaps, water bodies, ponds and a quay.
- 3.5 No other significant features are identified at or near to the site from the historical maps.

4.0 ENVIRONMENTAL SETTING

Ground Conditions

- 4.1 The British Geological Survey (BGS) records indicate that the Site is underlain by the following geological sequence:

Table 4) Geological summary of the Site.

Geological Unit	Type	Description	Aquifer Classification
Superficial	Tidal Flat Deposits	Clay, silt, and sand	Secondary (undifferentiated)
Superficial	(Aeolian) Wind Blown Sand (locally)	Sand	Secondary A
Superficial	Glacial Till	Sandy gravelly clay	Unproductive
Bedrock	Pennine Lower Coal Measures (Westphalian)	Mudstone, siltstone and sandstone	Secondary A
Bedrock	Gwespyr Sandstone Formation (Namurian)	Sandstone and [subordinate] mudstone	Secondary A

- 4.2 The site is shown to be immediately underlain by Made Ground.
- 4.3 There are two records of faults within 500m of the site. The first is an inferred fault (displacement unknown) in the north-eastern corner of the site and the second is an inferred fault 460m east.
- 4.4 There are no records of landslips within 500m of the site.
- 4.5 Estimates of background estimated soil chemistry for the site suggests no exceedance of residential Generic Assessment Criteria (GAC) in the natural soils (not at surface).
- 4.6 The nearest BGS borehole is approximately 90m west of the site (BGS Ref: SJ27SE86). This borehole records clean light grey and brown fine to medium sand with some iron staining, to around 10m depth.

Groundwater

- 4.7 The superficial geology underlying the majority of the site is classified as a 'Secondary (undifferentiated)' aquifer, with small parts of the southern boundary area designated as a 'Secondary A' aquifer.
- 4.8 The bedrock geology underlying the site (beneath the glacial till) is classified as a 'Secondary A' aquifer.

- 4.9 The mixed permeability of the superficial geology ranges from 'Low' to 'Very High'.
- 4.10 The intergranular/mixed permeability of the superficial geology ranges from 'High' to 'Very High'.
- 4.11 The fracture permeability of the bedrock geology is recorded as 'High' to 'Low'.
- 4.12 There are no Source Protection Zone (SPZ) designations within 500m of the site.
- 4.13 There are no records of licensed groundwater abstractions within 2000m of the site.

Coal Mining

- 4.14 The site is located within 1000m of a known coal mining-affected area. However, for the purposes of this report, obtaining further information from the Coal Authority is not considered necessary.

Non-Coal Mining and Cavities

- 4.15 There are records of small-scale iron ore mining in the area. The Groundsure GeoInsight report states that: *'Localised small-scale underground mining may have occurred. Potential for difficult ground conditions are unlikely and localised, and are at a level where they need not be considered'*.
- 4.16 There are also records of small-scale vein mineral mining occurring in the area. The Groundsure GeoInsight report states that: *'Sporadic underground mining of restricted extent may have occurred. Potential for difficult ground conditions are unlikely and localised, and are at a level where they need not be considered'*.
- 4.17 There are no natural cavities within 1000m of the site boundary.

Brine Extraction

- 4.18 There are no brine, gypsum, tin or clay extraction areas within 1000m of the site boundary.

Ground Workings

- 4.19 There are no features listed under 'current ground working features' within 1000m of the site boundary.

Hydrology

- 4.20 There are a number of surface watercourses within 250m of the site, primarily to the north-west and south. The nearest watercourses are a Primary River (drain) 5m north-west of the site, a Secondary River 25m south and a Primary River 31m south-west.

- 4.21 There is one record of a surface water abstraction license within 1000m of the site. An active licence for direct spray irrigation exists for a site 1304m to the east.
- 4.22 There are records of twenty-three small surface water features within 250m of the site, which are not represented on mapping.
- 4.23 Environment Agency records show that small parts of the western site boundary fall within a Zone 2 floodplain. This designation indicates that the risk of flooding in any given year is between 1 in 1000 (0.1%) and 1 in 100 (1%).
- 4.24 Smaller parts of the northern and southern site boundaries also fall within a Zone 3 floodplain; where the river flooding risk is 1 in 100 (1%) or greater in any one year.

Radon Risk Potential

- 4.25 The Groundsure Geo Insight report indicates that the site is in a Radon Affected Area (as defined by the Health Protection Agency) as more than 30% of properties are above the Action Level.

Natural Hazards Finding

- 4.26 BGS information presented within the Groundsure GeoInsight report identifies the following ground conditions:

Table 5) Natural hazards on-site

Hazard	Risk Designation (Groundsure)
Collapsible Ground	Negligible
Compressible Ground	Moderate
Ground Dissolution	Negligible
Landslide	Low
Running Sand	Moderate
Swelling / Shrinking Clay	Very Low

- 4.27 There is potential for ground compressibility problems on-site. Large differential loading of the ground should be avoided. It is not advisable to drain or de-water into the ground without seeking appropriate technical advice.
- 4.28 There is significant potential for running sand, with relatively small changes in ground conditions.

4.29 No other significant natural hazards are identified.

Sensitive Land Uses

4.30 There are eighteen records of Sites of Special Scientific Interest (SSSI) within 2000m of the site. The nearest is 76m south-west of the site (Shotton Lagoons and Reed beds).

4.31 There are fifteen records of Special Areas of Conservation (SAC) within 2000m of the site. The nearest is 108m north of the site (Dee Estuary/Aber Dyfrdwy).

4.32 There are twenty areas of Special Protection Areas (SPA) within 2000m of the site. The nearest is 76m south-west of the site (Dee Estuary).

4.33 There are twenty areas of Ramsar sites within 2000m of the site. The nearest is 76m south-west of the site (Dee Estuary).

4.34 There are no other environmentally-sensitive areas within 2000m of the site.

4.35 There are no heritage assets within 2000m of the north-west of the site.

Environmental Sensitivity

4.36 On the basis of the history and present status, the site is considered to have a low sensitivity due to the following:

- The bedrock aquifer underlying the site is a 'Secondary A' aquifer, with 'High' to 'Low' permeability but is present beneath a significant layer of glacial till;
- There are no active or historical groundwater abstraction licences within 2000m of the site;
- The site is not within 500m of a Source Protection Zone (SPZ);

4.37 The site is 'restored' and partially remediated land under industrial land use. However, there are no significant potential new contamination sources on site (see below).

Current Industrial Land Uses

4.38 The majority of the site is currently occupied by a gas-fired power station. Former fuel oil storage tanks (emergency backup fuel supply) have been removed. A smaller separate parcel in the north of the site is occupied by a National Grid installation.

4.39 There are no records of historical petrol stations and fuel sites within 500m of the search boundary.

- 4.40 There are no National Grid High Voltage Underground Electricity Transmission Cables within 500m of the site.
- 4.41 There are two records of National Grid high pressure gas transmission pipelines within 500m of the site. The first is on site; pipe name FM21 – Mickle Trafford to Deeside PS, diameter 750mm, wall thickness 11.91mm, maximum operating pressure 70 Bar. The second pipe runs 21m to the north-east of the site; pipe name FM21 – Burton Point Spur, pipeline diameter 600mm, wall thickness 17.48mm, maximum operating pressure 70 Bar.
- 4.42 No other significant records are identified from the register of industrial land uses.

5.0 CONSULTATIONS

Regulatory Database

5.1 The following information has been obtained from a commercially available environmental database.

Table 6) Environmental permits, incidents and registers

Environmental Permits, Incidents and Registers	0 -250m	250-500m	Details
Site determined as contaminated land	0	0	Not applicable.
Authorised industrial processes	7	0	Deeside Power Development Co Ltd held a permit for a combustion process (Status – revoked, IPPC as of 2004).
Registered radioactive substances	6	52	Various permits for combustion processes on site. Other industrial permits for steelworks and paper mill beyond site boundary.
Records of Part A (2) and Part B Activities	0	1	Corus (Shotton Works) had historical permit (Part B) for di-isocyanate process (no enforcements notified).
Enforcements, prohibitions or prosecutions	0	0	Not Applicable.
Pollution Incidents	1	0	One incident 59m N in Feb 2002, release of oils and fuel (diesel), impact category 3 (Minor) on water and land, no impact on air. (ALSO - Refer to Engie Incident Report in Appendices – see Appendices.)
List 1 Dangerous Substance Inventory Sites	0	1	Name: UPM-Kymmene (UK) Ltd, 474m south of site; authorised substances: Mercury (other).
List 2 Dangerous Substance Inventory Sites	0	2	1. National Power Plc, on-site authorised to discharge zinc & copper. 2. British Steel (Shotton Works) 66m west, authorised to discharge chromium, iron, nickel and zinc.
Consents issued under the Planning (Hazardous Substances) Act 1990	0	0	Not Applicable.
Control of Major Accident Hazard (COMAH)/ Notification of Installations Handling Hazardous Substances (NIHHS) sites	0	1	Tata Steel Ltd, Shotton Works, 302m south of site is a current COMAH site (Lower Tier Operator).
Records of Licensed Discharge Consents	11	1	Nearest licence discharge consent on-site. Sewage discharge (pumping station) to culvert leading to broken bank. Permit No: CG0351001.

Landfill Sites and Waste Treatment Sites

- 5.3 There is one Environment Agency/Natural Resources Wales record of an operational landfill site within 1000m of the site. The Works Jetty at Shotton Steelworks, 317m southwest of the site is permitted as an industrial waste landfill (factory curtilage). The landfill type is A7 and the operator is Tata Steel UK Ltd.
- 5.4 There are two records of historical landfills site within 250m of the site. The nearest was Broken Bank landfill, Shotton Steelworks (148m north-west of site). The waste licence was issued in January 1977 and surrendered in December 1982.
- 5.5 The second historic landfill was also associated with Shotton Steelworks (172m southwest). The licence for this site was issued in January 1993 and surrendered in March 2006.
- 5.6 There are three records of British Geological Survey/Department of Energy non-operational landfill sites within 1500m of the site. The nearest is at Broken bank, Shotton Steelworks (559m north-west of site), BGS no. 1740.0, risk: risk to minor aquifer, waste type: oily waste and toxic solids.
- 5.7 There are two records of landfills from local authority and historical mapping records. There is a former refuse tip 325m southwest of the site (1993 mapping) and a refuse tip 379m southwest of the site (1997 mapping).
- 5.8 There is a record of a planned waste treatment process plant at the Shotton Steelworks, planning application ref: 46697, date: 15/02/10, with the following information attached: *'Scheme comprises construction of a new building, switchroom and associated hardstanding including change of use to waste, modifications to building (already given permission under ref. 045230 but not yet implemented) and relocation of transformer and installation of a second transformer. An application (ref: 046697) for detailed planning permission was granted by Flintshire C. C. Work has commenced on site.'*
- 5.9 There are thirty eight records of Environment Agency/Natural Resources Wales licensed waste sites within 1500m of the site. The nearest is 256m northeast of the site at Deeside Industrial Estate. The landfill took non-biodegradable wastes (<25,000 tonnes), waste licence number: FLI002, licence issued 23/07/92 and surrendered on 20/10/2004.

6.0 CONCEPTUAL MODEL

Source	Location	Exposure Pathway	Potential Receptor	Probability of Exposure	Details
Human Health					
Asbestos, hydrocarbons and metals.	On-site.	Ingestion, dermal and inhalation.	Construction Workers	Dismissed	Normal construction PPE will address risk under CDM.
			Site users	Dismissed	The site is not used by the general public or non-site-specific staff.
Metals	Sewage pollution	Ingestion, dermal and inhalation.	Construction Workers	Dismissed	Normal construction PPE will address risk under CDM.
			Site users	Dismissed	The site is not used by the general public or non-site-specific staff.
Asbestos, hydrocarbons and metals.	Unforeseen contamination.	Ingestion, dermal and inhalation.	Construction Workers	Dismissed	Normal construction PPE will address risk under CDM.
			Site users	Dismissed	The site is not used by the general public or non-site-specific staff.
Hydrocarbon and metals.	Migration from off-site sources.	Ingestion, dermal and inhalation.	Construction Workers	Dismissed	The site is not used by the general public or non-site-specific staff. Staff involved in decommissioning works will have appropriate PPE.
			Site users		
Ground Gas.	Historic Landfills.	Inhalation & Explosive.	Construction Workers	Dismissed	The site is not used by the general public or non-site-specific staff. Staff involved in decommissioning works will have appropriate PPE.
			Site users		
	Infilled pond on site.		Construction Workers	Dismissed	The site is not used by the general public or non-site-specific staff. Staff involved in decommissioning works will have appropriate PPE.
			Site users		
Groundwater					
Hydrocarbon and metals.	Potential spillage on site.	Vertical Migration.	Groundwater	Dismissed	Any fuel tanks used on site to be bunded and spill kits available, etc.
Surface Water					
Hydrocarbon and metals.	Potential spillage on site.	Horizontal Migration.	River Network	Dismissed	Any fuel tanks used on site to be bunded and spill kits available, etc.
Environmental Receptors					
On-site historical contaminants		Ingestion dermal and inhalation	Ecology	Low (associated with historic contamination status)	Site is close to ecologically sensitive wetland areas.
		Direct	Archaeology	Dismissed	None nearby.
		Direct	Geology	Dismissed	No sensitive geology present.

	Phytotoxic	Woodland	Dismissed	No receptor within 2000m.
	Phytotoxic	Crops	Dismissed	None present.
	Ingestion dermal and inhalation	Livestock	Dismissed	None present.
Building Services				
On site contaminants	Direct	Historic Buildings	Dismissed	No receptor.
	Direct	Proposed Buildings	Dismissed	No new buildings proposed (decommissioning only).
	Permeate into pipework	Water Pipes	Dismissed	No receptor.

7.0 ASSESSMENT

Previous Reports and Associated Information

7.1 Enzygo has been provided with a series of reports, which include historic site investigation (pre-construction), groundwater monitoring and due diligence (PPC Application). These reports and associated information are cited below and are available under separate cover or where indicated, are included in the Appendices:

- Engie Incident Report **(included in Appendices)**
- Groundwater Monitoring (letter report) – April 2013 – EAME (Earth and Marine Environmental Consultants).
- Application Site Report for PPC Application – February 2006 – Environ UK Ltd.
- Contaminated Land Assessment – Deeside CCGT Power Station – February 1994 – EAG (Environmental Assessment Group Ltd.).
- Deeside Power Station Civil Engineering Work – Ground Investigation Data (Volumes 1, 2 and 3) – May and June 1992 – LG Mouchel and Partners Ltd.
- Power Island Piling Layout General Arrangement (drawing 22.22/775.0703⁸) and ST and GT Transformers General Arrangement of Pilecaps (drawing 22,22/775,0500⁴) October and November 1992 **(included as pdfs in Appendices)**.
- Site Surveys Topographical and Ground Investigation Layouts (drawing 22.22/775.0705⁰) – October 1992 – Merz and McLellan Consulting Engineers **(included as pdf in Appendices)**.

7.2 The above information has been reviewed and a summary of the key aspects is presented below:

- **Groundwater Monitoring** – EAME reported on groundwater monitoring undertaken by them in 2013, comparing these data with historic monitoring results, from the same series of boreholes positioned across the site, sampled annually from 1993 to 2006. They noted elevated sulphate, cyanide and also chloride, on the southern boundary. High pH and locally elevated ammoniacal nitrogen and chromium were also noted. They concluded that there was no evidence of likely ‘new’ contamination, with the findings indicative of historic, pre-development contamination. Enzygo re-sampled the boreholes (including BH11 in the northern NG

compound, which had not been monitored by EAME, in August 2017 (BH12 could not be located)). The results certificates and a series of statistical comparative tables are included in the appendices. From the results and observations at the time of sampling of the wells, there is not considered to be evidence of contamination that could be attributed to current site operations. Also included in the Appendices is an up-to-date topographic survey and groundwater level and hydraulic gradient plan, based on monitoring undertaken by ENZYGO. This shows consistent groundwater levels and flow direction (east to west). The gradient is shallow and the inter-borehole variation in recharge times during sampling suggests that there are areas of low permeability within historic made ground (fine silty ash and slag gravel), which remains, principally around the periphery of the site in the middle and north (see soil descriptions below).

- **Ground Conditions** - The historic pre-construction site investigation works identified a succession described in the table below:

Stratum	Thickness (m)	Description
Made Ground	4.0 -5.5	<p>'Compact slag' ('sand to boulder' size slag) – with ash and clinker. There was also local evidence of building demolition waste, with concrete and brick encountered, principally around the site boundaries. Some of the slag appeared to be 'fused' or 'welded', suggesting it was 'hot tipped'.</p> <p>*'sandy' made ground was present in the central/eastern part of the site. This is understood to have been placed on site in the mid-1980s during site remedial works carried out to remove some of the contamination within the 'slag heap', which included non-steel works waste, probably derived from local gasworks/coking works. The sandy made ground 'top' elevation was generally lower than the surrounding area, by between 0.5m and 2.0m, indicating that remedial excavations were not fully backfilled.</p> <p>The Made Ground in the east was generally found to be up to 1m thinner than in the west.</p>
Estuarine Deposits	20.0 – 23.0	<p>These soils, associated with the River Dee, were originally part of the salt marshes, which covered the site, prior to 'reclamation' and use as a slag waste tip. They are generally very silty fine sands. Gravely and peaty horizons were encountered near the base and local 'organic pockets' occur near the top of the sequence.</p>
Glacial Till	Penetrated up to approximately 15.0m	<p>These comprise interbedded silty sandy clays and silty sands with laminations of clay.</p>

The investigations involving the assessment of soils contamination, described in the above cited reports, highlight contamination associated with the deposition of steelworks slag, with elevated metals/metalloids and high pH. Also described are the apparent deposition of gasworks/coking works waste, with associated contaminants comprising cyanides (from 'oxide box' wastes) and phenols (from coal tar). This material is understood to have been placed in the north and east, though possibly also in the southwest. Most of the contaminated soils were understood to have been removed and the excavations partially backfilled with imported sandy fill, prior to construction of the power station.

The internal incident report provided by Engie has been reviewed. There are no recorded significant events, which could have caused significant pollution or impact to human or to environmental receptors. The incident report (two sub-reports) are included in the appendices.)

- **Substructures, Ground Levels and Earthworks** – The construction of the power station involved mass excavation of soils in specific areas and the corresponding creation of landscaped screening bunds and 'mounds' within the site, using the arisings. From observations during the Enzygo site inspections, the mounded/bunded areas appear to comprise a sandy gravel of slag, capped with a sandy topsoil, which has been grassed. The site boundary screening bund in the east has also been planted, presumably immediately following construction and semi-mature trees and shrubs are now present on it.

Ground models have been created to compare pre- and post-construction levels across the site and assess approximate volumes of the soil mounds. An effective 'cut-fill' model is included in the Appendices. Approximately 58,000m³ of soil has been placed in the mounds and bunded areas. The two main mounded areas within the site are: north of the cooling tower array and east and northeast of the concrete bunded former fuel oil tanks.

Enzygo has been provided with pile general arrangement drawings for the principal structures and these, together with other structures are shown on the topographic survey drawing, which is included in the Appendices.

Conclusions and Recommendations

- 7.3 The site has a legacy of previous industrial land uses. However, based on the groundwater data available, there appears to have been no diminution of groundwater 'quality' during the period of operation of the power station. There is no evidence of any new contamination of groundwater that could be attributed to site operations, based on the results of the groundwater analyses undertaken by Enzygo in August 2017. There was a 'spike' in chloride concentration in 2017, in BH6 and BH7, which are on the southern boundary. This could be a function of 'tidal' influence.
- 7.4 The groundwater model shows no significant changes in groundwater flow or direction, compared to previous assessments/modelling. Substructures and foundations are not considered to have significantly altered or adversely affected the groundwater flow paths. Significant downward flow through the soil succession, via pile annulae is not considered viable. Existing borehole monitoring installations will be retained, should ongoing monitoring be required during and following decommissioning.
- 7.5 Made ground soils on site have been excavated and used to create screening bunds and retained landscaped mounds. These soils will be placed back in the excavations and to 'regulate' overall levels, following decommissioning, demolition and removal of selected substructures. Subject to agreement, the eastern site boundary screening bund will be retained. A topsoil strip should be undertaken as part of the enabling earthworks, these soils to be placed back to complete the reclamation. There are no records or evidence of importation of soils from off-site since construction of the power station.
- 7.6 Pilecaps/heads will be cut off at approximately 2.0m below ground level, subject to proposed finished ground levels, following demolition.

Appendix 1 – Groundsure Reports

Appendix 2 – Groundwater Analysis Data, Summary Statistics and Model

Appendix 3 – Topographic Surveys and Ground Model

Appendix 4 – Engie Incident Reports and Pile Drawings



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Appendix C – Site Restoration Scheme, Enzygo 2018



Revised Replacement Restoration Scheme Submitted pursuant to a
Prior Notification of Proposed Demolition Works Decision Notice
058481 Dated 10th July 2018 at Deeside Power Station

Deeside Power Station
for:

Deeside Power (UK) Ltd

CRM.343.002.RS.R.001.C

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Revised Replacement Restoration Scheme Deeside Power Station

Project:	Deeside Power Station
For:	Deeside Power (UK) Ltd
Status:	FINAL
Date:	December 2020
Author:	Lee Searles
Reviewer:	Kevin Parr, Director

Disclaimer:

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1.0 INTRODUCTION

1.1. Introduction

- 1.1.1. Enzygo Limited (**Enzygo**) has been commissioned by Deeside Power (UK) Ltd to prepare a revised replacement Restoration Scheme and associated revised restoration plan for land at Deeside Power Station, Deeside, Flintshire.
- 1.1.2. Deeside Power has recently won a tender with National Grid to provide grid support services under their stability pathfinder programme. This will result in parts of the Deeside Power Station being retained and continuing in operation in connection with this contract.
- 1.1.3. As a result this revised restoration scheme is submitted in replacement of the existing approved Restoration Scheme reference CRM.343.001.RS.R.001.A under the approved Application for Prior Notification of Proposed Demolition reference number 058481 dated 10th July 2018.
- 1.1.4. Deeside has recently won a tender to provide synchronous compensation to the National Grid to support the grid system and as a result this replacement revised restoration plan is submitted in support of the amended restoration scheme and identifies the elements of plant, equipment and buildings to be retained as part of the ongoing operation of Deeside Power Station and replaces the approved restoration plan drawing CRM.343.001.RS.D.003.
- 1.1.5. The revised replacement restoration plan is shown on drawing CRM.343.002.PL.D.003.B.
- 1.1.6. For clarification the decommissioning, dismantling, remediation and restoration of the non-retained plant, equipment, and buildings within the Deeside Power Station site will be undertaken fully in accordance with the approved decision notice 058481 dated 10th July 2018.

1.2. The Site

- 1.2.1. The power station is located within Deeside Industrial Park. It has an area of approximately 12.85 hectares. Infrastructure within the site boundary consists of two gas turbines, one steam turbine, two heat recovery steam generators (HRSG), a 400kV banking compound, a water treatment plant, a cooling tower system, a water intake station, associated offices, car parking areas and workshop.
- 1.2.2. The installation is situated on a generally level plot sloping downwards towards the western boundary of the site. A separate secure parcel in the north is occupied by National Grid plant. The site is fully enclosed with security fencing.

1.3. The Station

- 1.3.1. Deeside Power Station is a 510 megawatt (**MW**) gas-fired generating station.
- 1.3.2. The station was constructed in 1992 (commissioned in 1994) to supply electrical power to the National Grid. The station ceased permanent operation in March 2018.
- 1.3.3. The station was consented in 1990 under section 36 of the Electricity Act 1989 (section 36 consent) and the Town and County Planning Act 1990 (section 90). The site was extended in 1993 through Section 36 of the Electricity Act 1989. A copy of the relevant consents is provided within Appendix 1 of this report.

1.4. Purpose of this Document

- 1.4.1. The Restoration scheme has been prepared to ensure that at the cessation of the non-retained elements of the consented Power Station Use (generation ceased upon 31st March 2018) that those non-operational areas and associated buildings at the site will be demolished and

restored to a condition satisfactory to Flintshire County Council (the Council). The proposed restoration works shall be undertaken in accordance with the submitted scheme. The Deeside Power Station ceased power generation on 31st March 2018.

- 1.4.2. Deeside Power has recently won a tender with National Grid to provide grid support services under their stability pathfinder programme. This will result in parts of the Deeside Power Station being retained in connection with this contract. The elements of the power station to be retained are identified coloured green on the attached revised restoration plan CRM.343.002.RS.D.003.B.
- 1.4.3. The equipment and infrastructure to be retained are the two gas turbines and associated generators, step up transformers and banking compound. The gas turbine rotors will be debladed and mass added back to the rotor to bring back the inertia lost by deblading. The identified internal access roads will also be retained along with the fire water tank and fire water pump.
- 1.4.4. The buildings to be retained consist of the gas turbine building, steam turbine building, HRSG building (stacks to be removed), electrical and admin building, transformer and service yard and gate house (as shown coloured green on drawing number CRM.343.002.RS.D.003.B.
- 1.4.5. The existing national grid gas compound and associated infrastructure will be retained along with all the other non-identified plant, equipment and buildings. The remaining identified buildings and infrastructure will be cleared and remediated fully in accordance with the approved documents and drawings submitted and approved under decision notice 058481 dated 10th July 2018.
- 1.4.6. The primary purpose of this revised Restoration Scheme is to ensure that those parts of the site that will become non-operational land will not become derelict, following the decommissioning and removal of the non-retained plant, equipment and buildings as identified on drawing CRM.343.002.PL.D.003.B.

2.0 SITE HISTORY

2.1. Summary Table

The following table summarises the history of the site, from c1874. Mapping details are included in the Enzygo Geo-Environmental Appraisal report, cited above.

Map/Imagery Date	On Site	Surrounding Area (within 250m)
1874 (1:2,500)	The site was an undeveloped area of sand and mud on the bank of the River Dee.	A majority of the area surrounding the site also consisted of sand and mud banks. There was a north-south embankment adjacent the western site boundary.
1882 (1:10,560)	No significant changes.	Some areas of march in the surrounding area. Embankment marked as the high-water mark of ordinary tides.
1900 (1:10,560)	No significant changes.	A quay is noted 69m south of the site. The marshy areas labelled as 'liable to flooding'. A number of gaps are marked in the embankment. The River Dee is marked as being located 730m south-west of the site.
1913 (1:10,560)	The high-water mark for ordinary tides have moved to cover the majority of the site (with the exception of the southeastern corner). No other significant changes are noted.	The areas formerly marked as 'marches' and now marked as 'saltings'.
1914 (1:10,560)	No significant changes.	No significant changes.
1936 (1:10,560)	Unidentified watercourses have been developed running along the northern and western site boundaries. No other significant changes are noted.	A quay is noted 220m south of the site. Howardon Bridge Steel Works had been constructed 800m south-east of the site.
1945 (aerial imagery)	No significant changes.	No significant changes.
1954 (1:10,560)	A small building has been constructed in the central part of the site.	Gaps filled in embankment. An unidentified water channel has been 'constructed' 50m south of the site. Noted expansion in the buildings associated with Howardon Bridge Steel Works and railway sidings added. One of the railway lines entered one of the two large sand pits, which had been excavated 550m and 650m south-east of the site. A number of small buildings have been erected 30m and 350m east and 500m southeast of the site.
1964 (1:2,500)	Several small buildings have been constructed in the centre of the site. Some of the railway sidings to the east have encroached onto the site. Three cranes are present on site. Two ponds are present, one to the north and the other in the	A drain is present along the western site boundary. Ponds were located 70m east and 120m southwest of the site. A number of unidentified buildings, various roads, railway sidings and railway lines have been constructed to the north and east of the site. A large tank was

	southwestern corner of the site. Part of one of the buildings to the east and a railway line also encroach onto the site.	sited 100m east and a chimney 220m east of the site. There were also a number of small unidentified buildings and a slag heap present 120m to the northwest of the site.
1969 (1:10,560)	No significant changes.	Large unidentified works are located adjacent to the site. Several large water bodies have developed to the south, east and north of the site (nearest 40m east). The slag heap 120m to the north-west had expanded and the associated small buildings are now labelled 'works'. A large area of marshland and small areas of sand are annotated on the map to the west. Buildings associated with the works 800m southeast have been expanded/modified.
1970 (1:10,560)	No significant changes.	No significant changes.
1978 (1:2,500)	The buildings and railway lines on the site had been modified. A number of the embankments had also been removed. The pond in the southwestern corner had apparently been re-channelled to form a drain.	A pond 60m to the east had been infilled. No further significant changes are apparent.
1981 (1:10,000)	No significant changes.	Drainage channel to the west was no longer present. The area of the slag heap to the west of the site had expanded.
1983 (1:10,000)	No significant changes.	A large works had developed to 430m to the south of the site. The water bodies to the south of the site have been reconfigured. A cooling tower was annotated 850m east of the site.
1985 (1:2,500)	All buildings and railway lines within the site boundary had been removed. The drain at the northern end of the site had apparently been infilled.	The railway lines to the north of the site had been removed. The slag heap to the west of the site was no longer marked.
1993 (1:2,500)	No significant changes.	Buildings that had been located 200m east of the site had been removed. No other changes were apparent.
1999 (1:10,000)	Deeside Power Station is shown on the site, with the majority of buildings shown on the western and southwestern part of the site. Two large tanks are located in the northern part of the site (fuel oil storage – for emergency power supply), and a number of smaller tanks are present in the western part of the site.	An unidentified building had been erected 20m north of the site (National Grid?). The A548 dual carriageway had been developed 70m west of the site, with a large roundabout immediately north. The works 400m east had been slightly reconfigured and some of the water bodies to the south had been infilled. A refuse tip was marked 320m southwest of the site.
2002 (1:10,000)	No significant changes.	Some additional buildings had been added to the works 400m to the east. No other changes were apparent.
2005 (aerial imagery)	Internal boundaries on site removed.	Further reconfiguration of buildings associated with the works 400m to the east.
2006 (aerial imagery)	No significant changes.	No significant changes.
2007 (aerial imagery)	No significant changes.	No significant changes.
2009 (aerial imagery)	No significant changes.	Minor reconfiguration of buildings associated with the works 400m to the east.

2015 (aerial imagery)	No significant changes.	New roadway (North Rd), constructed ~380m south of the site.
2016 (aerial imagery)	No significant changes.	No significant changes.

3.0 RESTORATION SCHEME

3.1. General

3.1.1. The general procedure envisaged for the restoration of the site, in line with the landlord's requirements, will follow the scope outlined below:

- Dismantling of all recyclable and recoverable plant and equipment from the non-retained elements within the power station site for off-site disposal (sale or re-use);
- Demolition and crushing/screening of remnant structures and substructures not proposed for re-use (including: building superstructures, concrete ground slabs, roadways, kerbing etc.) and secure temporary stockpiling [rebar and other non-reusable metals to be salvaged and taken off-site], prior to backfilling;
- Removal of all redundant underground services and ducting, with off-site disposal;
- Removal of pile foundations (caps and parts of pile 'stems'), to a depth of 2m below existing ground level (all pile positions to be surveyed);
- Stripping and secure stockpiling of topsoil, present on landscaped areas (for re-use on site for restoration);
- Backfilling of the demolition excavations with historic soil arisings (used to create internal landscaping mounds – with the exception of the planted screening bund, running along the eastern site boundary: this material comprises generally slag and was excavated during the construction of the power station);
- Placement of crushed and screened inert demolition materials to create restoration platforms, with 'grading of the site to an approved level', followed by selective placement of a minimum 150mm of topsoil and seeding, to create a 'grassed' margins; subject to regulatory agreement.

3.1.2. The scope is detailed further in the sections below.

3.2. Dismantling plant and equipment

3.2.1. The plant is to be dismantled for removal from site and will include:

- Heat recovery steam generators (chimney stacks only);
- Water treatment plant;
- Cooling Towers and MCW pumphouse;
- Fuel reception facilities and pumping equipment;
- Existing workshop and Resources Buildings;

3.2.2. All plant to be dismantled will be removed from the site prior to the commencement of demolition, crushing/screening and restoration of the non-retained areas of the site.

3.3. Demolition

3.3.1. Following the removal of all identified plant and equipment, in accordance with Section 3.2 above, all remnant superstructures, substructures, surface concrete slabs, roadways, kerbing etc. will be broken out and crushed/screened on site. The only exceptions to this will be the

entrance road, access, which will be retained. All rebar and metal waste will be removed off-site.

- 3.3.2. All buildings to be demolished (Note: demolition will be undertaken following the separate removal of all asbestos/asbestos containing materials, as/if present, as listed in the asbestos register (dated 2016), which is included in the Appendices.
- 3.3.3. Substructures and pile caps and upper pile 'stems' will be removed, to 2m depth below ground. The positions of the all the piles/caps will be surveyed, with position and level of cut-off recorded and included on an 'as-built' survey (restoration completion plan)
- 3.3.4. The use of mobile crushing plant to process demolition material on site will be undertaken in accordance with the requirements of the Environmental Health Services department and will be controlled via a Part B permit (Section 3.5) issued under *The Environmental Permitting Regulations (England and Wales) Regulations 2016*. Suitable noise mitigation measures, in the form of a barrier or other equipment will be used to minimise the impact of the noise produced by the operation of the machine to acceptable limits at the site boundary.
- 3.3.5. All superstructure, substructure and infrastructure materials will be crushed and screened. During crushing operations, continuous spraying with water will be carried out to minimise dust emissions to surrounding site users. Dust emissions will be controlled in line with the operator's environmental permit and current Best Available Techniques (**BAT**) (*i.e.* through application of Process Guidance Note 3/16(12) - *Statutory guidance for mobile crushing and screening - September 2012*).
- 3.3.6. All plant and machinery will be operated in accordance with the manufacturer's specifications.
- 3.3.7. Following the topsoil strip from the landscaped bunded/mounded areas, these soils (which substantially comprise reworked slag and imported sandy soils, which were the original soil arisings from the construction enabling works for the original power station, will be placed in the demolition excavations.
- 3.3.8. Suitable 'inert' crushed and screened materials will be used to restore the site to create 'level platforms' following demolition and removal of piles and foundations as detailed in Section 3.5 below.
- 3.3.9. The crushed material will be used to infill any voids as detailed in Section 3.6 below.

3.4. Removal of underground services

- 3.4.1. As part of the site restoration, redundant underground service drains, cables and piping will be removed from the site or (in the case of the underground GRP cooling water pipes) backfilled.

3.5. Treatment of piled foundations

- 3.5.1. The piled foundations (comprising pile caps and upper sections of the pile 'stems') for the site superstructures will be treated in the following manner:
 - It is proposed to remove piles to a depth of 2m below finished ground level.
 - The removal process is to be carried out with minimum disturbance to the surrounding ground.
 - After removal, the excavations will be backfilled principally with the original arisings, derived from the mounds/bunds on site (with the exception of the peripheral screening bund along the site's eastern boundary).

- An indicative schematic cross-section of proposed pile cap/stem treatment is included in the Appendices.

3.5.2. It has been established through discussions with Natural Resources Wales during the Environmental Permit surrender process, that removal of piles to their full depth is not sustainable and could cause downward migration of remnant historic contamination in soils and groundwater beneath the site.

3.6. Backfilling

3.6.1. Backfill earthworks will be carried out in general accordance with Series 600 Earthworks, under a Method Specification. Selection of materials and methods are summarised in a general specification, which is included in the Appendices.

3.7. Fencing

3.7.1. The boundary security fencing and site access gates will be retained in their current positions on site.

3.8. Levels

3.8.1. Site levels will be restored to an approximately level platform, as is currently the case across most of the site. Existing general 'site body' levels are shown on the topographic survey and are typically at 8.6m AOD. The topographic survey is included in the Appendices.

3.9. Noise and Dust Mitigation

3.9.1. Measures will be taken to ensure works on site do not generate unacceptable levels of noise or dust during the restoration of the site. These works will include:

- Damping of exposed surfaces during prolonged spells of dry weather;
- Sheeting of all loads which export demolition material from the site on to the public highway
- No vehicle will be allowed on the public highway unless its wheels are clean; and
- All plant and equipment used in the restoration works will be operated in accordance with the manufacturer's specification and will be fitted with any necessary noise mitigation equipment.

3.10. Timescales

3.10.1. It is currently envisaged that the dismantling, demolition and restoration of the site will follow the timetable below.

Item	Timeframe
Dismantling and recovery of plant, equipment and buildings to be removed	4 months

Demolition of remaining structures	4 months
Restoration	4 months
Total project timeframe	12 months

- 3.10.2. It is proposed that the start date, and consequent end date, for the project will be advised to the LPA within 3 months of the date of this report.
- 3.10.3. The restoration of the site is also subject to the Permit Surrender requirements of the Environmental Permitting (England and Wales) Regulations administered by Natural Resources Wales (NRW).
- 3.10.4. In conclusion the restoration of the site as proposed by this revised Restoration Scheme is considered the most appropriate approach to ensure that the proposed restoration works for the identified non-retained parts of the ongoing Power Station operations are undertaken to a satisfactory standard whilst minimising any potential environmental harm resulting from the proposed site restoration works.

4.0 DRAWINGS

- Drawing CRM.343.002.PL.D.003.B – Schematic Revised Replacement Site Restoration Plan

**Appendix D – Specification for the Demolition and Remediation of
the Site**

**SCOPE OF WORKS and SPECIFICATION for
the DEMOLITION and REMEDIATION OF THE
SITE AT DEESIDE POWER STATION**

**Deeside Power Station
Weighbridge Road
Zone 4 Deeside Industrial Estate
Deeside
Flintshire
CH5 2UL**



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Appendix 2; Supporting Information

1. INTRODUCTION

This project falls within the provisions of the Construction (Design & Management) Regulations 2015. All Works shall be carried out fully in accordance with the requirements of the Construction (Design and Management) Regulations 2015, including all amendments.

As Principal Contractor (PC) the demolition Contractor will be expected to produce the Construction Phase Plan (CPP) and to maintain a Health and Safety File. This should be undertaken along with all the other coordinating and safety roles associated with the role of PC and updated as the project progresses.

The Contractor shall notify the Client of all changes to the Construction Phase Plan made during the execution of the Works.

No work shall commence without the Contractor having in place the appropriate stage of the Construction Phase Plan. The Contractor shall provide, with his Tender, a clear description of the proposed organisation, provision and control of safety and the proposed arrangements to monitor and review health and safety on the project. This shall include a clear statement as to how he proposes to address the dismantling/demolition and health hazards identified in the Site Information Pack (and please note that the Site Information Pack includes the documents at Appendix 2 Supporting Information to this Scope of Works).

The purpose of this document is to highlight significant and non-obvious Scopes of Work that are present on the project. The Scope of Works description is inclusive but is not limited to the requirements of the Contract. The Contractor is to satisfy himself that he fully understands the full Scope of Works. The information provided is intended to assist the Contractor to accurately estimate the cost and duration of the work and the resources required, to propose, design and cost any temporary or innovative works, to produce and develop outline programmes, Method Statements, safe systems of work and control measures.

There may be other factors that impinge on the Works which are not directly related to

the scope description herein such as the existing environment, materials of construction, site wide elements and site wide rules.

The Principal Contractor and other sub-contractors will need to familiarise themselves with these other factors as set out in related documents. Any information within this Scope of Works document and the associated Site Information Pack including appendices / attachment's which have been obtained from third parties i.e. survey drawings, handover reports, asbestos surveys etc, have not been independently verified by the Client unless otherwise stated within the Site Information Pack.

The Works is to comply with the BS6187:2011 "Code of practice for full and partial demolition" and associated standards, utilising Best Practice.

2. DESCRIPTION

The Deeside Power Station site is owned, operated and maintained by Deeside Power (UK) Ltd. The site is located in Flintshire, North Wales on the Deeside Industrial Estate. Access to the site is from A548 onto Weighbridge road. The site is of approx. 12 ha. and comprises two Alstom GT13E2 gas turbines, each with a dedicated CMI HRSG which produces steam into a common pipework system supplying a single Alstom steam turbine. The plant is operated with natural gas from the nearby gas transmission main. The plant had a combined electrical capacity of 510MW power and is connected to the 400kV grid system in a banking compound on site and then via overhead lines to Connahs Quay 400kV substation and it ceased generation in March 2018.

The Deeside site was built by National Power and commenced commercial operation in 1994.

Due to the nature of the equipment and potential future use of plant items, for preservation purposes full removal of the oils and lubricants was not carried out in advance of any dismantling and demolition Works. For this reason a number of plant and equipment may still contain oils and lubricants. It is difficult to quantify the known

chemicals that remain on site. Where specific details have not been provided the Client has made every effort to remove all bulk chemicals within the redundant plant; however, due to the nature of the potential end use it has not been possible to fully decontaminate all equipment. The Contractor shall include for presence of residual materials in all plant and equipment.

The Deeside site will continue to have a live environmental permit. To support the constraints of this permit, the waste water interceptors on site will remain live and operational by the Client. The Contractor shall not contaminate, interrupt or damage any of the drainage infrastructures without the prior approval of the Client. To support these on-going site operations the Contractor shall be diligent and include for any Works required in order to prepare areas safe for access and egress to enable dismantling and demolition Works to proceed as required. At a point in time nearing the end of the project the Client may fully decommission the waste water interceptors and will hand them over to the Contractor for demolition.

Some items of equipment are to remain in the possession of the Client. These items will be marked and identified to the Contractor. It is anticipated though that they will have been removed by the owner before commencement of dismantling and demolition.

Deeside Power Station provides support services to the National Grid, therefore some of the Deeside site will continue to be operational during the demolition. The Contractor should be aware of this and make suitable arrangements.

The layout of the Deeside site and immediate surrounding area is shown within the Site Information Pack.

2.1. Nature of the Work

The nature of the Works comprises:-

- Asbestos removal, decontamination, secondary cleaning and waste product

removal. See Asbestos Survey (Appendix 2, Folder 4).

- Soft stripping of all levels of individual demolition packages to include timber, partitions, false ceilings, glazing, furnishings, general rubbish, wastes, electrical equipment and plumbing for disposal off site.
- Processing of suitable demolition arising's for use as fill material for Site voids.
- The Dismantling/Removal/Demolition of all process plant structures, associated pipework, plant and equipment with the limited and controlled use of hot work.
- Removal from Site of all surface slabs concrete, sump bases, rubble, the top 2m of any encountered piled foundations.
- Remediation of the Site as per the Restoration scheme and all documentation noted on the Certificate of Decision on 25th January 2020 ref: 062317.
- Survey and production of a record drawing, showing the positions, dimensions, depths and nature of the remaining structures and drains on the Site.
- Provision of digital pre/post demolition photographs for inclusion in Health and Safety File.
- During the Works some parts of the site will remain operational. The CDM boundary must allow for access to these areas.
- The main gate and security building will continue to be operated by Triton Power. All access for the demolition Contractor will be via the emergency access gate only.

And shall comprise but may not be wholly limited to the following items of Works:

2.2. Deeside CCGT Dismantling/Demolition Zones

- 2.2.1.** Zone 1 - Resources Building
- 2.2.2.** Zone 2 - Cooling Towers. Culverts and MCW Pumphouse
- 2.2.3.** Zone 3 - Gas Valve Compound and Fuel Oil Transfer Pumphouse
- 2.2.4.** Zone 4 - Water Treatment Plant, Lab and Demin Tank
- 2.2.5.** Zone 5 – HRSG's and Chimney Stacks
- 2.2.6.** Zone 6 - Fuel Oil Bund and adjacent buildings

2.2.7. Zone's 1 – 6 - Slabs, Roads and Above Ground Services

2.3. Project Programme

The Contractor shall within 10 days of Date of Contract provide a Programme of Works in the form of a linked bar chart which shall show the order of procedure in which he proposes to execute the Works and, at the level of detail appropriate to the stage of the Works, the times and durations of all activities and restraints, each of which shall be given a short title. The Programme of Works shall show the detailed level of plant and labour resources for each stage of the Works. The Contractor shall provide a suitably updated programme for presentation to the Owner's Engineer at each weekly progress meeting.

3. DETAILED SCOPES OF WORKS

3.1. Management, Mobilisation and Site Occupation

The undertaking of the duties, roles and responsibilities of the Principal Contractor, the management of the dismantling/demolition Works in all its aspects, the timely provision of Supervision, Operatives, Tools and Equipment to meet the Project Schedules and programmes and provision of all items required for the Health, Safety and Welfare of all personnel within and without the Dismantling/Demolition Area, site establishment, erection of dismantling/demolition zone fences and gates.

The role and responsibilities of the Principal Designer will be delegated to the Demolition Contractor.

Before any Contractor Demolition personnel arrive on site there are a number of documents that are required to be produced by the Contractor and submitted to Owner's Engineer and the Client for review and acceptance. Such documents include, but are not limited to the following;-

- (i) Contractor's Construction Phase Plan (CPP), contents as defined by the CDM Regulations and HSE Code of Practice
- (ii) Project Programme as per Scope of Works
- (iii) Labour Histogram and proof of competence
- (iv) Equipment Schedule
- (v) Site Waste Management Plan
- (vi) Site Induction and Site Rules
- (vii) Procedures for Site Access Control
- (viii) Method Statements and Risk Assessments for the Works
- (ix) Structural investigation of the existing design of all buildings and structures as necessary to enable the Works to be carried out.

The layout of the Contractor's Works Area shall be approved before any work is

commenced.

The existing Deeside Security Service will not continue throughout the duration of the demolition project and the Contractor is to take full responsibility for securing the Site.

The Contractor shall be responsible for all internal and external Demolition Zone segregation, fencing and gates and for 24 hour seven days a week security within the existing Site fence line. The Contractor shall ensure that full security measures are in place for the demolition site during the Works.

Identify and protect all buildings, underground services, and structures that are to remain operational during and after the Works.

3.2. Asbestos Removal

Asbestos surveys have been carried out to the whole of the Site. They are in Folder 2 of Appendix 2.

The Contractor is responsible for preparing removal plans and submitting these to the HSE for ASB5 notifications.

The Contractor is to remove all traces of asbestos before any decontamination; dismantling or demolition Works takes place in and around these areas / buildings.

The Contractor shall assume that there may be residual asbestos containing materials concealed within the various buildings, structures, plant and equipment, and a requirement to be vigilant for such and include for the appropriate procedures for their identification and removal. Tenderers shall take the contents of the asbestos surveys as a guide. They shall therefore make reasonable assumptions relating to all areas and plant as to the possible presence of asbestos containing materials and include for all costs associated with their removal accordingly. No additional costs will be met by the Client for the removal or disposal of additional asbestos containing materials that could reasonably have been foreseen.

All asbestos and asbestos based materials shall be removed from Site by a Specialist Contractor, licensed by the Health and Safety Executive, in accordance with The Control of Asbestos at Work Regulations 2012, and other relevant Regulations and HSE Guidance Notes listed in Appendix 1 to the specification, and disposed of in accordance with the Control of Pollution (Special Waste) Regulations 1996.

All removal of asbestos containing materials shall be accompanied by daily background/personal monitoring with analysis results on the same day.

3.3. Decontamination

The Decontamination of Plant, Equipment and Sections of the Process Systems that have not been decontaminated by the Client are detailed in the Site Information Pack.

The Contractor shall make plans to deal with the presence of residual product in all items of process equipment and pipework.

3.4. Dismantling & Demolition.

The majority of the process equipment and vessels have been depressurised and some but not all have been drained, some secondary cleaning has been carried out. Details are provided within the Site Information Pack.

Electrical disconnection work has been done and the demolition zones has been isolated by the Client. Some supplies may remain – mainly lighting supplies, these supplies will be clearly marked prior to demolition.

There may be hazardous liquids or solids trapped in the process systems at low points.

The Contractor is required to open the equipment/lines at low points and other liquid trap points as appropriate to satisfy all parties that there are no significant volumes of liquid or solids trapped in the pipework before dismantle/demolition commences.

Appropriate measures are to be put in place to capture any potential residual liquid spills that could occur outside bunded and drained containment areas.

3.5. Construction Information

The following services, for which only limited drawings are available, are known to have existed or currently exist in or around the Works area:

- Mains electrical supplies (HV & LV)
- Towns water/potable water
- Fire sprinkler water
- IT, CCTV, street lighting and telecommunications electrical wiring
- Effluent, drains and sewers
- Various process pipework between structures and tanks
- Natural gas main and fuel oil pipework

The demolition package comprise a variety of plant facilities and structures of differing forms and construction from small single storey brick buildings of traditional construction with flat reinforced concrete roofs, to large, reinforced concrete and steel framed structures galvanised structural steel with clad walls/roofs, internal open steel/reinforced concrete floors/mezzanines, open steel framed plant, pipework gantries, associated pump houses, tank farms, cooling fans, and stacks.

The Deeside CCGT Plant is in good condition; however the Contractor shall carry out an investigation of the existing structures as necessary to enable the Works to be carried out. The results of this investigation shall be made available to the Owner's

Engineer as soon as possible after commencement of the Works.

The Contractor shall note that all lifting equipment and lifting attachments which becomes their responsibility and will need to be certified by the Contractor prior to use.

3.6. Demolition Zones

The dismantling/demolition site can be split into zones as follows:

3.6.1. Zone 1 – Resources Building



Resources Building

The building is to be removed of its contents, soft stripped and demolished leaving a flat unobstructed ground area.

Note that the Resources Building is to be demolished. The maintenance workshop, stores warehouse and barn area are to remain.

3.6.2. Zone 2 - Cooling Towers, Culverts and MCW Pumphouse

The cooling towers are to the north of the site and comprise 14 individual cells in two groups labelled cooling tower 1 and cooling tower 2.



Cooling Towers (one off shown)



MCW Pumphouse (culverts not shown)

Both cooling towers and associated pipework are to be demolished and disposed of in accordance with the appropriate regulations. Puncture and backfill all culverts/ponds leaving a flat unobstructed ground area. Note that the radiators will be removed by others and do not form part of this contract.

The MCW Pumphouse and adjacent buildings are to be removed of contents and demolished down to surrounding ground level, all equipment, tanks and interconnecting service piping and cabling are to be dismantled/demolished and removed from site and leaving a flat unobstructed ground area. All pits/sumps etc. to be punctured and back filled to level ground. Note that some of the contents – mainly pumps and motors will be removed by the Client prior to demolition.

3.6.3. Zone 3 - Gas Compound, Laboratory and Fuel Oil Pumphouse

Located adjacent to the HRSG building where the gas supply comes into site is the Gas Compound. The gas compound was used to condition the incoming gas supply ready for use on site.



Laboratory, Gas Valve Compound, Gas Pipeline and HP Fuel Oil Pumphouse

The gas compound comprises heat exchangers, valves, associated pipework and support steelwork all of carbon steel construction.

Also, in the same area is the disused HP fuel oil pumphouse and laboratory. These are to be stripped of all equipment, dismantled and demolished to ground level.

Remove and demolish the adjacent pipe rack and all redundant steam and water pipes. Sufficient structure is to remain to support the two cooling water pipes to the GT generators. The remaining ends of the cut off removed pipework should be capped adjacent to the Steam Turbine building

The incoming gas line has been suitably blanked at the AGI. Remove the pipe and associated cathodic protection equipment that is approximately 2m deep and runs from the AGI, then alongside cooling tower 1 to the gas compound. All the plant and equipment in this zone is to be removed from site leaving a flat unobstructed ground area. All voids to be backfilled to form level ground.

3.6.4. Zone 4 - Water Treatment Plant, Waste Collection Area & Demin Tank

Located to the west of the site is the Water Treatment Plant, Waste Collection Area and Demin tank.



Water Treatment Plant and Demin Water Tank

Internally the building has partition block walls segregating the water treatment plant, and switch room.

Adjacent to the building is the Demin Tank being of fixed roof, rubber lined carbon steel construction.

The building has been removed of all its plant and contents down to surrounding ground level, the Demin tank and interconnecting service piping and cabling are to be dismantled and demolished and removed from site leaving a flat unobstructed ground area.

Note that the Water Treatment Plant building and adjacent waste collection area, including lighting and heating are to remain.

3.6.5. Zone 5 – HRSG's and Chimney Stacks



HRSG1



Chimney Stacks, vents and silencers

Dismantle and demolish the building and its contents down to the concrete base plate which is to remain in place

Any support for the adjacent Gas Turbine house is to be made good and the existing internal dividing wall between the two structures is to be weather proofed to make it suitable as an external wall.

3.6.6. Zone 6 - Fuel Oil Bund and Adjacent Buildings



Fuel Oil Forwarding Pumphouse and Oil Store

Located to the North of the site is the Fuel Oil Bund, this was used to store fuel oil for use as a secondary fuel for gas turbines. The tanks have previously been demolished but the concrete bund and associated gantries/stairways remain.

Adjacent to the bund are two single storey buildings that, one of which is used as an oil store.

The buildings are to be removed of all plant and contents, all oil is to be disposed of through the appropriate authorised channels, stripped and demolished down to surrounding ground level. The tanks and interconnecting service piping and cabling are to be dismantled/demolished and removed from site leaving a flat unobstructed ground area.

All transfer pipework between the fuel oil tank storage area, fuel oil forwarding pumphouse, HP fuel oil pumphouse and the power station is to be removed. It should be noted that residual oil may remain in the pipes and that some sections of it are underground.

All plant and equipment is to be removed from site leaving flat unobstructed ground.

Note that the fuel oil tank bund is to remain.

3.6.7. Site Zone's 1 – 6 Slabs, Roads and Above Ground Services

The Contractor is to break out and remove from site all slabs, concrete, sump bases, rubble, above ground cables, and above piping and the top two metres of any pile foundations encountered.

Note that the roads, kerbs, street lamps and associated drainage system shall be left in place. No land remediation is required other than that required to backfill sumps etc. The CCTV system shall remain.

The Contractor shall include for all ground investigations and sampling as required to complete the Works.

The Works for all zones as applicable is to include for; the stripping of all levels of individual dismantling/demolition packages to include timber, partitions, false ceilings, glazing, furnishings, general rubbish, wastes, electrical equipment, plumbing etc. and disposal off Site.

The total removal from Site of all the Plant, Buildings, Equipment pipework, cables, pipe bridges and support structures associated with the Dismantling/Demolition Zones itemised above and as described in this document.

The Contractor shall develop a robust hot work procedure for those activities which cannot be practically executed with cold cutting techniques. This shall include but not be limited to:-

- A fully documented hot work procedure.

- Provision of gas sampling/monitoring
- Robust blanketing/spark containment especially at height
- Provision of full-time standby fireman within each burning area
- Flushing/sealing/monitoring of adjacent drains, etc.

Hot cutting of equipment 'blind' or in excess of 2m from an open end of pipework is prohibited

3.7. Inspection of the Site, drawings and Pre-Demolition Information

The information in this Specification is believed to be accurate and complete but there may be hazards or conditions not described herein and the provision and accuracy of this Specification and/or any surveys or information shall not relieve the Contractor of its obligation under the Contract. Contractor shall rely on its own experience and expertise to conduct its own investigation of the site to determine the presence of any hazards located thereon.

The Contractor shall examine the drawings, pre-demolition information and other documents made available to him by the Owner's Engineer and/or the Client and inspect the Site and its surroundings. He shall be deemed, to have made himself thoroughly acquainted with the conditions under which he will work, the nature of the construction of the buildings and structures, the location and condition of existing services, all local and existing conditions, means of access, parking and unloading regulations, working and storage space, facilities generally and all other matters which might affect the Works, and shall not be entitled to any extension of time or additional payment in respect of the condition of the Site or the discovery of unforeseen or unknown conditions, services, waste or anything else.

A limited number of general construction, plant and service drawings for the buildings are available for inspection at the offices of the Client.

The accuracy of any drawings issued cannot be guaranteed and the Contractor shall not be entitled to rely on the accuracy of any drawings issued by the Owner's Engineer and/or Client and carry out its own investigations, as necessary, to enable the Works to be carried out and completed. The Contractor shall not be entitled to claim for additional monies or an extension of the time for completion due to the inaccuracy and relevance of any drawings provided to it.

3.8. Protection of Drains

The Contractor will carry out a pre and post CCTV survey on all remaining drainage to ascertain no damage has been caused; any future defects will be repaired at the Contractor's expense.

The Contractor shall ascertain and comply with the requirements of the Client and appropriate Statutory Authorities and the Local Authority in respect of the sealing off of drains necessitated by the demolition Works and shall provide such attendance as they may require in the performance of their duties.

3.9. Roads/Footpaths etc.

The dismantling/demolition Contractor will carry out a full site photographic dilapidation survey prior to work starting and defects caused by the dismantling/demolition Contractor will be rectified at their cost before leaving site.

3.10. Site Clearance

All demolition is down to the lowest ground level with all upstands, bund walls and equipment/pipe racks and plinths removed and Storage Tank Ground Ring Beams removed.

Surrounding paved areas shall be cleaned to the Client's and Landlords satisfaction, all road gullies, drains and manholes shall be cleaned out and left in full working order

and any damage made good at the Contractor's expense.

The protection of existing services, boreholes, drains, structures, buildings, plant, equipment, roads and footpaths that are to remain post demolition

The processing of suitable demolition arisings for use as granular fill materials for site voids. Prior to backfilling all voids, sumps and pits to be cleaned, punctured and backfilled to the acceptance of the Client and Landlord.

The removal from Site of all other demolition materials.

Remove and dispose of all shrubbery within the site boundary.

Survey and production of a record drawing showing the positions, dimensions, depths and nature of the remaining structures and drains on the Site.

Provision of digital pre and post demolition photographs and other documentation for inclusion in Health and Safety File.

The Site shall be left in a safe and tidy condition.

3.11. Site Finishing and Filling

The Contractor shall clean, puncture, backfill all voids, trenches and the like arising from the Works with suitable crushed demolition material of maximum size 75mm (6F2) compacted in 200mm layers by vibrating roller to surrounding ground level. Suitable inert material shall include concrete, brickwork and hard blockwork, which shall be entirely free from reinforcement, metallic's, wood, glass, plastic, soft blockwork, rubber, epoxy, vegetation and other impurities. No void shall be backfilled until signed off by the Owner's Engineer.

The Contractor shall take all necessary precautions to ensure the stability of adjacent structures. Suitable fill material shall be placed and compacted against structures in a

sequence and manner to ensure stability and avoid damage where required or instructed by the Owner's Engineer.

Prior to compaction of suitable fill material, the Contractor shall ensure that areas to be filled are free from loose rubbish and standing water. Frozen materials or materials containing ice shall not be used and fill shall not be placed on frozen surfaces.

The processing of material on Site using a mobile crushing plant shall only be with the approval of the Owner's Engineer and Local Authority. In accordance with the requirements of the Waste Regulation Authority the use of the crusher shall be covered by an authorisation granted under Part 1 of the Environmental Protection Act 1990. The Contractor shall be required to provide documentary evidence to this effect. The Contractor shall use a suitable noise barrier around the area of the crusher to suppress the noise produced by the operation of the machine to acceptable limits at the Site boundary. Continuous spraying with water shall be carried out to minimise dust nuisance to surrounding Deeside site users and their neighbours.

The Contractor's attention is drawn to the difference in surrounding ground level, and that matching to surrounding ground levels shall include areas of chamfering/blending at 30° to horizontal to take into consideration the effect of any elevation fall across the Deeside site and may have to include removal of slab/retaining walls to effect efficient grading. Where it is impractical to grade the slab to the surrounding level then edge protection is to be installed in the form of permanent metallic hand railing.

3.12. Contractor's Works Areas and Accommodation

The Contractor shall provide all facilities such as cabins, decontamination units etc. for his site working personnel. Electric power for welfare facilities, drainage and potable water supply can be made available by the Client.

There are no canteen facilities on the Deeside site.

The Contractor shall be totally responsible for supplying any additional Site establishment and other facilities for the Works, in areas to be agreed with the

Owner's Engineer. The Contractor shall, unless otherwise directed by the Owner's Engineer, confine his employees, sub-contractors, construction and demolition plant and materials to these areas. All facilities shall be maintained in a clean, sanitary and tidy condition.

The layout of the Contractor's Works Area shall be inspected and approved before any work is commenced.

The Contractor's temporary buildings shall be properly maintained and suitably identified with the Contractor's name.

It is not possible to connect site sanitary accommodation into the existing operational foul water sewer, modern chemical closets and hygienic means of disposal shall be employed. On completion of the Contract, all the provisions shall be severed and removed.

Residential caravans, mobile living quarters, or persons living on the Site other than for security purposes shall not be permitted.

Individual demolition areas shall be laid out in such a manner as far as reasonably practicable self-sufficiency within the fence line to minimise the number of activities/vehicle movements taking place in the 'common' areas of the Deeside site.

3.13. Contractor's Fencing and Security

The Contractor shall fully consider the location of the Site and the structures being demolished and design his security arrangements accordingly. A high level of importance shall be given to preventing unauthorised access to the Site at all times. This shall include the use of specific arrangements to maintain the perimeter security during the working day.

The existing Deeside Site security service will not continue throughout the duration of the demolition project the sole responsibility will be handed over to the

Contractor. The Contractor shall be responsible and include for 24 hour, seven days a week security.

Prior to the commencement of any other work, the Contractor shall adopt the boundary fence and where necessary provide and erect a Heras fence (or similar) 2.4m high to the perimeter of the individual package areas as agreed with the Owner's Engineer. The fence shall be maintained throughout the Contract. Access to the Works area shall be by padlocked gates which shall be closed at all times except for vehicle movements and secured at the completion of each day's work.

The Contractor shall be responsible for all materials, plant etc. within the Site and no claim shall be entertained for loss or damage however caused.

The Contractor shall be entirely responsible for keeping unauthorised people out of the Site at all times and shall provide, erect and maintain adequate lighting for security purposes. The Contractor shall maintain records of all visitors and vehicles entering the Site.

The Contractor shall provide and erect a sufficient number of demolition warning boards on the perimeter not less than 1sq.m. in size, of a pattern to the satisfaction of the Owner's Engineer positioned as directed and maintained throughout the execution of the Contract. In addition the Contractor shall provide and erect all other statutory and appropriate temporary signage.

In addition the Contractor shall display on the fencing notice boards advising of an out of hours contact number of his Site Manager.

3.14. Artificial Lighting

All artificial lighting used for the purposes of the Contract including that used for security purposes shall be of such an intensity and direction as not to cause nuisance or annoyance to other Deeside site users, adjacent premises, members of the public, or a hazard to traffic.

The Contractor shall provide adequate lighting for his workforce within the Site, both for access and at all places of work, including general site security lighting during hours of darkness.

3.15. Site Working Conditions and Maintenance of Roads

Throughout the period of the Works, the Contractor shall maintain the whole area of his operations in a clean, tidy and safe condition by arranging his materials in an orderly manner. All rubbish, waste materials, debris and the like shall be systematically cleared from the working area.

The Contractor shall at all times observe all Client (Deeside) Procedures including those regarding the loading or unloading of, or waiting by vehicles, and shall make all arrangements with the Local Authority and Police to cause minimum obstruction to pedestrians and traffic.

The Contractor is advised that the adjoining buildings, service roads, roads, and pavements will continue to function during the execution of the Works and therefore he shall allow, to the satisfaction of the Owner's Engineer, for carrying out all work with minimum interference to the function of the existing roads etc., The Contractor shall in addition allow for providing any additional measures to the approval of the Owner's Engineer for maintaining continual pedestrian and vehicular access and shall be deemed to have included within his tender for any inconvenience which shall be caused by reason of the continued use of existing buildings, railway, roads and services.

The Contractor shall provide a schedule and photographic record, to be agreed with the Owner's Engineer of the condition of existing buildings, public and private roads, paved areas, kerbs, thoroughfares and crossings, etc., and shall make good at his own expense any damage caused to such roads, paths, etc., arising from the carrying out of the Works. In the absence of the aforementioned schedule the Contractor shall at the completion of the Works make good at his own expense all damage to the reasonable satisfaction of the Owner's Engineer.

The Contractor shall allow for cleaning all vehicles as required before leaving the Site. Any spillage on roads shall be removed immediately.

Any of the Contractor's materials which find their way into road gullies, manholes or drains, shall be cleaned out, carried away and any damage made good at the Contractor's entire expense.

The Contractor's attention is drawn to Section 36, of the Highways Act.

The Contractor shall take all necessary precautions to avoid any offence under Section 36 and shall indemnify the Client against any liability in this respect.

The Contractor shall reinstate at his own cost any areas suffering damage due to his use of existing roads, paths, or turfed areas to the satisfaction of the Owner's Engineer.

3.16. First Aid Facilities and Accidents

No medical services are available on Site; the Contractor shall include provision of trained first aiders within his site team. In the event of a serious injury, contact shall be made immediately with the external emergency services by dialling 999 on an external line. Notice shall be given if injured personnel are in a contaminated state and appropriate arrangements shall be in place for minimising the spread of contamination. The Client, Owner's Engineer and Security shall be informed that external emergency services have been summoned.

The injury shall be reported to the Owner's Engineer and the Client/Deeside Power Station as soon as possible.

The Contractor shall confirm his arrangements for the provision and site location of first aid facilities.

The size of the first aid accommodation, medical/first aid supplies and number of trained first aiders shall be adequate and compatible with the area of the work site and the number and distribution of the workforce.

Suitable and adequate systems for rescuing injured persons and procedures for summoning medical assistance shall also be in place.

All dangerous occurrences, environmental incidents and near misses shall be reported to the Owner's Engineer, Client's Deeside Power Station site management and Triton Power, immediately and reported for RIDDOR where appropriate.

All injured persons, irrespective of the severity of the injury, shall receive medical treatment and the injury recorded and reported to the Owner's Engineer and the Client's Deeside Safety Representative the same day as soon as possible.

3.17. Accident/Incident Reporting

The details of each injury, learning event, near miss or abnormal occurrence shall be recorded on an accident report form, signed by the Site Manager and a copy submitted to the Client and Owner's Engineer.

In addition to the reporting of accidents to the relevant authority, in accordance with statutory requirements, the Client and Owner's Engineer shall be notified immediately, by verbal communication, of all disabling injuries (lost time of 1 day or more), and, in writing, within 24 hours of their occurrence.

The Contractor shall report fatal and serious bodily injuries involving the workmen, or any other person, to the relevant authority by quickest possible means. The Client and Owner's Engineer shall be advised immediately.

All dangerous occurrences and near misses shall be reported to the Client and Owner's Engineer immediately and reported for RIDDOR, where appropriate.

3.18. Health Surveillance

The Contractor shall ensure that adequate health surveillance measures are in place, in order that the exposure to hazardous practices can be clearly monitored and controlled. In addition, a structured programme detailing the systems employed by the Contractor to assess the effects of any operations shall be in place; this shall include periodic review of records and personnel by suitably qualified medical practitioners, where appropriate.

3.19. Safety Monitoring by the Client and the Owner's Engineer

The responsibility for all aspects of the safe execution of the Works rests with the Contractor. It is his responsibility to complete the Construction Phase Plan to reflect the method of work and ensure the plan is followed. It is also the Contractor's responsibility to manage and supervise the Works, and to ensure any necessary training is carried out. However, the Client and the Owner's Engineer will actively monitor the Contractor's procedures in carrying out the Works and notify the Contractor if it believes that the Works are not being carried out in a proper and safe manner, in accordance with all legal requirements and follows the Construction Phase Plan and detailed methods statements.

The Client and the Owner's Engineer reserve the right to require all employees, agents, representatives, consultants, subcontractors and all other persons on the Site to change or cease, at the Contractor's expense, any operation where there appears to be imminent risk to the health and safety of any person or damage to plant or buildings (other than the Works).

The Client and the Owner's Engineer reserve the right to ask the Contractor for any other relevant information on health and safety.

Full safety audits will be carried out by the Client and the Owner's Engineer on the Contractor's operations and the Contractor's personnel shall co-operate fully in any such audits.

In the event of any injury or incident occurring on Site, the Client and/or the Owner's Engineer may conduct an inquiry and the Contractor shall co-operate fully in any such

inquiry and shall comply with any recommendations made as a result.

3.20. Fire Precautions

The Contractor shall confirm the details of his procedures which take into account the fire risks on the Site. These procedures will address both the measures to be taken to prevent fires and methods of firefighting and associated rescue procedures. These shall describe the general methods to be employed and hazards to be avoided.

The Contractor shall note that the existing water main will not be operational and alternative supplies should be provided for both fire water and dust suppression. The Contractor shall supply and run additional hoses to distribute firefighting and dust suppressing water to suitable locations around the Site.

Appropriate arrangements shall be in place for the evacuation of the buildings by personnel wearing contaminated clothing and equipment.

In the event of a fire, contact shall be made immediately with external emergency services by dialling 999. The Client/Deeside Power Station, Owner's Engineer and Security shall be informed that external emergency services have been summoned.

3.21. Training of Employees and Vetting of Sub-contractors

The Contractor shall not under any circumstances be permitted to sub-let any of the Works that constitute the core activities to be provided by the Contractor.

The Contractor shall ensure that competent and recognised bodies have been utilised to adequately train all employees and employees of sub-contractors, for the operations they undertake and the duties they fulfil. The Contractor shall on the request of the Owner's Engineer provide certification of such training. Any persons found not to have been adequately trained or certified will be permanently excluded from the Deeside site.

A minimum of 7 days' notice, prior to permitting any sub-contractor to undertake

Works on the Site. Where practical the Contractor shall use approved Client sub-contractors.

The Contractor's attention is drawn to Owner's Engineer requirements relating to scaffolders and the need to comply with latest NASC Guidance Note entitled 'The Use of Fall Arrest Equipment whilst Erecting, Altering & Dismantling Scaffolding'.

3.22. Contractor's Site Liaison Officer

The Contractor shall include within his Site Management structure for the provision of a Site Liaison Officer (SLO). Whilst the SLO may perform other roles within the management of the Site, the Contractor shall ensure that this specific duty is given a high priority throughout the Contract. The function of the SLO shall be to act as link between the Contractor, the Owner's Engineer, other Deeside site users, Site Landlord's, Site Operators, Emergency Services and third parties. The SLO shall be contactable during all working hours. The Contractor shall make provision for a competent deputy SLO to be available in the event of sickness or leave.

The SLO shall be available to attend, as required, any meetings with, the Client, and third parties, and the Contractor shall note and make due allowance in his Tender for any exceptional meetings being outside normal working hours. The Contractor shall prepare a progress statement for distribution at the meeting, indicating in simple terms any aspects of the work which may affect others, planned to take place over the next four weeks. These meetings will be held as required but in any event at intervals not exceeding two weeks.

Additional meetings may be held as directed by the Owner's Engineer should any complaints be received to determine whether the initial cause could have been avoided and confirm that the action taken by the Contractor is adequate. Additional meetings may be required in the event of a serious or re-occurring complaint.

The Contractor shall record any immediate necessary action taken to rectify the cause of the complaint or if this is not practicable then his proposals for ensuring that the source of complaint is minimised or removed so as not to lead to future occurrences.

3.23. Method of Working

No Work is to be undertaken unless it is covered by a Construction Phase Plan, and until the detailed risk assessments and method statements have been reviewed and accepted by the Client.

The Contractor shall supply an outline statement with his tender which shall demonstrate the intended methods to be adopted to undertake the Works.

The Contractor shall include for the operation of a robust hot work procedure for those activities which cannot be practically executed with cold cutting techniques; this shall include but not be limited to; a documented hot work procedure, provision of air sampling/monitoring, robust blanketing/spark containment especially at height, provision of Contractor's standby fireman, flushing/sealing/monitoring of adjacent drains, etc. Hot cutting of equipment 'blind' or in excess of 2m from open end of pipework to be prohibited. All hot working shall cease at least 1 hour before the end of the working shift and the fire watch shall be maintained for that period.

Further Risk Assessments and Method Statements shall detail the means and the sequence of operations by which he proposes to safely carry out the Works in accordance with the requirements of the Contract including the Health and Safety Plan. The Owner's Engineer will accept this information in stages with the proviso that no operation shall commence until the Owner's Engineer has given his consent to the Contractor's proposals in respect of that particular operation and the consent of the Owner's Engineer has been obtained in writing with regard to health and safety issues.

The Contractor shall ensure that the safe methods of working given consent to by the Owner's Engineer are brought to the attention of all persons working on the Site through prescribed procedures including tool box briefings.

The Contractor's Method Statement for each individual dismantling/demolition package shall amplify the information provided at tender and shall include:

3.24. Preparatory Works

- A full description of the operations which the Contractor proposes for dealing with the removal of asbestos or other hazardous materials, residual products.
- A full description of the Contractor's proposals for the provision of temporary lighting and other facilities within the site.
- A full description of the operations which the Contractor proposes for dealing with the removal of the residual materials.
- A full description of the operations which the Contractor proposes for dealing with the removal of all glazing from the buildings.
- A full description of the operations for soft stripping out the buildings.
- A full description of the operations which the Contractor proposes for dealing with the management of hot cutting activities.
- A full description of the design/installation of additional measures to seal drains/prevent spillages entering drains.

3.25. Demolition and Dismantling Works

Details of the methods and sequence of dismantling/demolition to ground level the Contractor proposes for individual dismantling/demolition packages, including supporting calculations in respect of the maintenance of structural integrity at all stages of demolition, and plant loading on floors.

Full details of measures the Contractor proposes to limit noise disturbance, vibration and the generation and spread of dust during demolition.

Details of the protection to adjacent services, buildings, structures, roads and footpaths that the Contractor proposes to adopt.

A full description of the operations with regard to removal of demolition materials from Site including measures to suppress and contain the spread of dust.

A full description of the operations with regard to backfilling of voids using suitable

crushed demolition materials, compaction, and levelling to match surrounding levels.

3.26. Disposal of Materials

Details of the Contractor's proposed waste disposal Site or Sites, transportation routes and anticipated frequency of lorry movements. The Contractor is responsible for producing the Site Waste Management Plan.

Details of the Contractor's proposed licensed waste disposal Site for the disposal of asbestos containing and other hazardous materials, transportation routes and anticipated frequency of lorry movements.

Provide copies of all waste duty of care documents with the Health and Safety File.

3.27. Temporary Works

The Contractor shall submit to the Owner's Engineer for his consent full details of any temporary Works that the Contractor considers necessary for the correct and safe execution of the Contract including all relevant calculations. The Contractor shall be entirely responsible for the design and sufficiency of such temporary Works and for the safety of existing buildings and structures.

Any external access to the buildings required for the raising or lowering of plant or materials shall be to the approval of the Owner's Engineer.

3.28. Explosives

All notices to internal and external parties shall be made by the contractor.

The Contractor is to identify within the scope where they would propose to use explosives. The use of explosives is to be agreed with the Client 3 months in advance of the Works being carried out.

A detailed description of the proposed collapse mechanism for the buildings/structures.

A detailed description, including full supporting calculations, of the extent and sequence of any pre-weakening by the full or partial removal of structural or non-structural members. The calculations shall demonstrate the stress state and overall stability of the buildings/structures at each stage of the pre-weakening operations and shall allow for weakening of the structure due to drilling.

Details of drilling and charging patterns, depths, charge type/quantity at each location.

A detailed description of which structural members are to be removed by explosives means and what delay intervals in order to achieve the desired collapse mechanism.

Calculations which demonstrates the development of the proposed collapse mechanism and which show in detail the progressive transference of load which results from the explosive removal of structural members and how this relates to the load-bearing capacity of the remaining elements at each stage of the collapse.

The method of charge initiation the Contractor proposes to use. The means of initiation of detonators shall be such that all danger of premature excitation is obviated.

Full details of the trial blasting that the Contractor proposes to carry out including the position, quantity and charging pattern of explosives, protection systems, and safety precautions.

Full details to substantiate the measures the Contractor proposes to limit the transmission of explosive and impact generated ground vibrations and air overpressure including calculations and source references, and full details of the Contractors proposals for monitoring ground vibrations and air overpressure.

Details of the protection the Contractor proposes to provide within and around the building to contain blast effects at source.

Details of the protection to any adjacent services.

A contingency plan setting out the procedures which the Contractor proposes to adopt in the event that the demolition does not proceed according to plan.

3.29. Removal of Glazing

The Contractor shall remove in a controlled manner all window and curtain wall glazing and other glass from the buildings prior to demolition.

3.30. Storage Tanks and Pressure Systems

The Contractor shall, before commencing any dismantling or removal of storage tanks, pipes and fittings and in any case before demolition, determine their previous use, inspect for residual contamination and ensure that all risks of fire, explosion and toxicity have been removed.

Unless otherwise advised, all plant, equipment and the like remaining within the Buildings at commencement of the Works shall become the property of the Contractor.

The Client does not anticipate the Contractor carrying out significant numbers of any confined space entries on process equipment such as tanks/vessels; though some may be required during preliminary investigations. The Contractor shall include for appropriate procedures and training associated with the issuing of confined space entries.

CHEMICAL	TANK VOLUME	STORAGE	TYPE & CONTAINMENT
Sulphuric Acid	70 Tonne	Mild steel above ground tank	Concrete bund inside enclosed building Bunded loading area adjacent to building
Sodium Hypochlorite	20 Tonne	GRP with Halar lining above ground tank	Bunded and covered tank
Sodium Hydroxide	25 Tonne	Mild steel above ground tank with trace heating	In concrete bunds inside the water pre-treatment plant building. Bunded loading area adjacent to building
Sulphuric Acid	25 Tonne	Mild steel above ground tank	
Tri-Sodium Phosphate (TSP) 3%	3 x IBC	IBC	Inside enclosed building with coated concrete bunded floor.
Ammonia 5%	2 x IBC	IBC	In concrete bunds inside the steam turbine building.
Hydrazine 5%	2 x IBC	IBC	
Chemical	Tank Volume	Storage	Type & Containment
Waste Oil	Unknown	2 x above ground tanks	Integrally bunded tank in waste storage area and oil store
New oil and waste oil, plus oil drums, kegs of soda ash and bags of rock salt	Unknown	IBCs	Concrete bund in waste storage area
One bulk water storage tank demineralised water	1500 cubic metres/330,000 gallons	Vertical steel tank, above ground	Demineralised water tank is rubber lined.

Table 1: Tank Inventory

3.31. Process Plant and Equipment

The Contractor shall include for presence of residual product in all process equipment. Should any significant quantities of residual liquids be located, the Contractor shall immediately advise the Client and agree a safe method of disposal.

MSDS data will be provided within the Site Information Pack.

Wherever the use of flame or hot cutting techniques is unavoidable, these will be carried out under strict control with adequate charged fire hoses and facilities available. The Contractor shall establish a designated 'hot work' area for the secondary processing of materials. This area shall be agreed with the Owner's Engineer and located at ground level remote from the individual demolition areas.

3.32. Fixtures and Fittings

All fixtures and fittings within the Buildings on handover from the Client become the property of the Contractor and shall be disposed of in an appropriate manner.

3.33. Damage to Existing Services, Buildings, Structures, Roads and Footpaths

The Contractor shall take all necessary precautions and arrange his operations in such a manner as to avoid damage to any water pipes, drains, sewers, mains, cables, ducts, buildings, structures, roads and footpaths that he may encounter in carrying out the Works. Any damage arising out of the execution of the Works shall be made good at the Contractor's expense as directed by and to the satisfaction of the Owner's Engineer and the authorities concerned.

3.34. Noise, Dust and Vibration

The Contractor's attention is drawn to the requirements of BS 5228 Part 1:1997 Code of Practice for Noise and Vibration Control on Construction and Open Sites, the Control of Pollution Act 1974, and the Environmental Protection Act 1990.

The Works shall be carried out in such a manner using established methods of good working practice and best practicable means so as to cause as little dust, noise, disturbance and inconvenience as possible to neighbouring plants, residents, other occupants of the Deeside site, or the public in general.

Plant shall have acoustic baffles, screens, mufflers or other means to reduce noise to a minimum. All plant and machinery shall be maintained in accordance with manufacturers' instructions.

The delivery of any heavy plant shall be arranged by the Contractor to take place during normal weekday working hours unless specially authorised by the Owner's Engineer. Debris piles and crushing operations shall be kept watered as may be necessary so that no dust nuisance may be caused to other occupants/neighbours of the Deeside site. All Lorries shall be sheeted before leaving the Site.

3.35. Site Electricity

An electricity power supply local to the Contractor's amenities is available for use. The Contractor is responsible for making the connection and shall include within his Tender for the provision of all equipment to distribute the supplies as required in order to undertake the Works. All temporary connection and equipment shall be removed on completion of the Works.

3.36. Site Water Supply

Potable water supply is available for hygiene facilities, the Contractor is responsible for making the necessary connections. All temporary connection and equipment shall be removed on completion of the Works.

3.37. Site Telephones.

The use of mobile phones on Site shall be restricted to the Contractor's non-working site manager only; under no circumstances shall operatives carry such equipment whilst on site.

3.38. Attendance of the Owner's Engineer

The Contractor shall provide such equipment and assistance as the Owner's Engineer may reasonably require in the execution of his duties.

3.39. General Records

The Contractor shall maintain on Site, accurate records, plans and charts, showing the work that he has carried out. These records shall be updated daily and shall be available for the inspection of the Owner's Engineer at any time.

3.40. Returns of Labour and Plant

The Contractor shall maintain daily records of labour and plant employed during the execution of the Works and shall make copies of such records available to the Owner's Engineer upon request.

3.41. Advertisements and Press Releases

The Contractor shall not advertise, make any press release or statement, publish or supply for publication any information, drawing or visual recording concerning the Works and shall not use the Site for the purpose of advertisement except with the written consent of the Client and subject to such conditions as he may prescribe.

All press releases, statements, notices, etc. concerning the Contract will be made through the Clients appointed press officer.

3.42. Contractor's Responsibilities

No consent or approval by the Owner's Engineer of any proposals, drawings, calculations or documents submitted by the Contractor shall relieve the Contractor of any of his responsibilities under the Contract and he shall be and shall remain entirely responsible for the proper and safe execution, completion and maintenance of the Works in accordance with all the provisions of the Contract.

3.43. Plant, Equipment, Fixtures, and Fittings Required by the Client

Prior to the work areas being handed over to the Contractor, the Client shall as far as is reasonable and practical remove all items of plant, equipment, fixtures, and fittings that they shall require for future use off-Site.

All plant, equipment, fixtures, and fittings remaining upon handover to the Contractor unless stated by the client shall become the property of the Contractor and shall be removed before the end of the Contract.

Note; There are limited structural and equipment drawings available. The Contractor shall include for the services of a Chartered Structural Engineer to assess the design philosophy and condition of the individual demolition packages.

3.44. Environmental Issues

The Contract shall be carried out in an environmentally acceptable manner and requires that all practical, viable steps be taken to salvage and recycle as much material from the Site as is reasonably possible and that compliance with the Clients Environmental Policy is maintained.

The Contractor shall refer to the Ecology Report within the Site Information Pack and include within his Tender for the development of procedures and carrying out any Works as required to comply with the recommendations outlined in the report.

The execution of major demolition and decontamination projects often has a significant impact on other Client's site users, the local environment and local residents. This includes all occupants within the constraints of the Deeside site, within the demolition Site, third party neighbours outside the Deeside site boundary and the general public.

It is clearly in the best interests of all concerned if the Contractor is seen to have a caring and considerate policy with regards to the protection of the local environment. As the identified demolition packages are within a major commercial and industrial complex, with a flow of vehicular traffic, it is of the utmost importance that all operations carried out by the Contractor are in a manner that will minimise environmental nuisance.

The Contractor shall, therefore, carefully consider all of his work activities and ensure that every operation is designed to minimise the production and migration of dust, vibration and noise. The Contractor shall develop and detail within his Construction Phase Plan; systems and procedures that will achieve minimum disruption. Where applicable, these procedures shall be developed and agreed with the appropriate persons within the Client's business.

Particular attention shall be given to:-

- A vibration and noise reduction and control programme, which will incorporate the use of methods and practices that will minimise nuisance.
- At all times, minimise creating dust nuisance during demolition operations, handling and transportation of all waste materials. All containers shall be totally enclosed or covered by nets/tarpaulins to prevent escape of dust or waste materials during loading and transfer from site to authorised waste disposal centres.
- The controlled use of water shall be employed to assist in the reduction of dust emissions. The Contractor shall ensure that all wastes are contained in such a manner that they do not give rise to flooding or create nuisance outside the working area.
- Similar precautions are to be taken during the processing and crushing of demolition materials and placing of materials, for filling of voids and removal of materials from site.
- Waste materials, including empty containers, paper, waste or debris, shall be placed in designated waste disposal skips (Contractor supply) placed around the site and not allowed to be blown about the site and adjacent area.
- Waste removed from the site shall be classified in accordance with the Environmental Protection Act 1990 and transfer documentation shall be authorised by the Contractor.
- The burning of rubbish or any other material on Site is strictly prohibited.

- The existing surface water and foul water drains shall not be polluted with any substances produced by the demolition process.
- No contaminated discharges or spillages are allowed on to the adjacent land or into local watercourses.
- All fuels/oils associated with demolition plant shall be stored in bunded containers and regularly inspected.

3.45. Land Fill Tax

The Contractor shall include within his Tender for the payment of Landfill Tax at the prevailing rate, for both active and non-active wastes, including any impact of impending rationalisation of numbers of waste disposal sites licensed for disposal of special/hazardous wastes.

3.46. Statutory Requirements, Regulations and Codes of Practice

The Contractor and all persons employed by him shall comply with any Act of Parliament, any Instrument, Rule or Order made under any Act of Parliament or any Regulation or Bye- Law of any local authority/council or Statutory Undertaker, affecting the Works and in particular shall comply with any Codes of Practice relating to demolition, health and safety and welfare, the requirements of the Environment Agency, together with all other relevant requirements.

The Owner's Engineer may require the immediate removal from the Site of the Works of any person who fails properly to observe the provisions of this clause and such person shall not again be employed upon the Works without the permission of the Owner's Engineer. The provisions of this clause shall apply to and be binding upon any sub-contractor employed by the Contractor for any part of the Works on the Site and the persons employed by such sub- contractor and the Contractor shall ensure that proper and adequate provision to this is included in the Sub-Contract.

The Contractor shall liaise with the Owner's Engineer and Client's Safety Adviser on safety matters during the course of the Contract. The Contractor shall also inform the Health and Safety Executive of the duration of the Demolition Works before the work commences.

The Contractor shall notify the Owner's Engineer of the appointment of the Contractor's Site safety supervisor and shall ensure that all employees are made and kept aware of all Site safety regulations.

All Works shall be carried out in accordance with the requirements and recommendations of BS 6187: 2011 Code of Practice for "Demolition", all relevant HSE publications, guides and the like and the Regulations listed in Appendix 1 to the Specification.

This project falls within the provisions of the Construction (Design & Management) Regulations 2015. All Works shall be carried out fully in accordance with the requirements of the Construction (Design and Management) Regulations 2015, including all amendments.

3.47. Police Regulations

The Contractor shall comply with any Police Regulations and restrictions applicable to the execution of the Works and shall comply with the requirements of the Police with regard to traffic movement, access to the Site and the parking of vehicles, cranes, rubbish skips or other plant in the vicinity of the Site.

3.48. Statutory Services and Utilities

Notwithstanding any contact made or correspondence entered into by the Owner's Engineer before commencement of the Contract, the Contractor shall be responsible for liaising and confirming the status of services with the Client.

The Contractor shall be entirely responsible for issuing notices and paying all costs in respect of any services required for the performance of his own Works.

A programme of termination and diversion of services in and around the demolition package has been carried out by the Client. The Contractor shall however note that live services continue to exist above and below ground in the surrounding area. It is important that the Contractor ensures that he is fully aware of the type, size and location of all services within and around the individual demolition packages and liaises with the appropriate persons and departments when planning his method and sequence of work.

The Contractor shall not interrupt or damage any of the Client's infrastructure or systems and shall always assume that services are 'live' unless specifically advised otherwise and has received appropriate supporting paperwork.

The Contractor shall note the proximity of all above and below ground live services which are present on the Site and ensure that these are not interrupted or damaged in any way. The Contractor shall include within his Tender for the provision and installation of protection to all services, to the satisfaction of the relevant party and the Owner's Engineer.

A limited number of service drawings exist and are available for viewing at Deeside Site and show the approximate location of services on and in the vicinity of the Site, however this does not relieve the Contractor of any obligation to carry out any necessary investigations to identify all services.

The Contractor shall note the presence of underground live services including drains, firewater distribution pipework, boreholes, etc which are to remain undamaged at the end of the project. The Contractor shall select his demolition techniques and protection to ensure these services remain undamaged.

3.49. Drawings and Health and Safety Information

A limited number of general construction, plant and service drawings for the buildings and equipment are available for inspection at the offices of the Client.

Note; due to a combination of the age of buildings/structures, and historical changes, there are limited structural and equipment drawings available. The Contractor shall include for the services of a Chartered Structural Engineer to assess the design philosophy and condition of structures within the individual demolition packages.

The accuracy of any drawings issued cannot be guaranteed and the Contractor shall carry out investigations as necessary to enable the Works to be carried out. No claim for additional monies due to the inaccuracy and relevance of these drawings will be entertained. Some of the buildings/structures were constructed prior to the implementation of the CDM Regulations and therefore no health and safety files exist.

Available records include asbestos surveys, decontamination report, register of all major plant and equipment remaining, together with material safety data sheets for the hazardous materials used within the Deeside site. A summary listing of these items is included within the Site Information Pack tender package.

It is essential that spillages of residual product etc. are avoided; the Owner's Engineer shall be informed of any spillages which may enter the Deeside drainage system so that necessary remedial action as appropriate can be taken, Contractor to supply appropriate spill kits.

The Contractor shall include within his Tender for the input of a Chartered Structural Engineer to support methodology and sequencing of the Works.

The Contractor shall include within his Tender for such additional investigations as he deems necessary to satisfy himself as to the prevailing ground conditions.

3.50. Contractor's Site Access

Access to the Deeside site will be via the Emergency Gates, Weighbridge Road entrance, and the demolition Contractor shall take full control over manning the entrance and security of the demolition Works Site. The Contractor shall be

responsible for ensuring that persons employed by him use only such access routes.

The Contractor shall provide and make use of such equipment as is necessary to clean the wheels of all vehicles on leaving the Site and to maintain the surrounding roads and footpaths in a clean condition.

Upon leaving the site the Contractor's vehicles shall take the most direct route to major roads avoiding minor roads and driving through residential areas. The Contractor shall be responsible for ensuring appropriate arrangements are made with Local Authority and Police with reference to the frequency of traffic movements to be undertaken for the duration of the project.

The Contractor shall provide and erect, in the vicinity of the entrances to the Site and around the Site perimeter and maintain for the duration of the Contract, traffic signs necessary, for the warning, regulation and control of vehicular and pedestrian traffic. Account shall be taken of the frequent vehicle movements on the public roads immediately adjacent to the Site. The size and the lettering and wording thereon shall be to the satisfaction of the Owner's Engineer.

The Contractor shall note that the Site has a general vehicle ground loading of a normal heavy goods vehicle i.e. gross vehicle weight of 40 tonnes over 5 axles. Unless otherwise agreed with the Client / Owner's Engineer, maximum ground loading is 5 tonnes per square metre. The Contractor shall include in his Tender for structural engineering input to assess the effect of any proposed vehicle movement in excess of these loadings.

Within the individual demolition package areas the Contractor shall design his vehicle movements to maintain separate clearly demarcated vehicle and pedestrian routes.

3.51. Customs

The Contractor shall comply with any Customs Regulations and restrictions applicable to the shipping/transportation of the equipment and shall comply with the requirements of the Customs with regard to all legal and regulatory requirements,

provision of relevant documentation and paperwork as applicable.

3.52. Compressed Air and Other Pressurised Services

All such systems shall comply with all the legal requirements. Static air compressors, static air receivers and static distribution mains shall be in suitable and approved locations.

Static and hired pressure systems shall not be used unless the relevant and current 'Certificate of Test and Thorough Examination' accompanies it.

All hired equipment shall be marked with the name of the Contractor from whom it is on hire. All pressure systems shall be provided with the statutory required safety devices, such as relief valves, reducing valves and pressure gauges.

All pneumatic and percussive equipment shall be designed to minimise the transmission of vibration to the operative and shall be properly and regularly maintained. Use of such equipment shall be regulated to minimise operative exposure times.

3.53. Contractor Electrical Equipment/Supplies, Site Electrical Supplies

All supplies and equipment, including hand tools, shall be installed and maintained by competent workmen under the supervision of a competent person. Written records of maintenance and inspection of all supplies and equipment shall be recorded and available for inspection on demand.

All portable electrical appliances shall be 110 volts between phases (55 volts above earth potential), unless authorised in writing.

Lighting inside tanks/bins shall be 25 volts.

Only in exceptional circumstances, and with the written approval from the Client, the following alternatives may be used to protect portable items: -

- Earth leakage protection units fixed at the source of the supply serving socket outlets and having a maximum sensitivity of 30mA.
- Monitoring earth units for plant below 2.5 kVA single phase or 7.5 kVA three phase.
- Work on electrical supply shall only be by a competent electrician.
- Warning signs shall be clearly displayed.

The Contractor shall assume no electrical services will be available; hence facilities need to be self-contained/sufficient in this respect.

The Contractor shall be responsible for all costs incurred in respect to electrical connections/disconnections to his welfare facilities and associated equipment.

3.54. Diesel, Gas Oil, Petrol and Other Fuels, Oils etc.

The Contractor shall confirm details of his proposal for the safe storage, dispensing and use of any such materials.

These materials shall be stored in well ventilated but secure and fireproof facilities, with adequate warnings and well-maintained fire fighting equipment installed nearby.

Distribution will be properly controlled and dispensed by a store man under an authorised issuing voucher system.

Tanks and other equipment containing these materials shall be placed on stable supports within concrete/masonry bunds, or other suitable containment, to contain any accidental spillage during bulk delivery supplies or dispensing on Site.

3.55. Drugs and Alcohol

The possession and/or consumption of alcohol or non-prescription drugs is strictly prohibited on site.

3.56. Hazardous Substances

The Contractor shall confirm details of his procedures for complying with the Control of Substances Hazardous to Health Regulations (CoSHH) 2002, and his proposals for controlling the storage, use and disposal of hazardous substances on Site.

Where possible, hazardous substances shall be eliminated or substituted for less hazardous materials.

3.57. Highly Flammable Liquids and Liquefied Petroleum Gases

The Contractor shall confirm details of his proposals for the storage and use of any such substances on Site.

The storage of such substances will be in a secure and safe location. A trained store person shall control proper segregation of full, empty and different types of substances. Suitable and adequate fire fighting equipment shall be provided nearby. Warning notices shall be displayed.

Only competent trained personnel shall be permitted to handle or use these substances.

3.58. Lifting Operations

The Contractor shall confirm details of his procedures for controlling the safe execution of any lifting operations on Site. These shall be based on LOLER/BS7121 principles, including formal lifting studies and the 'Appointed Person' role.

These procedures will cover all aspects of lifting including, where applicable, the use of mobile cranes, tower cranes, overhead cranes, lifting tackle etc., and the selection and training of operatives. All equipment shall be accompanied by current and appropriate certification, to be made available to the Owner's Engineer on demand.

Details of the measures for ensuring stability of all cranes to be erected or moved

around the Site, including design and construction of foundations and ground compaction, shall be provided. Unless otherwise agreed with the Owner's Engineer, maximum ground loading is 5 tonnes per square metre.

1.

2. The Contractor shall measure wind speed by anemometers attached to all cranes and ensure that no lifting operations are completed where winds exceed safe operating conditions.

3.

The Contractor shall identify in his tender all unsafe weather conditions, which if materialise shall halt progress with the Works.

3.59. Personal Protective Equipment (PPE)

PPE protects the body from some of the dangers of demolition work but it is no substitute for eliminating the risk and shall be regarded as a last resort.

Safety helmets, eye protection, gloves, hearing protection, respiratory protective equipment, safety footwear and protective clothing are examples of PPE. As appropriate, PPE shall be inspected and recorded at the prescribed frequency.

The Contractor shall ensure the provision and use of suitable and sufficient PPE appropriate to the work being carried out and persons trained in its use. Minimum level of PPE on this project is; Helmet, Light Eye Protection (LEP), Gloves, Overalls/Coat, Safety Footwear and high visibility jacket.

PPE shall be kept in clean and dry conditions in suitable lockers.

3.60. Transport and Transportation

The transport vehicles are to be appropriately labelled with relevant warning panels posted, transport risk assessment to be carried out and all relevant specialist safety equipment to be on board, The Contractor's transportation logistics shall be fully compliant with all legal, regulatory requirements, and liaison with all relevant authorities.

3.61. Working Hours

The Contractor shall agree working hours with the Client prior to work commencing.

3.62. Working Safely at Height

Falls are a major cause of accidents where work has to be carried out at heights during any activity. The Contractor shall confirm details of how falls of persons will be prevented. The criteria for selection and use of safeguards, such as scaffolding, man-riding cages, harness etc., shall be fully detailed and explained, including inclusion of rescue plans in case of emergency.

All personnel involved in the Works (including staff, supervisors and demolition operatives employed by the Contractor and sub-contractors) shall be adequately supervised and trained in all relevant aspects of safety before starting Works on Site.

All work places shall be kept and maintained safe. All work places shall also be provided with suitable and sufficient means of access and egress. All openings in floors and stairwells shall be, at all times, adequately barriered and guarded.

3.63. Options

No options have been identified for this scope.

3.64. English as Foreign Language

It is anticipated that a number of craftsmen engaged on the project will/may be foreign nationals. The Contractor shall fully risk assess the issues created by this to ensure arrangements are in place to understand written and verbal instructions.

Specific arrangements shall be implemented to ensure that critical documentation such as risk assessments method statements, lifting studies and inductions are produced in

both English and foreign nationals mother tongue.

Individual work teams shall include at least one individual fluent in English language and additionally with a ratio of English speaking no greater than 1:4

Appendix 1: Regulations To Be Adhered To During the Demolition Works

Including any later revisions and amendments to the below and other relevant regulations:-

- The Construction (Design & Management) Regulations 2015
- Managing Construction for Health and Safety - Construction (Design & Management) Regulations 2007 Approved Code of Practice
- Factories Act 1961
- The Management of Health and Safety at Work Regulations 1999 (Amended 2006)
- Provision and Use of Work Equipment Regulations 1998, as amended by the Health & Safety (Miscellaneous Amendments) Regulations 2002
- Workplace (Health & Safety and Welfare) Regulations 1992, as amended by the Health & Safety (Miscellaneous Amendments) Regulations 2002 and 2013
- Personal Protective Equipment at Work Regulations 1992, as amended by the Health & Safety (Miscellaneous Amendments) Regulations 2002 and 2013
- Manual Handling Operations Regulations 1992, as amended by the Health & Safety (Miscellaneous Amendments) Regulations 2002
- Health & Safety at Work etc. Act 1974
- Lifting Operations and Lifting Equipment Regulations 1998, as amended by the Health & Safety (Miscellaneous Amendments) Regulations 2002
- The Health & Safety (First Aid) Regulations 1981

- The Control of Asbestos Regulations 2012 (CAR)
- The Control of Asbestos Regulations 2006 (Approved Code of Practice and guidance) L143
- The Control of Lead at Work Regulations 2002
- The Dangerous Substances and Explosive Atmospheres Regulations 2002
- COSHH Control of Substances Hazardous to Health 2002 and 2004 amendment
- Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 2013
- The Environmental Protection Act 1990 and The Environment Act 1995
- The Pollution Prevention and Control Act 1999
- The Control of Pollution (Special Waste) Regulations 1980 and 1988 amendment
- The Special Waste Amendment (Wales) Regulations 2001
- The Environmental Permitting Regulations 2010 as amended
- British Standard Code of Practice for Noise and Vibration Control on Construction and Open Sites BS 5228 Part I 1997
- Control of Noise at Work Regulations 2005 (Effective April 06)
- Control of Vibration at Work Regulations 2005

- The Clean Air Act 1993
- The Water Resources Act 1991 and The Water Industry Act 1991
- The Hazardous Waste (England and Wales) Regulations 2005 (Effective April 05)
- The Environmental Protection (Duty of Care) Regulations 1991
- The Waste Management (England and Wales) Regulations 2006
- The Waste Management Licensing Regulations 1994 as amended
- British Standard Code of Practice for Demolition BS 6187: 2011
- The Chemical (Hazards Information Packaging) Regulations 2002
- Electricity at Work Regulations 1989
- The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2007 and 2011 amendment
- Work at Height Regulations 2005 and 2007 amendment
- The Confined Spaces Regulations 1997
- Control of Explosives Regulations 1991
- Electrical Equipment (Safety) Regulations 1994
- The Waste (England and Wales) Regulations 2011
- Regulatory Reform (Fire safety) Order 2005

- Employers Liability (Compulsory Insurance) Act 1969 and regulations as amended 2002, 2004 and 2008
- Control of Explosives Regulations 1991

Appendix 2: Supporting Information

Folder 1 – Plot Plans; selection of Site/Plant GA's

Folder 2 – Hazdem

Folder 3 – Hazmat

Folder 4 – Refurbishment and Demolition Asbestos Survey

Folder 5 – Underground Services Drawings

Folder 6 – COSHH Register

Folder 7 – Civil / Structural Drawings

Folder 8 – Piping Drawings

Folder 9 – Plant and Equipment Data Sheets

Folder 10 – Electrical Drawings

Folder 11 – Process and Process Control Drawings

Folder 12 – Other Drawings, i.e. Process Flow Maps, Schematics, etc

Folder 13 – Photographs

Folder 14 – Ecological Information – Ecology Survey and Geology Survey

Folder 15 – HSE for Contractors

Appendix E – Copy of Lease Agreement

Appendix F – Environmental Management System

Deeside Power Station

LOCATION MANAGEMENT SYSTEM

Title: **Integrated Management System**

Reference: **STN LMS**

Summary: **OHSAS 18001 HEALTH and SAFETY
MANAGEMENT**

ISO 14001 – ENVIRONMENTAL MANAGEMENT

ISO 9001 – QUALITY MANAGEMENT

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Reviewed by	Colin Brooks,
Checked by	Mark Williams
Approved by	Station Manager

Location Management System

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All Location Management Systems are controlled Documents and shall not be revised, amended or altered in any way without prior agreement of the Station Manager.

Deeside Power Station

Location Management System

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Note: the paragraph numbers in the tables in Sections 4, 5 and 6 refer to the paragraph numbers in the respective standards – not to the numbering system in this document

Deeside Power Station

Location Management System

1. INTRODUCTION

The Station Management System (SMS) relates to all Health and Safety, Environment and Quality activities at Deeside Power Station.

This manual identifies the components and the key responsibilities of the SMS at Deeside and its objective is to explain how standards management is integrated into the business.

2. KEY RESPONSIBILITIES

Responsibilities have been assigned to individuals and groups for the key functions of Policy Making, Planning and Implementing. The responsibilities described below are key responsibilities for the integrated management system in general and the quality system in particular. Other specific key responsibilities for H&S and Environmental Management are further defined or referenced in the relevant sections of this document.

The Senior Management Team, in the role of Policy Makers will be responsible for:

- (i) Devising the Quality policy
- (ii) Approving the general policy statement
- (iii) Establishing strategies for policy implementation and integrating these into the general activities of the organisation
- (iv) Assigning responsibilities for planning, measuring, reviewing and auditing policies and procedures
- (v) Specifying a structure for implementing policy and supporting plans
- (vi) Agreeing plans for improvement and reviewing progress to develop the organisation and the policy
- (vii) Authorising new or revised procedures
- (viii) Ensuring that performance is regularly reviewed

The Senior Management Team, in the role of Planners will be responsible for:

- (i) Producing detailed plans to achieve corporate objectives
- (ii) Establishing management arrangements, risk control systems and workplace precautions together with associated procedures
- (iii) Obtaining and co-ordinating the specialist advice necessary for the effective planning and implementation of policy
- (iv) Ensuring a Quality Plan is developed showing the key objectives and performance will be reported and reviewed at regular intervals
- (v) Ensuring the participation and involvement of all employees working in the organisation
- (vi) Keeping up to date with changes in legislation, standards and good practice relevant to the organisation
- (vii) Ensuring that Quality objectives are an integral part of the organisations business plan
- (viii) Ensuring the participation of employees in the planning process

Deeside Power Station

Location Management System

Implementation of policies and plans is carried out at all levels within the organisation. Responsibilities include:

- (i) The implementation of procedures
- (ii) The provision of the necessary physical and human resources and information
- (iii) The provision of periodic feedback to senior management on performance including successes and failures
- (iv) The provision of timely feedback to senior management on deficiencies in plans, standards, procedures and systems
- (v) Communication and participation at all levels

The Station Manager will:

- i) Initiate an annual programme of internal auditing, to include auditing of Quality systems and procedures
- ii) Ensure compliance with the QEHS policies
- iii) Ensure that the site has sufficient resources available to establish, implement, maintain and improve the management systems
- iv) Ensure customer satisfaction by meeting customer requirements.

The Production Manager will:

- i) Act as the Management Representative for the Quality Management System
- ii) Coordinate the application and continuous improvement of the Safety and Environment Management Systems
- iii) Ensure that appropriate procedural documentation is in place which complies with the requirements of "OPS/PROC" system as appropriate to Deeside power station
- iv) Ensure a system of Operating Instructions and associated risk assessments is in place for operational activities
- v) Ensure all operations personnel are adequately trained and competent to carry out duties associated with their role

The Engineering Manager will:

- i) Ensure that appropriate procedural documentation is in place which complies with the requirements of "TECH/PROC" system as appropriate to Deeside power station
- ii) Ensure a system of Work Instructions and associated risk assessments is in place for maintenance/engineering activities
- iii) Ensure a system is in place to manage and control modifications to plant and equipment at Deeside
- iv) Ensure all engineering and maintenance personnel are adequately trained and competent to carry out duties associated with their role

The HR Officer is responsible for:

- i) The day-to-day upkeep of the Formal Documentation System
- ii) Ensuring all HR and Admin personnel are adequately trained and competent to carry out duties associated with their role

Deeside Power Station

Location Management System

The Finance Manager is responsible for:

- i) Ensuring that appropriate procedural documentation is in place which complies with the requirements of "F&P/PROC" system as appropriate to Deeside Power Station
- ii) Ensuring all Finance and Procurement personnel are adequately trained and competent to carry out duties associated with their role

The Shift Managers and Discipline Engineers will:

- i) Be responsible to the Production Manager or Engineering Manager, as appropriate, for performance of the policy in their areas of accountability and will ensure the need for appropriate resources to be identified to enable matters to be managed effectively

The Technical Officers will:

- i) Be responsible for the management of contractors on site including enforcing adherence to site procedures
- ii) Compile and update contractor health, safety and environmental files and evaluate the performance of contractors

The Commercial Officer will:

- i) Send the Customer feedback form STNF 020 to the customers as required
- ii) Report feedback received to the Production Manager for inclusion in the Management Review

All Staff will:

- i) Comply in full with the requirements of the Company policy and principles, as set out in the Local Procedures
- ii) Comply with the Deeside health, safety and environmental standards, where applicable
- iii) Set a personal example to colleagues and contractors
- iv) Use correctly all work items provided and in line with training and instruction received
- v) Co-operate fully to enable Deeside to comply with its statutory duties - in particular informing those responsible of any serious, imminent dangers or shortcomings in the arrangements
- vi) In addition to the duty of all employees to take reasonable care of the environment and of their own health and safety and that of others that may be affected by their acts or omissions at work, specific responsibilities for the management of QEH&S are given in the relevant site management procedures and in staff job profiles.

It is the responsibility of the Management Team, the Environment and Efficiency Engineer and the QEHS Officer to ensure that all QEHS management procedures are upheld.

Deeside Power Station

Location Management System

The QEHS Officer is responsible for ensuring that the Quality and Health and Safety Management Systems are established, implemented and maintained in accordance with ISO

9001 and OHSAS 18001. The Environment and Efficiency Engineer is responsible for ensuring that the Environmental Management System is established, implemented and maintained in accordance with ISO 14001. The QEHS Officer and Environment and Efficiency Engineer are responsible for the reporting on the performance of the Station Management System to senior management, including recommendations for improvement.

3. SCOPE

The Standards Management System at Deeside is intended to cover the generation of electricity by use of 500MW combined Cycle Gas Turbine power plant, and satisfy the requirements of ISO 9001, OHSAS 18001 and ISO14001.

UNCONTROLLED

4. Management systems compliance methodology

Health and Safety management OHSAS 18001:2007

Standard Requirement Note: the numbering within the table relates to the standards, not to this document	Implementation at Deeside	Related Documents
<p>4.1 General Requirements</p> <p>The organisation shall establish, document, implement, maintain and continually improve an OH&S management system in accordance with the requirements of this OHSAS Standard and determine how it will fulfil these requirements.</p> <p>The organisation shall define and document the scope of its OH&S management system.</p>	<p>This document and Local Procedures have been written to satisfy legal and other requirements and are reviewed regularly as required. Review is managed via the Maintenance Management System, Maximo, whereby a Planned Maintenance schedule is in place to highlight when formal documents are due for review.</p> <p>The scope of the H&S management system is shown in relevant location procedures and includes:</p> <ul style="list-style-type: none">• Plant operation and maintenance• Compliance with legislative and other requirements• Staff training and competence• Procurement and management of goods and services• Document control• Internal audit• Communications• Site induction• Management of contractors• Management of chemicals• Emergency planning and preparedness• Electrical safety and safe systems of work• First Aid• Noise control	<p>All relevant procedures and documents maintained on Document Management System (DMS)</p>

	<ul style="list-style-type: none"> • Management of confined spaces • Occupational health • Personal Protective Equipment • Lifting operations and work equipment • Plant modifications <p>Continuous improvement objectives and targets are set during the annual management review meeting and are checked each month for progress by the site Health, Safety and Environment Forum.</p>	
4.2 Policy Top management shall define and authorise the organisation's OH&S policy and ensure that within the defined scope of its OH&S management system it: <ul style="list-style-type: none"> a) is appropriate to the nature and scale of the organisation's OH&S risks; b) includes a commitment to prevention of injury and ill health and continual improvement in OH&S management and OH&S performance; c) includes a commitment to at least comply with applicable legal requirements and with other requirements to which the organisation subscribes that relate to its OH&S hazards; d) provides the framework for setting and reviewing OH&S objectives; e) is documented, implemented and maintained; f) is communicated to all persons working under the control of the organisation with the intent that they are made aware of their individual OH&S obligations; g) is available to interested parties; and h) is reviewed periodically to ensure that it remains relevant and appropriate to the organisation. 	<p>The Policy fulfils the requirements of the standard and is reviewed annually or in the light of changing circumstances to ensure compliance with the standard and objectives and is authorised and signed by the Station Manager.</p> <p>The current Policy and Objectives are displayed on internal notice boards. The H&S Policy is established and approved within the context of the GDF Suez UK Policy, and the targets include compliance with regional targets.</p>	H&S Policy Document (current version) H&SF083A
4.3.1 Hazard identification, risk assessment and determining controls The organisation shall establish, implement and maintain a procedure(s) for the on-going hazard identification, risk assessment, and determination of necessary	Risk assessment LP in place. Risk assessments cover routine and non-routine activities, visitors and contractors. Fresh Eyes	H&S LP010 H&S LP011

<p>controls. The procedure(s) for hazard identification and risk assessment shall take into account:</p> <ul style="list-style-type: none"> a) routine and non-routine activities; b) activities of all persons having access to the workplace (including contractors and visitors); c) human behaviour, capabilities and other human factors; d) identified hazards originating outside the workplace capable of adversely affecting the health and safety of persons under the control of the organisation within the workplace; e) hazards created in the vicinity of the workplace by work-related activities under the control of the organisation; f) infrastructure, equipment and materials at the workplace, whether provided by the organisation or others; g) changes or proposed changes in the organisation, its activities, or materials; h) modifications to the OH&S management system, including temporary changes, and their impacts on operations, processes, and activities; i) any applicable legal obligations relating to risk assessment and implementation of necessary controls (see also the NOTE to 3.12); j) the design of work areas, processes, installations, machinery/equipment, operating procedures and work organisation, including their adaptation to human capabilities. The organisation's methodology for hazard identification and risk assessment shall: <ul style="list-style-type: none"> a) be defined with respect to its scope, nature and timing to ensure it is proactive rather than reactive; and b) provide for the identification, prioritization and documentation of risks, and the application of controls, as appropriate. <p>For the management of change, the organisation shall identify the OH&S hazards and OH&S risks associated with changes in the organisation, the OH&S management system, or its activities, prior to the introduction of such changes. The organisation shall ensure that the results of these assessments are considered when determining controls. When determining controls, or</p>	<p>observations and site inspections cover behavioural safety concerns. No hazards identified from outside the workplace but PPE provided for staff for home use. COSHH assessments cover hazards created from chemical use and biological hazards. Infrastructure, equipment and materials at the workplace provided by the organisation assessed under POWER by nominated POWER Officer. All contract work controlled by a Technical Officer. All plant and software mods controlled by procedure. Any changes to documentation informed to all staff by e-mail. Changes to legislation and results of incident investigation included in monthly H&S report. All work areas covered by monthly site inspections carried out by IOSH trained staff. All staff trained in IOSH Managing Safely.</p> <p>Hierarchy of safety management in use as required, e.g. COSHH assessments, work at height etc.</p>	<p>H&S LP030</p>
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<p>considering changes to existing controls, consideration shall be given to reducing the risks according to the following hierarchy:</p> <ul style="list-style-type: none"> a) elimination; b) substitution; c) engineering controls; d) signage/warnings and/or administrative controls; e) personal protective equipment. <p>The organisation shall document and keep the results of identification of hazards, risk assessments and determined controls up-to-date. The organisation shall ensure that the OH&S risks and determined controls are taken into account when establishing, implementing and maintaining its OH&S management system.</p>		
<p>4.3.2 Legal and other requirements</p> <p>The organisation shall establish, implement and maintain a procedure(s) for identifying and accessing the legal and other OH&S requirements that are applicable to it.</p> <p>The organisation shall ensure that these applicable legal requirements and other requirements to which the organisation subscribes are taken into account in establishing, implementing and maintaining its OH&S management system.</p> <p>The organisation shall keep this information up-to-date.</p> <p>The organisation shall communicate relevant information on legal and other requirements to persons working under the control of the organisation, and other relevant interested parties.</p>	<p>Monthly report produced by QEHS Officer to management and HSEF detailing the results of searches for changes in legislation, incident statistics and other relevant information. Updated guidance sent to relevant personnel as appropriate (recorded on report if relevant). Applicable legal and other requirements (e.g. HSE ACoP L8) are considered in production of formal documents which are reviewed periodically and in the event of changes. A register of relevant legislation & regulation has been established as detailed in ENV LP011. Annual report published on Deeside Power website.</p>	<p>H&SF125 ENV LP011</p>
<p>4.3.3 Objectives and programmes(s)</p> <p>The organisation shall establish, implement and maintain documented OH&S objectives, at relevant functions and levels within the organisation. The objectives shall be measurable, where practicable, and consistent with the OH&S policy, including the commitments to the prevention of injury and ill health, to compliance with applicable legal requirements and with other requirements to which the organisation subscribes, and to continual</p>	<p>See section 4.2</p> <p>Objectives, Targets agreed at annual management review meeting, along with overall policy.</p> <p>Programme managed via Sharepoint with targets split into separate tasks and assigned to individuals. They are combined with Team Targets that are set at specific group sessions with all available staff.</p>	<p>Annual review agenda and minutes</p>

<p>improvement. When establishing and reviewing its objectives, an organisation shall take into account the legal requirements and other requirements to which the organisation subscribes, and its OH&S risks. It shall also consider its technological options, its financial, operational and business requirements, and the views of relevant interested parties. The organisation shall establish, implement and maintain a programme(s) for achieving its objectives. Programme(s) shall include as a minimum:</p> <ul style="list-style-type: none"> a) designation of responsibility and authority for achieving objectives at relevant functions and levels of the organisation; and b) the means and time-frame by which the objectives are to be achieved. <p>The programme(s) shall be reviewed at regular and planned intervals, and adjusted as necessary, to ensure that the objectives are achieved.</p>	<p>The programme is reviewed each month at the HS&E Forum.</p>	
<p>4.4.1 Resources, roles, responsibility, accountability and authority</p> <p>Top management shall take ultimate responsibility for OH&S and the OH&S management system. Top management shall demonstrate its commitment by:</p> <ul style="list-style-type: none"> a) ensuring the availability of resources essential to establish, implement, maintain and improve the OH&S management system; b) defining roles, allocating responsibilities and accountabilities, and delegating authorities, to facilitate effective OH&S management; <p>roles, responsibilities, accountabilities, and authorities shall be documented and communicated.</p> <p>The organisation shall appoint a member(s) of top management with specific responsibility for OH&S, irrespective of other responsibilities, and with defined roles and authority for:</p> <ul style="list-style-type: none"> a) ensuring that the OH&S management system is established, implemented and maintained in accordance with this OHSAS Standard; b) ensuring that reports on the performance of the OH&S management system are presented to top management for review and used as a basis for improvement of the OH&S management system. The identity of the top management appointee shall be made available to all persons working under the 	<p>All formal documents and policies signed off by Station Manager. Production Manager responsible for H&S management system. Full time H&S adviser in post to maintain system with help from risk assessment coordinators, nominated role holders and all other staff. Roles and responsibilities defined by this document and job profiles and LPs and detailed in nominated roles LP. QEHS Officer produces a report for annual management review and acts as secretary to HSEF to ensure appropriate items are discussed and targets set. QEHS Officer acts as management representative for the H&S management system.</p> <p>Unless otherwise stated, roles and responsibilities are defined in the H&S LMS.</p>	<p>STN LP004 H&SF114</p> <p>H&S LMS</p>

<p>control of the organisation. All those with management responsibility shall demonstrate their commitment to the continual improvement of OH&S performance. The organisation shall ensure that persons in the workplace take responsibility for aspects of OH&S over which they have control, including adherence to the organisation's applicable OH&S requirements.</p>		
<p>4.4.2 Competence, training & awareness</p> <p>The organisation shall ensure that any person(s) under its control performing tasks that can impact on OH&S is (are) competent on the basis of appropriate education, training or experience, and shall retain associated records.</p> <p>The organisation shall identify training needs associated with its OH&S risks and its OH&S management system. It shall provide training or take other action to meet these needs, evaluate the effectiveness of the training or action taken, and retain associated records.</p> <p>The organisation shall establish, implement and maintain a procedure(s) to make persons working under its control aware of:</p> <ul style="list-style-type: none"> a) the OH&S consequences, actual or potential, of their work activities, their behaviour, and the OH&S benefits of improved personal performance; b) their roles and responsibilities and importance in achieving conformity to the OH&S policy and procedures and to the requirements of the OH&S management system, including emergency preparedness and response requirements (see 4.4.7); c) the potential consequences of departure from specified procedures. Training procedures shall take into account differing levels of: <ul style="list-style-type: none"> a) responsibility, ability, language skills and literacy; and b) risk. 	<p>Training programmes in place to ensure staff and management have sufficient opportunity to be trained to meet the requirements of their role. Training needs derived from annual PDPs, new legislation etc. Competence of staff assessed at annual appraisal with line manager and audited by independent consultant. Contractor competence assessed by Technical Officer, QEHS Officer during site safety walks and Fresh Eyes observations. Routine refresher training arranged as required and staff informed via training database. New staff induction programme in place. Induction DVD for staff, visitors and contractors. Technical Officers appointed to manage contracts and contractors. QEHS Officer enacts role of H&S Officer during plant outages.</p>	<p>HR LP013 H&S LP062 H&S LP067 HRF012 HRF 036 HR Forms on performance assessment H&S LP006</p>
<p>4.4.3 Communication, participation and consultation</p> <p>4.4.3.1 Communication</p> <p>With regard to its OH&S hazards and OH&S management system, the organisation shall establish, implement and maintain a procedure(s) for:</p>	<p>Communication LP in place. Policy and contractor management procedure on website. Induction DVD for staff, visitors and contractors. HSEF includes representation for all staff and management and is the forum for consultation. Staff Forum covers</p>	<p>STN LP006 H&S LP006 H&SF107</p>

<p>a) internal communication among the various levels and functions of the organisation;</p> <p>b) communication with contractors and other visitors to the workplace;</p> <p>c) receiving, documenting and responding to relevant communications from external interested parties.</p> <p>4.4.3.2 Participation and consultation</p> <p>The organisation shall establish, implement and maintain a procedure(s) for:</p> <p>a) the participation of workers by their:</p> <ul style="list-style-type: none"> • appropriate involvement in hazard identification, risk assessments and determination of controls; • appropriate involvement in incident investigation; • involvement in the development and review of OH&S policies and objectives; • consultation where there are any changes that affect their OH&S; • representation on OH&S matters. <p>Workers shall be informed about their participation arrangements, including who is their representative(s) on OH&S matters.</p> <p>b) consultation with contractors where there are changes that affect their OH&S.</p> <p>The organisation shall ensure that, when appropriate, relevant external interested parties are consulted about pertinent OH&S matters.</p>	<p>staff grievance and opportunity for improvement and consultation.</p> <p>All staff involved in site safety inspections</p>	<p>H&SF110</p>
<p>4.4.4 Documentation</p> <p>The OH&S management system documentation shall include:</p> <p>a) the OH&S policy and objectives;</p> <p>b) description of the scope of the OH&S management system;</p> <p>c) description of the main elements of the OH&S management system and their interaction, and reference to related documents;</p> <p>d) documents, including records, required by this OHSAS Standard; and</p>	<p>Station documentation resides on Sharepoint, and includes all H&S procedures and policy, and references all hard copy records</p> <p>a) Described in 4.2 and 4.3.3 above</p> <p>b) Covered by this Manual (specifically 4.1 above)</p> <p>c) Covered by this manual</p> <p>d) Covered where appropriate by the Procedures referenced in this</p>	

e) documents, including records, determined by the organisation to be necessary to ensure the effective planning, operation and control of processes that relate to the management of its OH&S risks.	manual e) Covered where appropriate by the Procedures referenced in this manual	
4.4.5 Control of Documents Documents required by the OH&S management system and by this OHSAS Standard shall be controlled. Records are a special type of document and shall be controlled in accordance with the requirements given in 4.5.4 . The organisation shall establish, implement and maintain a procedure(s) to: <ul style="list-style-type: none"> a) approve documents for adequacy prior to issue; b) review and update as necessary and re-approve documents; c) ensure that changes and the current revision status of documents are identified; d) ensure that relevant versions of applicable documents are available at points of use; e) ensure that documents remain legible and readily identifiable; f) ensure that documents of external origin determined by the organisation to be necessary for the planning and operation of the OH&S management system are identified and their distribution controlled; and g) prevent the unintended use of obsolete documents and apply suitable identification to them if they are retained for any purpose. 	All documents under control of Administration department and checked by departmental managers and approved by the Station Manager before issue. All are 'read only' to staff. Review dates stated on formal documents and reviews controlled by Workflows. Review history shown on LPs and LMSs The documentation system at Deeside is controlled by STN LP004 Document Filing and Storage.	STN LP004
4.4.6 Operational control The organisation shall determine those operations and activities that are associated with the identified hazard(s) where the implementation of controls is necessary to manage the OH&S risk(s). This shall include the management of change (see 4.3.1). For those operations and activities, the organisation shall implement and maintain: <ul style="list-style-type: none"> a) operational controls, as applicable to the organisation and its activities; the organisation shall integrate those operational controls into its overall OH&S 	Operational control is achieved by the use of trained and competent staff. Procedures in place to manage control of operations and maintenance, including modifications LPs, procurement, contractor control, emergencies, prevention of access to floor openings, Gas Turbine thermal block, battery and switchrooms etc. Planned Maintenance activities, document reviews and purchase of goods and services managed through Maximo. Planned Routine work is via	

<p>programme(s), controls and operational criteria;</p> <p>e) reactive measures of performance that monitor ill health, incidents (including accidents, near-misses, etc.), and other historical evidence of deficient OH&S performance;</p> <p>f) recording of data and results of monitoring and measurement sufficient to facilitate subsequent corrective action and preventive action analysis.</p> <p>If equipment is required to monitor or measure performance, the organisation shall establish and maintain procedures for the calibration and maintenance of such equipment, as appropriate. Records of calibration and maintenance activities and results shall be retained.</p>	<p>refresher requirements, risk assessment, station targets and PDP Safety Attitude Surveys carried out periodically (most recently via PSM)</p> <p>Noise Surveys</p> <p>Routine 3-yearly medicals</p> <p>Fresh Eyes Observations</p> <p>Statutory Pressure Parts inspections/safety valve tests etc.</p> <p>Lifting gear and ladder inspections</p> <p>Regular monitoring of target progress by QEHS Officer and discussed at HSE Forum and/or quarterly management meeting</p> <p>Incident/near miss/UAC investigations via Intalex Incident Management System</p> <p>The compiling, reporting & reviewing the figures is carried out by the QEHS Officer by completing a spreadsheet template and submitting to the regional H&S department. Additional data are collected and included in the monthly HS&E report to a set template and made available for the monthly management meeting.</p>	<p>HS LP067</p> <p>HS LP028</p> <p>HSF101 Guidance</p> <p>HS LSI022</p> <p>HS LP030/031</p> <p>HS LP015/064</p> <p>Specific compliance procedures eg</p> <p>HS LP018 PPE</p> <p>HS LP028 DCE</p> <p>etc. etc.</p>
<p>4.5.2 Evaluation of Compliance</p> <p>4.5.2.1 Consistent with its commitment to compliance [see 4.2c], the organisation shall establish, implement and maintain a procedure(s) for periodically evaluating compliance with applicable legal requirements (see 4.3.2). The organisation shall keep records of the results of the periodic evaluations.</p> <p>4.5.2.2 The organisation shall evaluate compliance with other requirements to which it subscribes (see 4.3.2). The organisation may wish to combine this evaluation with the evaluation of legal compliance referred to in 4.5.2.1 or to establish a separate procedure(s).</p> <p>The organisation shall keep records of the results of the periodic evaluations.</p>	<p>Evaluation produced by QEHS Officer in consultation with Nominated Role holders and presented to Management Team at annual management review.</p> <p>A register of relevant legislation & regulation has been established as described in 4.3.2 above.</p>	
<p>4.5.3 Incident investigation, nonconformity, corrective and preventive action</p> <p>4.5.3.1 Incident investigation</p> <p>The organisation shall establish, implement and maintain a procedure(s) to</p>	<p>Incident investigation LP covers investigation methodology, and incident/near miss/UAC investigations managed via Intalex Incident</p>	<p>H&S LP015</p>

<p>record, investigate and analyse incidents in order to:</p> <ul style="list-style-type: none"> a) determine underlying OH&S deficiencies and other factors that might be causing or contributing to the occurrence of incidents; b) identify the need for corrective action; c) identify opportunities for preventive action; d) identify opportunities for continual improvement; e) communicate the results of such investigations. <p>The investigations shall be performed in a timely manner.</p> <p>Any identified need for corrective action or opportunities for preventive action shall be dealt with in accordance with the relevant parts of 4.5.3.2. The results of incident investigations shall be documented and maintained.</p> <p>4.5.3.2 Nonconformity, corrective action and preventive action</p> <p>The organisation shall establish, implement and maintain a procedure(s) for dealing with actual and potential nonconformity and for taking corrective action and preventive action. The procedure(s) shall define requirements for:</p> <ul style="list-style-type: none"> a) identifying and correcting nonconformity(ies) and taking action(s) to mitigate their OH&S consequences; b) investigating nonconformity(ies), determining their cause(s) and taking actions in order to avoid their recurrence; c) evaluating the need for action(s) to prevent nonconformity(ies) and implementing appropriate actions designed to avoid their occurrence; d) recording and communicating the results of corrective action(s) and preventive action(s) taken; and e) reviewing the effectiveness of corrective action(s) and preventive action(s) taken. <p>Where the corrective action and preventive action identifies new or changed hazards or the need for new or changed controls, the procedure shall require that the proposed actions shall be taken through a risk assessment prior to implementation. Any corrective action or preventive action taken to eliminate the causes of actual and potential nonconformity (ies) shall be appropriate to the</p>	<p>Management System. Corrective and Preventative actions arising from incident investigation also managed via Intalex. Corrective actions identified by other means, such as audit, are described on STN LP012.</p>	<p>STN LP012</p>
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<p>magnitude of problems and commensurate with the OH&S risk(s) encountered. The organisation shall ensure that any necessary changes arising from corrective action and preventive action are made to the OH&S management system documentation.</p>		
<p>4.5.4 Control of records</p> <p>The organisation shall establish and maintain records as necessary to demonstrate conformity to the requirements of its OH&S management system and of this OHSAS Standard, and the results achieved. The organisation shall establish, implement and maintain a procedure(s) for the identification, storage, protection, retrieval, retention and disposal of records.</p> <p>Records shall be and remain legible, identifiable and traceable.</p>	<p>Records controlled by document control LP and associated form</p> <p>The management of all station records is covered by Location Procedure STN\LP004. This specifies the location and retention period of technical environmental records and data.</p> <p>The maintenance of specific H&S records is the responsibility of the QEHS Officer.</p> <p>Training records are covered by Location Procedure ADM HR\LP013.</p> <p>Minutes of the HS&E Forum will be retained by the QEHS Officer and the notes of Team Briefings by the Station Administrator.</p> <p>Records are generally to be treated as Deeside restricted but in appropriate cases they may be released by the Station Manager.</p>	<p>STN LP004 ADM HR LP013 ADM F048</p>
<p>4.5.5 Internal audit</p> <p>The organisation shall ensure that internal audits of the OH&S management system are conducted at planned intervals to:</p> <p>a) determine whether the OH&S management system:</p> <ol style="list-style-type: none"> 1) conforms to planned arrangements for OH&S management, including the requirements of this OHSAS Standard; and 2) has been properly implemented and is maintained; and 3) is effective in meeting the organisation's policy and objectives; <p>b) provide information on the results of audits to management. Audit programme(s) shall be planned, established, implemented and maintained by the organisation, based on the results of risk assessments of the organisation's activities, and the results of previous audits. Audit procedure(s) shall be established, implemented and maintained that address:</p>	<p>Annual internal audit programme agreed by Management team</p> <p>Audits are carried out on all managements systems as described in procedure STN\LP012.</p>	<p>STN\LP012</p>

<p>a) the responsibilities, competencies, and requirements for planning and conducting audits, reporting results and retaining associated records; and b) the determination of audit criteria, scope, frequency and methods. Selection of auditors and conduct of audits shall ensure objectivity and the impartiality of the audit process.</p>		
<p>4.6 Management Review Top management shall review the organisation's OH&S management system, at planned intervals, to ensure its continuing suitability, adequacy and effectiveness. Reviews shall include assessing opportunities for improvement and the need for changes to the OH&S management system, including the OH&S policy and OH&S objectives. Records of the management reviews shall be retained. Input to management reviews shall include: a) results of internal audits and evaluations of compliance with applicable legal requirements and with other requirements to which the organisation subscribes; b) the results of participation and consultation (see 4.4.3); c) relevant communication(s) from external interested parties, including complaints; d) the OH&S performance of the organisation; e) the extent to which objectives have been met; f) status of incident investigations, corrective actions and preventive actions; g) follow-up actions from previous management reviews; h) changing circumstances, including developments in legal and other requirements related to OH&S; and i) recommendations for improvement. The outputs from management reviews shall be consistent with the organisation's commitment to continual improvement and shall include any decisions and actions related to possible changes to: a) OH&S performance; b) OH&S policy and objectives;</p>	<p>Management review carried out annually to fixed agenda covering required areas. Monthly reviews of operational progress are carried out at the monthly EHS forum Reviews of progress against safety defects is carried out at each Wednesday production meeting</p>	<p>EHS Forum Minutes Management system Review Reports Maximo safety defect list</p>

c) resources; and d) other elements of the OH&S management system. Relevant outputs from management review shall be made available for communication and consultation (see 4.4.3).		
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5. Environmental Management ISO 14001:2004



Standard Requirement Note: the numbering within the table relates to the standards, not to this document	Implementation at Deeside	Related Documents
<p>4.1 General requirements</p> <p>The organisation shall establish, document, implement, maintain and continually improve an environmental management system in accordance with the requirements of this International Standard and determine how it will fulfil these requirements.</p> <p>The organisation shall define and document the scope of its environmental management system.</p>	<p>Deeside power has implemented an Environmental Management System (EMS) integrated with the other Management Systems used to carry out its business to form a Total Quality Management System (TQMS). The EMS is primarily intended for all members of the Deeside organisation. It may also be of interest to local authorities, regulators, and other interested parties, and may only be released after obtaining the approval of the Station Manager.</p> <p>The scope of the EMS includes the following activities:</p> <ul style="list-style-type: none"> Plant operation and maintenance Site management Waste management Compliance with legislative and other requirements Staff training and competence Procurement and management of goods and services, and Emergency planning and preparedness <p>The scope also considers other areas of site management that have an influence on environmental management, such as public perception and relations, document control and communications within The Company</p>	<p>All Relevant procedures and documents maintained on DMS</p>
<p>4.2 Environmental policy</p> <p>Top management shall define the organisation's environmental policy and ensure that, within the defined scope of its environmental management system, it</p> <p>a) is appropriate to the nature, scale and environmental impacts of its activities, products and services,</p>	<p>Environmental Policy and Objectives are published in the station's annual Environmental Performance Report which is publically available.</p> <p>The Policy is reviewed annually or in the light of changing circumstances to ensure compliance with the standard and</p>	<p>Environmental Policy Document (Current Version)</p>

Standard Requirement Note: the numbering within the table relates to the standards, not to this document	Implementation at Deeside	Related Documents
b) includes a commitment to continual improvement and prevention of pollution, c) includes a commitment to comply with applicable legal requirements and with other requirements to which the organisation subscribes which relate to its environmental aspects, d) provides the framework for setting and reviewing environmental objectives and targets, e) is documented, implemented and maintained, f) is communicated to all persons working for or on behalf of the organisation, and g) is available to the public.	objectives and is authorised and signed by the Station Manager. The current Policy and Objectives are displayed on internal notice boards. The Environmental Policy at Deeside is established and approved within the context of the GDF Suez UK Environmental Policy.	
4.3 Planning 4.3.1 Environmental aspects The organisation shall establish, implement and maintain a procedure(s) a) to identify the environmental aspects of its activities, products and services within the defined scope of the environmental management system that it can control and those that it can influence taking into account planned or new developments, or new or modified activities, products and services, and b) To determine those aspects that have or can have significant impact(s) on the environment (i.e. significant environmental aspects). The organisation shall document this information and keep it up to date. The organisation shall ensure that the significant environmental aspects are taken into account in establishing, implementing and maintaining its environmental management system.	An evaluation of the site's environmental effects was carried out by National Power Research and Engineering (R&E) according their own procedure TECH/R&E/IAC/M/125. This has been compiled into a register of aspects ant their impact on the environment. The procedure for maintaining, reviewing and updating this is detailed in ENV\LP012. Which also contains the updated register in its appendix Risk Assessments of the site are carried out by trained competent staff according to Location Procedure H&S\LP010. The purpose of these risk assessments is to ensure that an assessment has been made of pollution risks and any problems associated with the operation and maintenance of plant, specific jobs and plant areas. Significant findings may be incorporated into the aspects review process.	ENV\LP012 H&S\LP012
4.3.2 Legal and other requirements The organisation shall establish, implement and maintain a procedure(s) a) to identify and have access to the applicable legal requirements and other requirements to which the organisation subscribes related to its environmental	A register of relevant legislation & regulation has been established together with a procedure for keeping up to date with the latest requirements and maintaining , reviewing and updating the register	ENVF017 (Register) ENV\LP011 (Procedure)

Standard Requirement Note: the numbering within the table relates to the standards, not to this document	Implementation at Deeside	Related Documents
aspects, and b) to determine how these requirements apply to its environmental aspects. The organisation shall ensure that these applicable legal requirements and other requirements to which the organisation subscribes are taken into account in establishing, implementing and maintaining its environmental management system.		
4.3.3 Objectives, targets and programme(s) The organisation shall establish, implement and maintain documented environmental objectives and targets, at relevant functions and levels within the organisation. The objectives and targets shall be measurable, where practicable, and consistent with the environmental policy, including the commitments to prevention of pollution, to compliance with applicable legal requirements and with other requirements to which the organisation subscribes, and to continual improvement. When establishing and reviewing its objectives and targets, an organisation shall take into account the legal requirements and other requirements to which the organisation subscribes, and its significant environmental aspects. It shall also consider its technological options, its financial, operational and business requirements, and the views of interested parties. The organisation shall establish, implement and maintain a programme(s) for achieving its objectives and targets. Programme(s) shall include a) designation of responsibility for achieving objectives and targets at relevant functions and levels of the organisation, and b) the means and time-frame by which they are to be achieved.	The means for setting, documenting, reviewing and progressing objectives and targets is detailed in ENV\LP003 – Section 6. The reviewed and updated Management plan is maintained by the QEHS Officer as part of the total Quality Management Plan with detailed input from the Efficiency and Environment Engineer	ENV\LP003
4.4 Implementation and operation 4.4.1 Resources, roles, responsibility and authority Management shall ensure the availability of resources essential to establish, implement, maintain and improve the environmental management system.	Key Strategic Responsibilities are specified in EVV\LP003 Section 4. In addition additional specific responsibilities are defines within the various EMS and other management system procedures	ENV\LP003

Standard Requirement Note: the numbering within the table relates to the standards, not to this document	Implementation at Deeside	Related Documents
<p>Resources include human resources and specialised skills, organisational infrastructure, technology and financial resources.</p> <p>Roles, responsibilities and authorities shall be defined, documented and communicated in order to facilitate effective environmental management.</p> <p>The organisation's top management shall appoint a specific management representative(s) who, irrespective of other responsibilities, shall have defined roles, responsibilities and authority for</p> <p>a) ensuring that an environmental management system is established, implemented and maintained in accordance with the requirements of this International Standard,</p> <p>b) reporting to top management on the performance of the environmental management system for review, including recommendations for improvement.</p>	<p>The Environment and Efficiency Engineer is the nominated management representative for the EMS part of the TQMS</p> <p>Reporting to the Production Manager, in addition to normal day to day professional contact and various production and process meetings formal lines of reporting are established through the monthly EHS Forum and the Management systems Review process</p>	
<p>4.4.2 Competence, training and awareness</p> <p>The organisation shall ensure that any person(s) performing tasks for it or on its behalf that have the potential to cause a significant environmental impact(s) identified by the organisation is (are) competent on the basis of appropriate education, training or experience, and shall retain associated records.</p> <p>The organisation shall identify training needs associated with its environmental aspects and its environmental management system. It shall provide training or take other action to meet these needs, and shall retain associated records.</p> <p>The organisation shall establish, implement and maintain a procedure(s) to make persons working for it or on its behalf aware of</p> <p>a) the importance of conformity with the environmental policy and procedures and with the requirements of the environmental management system,</p> <p>b) the significant environmental aspects and related actual or potential impacts associated with their work, and the environmental benefits of improved personal performance,</p>	<p>Implemented via procedure ENV\LP016</p>	<p>ENV\LP016</p>

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c) their roles and responsibilities in achieving conformity with the requirements of the environmental management system, and d) the potential consequences of departure from specified procedures.		
4.4.3 Communication With regard to its environmental aspects and environmental management system, the organisation shall establish, implement and maintain a procedure(s) for a) internal communication among the various levels and functions of the organisation, b) receiving, documenting and responding to relevant communication from external interested parties. The organisation shall decide whether to communicate externally about its significant environmental aspects, and shall document its decision. If the decision is to communicate, the organisation shall establish and implement a method(s) for this external communication.	Described in detail in ENV\LP003 – Sections 5 & 9	ENV\LP003
4.4.4 Documentation The environmental management system documentation shall include a) the environmental policy, objectives and targets, b) description of the scope of the environmental management system, c) description of the main elements of the environmental management system and their interaction, and reference to related documents, d) documents, including records, required by this International Standard, and e) documents, including records, determined by the organisation to be necessary to ensure the effective planning, operation and control of processes that relate to its significant environmental aspects.	a) Described in 4.2 and 4.3.3 above b) Covered by this Manual (specifically 4.1 above) c) Covered by this manual d) Covered where appropriate by the Procedures referenced in this manual e) Covered where appropriate by the Procedures referenced in this manual	
4.4.5 Control of documents Documents required by the environmental management system and by this International Standard shall be controlled. Records are a special type of	The documentation system at Deeside is controlled by STN LP004, Document Filing and Storage. The environmental management system comes under this regime.	STN\LP004 ENG STN\0005

Standard Requirement Note: the numbering within the table relates to the standards, not to this document	Implementation at Deeside	Related Documents
<p>document and shall be controlled in accordance with the requirements given in 4.5.4.</p> <p>The organisation shall establish, implement and maintain a procedure(s) to</p> <ul style="list-style-type: none"> a) approve documents for adequacy prior to issue, b) review and update as necessary and re-approve documents, c) ensure that changes and the current revision status of documents are identified, d) ensure that relevant versions of applicable documents are available at points of use, e) ensure that documents remain legible and readily identifiable, f) ensure that documents of external origin determined by the organization to be necessary for the planning and operation of the environmental management system are identified and their distribution controlled, and g) prevent the unintended use of obsolete documents and apply suitable identification to them if they are retained for any purpose. 	<p>Technical drawings are controlled by ENG STN\LP005</p> <p>All documents produced on site are stored in the DMS. Hard copy documents are either referenced in DMS or, where practicable, scanned and stored electronically.</p>	
<p>4.4.6 Operational control</p> <p>The organisation shall identify and plan those operations that are associated with the identified significant environmental aspects consistent with its environmental policy, objectives and targets, in order to ensure that they are carried out under specified conditions, by</p> <ul style="list-style-type: none"> a) establishing, implementing and maintaining a documented procedure(s) to control situations where their absence could lead to deviation from the environmental policy, objectives and targets, and b) stipulating the operating criteria in the procedure(s), and c) establishing, implementing and maintaining procedures related to the identified significant environmental aspects of goods and services used by the organisation and communicating applicable procedures and requirements to suppliers, including contractors. 	<p>Operational control is affected by the use of trained and competent staff. Where written procedures have been deemed necessary they have been produced and are listed in Appendix ENV01 below.</p> <p>Planned Routine work is via Routine cards generated from Maximo. Work carried out may reference the relevant procedure(s) or for simple tasks instructions may be incorporated into the card.</p> <p>The procurement of goods and services is described in ENV\LP003 Section10</p>	<p>See Appendix ENV01</p> <p>ENV\LP003</p>

Standard Requirement Note: the numbering within the table relates to the standards, not to this document	Implementation at Deeside	Related Documents
<p>4.4.7 Emergency preparedness and response</p> <p>The organisation shall establish, implement and maintain a procedure(s) to identify potential emergency situations and potential accidents that can have an impact(s) on the environment and how it will respond to them.</p> <p>The organisation shall respond to actual emergency situations and accidents and prevent or mitigate associated adverse environmental impacts.</p> <p>The organisation shall periodically review and, where necessary, revise its emergency preparedness and response procedures, in particular, after the occurrence of accidents or emergency situations.</p> <p>The organisation shall also periodically test such procedures where practicable.</p>	<p>Emergency documents in place. Training has been carried out and exercises are carried out regularly (frequency controlled through Maximo).</p> <p>A comprehensive suite of Emergency Procedures have been developed to comprise the Stations “Emergency Management system” covering the whole range of H&S, environment and business emergencies. Those dealing with the environment are listed opposite and cover:</p> <ul style="list-style-type: none"> a) The nature of on-site hazards, e.g. flammable liquids, storage tanks and compressed gases, and measures to be taken in the event of spillages or accidental releases b) The most likely type and scale of an emergency situation or accident c) The most appropriate method(s) for responding to an accident or emergency situation d) Internal and external communication plans e) The action(s) required to minimise environmental damage f) Mitigation and response action(s) to be taken for different types of accident or emergency situation g) The need for a process(es) for post-accident evaluation to establish and implement corrective and preventive actions h) Periodic testing of emergency response procedure(s) i) Training of emergency response personnel j) A list of key personnel and aid agencies, including contact details (e.g. fire department, spillage clean-up services) k) Evacuation routes and assembly points l) The potential for emergencies or accidents at a nearby facility (e.g. plant, road, railway line) 	<p>EMG LMS</p> <p>EMG LP\001</p> <p>EMG LP\002</p> <p>EMG LP\003</p> <p>EMG LP\005</p> <p>EMG LP\007</p> <p>EMG LP\010</p> <p>EMG LP\011</p>

Standard Requirement Note: the numbering within the table relates to the standards, not to this document	Implementation at Deeside	Related Documents
	m) The possibility of mutual assistance from neighbouring organisations	
4.5 Checking 4.5.1 Monitoring and measurement The organisation shall establish, implement and maintain a procedure(s) to monitor and measure, on a regular basis, the key characteristics of its operations that can have a significant environmental impact. The procedure(s) shall include the documenting of information to monitor performance, applicable operational controls and conformity with the organisation's environmental objectives and targets. The organisation shall ensure that calibrated or verified monitoring and measurement equipment is used and maintained and shall retain associated records.	Covered in Detail in Procedure ENV\LP003 Section 11 This Section Signposts to various monitoring and verification procedures listed opposite Safety and Environmental Inspections are carried out according to HS LP016	ENV\LP001 ENV\LP002 ENV\LP004 F&P LP STN\LP012 Logs & Records detailed in ENV\LP003 (Section 13) HS\LP 016
4.5.2 Evaluation of compliance 4.5.2.1 Consistent with its commitment to compliance, the organisation shall establish, implement and maintain a procedure(s) for periodically evaluating compliance with applicable legal requirements. The organisation shall keep records of the results of the periodic evaluations.	A register of relevant legislation & regulation has been established as described in 4.3.2 above. Procedure ENV\LP11 describes the process by which new and changes to regulatory requirements are captured An Evaluation of compliance Review produced by the Management System Representatives in consultation with Nominated role holders is produces annually and presented to Management Team at annual management review	ENV\LP011 ENV\LP003 (section 11) ENV LP004
4.5.2.2 The organisation shall evaluate compliance with other requirements to which it subscribes. The organisation may wish to combine this evaluation with the evaluation of legal compliance referred to in 4.5.2.1 or to establish a separate procedure(s). The organisation shall keep records of the results of the periodic evaluations.	Procedure ENV\LP003 Section XX describes in more detail how compliance with the legal requirements (above) and other obligations are managed.	ENV\LP003
4.5.3 Nonconformity, corrective action and preventive action The organisation shall establish, implement and maintain a procedure(s) for	Described in detail in ENV\LP003 – Section 12 Suspected Permit Breaches and exceedances covered by Emergency	ENV\LP003 EMG\LP007

Standard Requirement Note: the numbering within the table relates to the standards, not to this document	Implementation at Deeside	Related Documents
<p>dealing with actual and potential nonconformity(ies) and for taking corrective action and preventive action. The procedure(s) shall define requirements for</p> <ul style="list-style-type: none"> a) identifying and correcting nonconformity(ies) and taking action(s) to mitigate their environmental impacts, b) investigating nonconformity(ies), determining their cause(s) and taking actions in order to avoid their recurrence, c) evaluating the need for action(s) to prevent nonconformity(ies) and implementing appropriate actions designed to avoid their occurrence, d) recording the results of corrective action(s) and preventive action(s) taken, and e) reviewing the effectiveness of corrective action(s) and preventive action(s) taken. <p>Actions taken shall be appropriate to the magnitude of the problems and the environmental impacts encountered.</p> <p>The organisation shall ensure that any necessary changes are made to environmental management system documentation.</p>	<p>Procedure EMG\LP007</p> <p>Health Safety and Environment Incidents are covered by: HS LP015 Incident Reporting and Investigation HS LP064 Panels of Enquiry and Local Investigations</p>	<p>HS LP015 HS LP064</p>
<p>4.5.4 Control of records</p> <p>The organisation shall establish and maintain records as necessary to demonstrate conformity to the requirements of its environmental management system and of this International Standard, and the results achieved.</p> <p>The organisation shall establish, implement and maintain a procedure(s) for the identification, storage, protection, retrieval, retention and disposal of records. Records shall be and remain legible, identifiable and traceable.</p>	<p>The management of all station records is covered by Location Procedure STN\LP004. This specifies the location and retention period of technical environmental records and data.</p> <p>The maintenance of specific environmental records is the responsibility of the Environmental Management Representative. Environmental training records are covered by Location Procedure ADM HR\LP013.</p> <p>Minutes of the HS&E Forum will be retained by the EHS Officer and the notes of Team Briefings by the Station Administrator.</p>	<p>STN\LP004 ADM HR\LP013</p>

Standard Requirement Note: the numbering within the table relates to the standards, not to this document	Implementation at Deeside	Related Documents
	Records are generally to be treated as Deeside restricted but in appropriate cases they may be released by the Station Manager. All data released to the Environmental Agency shall however be freely available to all staff.	
<p>4.5.5 Internal audit</p> <p>The organisation shall ensure that internal audits of the environmental management system are conducted at planned intervals to</p> <p>a) determine whether the environmental management system</p> <p>1) conforms to planned arrangements for environmental management including the requirements of this International Standard, and</p> <p>2) has been properly implemented and is maintained, and</p> <p>b) provide information on the results of audits to management.</p> <p>Audit programme(s) shall be planned, established, implemented and maintained by the organisation, taking into consideration the environmental importance of the operation(s) concerned and the results of previous audits.</p> <p>Audit procedure(s) shall be established, implemented and maintained that address</p> <ul style="list-style-type: none"> — the responsibilities and requirements for planning and conducting audits, reporting results and retaining associated records, — the determination of audit criteria, scope, frequency and methods. <p>Selection of auditors and conduct of audits shall ensure objectivity and the impartiality of the audit process.</p>	Audits are carried out on all managements systems as described in procedure STN\LP012. Additional information on implementation of this within the EMS is given in ENV\LP003 Section 14	STN\LP012 ENV\LP003
<p>4.6 Management review</p> <p>Top management shall review the organisation's environmental management system, at planned intervals, to ensure its continuing suitability, adequacy and effectiveness. Reviews shall include assessing opportunities for improvement and the need for changes to the environmental management system, including the environmental policy and environmental objectives and targets. Records of the</p>	<p>Reviews are conducted in the form of integrated reviews of the TQM</p> <p>Monthly reviews of operational progress are carried out at the monthly EHS forum</p>	HSE Forum Minutes Management system Review

Standard Requirement Note: the numbering within the table relates to the standards, not to this document	Implementation at Deeside	Related Documents
<p>management reviews shall be retained.</p> <p>Input to management reviews shall include</p> <ul style="list-style-type: none"> a) results of internal audits and evaluations of compliance with legal requirements and with other requirements to which the organisation subscribes, b) communication(s) from external interested parties, including complaints, c) the environmental performance of the organisation, d) the extent to which objectives and targets have been met, e) status of corrective and preventive actions, f) follow-up actions from previous management reviews, g) changing circumstances, including developments in legal and other requirements related to its environmental aspects, and h) recommendations for improvement. <p>The outputs from management reviews shall include any decisions and actions related to possible changes to environmental policy, objectives, targets and other elements of the environmental management system, consistent with the commitment to continual improvement.</p>	<p>Annual Management Systems Reviews are carried out by the management team and the ISO Standards Management Representatives to a set agenda & format</p>	<p>Reports</p>

6. Quality Management ISO 9001:2008

Standard Requirement Note: the numbering within the table relates to the standards, not to this document	Implementation at Deeside	Related Documents
4.1 General requirements The organisation shall establish, document, implement and maintain a quality management system and continually improve its effectiveness in accordance with the requirements of this International Standard. The organisation shall: a) determine the processes needed for the QMS and their application throughout the organisation (see 1.2), b) determine the sequence and interaction of these processes, c) determine criteria and methods needed to ensure that both the operation and control of these processes are effective, d) ensure the availability of resources and information necessary to support the operation and monitoring of these processes, e) monitor, measure where applicable, and analyse these processes, and f) implement actions necessary to achieve planned results and continual improvement of these processes.	The primary purpose of this section of the manual is to deliver a quality product to the site's two customers – these are: GDF Suez UK Trading – deliver electrical energy reliably, timely and at optimum thermal efficiency to a specified Physical Notification (PN) Profile National Grid – deliver ancillary services as instructed reliably and at the required time (e.g. frequency response, reactive power) and Balancing Mechanism (BM) electrical energy reliably and at optimum thermal efficiency to a specified Physical Notification (PN) Profile. This is achieved by the operation of the plant by competent staff (to specified procedures where appropriate) coupled with maintaining the plant by competent staff (to specified procedures where appropriate) so that the plant can be operated reliably, flexibly and to optimum thermal efficiency. This manual describes below all the elements of the system to meet General Requirements a-f).	
4.2 Documentation requirements 4.2.1 General The quality management system documentation shall include a) documented statements of a quality policy and quality objectives, b) a quality manual, c) documented procedures and records required by this International Standard, and d) documents, including records, determined by the organisation to be necessary to ensure the effective planning, operation and control of its processes.	The Policy fulfils the requirements of the standard and is reviewed annually or in the light of changing circumstances to ensure compliance with the standard and objectives and is authorised and signed by the Station Manager. The current Policy and Objectives are displayed on internal notice boards and the requirement for a quality manual is fulfilled by this manual Documented procedures are referenced in this manual	

Standard Requirement Note: the numbering within the table relates to the standards, not to this document	Implementation at Deeside	Related Documents
4.2.2 Quality manual The organisation shall establish and maintain a quality manual that includes a) the scope of the quality management system, including details of and justification for any exclusions (see 1.2), b) the documented procedures established for the quality management system, or reference to them, and c) a description of the interaction between the processes of the quality management system.	Covered by this Manual and associated procedures. Exclusions are documented below.	
4.2.3 Control of documents Documents required by the quality management system shall be controlled. Records are a special type of document and shall be controlled according to the requirements given in 4.2.4. A documented procedure shall be established to define the controls needed a) to approve documents for adequacy prior to issue, b) to review and update as necessary and re-approve documents, c) to ensure that changes and the current revision status of documents are identified, d) to ensure that relevant versions of applicable documents are available at points of use, e) to ensure that documents remain legible and readily identifiable, f) to ensure that documents of external origin determined by the organisation to be necessary for the planning and operation of the quality management system are identified and their distribution controlled, and g) to prevent the unintended use of obsolete documents, and to apply suitable identification to them if they are retained for any purpose.	The documentation system at Deeside is controlled by STN LP004, Document Filing and Storage. Technical drawings are controlled by ENG STN LP005 All documents produced on site are stored in the document management system. Hard copy documents are either referenced in Sharepoint or, where practicable, scanned and stored electronically. Records retention is described in ADMF048	STN LP004 ENG STN LP005 ADMF048
4.2.4 Control of records		

Standard Requirement Note: the numbering within the table relates to the standards, not to this document	Implementation at Deeside	Related Documents
Records established to provide evidence of conformity to requirements and of the effective operation of the quality management system shall be controlled. The organisation shall establish a documented procedure to define the controls needed for the identification, storage, protection, retrieval, retention and disposition of records. Records shall remain legible, readily identifiable and retrievable.	The management of all station records is covered by Location Procedure STN\LP004. This specifies the location and retention period of technical environmental records and data. Training records Records form Records of incidents and corrective and further preventative actions are maintained on the INTELEX system	STN LP004 ADM HRLP013 ADMF048
5.1 Management commitment Top management shall provide evidence of its commitment to the development and implementation of the quality management system and continually improving its effectiveness by a) communicating to the organisation the importance of meeting customer as well as statutory and regulatory requirements, b) establishing the quality policy, c) ensuring that quality objectives are established, d) conducting management reviews, and e) ensuring the availability of resources.	Commitment is demonstrated by the production of this manual, associated procedures and all associated records which demonstrate delivery of the quality product to the customer (See 4.1) Covered in procedure STN LP006. Policy and contractor management procedure on website. Induction DVD for staff, visitors and contractors. Staff Forum covers staff grievance and opportunity for improvement and consultation A Monthly Briefing is given to all staff by the management team and selected staff members according to current topics The Policy fulfils the requirements of the standard and is reviewed annually or in the light of changing circumstances to ensure compliance with the standard and objectives and is authorised and signed by the Station Manager. The current Policy and Objectives are displayed on internal notice boards. Management review carried out annually and seen as the opportunity to step back and view performance objectively	STN LP006
5.2 Customer focus		

Standard Requirement Note: the numbering within the table relates to the standards, not to this document	Implementation at Deeside	Related Documents
Top management shall ensure that customer requirements are determined and are met with the aim of enhancing customer satisfaction (see 7.2.1 and 8.2.1).	Two-weekly conference call with trading to clarify customer requirements. Grid code compliance described by OPS LP002 - Application of the Grid Code.	OPS LP002
5.3 Quality policy Top management shall ensure that the quality policy a) is appropriate to the purpose of the organisation, b) includes a commitment to comply with requirements and continually improve the effectiveness of the quality management system, c) provides a framework for establishing and reviewing quality objectives, d) is communicated and understood within the organisation, and e) is reviewed for continuing suitability.	The Policy fulfils the requirements of the standard and is reviewed annually or in the light of changing circumstances to ensure compliance with the standard and objectives and is authorised and signed by the Station Manager. The current Policy and Objectives are displayed on internal notice boards.	Quality Policy Document (Current Version)
5.4 Planning 5.4.1 Quality objectives Top management shall ensure that quality objectives, including those needed to meet requirements for product [see 7.1 a)], are established at relevant functions and levels within the organisation. The quality objectives shall be measurable and consistent with the quality policy.	Objectives and targets are set and endorsed at the annual management systems review meeting (5.6) at the beginning of the year with inputs from various sources (as detailed in 8.5.1) in order to provide continual improvement. Review of progress takes place at the Monthly HSE forum or if required in more detail at quarterly progress meeting of the Management Team and the management systems representatives. The reviewed and updated Management plan is maintained by the QEHS Officer as part of the total Quality Management Plan with detailed input from the Efficiency and Environment Engineer. The current Policy and Objectives are displayed on notice boards.	Management Plan (Current Version)
5.4.2 Quality management system planning Top management shall ensure that a) the planning of the quality management system is carried out in order to meet the requirements given in 4.1, as well as the quality objectives, and b) the integrity of the quality management system is maintained when changes to	The site produces a 5-year Business Plan which is updated annually. Formal documents are reviewed regularly as required. Quality objectives are determined annually at the review meeting. The site operates an internal audit scheme that includes quality procedures and maintains integrity.	

Standard Requirement Note: the numbering within the table relates to the standards, not to this document	Implementation at Deeside	Related Documents
<p>the quality management system are planned and implemented.</p>	<p>The short & medium term process for dealing with both preventative and corrective maintenance is fully documented in ENG LP027. There is a daily meeting between operational and maintenance staff to prioritise and coordinate this work process.</p> <p>For longer term engineering and outage management there is no set procedure as it is managed as required at several levels:</p> <ul style="list-style-type: none"> • Annual Business Plan • Annual Asset Management Plan • Outage Planning Meetings (as required) • Meetings with principle contractors (as required) • Contract meetings with sub-contractors for each individual subcontract as required (see HS LP006). • Post Outage Reviews. <p>The generation of specific work cards used in the long term and outage process is also covered in section 5.4 of ENG LP027.</p> <p>For both the above processes detailed specific requirements for maintenance of specific items of plant are detailed in a set of Technical Procedures (TPs) described in the Engineering Manual ENG\LMS – this document was checked up to date.</p> <p>These documents implement in detail where required the broader requirements of the Manufacturer's OEM Recommendations which are consulted as required throughout the works planning process.</p>	<p>ENG LP027</p> <p>Business Plans Asset Plans Meeting Minutes</p> <p>ENG\LMS TPs</p>
<p>5.5 Responsibility, authority and communication</p> <p>5.5.1 Responsibility and authority</p> <p>Top management shall ensure that responsibilities and authorities are defined and communicated within the organisation.</p>	<p>Every member of staff has a job profile which defines the key responsibilities of their role. Other Key Responsibilities are defined in this Manual. Additional specific responsibilities are defined within other management system procedures.</p>	<p>Job Profiles</p>

Standard Requirement Note: the numbering within the table relates to the standards, not to this document	Implementation at Deeside	Related Documents
	Additional responsibilities for the management of H&S and the environment are defined above in the OHSAS 18001 and ISO14001 sections of this Manual.	
5.5.2 Management representative Top management shall appoint a member of the organisation's management who, irrespective of other responsibilities, shall have responsibility and authority that includes a) ensuring that processes needed for the quality management system are established, implemented and maintained, b) reporting to top management on the performance of the quality management system and any need for improvement, and c) ensuring the promotion of awareness of customer requirements throughout the organisation.	The production manager is the ISO 9001 Management representative. He may delegate some of the responsibilities of this role to the QEHS Officer and the Environment & Efficiency Engineer who report to him and are the Management Representatives for the H&S and Environmental Management Systems respectively	
5.5.3 Internal communication Top management shall ensure that appropriate communication processes are established within the organisation and that communication takes place regarding the effectiveness of the quality management system.	Covered in procedure STN LP006. Policy and contractor management procedure on website. Induction DVD for staff, visitors and contractors. Staff Forum covers staff grievance and opportunity for improvement and consultation A Monthly Briefing is given to all staff by the management team and selected staff members according to current topics	STN LP006 Meeting minutes Team Brief presentations
5.6 Management review 5.6.1 General Top management shall review the organisation's quality management system, at planned intervals, to ensure its continuing suitability, adequacy and effectiveness. This review shall include assessing opportunities for improvement	Management review carried out annually Reviews are conducted in the form of assessment of compliance with relevant requirements	HSE Forum Minutes Management

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and the need for changes to the quality management system, including the quality policy and quality objectives. Records from management reviews shall be maintained (see 4.2.4).	Monthly reviews of operational progress are carried out at the HSE forum	system Review Reports
5.6.2 Review input The input to management review shall include information on a) results of audits, b) customer feedback, c) process performance and product conformity, d) status of preventive and corrective actions, e) follow-up actions from previous management reviews, f) changes that could affect the quality management system, and g) recommendations for improvement.	The reviews are carried out to a set agenda format to ensure inclusion of requirements	Management system Review Reports
5.6.3 Review output The output from the management review shall include any decisions and actions related to a) improvement of the effectiveness of the quality management system and its processes, b) improvement of product related to customer requirements, and c) resource needs.	Minutes are taken of the meetings and actions recorded and acted upon.	Management system Review Reports
6 Resource management 6.1 Provision of resources The organisation shall determine and provide the resources needed a) to implement and maintain the quality management system and continually improve its effectiveness, and b) to enhance customer satisfaction by meeting customer requirements.	The staff structure is shown on an organogram. Customer requirements satisfied by operations staff with additional operating technicians available for cover. Any remaining shift cover requirements satisfied by use of overtime.	STNF005

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6.2 Human resources 6.2.1 General Personnel performing work affecting conformity to product requirements shall be competent on the basis of appropriate education, training, skills and experience.	Competency of all staff is ensured initially at the recruitment stage in accordance with the procedures listed opposite and maintained as per the training programmes detailed in 6.2.2 below	HR LP016 HR LP023 HR LP058
6.2.2 Competence, training and awareness The organisation shall a) determine the necessary competence for personnel performing work affecting conformity to product requirements, b) where applicable, provide training or take other actions to achieve the necessary competence, c) evaluate the effectiveness of the actions taken, d) ensure that its personnel are aware of the relevance and importance of their activities and how they contribute to the achievement of the quality objectives, and e) maintain appropriate records of education, training, skills and experience (see 4.2.4).	Training programmes in place to ensure staff and management have sufficient opportunity to be trained to meet the requirements of their role. Training needs are derived from annual PDPs, new legislation etc. This is detailed in HR LP013. Additional requirements for managing H&S and Environmental issues are detailed in the additional procedures listed opposite Competence of staff assessed at annual appraisal with line manager and audited by independent consultant. Contractor competence assessed by Technical Officer, QEHS Officer during site safety walks and Fresh Eyes observations. Routine refresher training arranged as required and staff informed via training database. New staff induction programme in place. Induction DVD for staff, visitors and contractors. Technical Officers appointed to manage contracts and contractors. QEHS Officer enacts role of H&S Officer during plant outages and observes contractors and staff to assess competence.	HR LP013 H&S LP062 H&S LP067 HRF012 HRF 036 HR Forms on performance assessment H&S LP006 ENV LP016
6.3 Infrastructure The organisation shall determine, provide and maintain the infrastructure needed to achieve conformity to product requirements. Infrastructure includes as applicable a) buildings, workspace and associated utilities, b) process equipment (both hardware and software), and c) supporting services (such as transport, communication or information systems).	Plant design and maintenance and engineering routines, facilities management, general infrastructure arrangements Plant outages carried out as required based on EOH and statutory inspection requirements. Full-time staff maintaining plant, buildings and infrastructure (see maintenance management system as described in section 5.4.2) IT Security is formalised via STN POL048.	ENG LP027 STN POL048

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	Acquisition & Disposal of major items is covered in F&P LP006	F&P LP006
6.4 Work environment The organisation shall determine and manage the work environment needed to achieve conformity to product requirements.	As above	
7 Product realisation 7.1 Planning of product realisation The organisation shall plan and develop the processes needed for product realisation. Planning of product realisation shall be consistent with the requirements of the other processes of the quality management system (see 4.1) In planning product realisation, the organisation shall determine the following, as appropriate: a) quality objectives and requirements for the product; b) the need to establish processes and documents, and to provide resources specific to the product; c) required verification, validation, monitoring, measurement, inspection and test activities specific to the product and the criteria for product acceptance; d) records needed to provide evidence that the realisation processes and resulting product meet requirements (see 4.2.4). The output of this planning shall be in a form suitable for the organisation's method of operations.	Compliance with the National Grid code, as described in OPS LP002 Creation of and compliance with Operating Instructions and operations and maintenance procedures Weekly and monthly Ops routines and associated records Operational Shift Log (OSL) Annual team targets set for all departments	
7.2 Customer-related processes 7.2.1 Determination of requirements related to the product The organisation shall determine a) requirements specified by the customer, including the requirements for delivery and post-delivery activities, b) requirements not stated by the customer but necessary for specified or intended use, where known,	Discussed at two-weekly trader meeting Compliance with the National Grid code, as described in OPS LP002	

Standard Requirement Note: the numbering within the table relates to the standards, not to this document	Implementation at Deeside	Related Documents
c) statutory and regulatory requirements applicable to the product, and d) any additional requirements considered necessary by the organisation.		
7.2.2 Review of requirements related to the product The organisation shall review the requirements related to the product. This review shall be conducted prior to the organisation's commitment to supply a product to the customer (e.g. submission of tenders, acceptance of contracts or orders, acceptance of changes to contracts or orders) and shall ensure that a) product requirements are defined, b) contract or order requirements differing from those previously expressed are resolved, and c) the organisation has the ability to meet the defined requirements. Records of the results of the review and actions arising from the review shall be maintained (see 4.2.4). Where the customer provides no documented statement of requirement, the customer requirements shall be confirmed by the organisation before acceptance. Where product requirements are changed, the organisation shall ensure that relevant documents are amended and that relevant personnel are made aware of the changed requirements.	Compliance with the National Grid code, as described in OPS LP002 Creation of and compliance with Operating Instructions and operations and maintenance procedures	
7.2.3 Customer communication The organisation shall determine and implement effective arrangements for communicating with customers in relation to a) product information, b) enquiries, contracts or order handling, including amendments, and c) customer feedback, including customer complaints.	Compliance with the National Grid code, as described in OPS LP002 Two-weekly trader meeting Regular discussion by telephone to traders to ensure requirements are met. Specific rules to follow in event of problems with generation, as required by the National Grid code	
7.3 Design and development 7.3.1 Design and development planning The organisation shall plan and control the design and development of product.	Not applicable to electricity generation. This has been independently assessed as justifiable by an external assessor on a similar	N/A

Standard Requirement Note: the numbering within the table relates to the standards, not to this document	Implementation at Deeside	Related Documents
<p>During the design and development planning, the organisation shall determine</p> <ul style="list-style-type: none"> a) the design and development stages, b) the review, verification and validation that are appropriate to each design and development stage, and c) the responsibilities and authorities for design and development. <p>The organisation shall manage the interfaces between different groups involved in design and development to ensure effective communication and clear assignment of responsibility. Planning output shall be updated, as appropriate, as the design and development progresses.</p>	<p>generating plant. Quote from the report:</p> <p><i>“Exclusions are only allowed under section 7 of the Standard and my understanding of the scope of the system would imply that in terms of the quality system and provision of service, sub-sections 7.3, 7.5.2, 7.5.3, 7.5.4 and 7.5.5 could justifiably be excluded. All other sections need to be and appear to have been addressed within either the manual or the system.”</i></p>	
<p>7.3.2 Design and development inputs</p> <p>Inputs relating to product requirements shall be determined and records maintained (see 4.2.4). These inputs shall include</p> <ul style="list-style-type: none"> a) functional and performance requirements, b) applicable statutory and regulatory requirements, c) where applicable, information derived from previous similar designs, and d) other requirements essential for design and development. <p>The inputs shall be reviewed for adequacy. Requirements shall be complete, unambiguous and not in conflict with each other.</p>	<p>Not applicable to electricity generation (See 7.3 above)</p>	<p>N/A</p>
<p>7.3.3 Design and development outputs</p> <p>The outputs of design and development shall be in a form suitable for verification against the design and development input and shall be approved prior to release. Design and development outputs shall</p> <ul style="list-style-type: none"> a) meet the input requirements for design and development, b) provide appropriate information for purchasing, production and service provision, c) contain or reference product acceptance criteria, and d) specify the characteristics of the product that are essential for its safe and proper use. 	<p>Not applicable to electricity generation (See 7.3 above)</p>	<p>N/A</p>

Standard Requirement Note: the numbering within the table relates to the standards, not to this document	Implementation at Deeside	Related Documents
7.3.4 Design and development review At suitable stages, systematic reviews of design and development shall be performed in accordance with planned arrangements (see 7.3.1) a) to evaluate the ability of the results of design and development to meet requirements, and b) to identify any problems and propose necessary actions. Participants in such reviews shall include representatives of functions concerned with the design and development stage(s) being reviewed. Records of the results of the reviews and any necessary actions shall be maintained (see 4.2.4).	Not applicable to electricity generation (See 7.3 above)	N/A
7.3.5 Design and development verification Verification shall be performed in accordance with planned arrangements (see 7.3.1) to ensure that the design and development outputs have met the design and development input requirements. Records of the results of the verification and any necessary actions shall be maintained (see 4.2.4).	Not applicable to electricity generation (See 7.3 above)	N/A
7.3.6 Design and development validation Design and development validation shall be performed in accordance with planned arrangements (see 7.3.1) to ensure that the resulting product is capable of meeting the requirements for the specified application or intended use, where known. Wherever practicable, validation shall be completed prior to the delivery or implementation of the product. Records of the results of validation and any necessary actions shall be maintained (see 4.2.4).	Not applicable to electricity generation (See 7.3 above)	N/A
7.3.7 Control of design and development changes Design and development changes shall be identified and records maintained. The changes shall be reviewed, verified and validated, as appropriate, and approved before implementation. The review of design and development changes shall include evaluation of the effect of the changes on constituent parts and product already delivered. Records of the results of the review of changes and any necessary actions shall be maintained (see 4.2.4).	Not applicable to electricity generation (See 7.3 above)	

Standard Requirement Note: the numbering within the table relates to the standards, not to this document	Implementation at Deeside	Related Documents
7.4 Purchasing 7.4.1 Purchasing process The organisation shall ensure that purchased product conforms to specified purchase requirements. The type and extent of control applied to the supplier and the purchased product shall be dependent upon the effect of the purchased product on subsequent product realisation or the final product. The organisation shall evaluate and select suppliers based on their ability to supply product in accordance with the organisation's requirements. Criteria for selection, evaluation and re-evaluation shall be established. Records of the results of evaluations and any necessary actions arising from the evaluation shall be maintained (see 4.2.4).	Procurement of Goods and services is covered by PROC FP LP017. The document covers all the generic requirements of section 7.4 of the Standard. Operations LPs cover management of gas supply, billing and performance verification. Management of material put on stock is specified in F&P LP005	PROC FPLP017 OPS LP021 and OPS LP029 F&P LMS F&P LP002 F&P LP005
7.4.2 Purchasing information Purchasing information shall describe the product to be purchased, including, where appropriate, a) requirements for approval of product, procedures, processes and equipment, b) requirements for qualification of personnel, and c) quality management system requirements. The organisation shall ensure the adequacy of specified purchase requirements prior to their communication to the supplier.	Where the provision of a service is delivered by contract work on site all such work is assigned a Technical Officer from the Deeside staff to manage activities during the contract. Technical officers are appointed by the site management in writing and are authorised. A contract file is maintained by the TO documenting all the relevant information relating to the management and control of the contract. The requirements for all the above are specified in procedures HS LP056 and HS LP006 Also see 7.4 above	PROC FPLP017 HS LP006 HS LP056
7.4.3 Verification of purchased product The organisation shall establish and implement the inspection or other activities necessary for ensuring that purchased product meets specified purchase requirements. Where the organisation or its customer intends to perform verification at the supplier's premises, the organisation shall state the intended verification arrangements and method of product release in the purchasing information.	Routine auditing of quarterly AGI measuring equipment calibration.	PROC FPLP017 OPS LP021 HS LP006 HS LP056

Standard Requirement Note: the numbering within the table relates to the standards, not to this document	Implementation at Deeside	Related Documents
7.5 Production and service provision 7.5.1 Control of production and service provision The organisation shall plan and carry out production and service provision under controlled conditions. Controlled conditions shall include, as applicable, a) the availability of information that describes the characteristics of the product, b) the availability of work instructions, as necessary, c) the use of suitable equipment, d) the availability and use of monitoring and measuring equipment, e) the implementation of monitoring and measurement, and f) the implementation of product release, delivery and post-delivery activities.	Operating Instructions and Operating LPs in place. Weekly and monthly operations routines. All work accompanied by Work Order Card and method statement/job plan describing the work required.	OIs, OPS LPs
7.5.2 Validation of processes for production and service provision The organisation shall validate any processes for production and service provision where the resulting output cannot be verified by subsequent monitoring or measurement and, as a consequence, deficiencies become apparent only after the product is in use or the service has been delivered. Validation shall demonstrate the ability of these processes to achieve planned results. The organisation shall establish arrangements for these processes including, as applicable, a) defined criteria for review and approval of the processes, b) approval of equipment and qualification of personnel, c) use of specific methods and procedures, d) requirements for records (see 4.2.4), and e) revalidation.	Not applicable to electricity generation (See 7.3 above) – output measured by validated metering.	N/A
7.5.3 Identification and traceability Where appropriate, the organisation shall identify the product by suitable means throughout product realisation. The organisation shall identify the product status with respect to monitoring and measurement requirements throughout product realisation. Where traceability is a requirement, the organisation shall control the	Not applicable to electricity generation (See 7.3 above)	N/A

Standard Requirement	Implementation at Deeside	Related Documents
Note: the numbering within the table relates to the standards, not to this document		
unique identification of the product and maintain records (see 4.2.4).		
7.5.4 Customer property The organisation shall exercise care with customer property while it is under the organisation's control or being used by the organisation. The organisation shall identify, verify, protect and safeguard customer property provided for use or incorporation into the product. If any customer property is lost, damaged or otherwise found to be unsuitable for use, the organisation shall report this to the customer and maintain records (see 4.2.4).	Not applicable to electricity generation (See 7.3 above)	N/A
7.5.5 Preservation of product The organisation shall preserve the product during internal processing and delivery to the intended destination in order to maintain conformity to requirements. As applicable, preservation shall include identification, handling, packaging, storage and protection. Preservation shall also apply to the constituent parts of a product.	Not applicable to electricity generation (See 7.3 above)	N/A
7.6 Control of monitoring and measuring equipment The organisation shall determine the monitoring and measurement to be undertaken and the monitoring and measuring equipment needed to provide evidence of conformity of product to determined requirements. The organisation shall establish processes to ensure that monitoring and measurement can be carried out and are carried out in a manner that is consistent with the monitoring and measurement requirements. Where necessary to ensure valid results, measuring equipment shall a) be calibrated or verified, or both, at specified intervals, or prior to use, against measurement standards traceable to international or national measurement standards; where no such standards exist, the basis used for calibration or verification shall be recorded (see 4.2.4); b) be adjusted or re-adjusted as necessary; c) have identification in order to determine its calibration status;	The main electrical metering – the source of monitoring of all production products – is calibrated and maintained through a specialist service contract with Siemens. Routine auditing of quarterly AGI measuring equipment calibration Various Operations procedures detailing all requirements of operating to the National Grid Code, including Plant Release and Return to Service, System Account Operations, Operational Contingency, Grid Code Data Registration, Power Station Response to Grid Disturbances or Warnings, Commercial Operating Procedures, Control Room Energy Management Audit Process, Timetable of Submissions to from NGET, Operational Availability Loss, Incident/Near Miss Reporting, Electricity Metering Checks, Electronic Despatch Logging (EDL), Procedure Following	ENG TP021 OPS LP017 OPS LP021 Ops LPs

Standard Requirement Note: the numbering within the table relates to the standards, not to this document	Implementation at Deeside	Related Documents
<p>d) be safeguarded from adjustments that would invalidate the measurement result;</p> <p>e) be protected from damage and deterioration during handling, maintenance and storage.</p> <p>In addition, the organisation shall assess and record the validity of the previous measuring results when the equipment is found not to conform to requirements. The organisation shall take appropriate action on the equipment and any product affected. Records of the results of calibration and verification shall be maintained (see 4.2.4). When used in the monitoring and measurement of specified requirements, the ability of computer software to satisfy the intended application shall be confirmed. This shall be undertaken prior to initial use and reconfirmed as necessary.</p>	<p>Annunciation of a High Accuracy Metering Alarm, Auditing of British Gas Transco AGI Metering Re-Validations, Operating Under BETTA, Long Term Offer Submissions, Shift Handover/Shift Operational Logs and Deeside Gas Capacity and Supply Interruption.</p>	
<p>8 Measurement, analysis and improvement</p> <p>8.1 General</p> <p>The organisation shall plan and implement the monitoring, measurement, analysis and improvement processes needed</p> <p>a) to demonstrate conformity to product requirements,</p> <p>b) to ensure conformity of the quality management system, and</p> <p>c) to continually improve the effectiveness of the quality management system.</p> <p>This shall include determination of applicable methods, including statistical techniques, and the extent of their use.</p>	<p>Self-regulation auditing</p> <p>EOH monitoring and electrical meter readings as detailed above</p>	
<p>8.2 Monitoring and measurement</p> <p>8.2.1 Customer satisfaction</p> <p>As one of the measurements of the performance of the quality management system, the organisation shall monitor information relating to customer perception as to whether the organisation has met customer requirements. The methods for obtaining and using this information shall be determined.</p>	<p>All customer feedback from GDF Suez trading discussed at fortnightly meetings. Any feedback from National Grid is dealt with as required by the National Grid Code.</p>	

Standard Requirement Note: the numbering within the table relates to the standards, not to this document	Implementation at Deeside	Related Documents
8.2.2 Internal audit The organisation shall conduct internal audits at planned intervals to determine whether the quality management system a) conforms to the planned arrangements (see 7.1), to the requirements of this International Standard and to the quality management system requirements established by the organisation, and b) is effectively implemented and maintained. An audit programme shall be planned, taking into consideration the status and importance of the processes and areas to be audited, as well as the results of previous audits. The audit criteria, scope, frequency and methods shall be defined. The selection of auditors and conduct of audits shall ensure objectivity and impartiality of the audit process. Auditors shall not audit their own work. A documented procedure shall be established to define the responsibilities and requirements for planning and conducting audits, establishing records and reporting results. Records of the audits and their results shall be maintained (see 4.2.4). The management responsible for the area being audited shall ensure that any necessary corrections and corrective actions are taken without undue delay to eliminate detected nonconformities and their causes. Follow-up activities shall include the verification of the actions taken and the reporting of verification results (see 8.5.2).	Annual internal audit programme agreed by Management team Audits are carried out on all managements systems as described in procedure STN\LP012.	STN\LP012.
8.2.3 Monitoring and measurement of processes The organisation shall apply suitable methods for monitoring and, where applicable, measurement of the quality management system processes. These methods shall demonstrate the ability of the processes to achieve planned results. When planned results are not achieved, correction and corrective action shall be taken, as appropriate.	As 7.6	
8.2.4 Monitoring and measurement of product The organisation shall monitor and measure the characteristics of the product to verify that product requirements have been met. This shall be carried out at	The main electrical metering – the source of monitoring of all production products – is calibrated and maintained through a	

Standard Requirement Note: the numbering within the table relates to the standards, not to this document	Implementation at Deeside	Related Documents
<p>appropriate stages of the product realisation process in accordance with the planned arrangements (see 7.1). Evidence of conformity with the acceptance criteria shall be maintained. Records shall indicate the person(s) authorising release of product for delivery to the customer (see 4.2.4). The release of product and delivery of service to the customer shall not proceed until the planned arrangements (see 7.1) have been satisfactorily completed, unless otherwise approved by a relevant authority and, where applicable, by the customer.</p>	<p>specialist service contract with Siemens.</p> <p>The metering is output is telemetered to NGC national settlements for determination of the necessary payments</p> <p>The metering feeds data to the GPMS display in the control room which provides the operators with all the information required monitoring & control the electrical energy to Trading and electrical services (see 4.1) to NGC. The operators have direct telephone contact with both Trading and NGC.</p> <p>There is a bi weekly meeting between the Power station and Trading as part of this quality control process. Trading also liaises over the longer term contract a pricing provision for the deliverance of services to NGC</p>	
<p>8.3 Control of nonconforming product</p> <p>The organisation shall ensure that product which does not conform to product requirements is identified and controlled to prevent its unintended use or delivery. A documented procedure shall be established to define the controls and related responsibilities and authorities for dealing with nonconforming product. Where applicable, the organisation shall deal with nonconforming product by one or more of the following ways:</p> <ul style="list-style-type: none"> a) by taking action to eliminate the detected nonconformity; b) by authorising its use, release or acceptance under concession by a relevant authority and, where applicable, by the customer; c) by taking action to preclude its original intended use or application; d) by taking action appropriate to the effects, or potential effects, of the nonconformity when nonconforming product is detected after delivery or use has started. When nonconforming product is corrected it shall be subject to re-verification to demonstrate conformity to the requirements. <p>Records of the nature of nonconformities and any subsequent actions taken, including concessions obtained, shall be maintained (see 4.2.4).</p>	<p>In the case of a power station a non-conforming product is simply the failure of delivery of electrical energy or ancillary service to the requirements of 4.1.</p> <p>This is dealt with as in 8.5.2 below.</p>	

Standard Requirement Note: the numbering within the table relates to the standards, not to this document	Implementation at Deeside	Related Documents
8.4 Analysis of data The organisation shall determine, collect and analyse appropriate data to demonstrate the suitability and effectiveness of the quality management system and to evaluate where continual improvement of the effectiveness of the quality management system can be made. This shall include data generated as a result of monitoring and measurement and from other relevant sources. The analysis of data shall provide information relating to a) customer satisfaction (see 8.2.1), b) conformity to product requirements (see 8.2.4), c) characteristics and trends of processes and products, including opportunities for preventive action (see 8.2.3 and 8.2.4), and d) Suppliers (see 7.4).	Conformance with this requirement of the standard is dealt with in detail in the relevant parts of this manual particularly as described in sections: 7.4 8.2.1 8.2.3 8.2.4	
8.5 Improvement 8.5.1 Continual improvement The organisation shall continually improve the effectiveness of the quality management system through the use of the quality policy, quality objectives, audit results, analysis of data, corrective and preventive actions and management review.	Policy –See 5.3 Management review -See 5.6 Audit –See 8.2.2 Analysis –See 8.4 Corrective Actions –See 8.5.2 Preventative Actions –See 8.5.3 Information arising from all the above processes is used in the setting of objectives and targets (See 5.4.1) to produce continual improvement	
8.5.2 Corrective action The organisation shall take action to eliminate the causes of nonconformities in order to prevent recurrence. Corrective actions shall be appropriate to the effects of the nonconformities encountered. A documented procedure shall be established to define requirements for	Key Corrective Action processes are: (Loss of Availability) LOA Reporting of failures to meet customer delivery requirements via Intalex. This is the same system used for reporting and processing Health Safety and Environmental Incidents and is described in H&S LP015.	H&S LP015 ENG LP027

Standard Requirement Note: the numbering within the table relates to the standards, not to this document	Implementation at Deeside	Related Documents
a) reviewing nonconformities (including customer complaints), b) determining the causes of nonconformities, c) evaluating the need for action to ensure that nonconformities do not recur, d) determining and implementing action needed, e) records of the results of action taken (see 4.2.4), and f) reviewing the effectiveness of the corrective action taken.	Plant breakdown and defect reporting system via Maximo. This is described in procedure ENG LP027 Corrective actions may arise as a result of reviews (5.6), audits (8.2.2) and data analysis (8.4)	
8.5.3 Preventive action The organisation shall determine action to eliminate the causes of potential nonconformities in order to prevent their occurrence. Preventive actions shall be appropriate to the effects of the potential problems. A documented procedure shall be established to define requirements for a) determining potential nonconformities and their causes, b) evaluating the need for action to prevent occurrence of nonconformities, c) determining and implementing action needed, d) records of results of action taken (see 4.2.4), and e) reviewing the effectiveness of the preventive action taken.	Key Preventative Action Processes are: Planned Maintenance routines via Maximo. This is described in ENG LP027. Long Term engineering and outage planning (See section 5.4.2) Plant modifications may be identified as being necessary as a result of any of the processes described in 8.5.2. these are implemented in accordance with ENG TP023 Preventative actions may arise as a result of reviews (5.6), audits (8.2.2) and data analysis (8.4)	ENG LP027 ENG TP023

Appendix 1

H&S documents

Procedure Ref	Title
ADM HR LP013	Training and development
ADMF 048	Schedule for retention of station documentation
Annual review agenda	Part of QEHS Officer/EE Engineer report to Management Team
EHS Forum Minutes	
EMG LMS EMG LP***	Emergency LMS and all emergency location procedures
ENG TP023_1	Management of Plant Modifications
F&P LP017	Procurement of goods and services
H&S Policy Document (Current Version)	
H&S LMS	H&S Location Management System
H&S LP***	All H&S location procedures
H&SF083A	Health and safety targets
H&SF125	Internal audit programme
H&SF114	Authorisations; nominated Roles
HR LP013	Training and development
HRF012	Training objectives and evaluation
HRF 036	Induction checklist
HRF 051 and 052	HR Forms on performance assessment
H&SF107	H&S requirements for contractors
H&SF110 HSEF	Terms of Reference
Management system Review Reports	
PROC FP LP017	Procurement of Goods and Services
PROC FP LP018	Managing Contracts - Guidance for Technical Officers
OPS	OPS_LABORATORY_MANUAL.
STN LP004	Document control and records management
STN LP006	Communication of relevant station information
STN\LP012	Audit management

Appendix 2

ISO 14001 Operational Control Procedures

Procedure Ref	Title
AOA AC_02	TARIFF METERING - HIGH ACCURACY METERING ALARM
AOA EKG04	FUEL GAS SYSTEM - AGI COMMUNICATION'S LINK FAILURE
AOA PAD01	COOLING TOWERS - PLUME DETECTION ACTIVE, OR COMPLAINT FROM MEMBER OF PUBLIC
ENV LP001	Backtracking on finding an Instrument Out of Calibration
ENV LP002	Environmental Instrument Calibration
ENV LP003	Key Responsibilities and Supporting Procedures
ENV LP004	Environmental Reporting
ENV LP005	Removal Of Waste from Site
ENV LP006	Control of Contaminated Land
ENV LP007	Management of PCB Filled & Contaminated Equipment
ENV LP008	Discharge of Fluorescein Dye into the River Dee
ENV LP009	Control of Major Accident Hazards
ENV LP010	Procedure to be adopted in the Event of a Visit from the Environment Agency
ENV LP013	Monitoring and Reporting of Carbon Dioxide Emissions
ENV LP014	Environmental Noise Control
ENV LP015	Compliance with IPPC Permit Energy Efficiency
ENV LP016	Environmental Training and Competency
ENV LP017	Site Closure
ENV LP018	Site Protection and Monitoring Programme
ENV LP019	MCERTS Management
ENG TP020_2-3	Management of Sulphur Hexafluoride Gas for use in Electrical Installations
ENG TP023_1	Management of Plant Modifications
FP LP002	Accounting for Water Usage.doc
FP LP003	Accounting for Fuel Gas
HS LP006	Managing Contracts - Health, Safety & Environmental Guidance for Technical Officers
HS LP007	Site Induction - Visitors and Contractors
HS LP041	HS LP041 Sulphur Hexafluoride Acceptance and Handling Procedures
HS LP044	Control of Acid Systems
HS LP056	Technical Officer - Authorisation Procedure

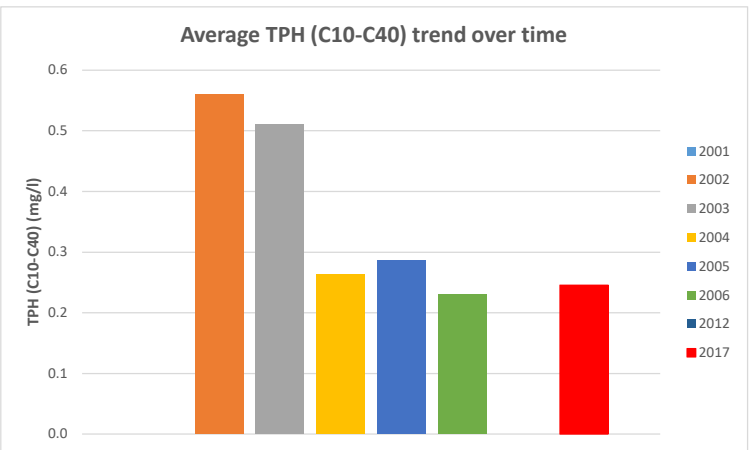
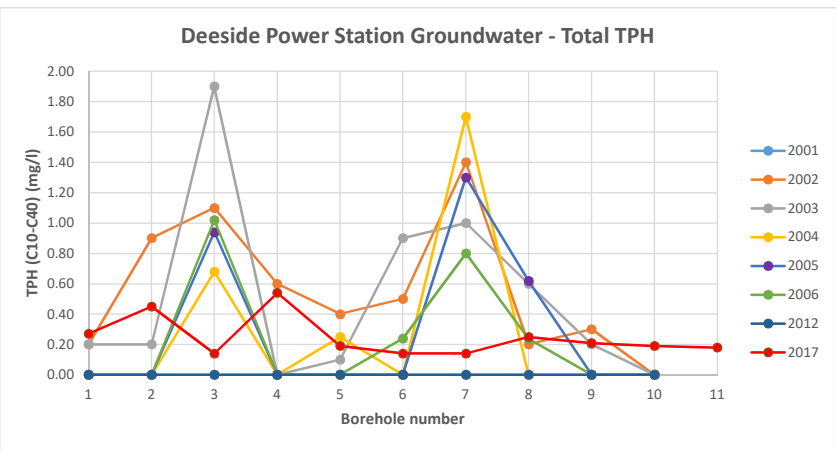
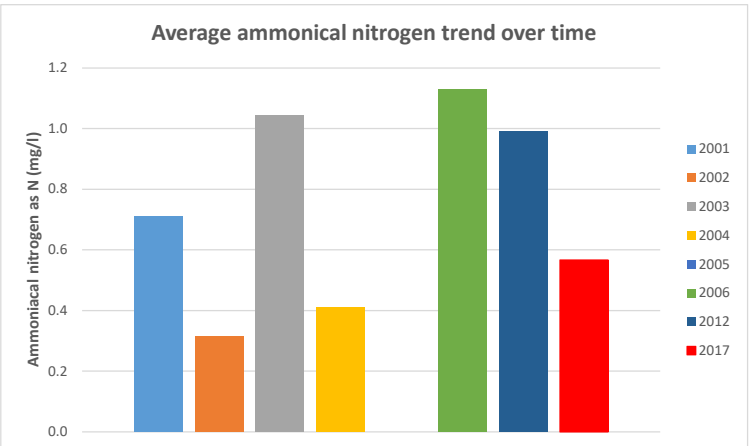
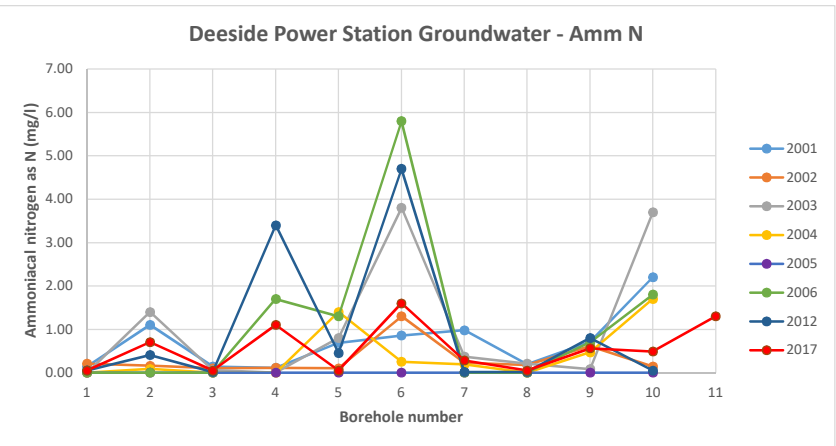
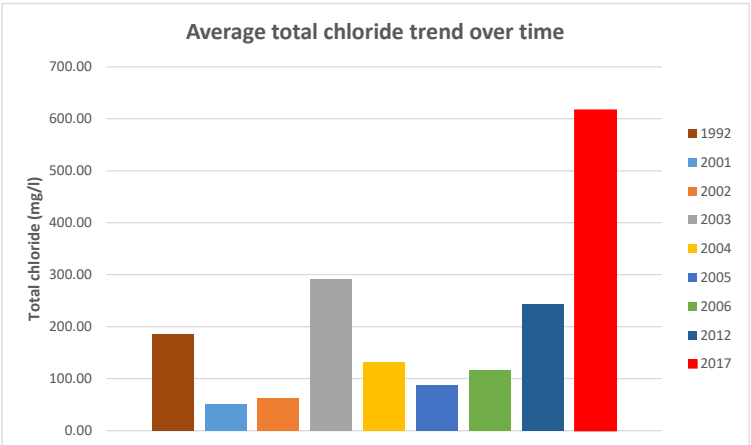
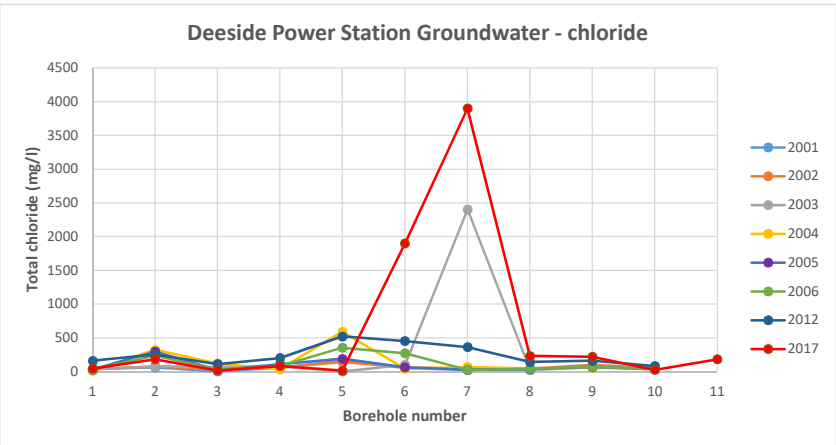
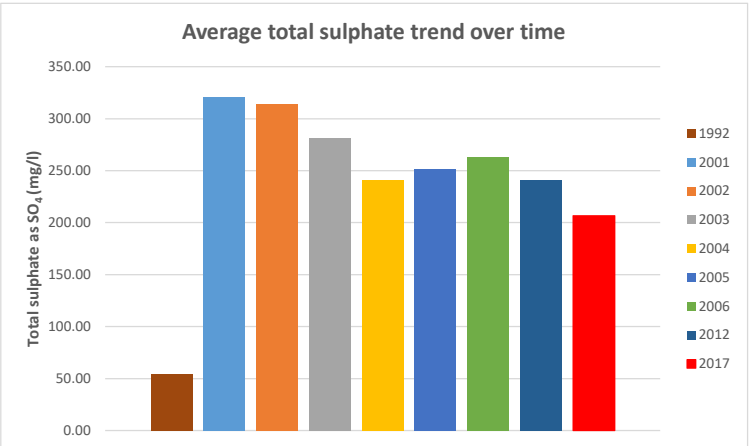
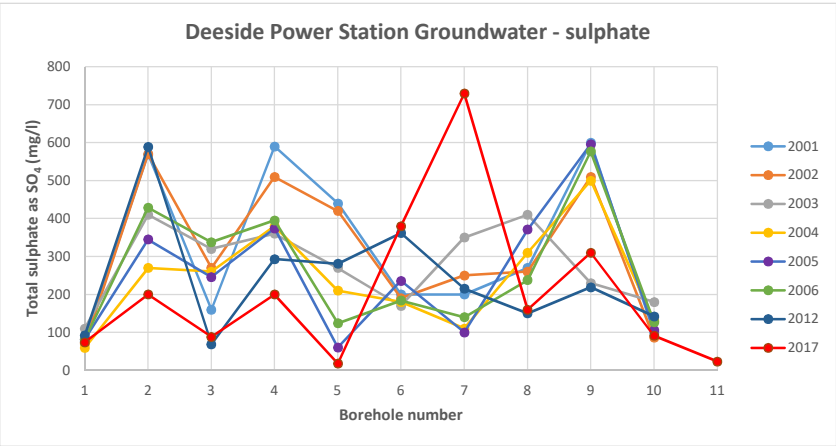
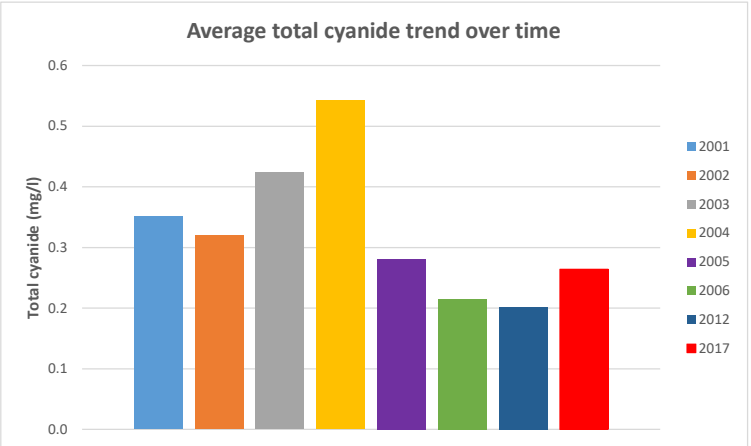
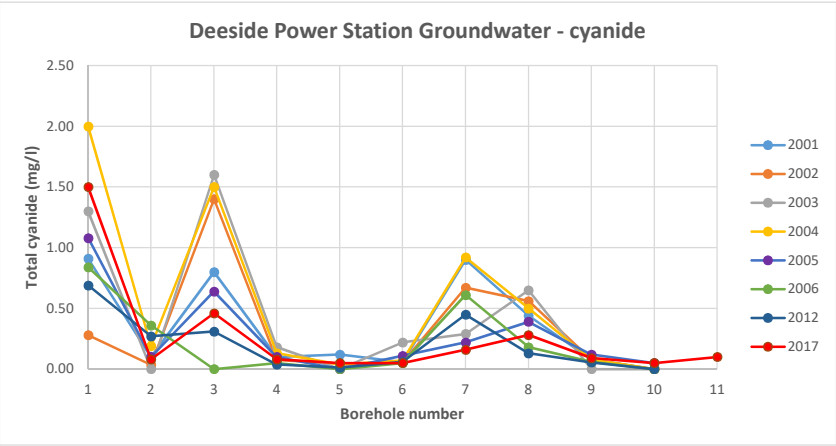
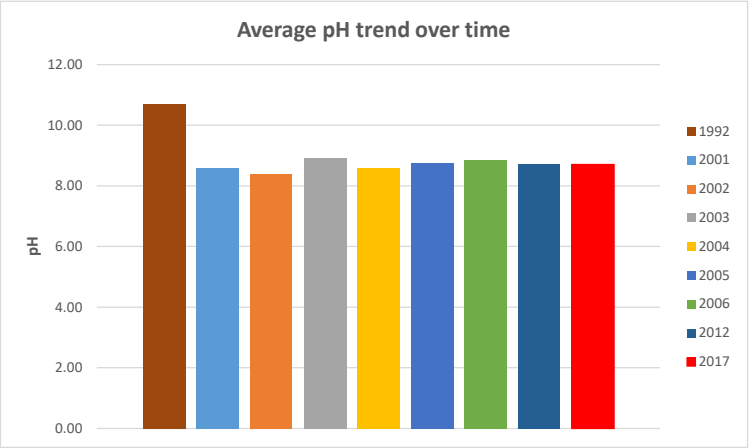
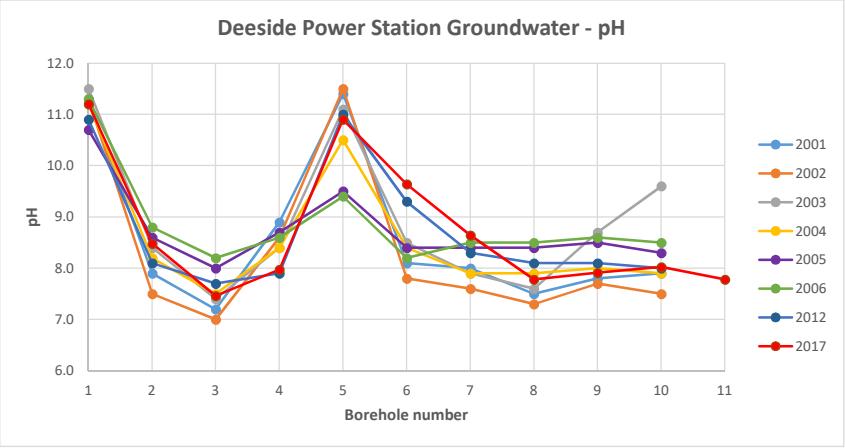
Procedure Ref	Title
OPS	OPS_LABORATORY_MANUAL.
PROC FP LP017	Procurement of Goods and Services
PROC FP LP018	Managing Contracts - Guidance for Technical Officers
ROU GC_06	GC_06 Water Treatment Plant - Bulk Chemical Tanker Unloading
ROU GUA01	Penstock Test Run
ROU GUA02	Site Drainage System - Spill Unit Inventory
ROU LFN03	IBC TOTE TANK DELIVERY CHANGEOVER PROCEDURE
ROU PA_06	MCW Recirc. Bulk Chemical Tanker Unloading
ROU PAR01	Site Float Switches & Sump Pumps

Appendix 3

Quality procedures other than those specific to HS&E

Procedure Ref	Title
ENG STN LP005	Drawing control
ENG LP027	Work control
ENG TP023_1	Management of Plant Modifications
ENG /LMS	Engineering Management System
ENG TPs & LPs	Engineering Procedures comprising the Engineering Management system (See SharePoint / IMS / Formal Documents / Engineering)
HR LP016	Recruitment and selection
HR LP023	Staff induction
HR LP058	Requesting and providing references
HR LPs	HR Procedures (See SharePoint / IMS / Formal Documents / HR)
Finance & Procurement LPs	FP Procedures (See SharePoint / IMS / Formal Documents / HR / Finance & Procurement)
OPS LP002	Application of the grid code
OPS LP029	Deeside Gas Capacity and Supply Interruption
OPS LP021	Auditing of British Gas Transco AGI Metering Re-Validations
OIs	Operating Instructions
OPS LPs	Various Operations procedures (See SharePoint / IMS / Formal Documents / Operations)
Job Profiles	e.g. Business Functions/performance/Guidance/IPR Job Profile Guidelines
Management Plan (Current Version)	
Quality Policy Document (Current Version)	
STNF005	Deeside organisation chart
Administration LPs	ADM LPs ((See SharePoint / IMS / Formal Documents / Station)
Team Brief presentations	In Administration area of Sharepoint

Appendix G – Groundwater Monitoring




Appendix H – Underground Fuel Oil Pipeline Removal 2022



Mechanical Decoking and Inspection
Completion Note



PROJECT DETAILS:		
Project Ref:	2292-22	
Client:	Triton Power Station - Deeside	
Location:	Weighbridge Road, Deeside, Flintshire	
Site Contact:	Phil Rafferty – Station Manager	
Operations Supervisor:	Joe Walsh	
Start Date/Time :	0900 01.09.2022	End Date/Time: 1600 01.09.2022
Service Provided:	Fuel removal and flush of 2x pipelines	
	<ul style="list-style-type: none">• DC = Mechanical Decoking• MIT = Inspection• CS = Combined Service• CNC = Coke No Coke	
SUPERVISOR COMMENTS: <p>Following completion of the safety induction, set up and site operations commenced as per schedule. 1hr delay due to requirement for ad-hoc connection spool modification – carried out at CB workshop.</p> <p>At 1500 all evidence of diesel fuel removed from pipeline and 2x pipelines circulated / flushed with clean hydrant water.</p> <p>All diesel fuel removed from CB pumping unit via vac truck.</p> <p>De-mob and pack up complete by 1600, gate passes returned and departed site by 1630.</p> <p>All requirements from client provided as agreed during site visit and listed in the SOW.</p> <p>Successful operation, completed on time and within the agreed budget.</p>		
SITE CONTACT COMMENTS: <p>Really pleased with the response and service provided by Cokebusters. They removed 12000L of fuel oil without spilling a drop. They are a great crew and professional team that I wouldn't hesitate to recommend or use again. Thanks for your help with this.</p>		
I confirm that the contracted works have been completed to my satisfaction.		
Print Name: Philip Rafferty	Signature: 	Date: 02/09/2022
Position: Station Manager		



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Filling Lines Exposed



Filling Lines Being Removed



Gas and Fuel Lines Exposed



Gas and Fuel Lines Being Removed



Cokebusters removing the diesel from the pipelines.









Appendix I - Asbestos Survey

Asbestos Demolition Survey

Zone 1
Triton Power
Deeside Power Station
Weighbridge Road
Flintshire
CH5 2UL



10118



10118

Sentinel Environmental Consultancy Ltd
Unit 17 Gwenfro
Technology Park
Wrexham
LL13 7YP

Company Details
Email: enquiries@sentinelenvironmental.co.uk
Tel: 0333 3058769

1. Executive Summary [Conclusions and actions]
2. Report Summary
3. Introduction - Purpose, Aims and Objectives
4. Agreed Scope, Caveats and Limitations
5. Survey Method
6. Exclusions and Caveats
7. Sampling and Analysis
8. Survey Results - Interpretation
9. Recommendations

APPENDICES - Survey Results

- Appendix 1 - Asbestos Register - Results
- Appendix 2 - Survey Data Sheets
- Appendix 3 - Areas Surveyed
- Appendix 4 - Analysis Certificates
- Appendix 5 - Plans
- Appendix 6 - Intrusion Photographs

1.0 Executive summary:

This Executive Summary provides details on :

- | the locations with identified (or presumed) ACMs;
- | areas not accessed;
- | ACMs with high material assessment scores;
- | clear notes on any actions (and priorities).

Asbestos containing materials have been identified during the Demolition Survey and the specific areas are categorized below in order according to the initial Material Risk Assessment made by Sentinel Environmental Consultancy Ltd.

HIGH RISK MATERIALS - SCORES 10+

Asbestos in poor condition, or asbestos debris/contamination has been identified within the following areas listed in the table below. It is recommended that risk assessment (s) are undertaken to ensure that Regulation 4, Regulation 10, Regulation 11, and Regulation 16 of the Control of Asbestos Regulations 2012 are complied with.

Building	Floor	Room	Item	Material	Risk assessment Score	Tentative Recommendations
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There were no results found.

MEDIUM RISK MATERIALS - SCORES 7-9

Asbestos containing materials, which are unsealed or damaged, have been identified within the following areas listed in the table below. It is recommended that remedial work to seal or remove these materials is undertaken as a priority and that air monitoring is carried out within adjacent areas in order to assess airborne fibre levels.

Building	Floor	Room	Item	Material	Risk assessment Score	Tentative Recommendations
There were no results found.						

LOW RISK MATERIALS - SCORES 1-6

Asbestos Containing Materials have been identified which are in good condition, A management policy and plan need to be implemented to manage these materials safely.

Building	Floor	Room	Item	Material	Risk assessment Score	Tentative Recommendations
There were no results found.						

1.0 Executive summary:

PRESUMED ASBESTOS/NO ACCESS AREAS



Asbestos Containing Materials (ACMs) have been presumed as being present to the following areas where access could not be gained. Areas which have not been accessed should be presumed to contain asbestos until proven otherwise.

Building	Floor	Room/Area	Tentative Recommendation	Surveyor Notes
There were no results found.				

Building Notes:

Internal notes: N/A
External notes: N/A

2.0 Report Summary:

Name and address of site:	Zone 1, Triton Power, Deeside Power Station, Weighbridge Road, Flintshire		
Name and address of client:	Triton Power, Triton Power, Deeside Power Station, Weighbridge Road, Flintshire		
Client contact:	Colin Brooks		
Type of survey:	Demolition Survey		
Date of survey:	15 Feb 2021		
Report Revision Number:	1		
TEAMS internal job number:	J007542		
Lead surveyor[s]:	Adam Yates	Signature:	
Technically reviewed by:	Luke Jones	Signature:	
Report issue date:	8 Mar 2021		

3.0 Introduction/Objectives:

Sentinel Environmental Consultancy Ltd received an order of confirmation to undertake a Demolition Survey from Triton Power. This order has been accepted on the basis of the original quotation and our terms and conditions of business.

The order relates to a Demolition survey of:

Zone 1
Triton Power
Deeside Power Station
Weighbridge Road
Flintshire
CH5 2UL

The survey was carried out by Adam Yates, Declan Hughes.

The Type of survey selected / requested by the client was a Demolition survey.

This survey was carried out in accordance with documented in house procedures TOP02 surveying procedures, which are based on the HSE Guidance document HSG 264.

3.1 Purpose of Survey

The purpose of this Demolition Survey is to help the duty holder identify asbestos in these premises, prior to Demolition Works. It provides sufficient information to help the tendering process for removal works prior to any work starting. However it is strongly recommended that any asbestos removal should be undertaken against a detailed specification. We further recommend the appointed removal contractor should attend the site to confirm for themselves the quantities and location of asbestos to be removed, prior to costing.

3.2 Aim of Survey

The aim of the survey was to;

1. Locate and record the location, extent, and product type as far as reasonably practicable of known or presumed ACM's.
2. Inspect and record information on the accessibility, condition and surface treatment of know or presumed ACM's
3. Determine and record the asbestos type based on sampling or by making a presumption based on product type and appearance
4. Locate all ACM's within the fabric of the building prior to demolition.

3.0 Introduction/Objectives (Cont):

- Type of Survey

3.3 Type of Survey – Demolition Survey

Demolition surveys are intended to locate all asbestos within the building. It is a disruptive, fully intrusive survey that involves destructive inspection techniques that penetrate the building structure extensively. This involves breaking into floors, through walls, into wall voids ceilings, cladding, boxing, as necessary to gain access to all areas, including the inner fabric of the building. A full sampling programme is undertaken to identify possible ACM's and estimate their quantities.

The survey is designed to be used to help the tendering process, and should be used to start generating a specification for tendering the removal of ACM's from the building prior to demolition.

Whilst all asbestos materials have been identified as far as is reasonably practicable, some asbestos materials may remain unidentified buried within the fabric of the building during the survey. Asbestos shuttering buried within concrete slabs, asbestos hidden by structural supports, asbestos hidden behind other asbestos products, and building structures which are unsafe to fully access are potential locations.

It must be presumed that asbestos may remain unidentified to these type of areas and if suspect materials are uncovered during demolition then samples should be taken for analysis.

4.0 Agreed Scope, Caveats and Exclusions

4.1 Agreed Scope

Sentinel Environmental Consultancy Ltd have taken measures to ensure a sufficient exchange of information has been carried out with the duty holder / client representative prior to undertaking this survey. This survey has been carried out under the agreed scope outlined in the quotation and terms and conditions of the business. Any significant changes from the agreed scope are clearly identified and agreed with the client prior to issue of the Report.

Description, Current and Historical Use of Property	Industrial / Commercial property type
Number of Buildings ; age, type and construction details	2 no. buildings, traditionally constructed 1990s
Estimated or known number of rooms	Approx 35 no.
Unusual features or underground areas	Not applicable to survey
Details of alterations to Building (previous extension, refurbishment or demolition works)	Minor works evident, full details unknown
Building Listed or within Conservation Area	No listed status
Surrounding areas & building structures included in scope	Targeted to Zone 1 buildings only
Existing Plans for the Site provided (are plans required to be issued within a specific format)	Plans drawn by surveyor
Proposed Plans and Specification for scope of works	N/A
Building Occupied or Vacant	Vacant
Access Restrictions (working at height)	No access restrictions
Specialist requirements (access to confined spaces / heights where MEWP / Mobile Tower required)	No specialist requirements
Person responsible for arranging access	Arranged via client
Site Specific Hazards	Covid 19 - refer to RAMS & SOP
Photographs to be collected	Yes
Bulk Sampling Requirements	As per HSG 264
Previous Asbestos Information available and whether this information will be used as 3rd party data with the Survey	Previous register provided by client
Client specific requirements ; data extract/ CD / PDF copy / email only	No specific requirements

4.0 Agreed Scope, Caveats and Exclusions (Continued):

4.2 The following areas / elements have been agreed to be included or excluded from the scope, please note inspections are representative across the building, supporting photographs for intrusive inspections can be found in Appendix 6 :

Building Element	Included / Excluded	Survey Technique	Reinstatement Included
Solid wall cavities	Included	Inspection hole created to inspect cavity between walls inspected	No - all areas left safe
Removal of window sills	Included	Window sills removed to inspect beneath	No - all areas left safe
Removal of vent covers	Included	Vent covers removed to inspect behind	No - all areas left safe
Partition wall cavities	Included	Inspection holes created to inspect within / behind partition panels	No - all areas left safe
Above fixed suspended ceilings	Included	Access point created within fixed ceiling to inspect void	No - all areas left safe
Within boxings or risers	Included	Boxing panels and or cover panels to risers removed	No - all areas left safe
Floor voids, removal of flooring	Included	Floor boards lifted to inspect voids	No - all areas left safe
Within fire doors	Included	Inspection hole created to inspect lining of fire door	No - all areas left safe
Beneath fixed flooring materials	Included	Flooring lifted to inspect beneath	No - all areas left safe
Behind skirting and door frames	Included	Skirting board and door frames removed to inspect behind	No - all areas left safe
Beneath or behind furniture	Included	Furniture moved to inspect	No - all areas left safe
Beneath non asbestos insulation	Included	Non asbestos insulation to be removed	No - all areas left safe
Behind non asbestos external soffits / fascias	Included	Non asbestos soffits / fascias inspected beneath	No - all areas left safe
Roof voids Inspection	Included	Roof Voids accessed and inspected	No - all areas left safe
Fireplace / Chimney Breast	Not applicable	Chimney breast inspected	Not applicable

4.3 Agreed Caveat and Limitations

The Survey has been carried out with the following specific caveats agreed with the Client. Areas or items excluded from a survey must be presumed to contain Asbestos.

Item Excluded from Survey	Comments
Within electric switchgear, fuse boxes, plant and other associated services.	Agreed with client not to be inspected as a live service supply which could not be isolated during the Survey
Within operational plant and machinery including boilers / calorifiers / lift machinery etc.	Agreed with client not to be inspected as a live service supply which could not be isolated during the Survey
Access behind / above existing ACM's which would require the use of a LARC and enclosure.	Agreed with client not to be inspected behind / above
Intrusion through solid ceiling slab or solid walls requiring additional specialist support services.	Agreed with client not to be inspected beneath or within
Below external ground level	Agreed with client not to be inspected

5.0 Survey Method

5.1 This survey has been undertaken in accordance with HSG264 and Sentinel Environmental Consultancy Ltd in house procedures (TOP02 Surveying Procedure).

5.2 Clients of Sentinel Environmental Consultancy Ltd have agreed to our terms and conditions and accepted our surveying approach, our sampling strategy, and our standard planning, surveying and reporting format unless they have made specific requests to the contrary.

5.3 The information provided by the client or their representative is recorded within the desk top review and survey planning stage and has been used to establish the scope of the survey.

5.4 Photographs of suspected ACM's, limited access areas / no access areas are taken at the time of the survey unless the client expressly requests otherwise. Sampling points and suspected ACM's are not identified with labels unless the client expressly requests otherwise.

5.5 All items examined by the surveyor at the time of the survey are listed in the inspection detail of this report. This detail includes those items believed by the surveyor not to contain asbestos and an appropriate categorisation of their material composition is given. Employing this rationale, the surveyor can use experience and judgement to form a reasoned argument that there is evidence to suggest that the material may not contain asbestos. Periodically 'non-asbestos' building materials may be sampled by way of a method control to further support the surveyor's argument. These materials do not bear any risk assessment detail.

5.6 Areas that could not be accessed were presumed to have ACM's present until proven otherwise. Each area requiring further inspection is documented within the Executive summary (Inaccessible areas). Inaccessible areas are also shown on the plan drawings (Appendix 5)

5.6 Areas that cannot be accessed are presumed to have ACM's present until proven otherwise. Each area requiring further inspection is documented within the Executive summary (Inaccessible areas). Inaccessible areas are also shown on the plan drawings (Appendix 5)

5.7 Materials that cannot be accessed and in the surveyor's opinion could be dismissed are presumed to be ACMs unless proven otherwise. Materials that are not sampled but, in the surveyor's opinion, have a similar appearance, location and function as a previously sampled material are strongly presumed to be similar to the sampled material.

5.8 In the case of a material or materials being encountered that the surveyor suspects, following visual assessment, as containing asbestos but cannot be sampled for reasons of practicality, that material is strongly presumed to contain asbestos. An assessment (where possible) of the material's extent and condition is made. Materials that are 'strongly presumed' to be similar to a material that has already been sampled are referenced against the original sampled material.

5.9 Intrusive damage that is required to gain access to an area/location that is within the scope of the survey has been agreed with the client or the client's representative. Any remedial action is put in place before such action is attempted. If remedial action cannot be arranged, no attempt to access the area is made and the reasons recorded. The area/location is presumed to have ACM's present until proven otherwise.

5.10 Older electrical equipment, which cannot be shown to contain ACM's is presumed to have ACM's present unless, in the surveyors professional opinion, such items can be excluded.

6.0 Exclusions and Caveats:

Where suspect asbestos containing materials e.g. ceiling finishes, board materials etc exist no attempt (unless otherwise stated) will be made to investigate behind these materials. Sentinel Environmental Consultancy has a duty under Regulation 16 of the Control of Asbestos Regulations (2012) to prevent or reduce the spread of asbestos; penetration of such materials without appropriate control measures may be in contravention of this duty.

Specific areas excluded within this survey report are listed within the executive summary.

This report does not include investigations into land contamination associated with asbestos or any other contaminants.

7.0 Sampling and Analysis:

7.1 The object of bulk sampling is to identify the nature of any visible ACM. The bulk sample description and analysis results can be found in Appendix 4 of this report – The analysis certificate.

Bulk samples are taken in accordance with documented in house procedures (TOP02 Surveying Procedure) following guidelines detailed in HSG264 'The Survey Guide' and HSG248 'The Analyst Guide'. The quantity of samples taken will be minimised by using 'strongly presumed'. Materials that are 'strongly presumed' to be similar to a material that has already been sampled will be recorded in the comments section of the survey record and referenced against the original sampled material.

7.2 All samples taken during this survey have been analysed by a laboratory holding UKAS accreditation to ISO 17025.

7.3 The homogeneity of asbestos containing materials can differ depending on their type. Typically, homogeneous materials include sprayed coatings, insulating board and asbestos cement products. Other materials are typically less homogeneous including pipe lagging (due to patch repairs, hand mixing at time of application), textured coatings (due to low concentration of asbestos fibre and hand application), composites (due to low concentration of asbestos fibre and material matrix). Whilst sampling frequencies / techniques and analysis methods attempt to address the issue of non-homogeneity it should be realised that sampling in accordance with HSG 264 and analysis in accordance with HSG 248 cannot always obviate the problems of determining asbestos fibre content in non-homogeneous materials. The results of sample analysis presented in this report therefore pertain to the samples analysed and so relate only to the time at which sampling took place and to the conditions prevailing during that time.

Survey Results

8.1 The results of the survey inspections and sampling undertaken are recorded on the enclosed Survey Data Sheets (appendix 2), Asbestos Register (appendix 1) and Non-Asbestos Material Register (appendix 3). Where asbestos containing material have been identified or presumed to be present then a Material Assessment Algorithm has been calculated as detailed in HSG 264 and reproduced in the table below:

8.2 Within the survey data sheets the individual scores in brackets, for each sample variable, are added together to form the final material risk assessment algorithm score.

Material Risk Assessment Algorithm

Product type [or debris from product]

Score	Examples of scores
1	Asbestos reinforced composites [plastics, resins, mastics, roofing felts, vinyl floor tiles, semi- rigid paint, decorative finishes and asbestos cement etc]
2	Asbestos insulating board, mill boards, other low-density boards, textiles, gaskets, ropes and woven materials and asbestos paper.
3	Thermal insulation [e.g. pipe and boiler lagging], sprayed asbestos, loose asbestos, asbestos mattresses and packing.

Extent of damage/deterioration

Score	Examples of scores
0	Good condition: no visible damage
1	Low damage: a few scratches or surface marks, broken edges on boards or tiles, etc.
2	Moderate damage: significant breakage of materials or several small areas where material has been damaged exposing fibrous edges.
3	High damage or deterioration of materials, sprays and thermal insulation. Visible asbestos contamination by debris or residues.

Surface treatment

Score	Examples of scores
0	Composite materials containing asbestos, reinforced plastics, resins, vinyl tiles
1	Enclosed sprays or insulation, AIB [with exposed face encapsulated], cement sheets, etc.
2	Unsealed AIB, encapsulated insulation and sprays.
3	Unsealed insulation and sprays.

Asbestos Type

Score	Examples of scores
1	Chrysotile
2	Amphibole asbestos (excluding Crocidolite)
3	Crocidolite

Risk Category	Risk	Score Range	Fibre release potential
R1	HIGH	Material Score 10	High risk with a high potential to release fibres if disturbed
R2	MEDIUM	Material Score Between 7 and 9	Medium risk with a medium potential to release fibres if disturbed
R3	LOW	Material Score 6 or below	Low risk with and having low potential to release fibres if disturbed

9.0 Recommendations:

9.1 To comply with and ensure that the requirements of section 2 & 3 of the Health and Safety at Work Act (as amended) 1974, the Management of Health and Safety at Work Regulations 1999, the Control of Asbestos Regulations 2012 and the Control of Substances Hazardous to Health 2002 are met, the following recommendations should be implemented:

9.2 Undertake suitable and sufficient Risk Assessments of identified asbestos containing materials against normal occupation and maintenance operations, in compliance with Regulations 3 of the Management of Health & Safety at Work Regulations 1999 and Regulation 6 of the Control of Asbestos Regulations 2012.

9.3 The findings of the survey be brought to the attention of those persons who are likely to come in contact with asbestos, in compliance with Section 2 and 3 of the Health and Safety at Work Act (as amended) 1974 and Regulation 10 of the Control of Asbestos Regulations 2012.

9.4 Implement an Asbestos Management Policy, Plan and review process in compliance Regulation 4 of the Control of Asbestos Regulations 2012.

9.5 Instigate regular inspections, to record and update details of retained asbestos containing materials.

9.6 Review the arrangement under the management plan in accordance with regulation 4 of the CAR 2012.

9.7 During the course of the survey it may not have been possible to access all areas of the site. Details of areas requiring further access are identified within the Data Sheets of this report. In accordance with HSG 264, asbestos has been presumed to be present within these areas and should be treated accordingly until further inspection and analysis of building fabric and services proves otherwise.

9.8 Where asbestos debris or asbestos in poor condition has been found it is recommended that access is restricted and or controlled to these areas in accordance with Regulation 11 and Regulation 16 of the Control of Asbestos Regulations 2012.

9.9 If we have identified asbestos materials in poor condition, it is recommended that air monitoring is carried out within a number of areas where asbestos materials have been identified in order to assess airborne fibre levels within adjacent occupied areas in relation to the clearance indicator, as documented by HSG 248 the Analyst Guide.

9.10 All identified asbestos to be appropriately identified and subject to risk assessment, management, and re-inspection.

9.11 Site specific recommendations in respect to the location and condition of asbestos materials identified during the course of this inspection are detailed in the Survey Data Sheets and Asbestos register. In considering the management of asbestos materials identified to date, these recommendations should be taken into consideration.

9.12 In accordance with the Control of Asbestos Regulations 2012 the removal of ACM's fall into one of the three categories below:

Licensed Asbestos Removal

Is defined as any work, which is undertaken on a friable asbestos product or which is likely to exceed the control limit of 0.1f/cm³. A licensed asbestos removal contractor must undertake this work and a 14-day notice must be given to the HSE prior to the commencement of the work.

Notifiable Non Licensed Works

If work on an ACM causes the deterioration of the matrix material in which the asbestos fibres are firmly linked, then these works are Notifiable Non Licensed Work (NNLW). Work of this type does not require an asbestos removal licence, but the company undertaking the work must have the following:

- Notification of the work to the relevant enforcing authority prior to the work commencing.
- Medical examinations to assess each worker's state of health to be carried out, before any possible – exposure to asbestos. Then re-examinations every three years.
- Insurance for working with asbestos containing materials.
- A register of work to be kept by the employer for each employee exposed to asbestos.

Non Notifiable Non Licensed work

-Non-Licensed Works Is defined as any work, which involves short, non-continuous maintenance activities, during which only nonfriable materials are removed. It can also involve the removal of non-friable materials for refurbishment purposes. However, work of this type is only applicable where the matrix material in which the asbestos fibres are firmly linked remains intact.

-If a non-licensed contractor is appointed to undertake the removal works on the above materials, the following points must be adhered to:

-All operatives undertaking work on the material must have asbestos awareness training and practical asbestos training.

9.13 It is recommended that further intrusive investigations and sampling be carried out in accordance with HSG.264, where any major refurbishment, maintenance, installation or similar activity may expose asbestos materials that have remained inaccessible during the survey. This should be as a refurbishment/demolition survey as documented in HSG264.

9.14 The findings of this report should not be solely relied upon in obtaining costs for proposed asbestos abatement work. Any proposed abatement/removal of the asbestos should be undertaken against a detailed specification.

9.15 Any recommendations made within this report are made on the basis of findings collated at the time of survey. Recommendations should undergo careful client evaluation prior to a final management decision being made. Sentinel Environmental Consultancy Limited does not accept any responsibility for any works carried out as a result of recommendations made within this report.

Appendix 1 - Asbestos Register

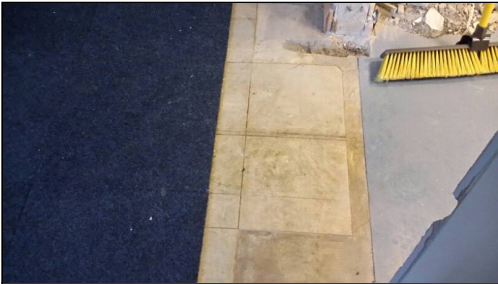
Building	Floor	Location /Room	S,P,SP,AS Sample No	Product Type	Condition	Surface Treatment	Asbestos Type	Quantity	Accessibility	Material Score	Recommendation	Additional Comments
There were no results found.												


KEY:

S – Sampled, P – Presumed, SP – Strongly Presumed, AS – Cross reference to former sample

Appendix 2 – Survey Data Sheets


Service Type	Demolition Survey		
Report Revision Number	1	Surveyors	Adam Yates
TEAMS Job Number	J007542	Survey Date	15 Feb 2021 to 18 Feb 2021
Site Address:	Zone 1 Triton Power Deeside Power Station Weighbridge Road Flintshire CH5 2UL	Bulk Analysis Laboratory	N/A
		Sample Analysis Date	19 Feb 2021


	Survey Date:	Lead Surveyor	Survey Type	Floor	Analysis
	15 Feb 2021 to 18 Feb 2021	Adam Yates	Demolition Survey	Ground Floor	No Asbestos Detected
	Building	Room	Item	Quantity	
	Zone 1 - Resources Building	Office G/03	vinyl tile subfloor covering	48m ²	
	Sample No (S,SP,P,As)	Product Type	Surface Treatment	Condition	Accessibility
	JW004054 (S)	N/A	N/A	N/A	N/A
	Material Risk Score				
Recommended action		No further action required			
Surveyor comments		N/A			

	Survey Date:	Lead Surveyor	Survey Type	Floor	Analysis
	15 Feb 2021 to 18 Feb 2021	Adam Yates	Demolition Survey	Ground Floor	No Asbestos Detected
	Building	Room	Item	Quantity	
	Zone 1 - Resources Building	Office G/04	vinyl tile subfloor covering	30m ²	
	Sample No (S,SP,P,As)	Product Type	Surface Treatment	Condition	Accessibility
	As JW004054 (SP)	N/A	N/A	N/A	N/A
	Material Risk Score				
Recommended action		No further action required			
Surveyor comments		N/A			

KEY:


S – Sampled, P – Presumed, SP – Strongly Presumed, AS – Cross reference to former sample


	Survey Date:	Lead Surveyor	Survey Type	Floor	Analysis
	15 Feb 2021 to 18 Feb 2021	Adam Yates	Demolition Survey	Ground Floor	No Asbestos Detected
	Building	Room	Item	Quantity	
	Zone 1 - Resources Building	Circulation G/06	vinyl tile floor covering	24m ²	
	Sample No (S,SP,P,As)	Product Type	Surface Treatment	Condition	Accessibility
	As JW004054 (SP)	N/A	N/A	N/A	N/A
	Material Risk Score				
Recommended action		No further action required			
Surveyor comments		N/A			

	Survey Date:	Lead Surveyor	Survey Type	Floor	Analysis
	15 Feb 2021 to 18 Feb 2021	Adam Yates	Demolition Survey	Ground Floor	No Asbestos Detected
	Building	Room	Item	Quantity	
	Zone 1 - Workshop, Stores & Warehouse	Entrance/Stairwell lobby G/01	vinyl tile floor covering	15m ²	
	Sample No (S,SP,P,As)	Product Type	Surface Treatment	Condition	Accessibility
	JW004047 (S)	N/A	N/A	N/A	N/A
	Material Risk Score				
Recommended action		No further action required			
Surveyor comments		N/A			

KEY:


S – Sampled, P – Presumed, SP – Strongly Presumed, AS – Cross reference to former sample


	Survey Date:	Lead Surveyor	Survey Type	Floor	Analysis
	15 Feb 2021 to 18 Feb 2021	Adam Yates	Demolition Survey	Ground Floor	No Asbestos Detected
	Building	Room	Item	Quantity	
	Zone 1 - Workshop, Stores & Warehouse	Entrance/Stairwell lobby G/01	textured coating to underside of staircase	4m ²	
	Sample No (S,SP,P,As)	Product Type	Surface Treatment	Condition	Accessibility
	JW004048 (S)	N/A	N/A	N/A	N/A
	Material Risk Score				
Recommended action		No further action required			
Surveyor comments		N/A			

	Survey Date:	Lead Surveyor	Survey Type	Floor	Analysis
	15 Feb 2021 to 18 Feb 2021	Adam Yates	Demolition Survey	Ground Floor	No Asbestos Detected
	Building	Room	Item	Quantity	
	Zone 1 - Workshop, Stores & Warehouse	Circulation G/02	vinyl tile floor covering	10m ²	
	Sample No (S,SP,P,As)	Product Type	Surface Treatment	Condition	Accessibility
	As JW004047 (SP)	N/A	N/A	N/A	N/A
	Material Risk Score				
Recommended action		No further action required			
Surveyor comments		N/A			

KEY:


S – Sampled, P – Presumed, SP – Strongly Presumed, AS – Cross reference to former sample

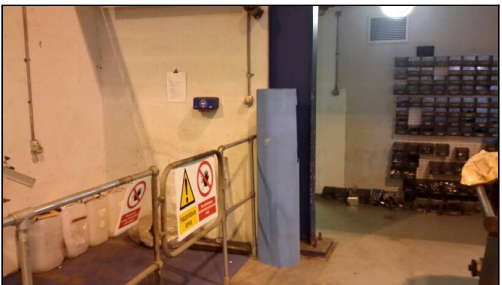
	Survey Date:	Lead Surveyor	Survey Type	Floor	Analysis
	15 Feb 2021 to 18 Feb 2021	Adam Yates	Demolition Survey	Ground Floor	No Asbestos Detected
	Building	Room	Item	Quantity	
	Zone 1 - Workshop, Stores & Warehouse	Disabled WC G/03	insulating board panel to boxing inspection hatch	0.75m ²	
	Sample No (S,SP,P,As)	Product Type	Surface Treatment	Condition	Accessibility
	JW004049 (S)	N/A	N/A	N/A	N/A
	Material Risk Score				
Recommended action		No further action required			
Surveyor comments		N/A			

	Survey Date:	Lead Surveyor	Survey Type	Floor	Analysis
	15 Feb 2021 to 18 Feb 2021	Adam Yates	Demolition Survey	Ground Floor	No Asbestos Detected
	Building	Room	Item	Quantity	
	Zone 1 - Workshop, Stores & Warehouse	Cleaners cupboard G/05	vinyl tile floor covering	4m ²	
	Sample No (S,SP,P,As)	Product Type	Surface Treatment	Condition	Accessibility
	As JW004047 (SP)	N/A	N/A	N/A	N/A
	Material Risk Score				
Recommended action		No further action required			
Surveyor comments		N/A			

KEY:


S – Sampled, P – Presumed, SP – Strongly Presumed, AS – Cross reference to former sample


	Survey Date:	Lead Surveyor	Survey Type	Floor	Analysis
	15 Feb 2021 to 18 Feb 2021	Adam Yates	Demolition Survey	Ground Floor	No Asbestos Detected
	Building	Room	Item	Quantity	
	Zone 1 - Workshop, Stores & Warehouse	Office G/06	insulating board panel to boxing inspection hatch	0.75m ²	Accessibility
	Sample No (S,SP,P,As)	Product Type	Surface Treatment	Condition	
	As JW004049 (SP)	N/A	N/A	N/A	N/A
	Material Risk Score				
Recommended action		No further action required			
Surveyor comments		N/A			

	Survey Date:	Lead Surveyor	Survey Type	Floor	Analysis
	15 Feb 2021 to 18 Feb 2021	Adam Yates	Demolition Survey	Ground Floor	No Asbestos Detected
	Building	Room	Item	Quantity	
	Zone 1 - Workshop, Stores & Warehouse	Workshop/Circulation G/08	redundant gasket roll	2m ²	Accessibility
	Sample No (S,SP,P,As)	Product Type	Surface Treatment	Condition	
	JW004050 (S)	N/A	N/A	N/A	N/A
	Material Risk Score				
Recommended action		No further action required			
Surveyor comments		N/A			

KEY:


S – Sampled, P – Presumed, SP – Strongly Presumed, AS – Cross reference to former sample

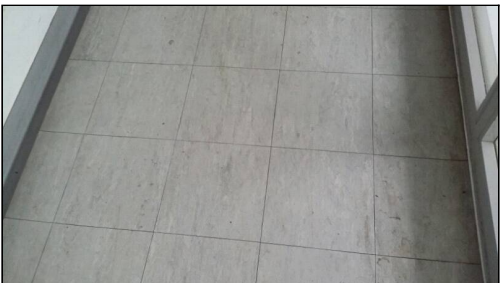
	Survey Date:	Lead Surveyor	Survey Type	Floor	Analysis
	15 Feb 2021 to 18 Feb 2021	Adam Yates	Demolition Survey	1st Floor	No Asbestos Detected
	Building	Room	Item	Quantity	
	Zone 1 - Workshop, Stores & Warehouse	Stairwell lobby 1/01	vinyl tile floor covering	5m ²	
	Sample No (S,SP,P,As)	Product Type	Surface Treatment	Condition	Accessibility
	JW004051 (S)	N/A	N/A	N/A	N/A
	Material Risk Score				
Recommended action		No further action required			
Surveyor comments		N/A			

	Survey Date:	Lead Surveyor	Survey Type	Floor	Analysis
	15 Feb 2021 to 18 Feb 2021	Adam Yates	Demolition Survey	1st Floor	No Asbestos Detected
	Building	Room	Item	Quantity	
	Zone 1 - Workshop, Stores & Warehouse	Cleaners cupboard 1/02	vinyl tile floor covering	4m ²	
	Sample No (S,SP,P,As)	Product Type	Surface Treatment	Condition	Accessibility
	As JW004051 (SP)	N/A	N/A	N/A	N/A
	Material Risk Score				
Recommended action		No further action required			
Surveyor comments		N/A			

KEY:


S – Sampled, P – Presumed, SP – Strongly Presumed, AS – Cross reference to former sample

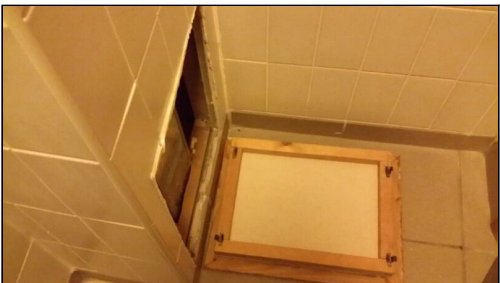
	Survey Date:	Lead Surveyor	Survey Type	Floor	Analysis
	15 Feb 2021 to 18 Feb 2021	Adam Yates	Demolition Survey	1st Floor	No Asbestos Detected
	Building	Room	Item	Quantity	
	Zone 1 - Workshop, Stores & Warehouse	Kitchen 1/03	bituminous pad to sink & drainer	1no.	
	Sample No (S,SP,P,As)	Product Type	Surface Treatment	Condition	Accessibility
	JW004052 (S)	N/A	N/A	N/A	N/A
	Material Risk Score				
Recommended action		No further action required			
Surveyor comments		N/A			

	Survey Date:	Lead Surveyor	Survey Type	Floor	Analysis
	15 Feb 2021 to 18 Feb 2021	Adam Yates	Demolition Survey	1st Floor	No Asbestos Detected
	Building	Room	Item	Quantity	
	Zone 1 - Workshop, Stores & Warehouse	Circulation 1/07	vinyl tile floor covering	19m ²	
	Sample No (S,SP,P,As)	Product Type	Surface Treatment	Condition	Accessibility
	As JW004051 (SP)	N/A	N/A	N/A	N/A
	Material Risk Score				
Recommended action		No further action required			
Surveyor comments		N/A			

KEY:

S – Sampled, P – Presumed, SP – Strongly Presumed, AS – Cross reference to former sample

	Survey Date:	Lead Surveyor	Survey Type	Floor	Analysis
	15 Feb 2021 to 18 Feb 2021	Adam Yates	Demolition Survey	1st Floor	No Asbestos Detected
	Building	Room	Item	Quantity	
	Zone 1 - Workshop, Stores & Warehouse	Office 1/08	insulating board panel to boxing inspection hatch	0.75m ²	
	Sample No (S,SP,P,As)	Product Type	Surface Treatment	Condition	Accessibility
	JW004053 (S)	N/A	N/A	N/A	N/A
	Material Risk Score				
Recommended action		No further action required			
Surveyor comments		N/A			

	Survey Date:	Lead Surveyor	Survey Type	Floor	Analysis
	15 Feb 2021 to 18 Feb 2021	Adam Yates	Demolition Survey	1st Floor	No Asbestos Detected
	Building	Room	Item	Quantity	
	Zone 1 - Workshop, Stores & Warehouse	Female WC 1/09	insulating board panel to boxing inspection hatch	0.75m ²	
	Sample No (S,SP,P,As)	Product Type	Surface Treatment	Condition	Accessibility
	As JW004053 (SP)	N/A	N/A	N/A	N/A
	Material Risk Score				
Recommended action		No further action required			
Surveyor comments		N/A			

KEY:

S – Sampled, P – Presumed, SP – Strongly Presumed, AS – Cross reference to former sample

Appendix 3 - Areas Surveyed

Building	Floor	Room No:	Room Type	Item
Zone 1 - Resources Building	External	E/01	Externals	metal roof, breeze block walls, metal cladding to walls, plastic rainwater goods, modern mastic to expansion joint, foam pipework insulation, mmmf insulation within wall cavity, fibreglass cover to redundant tank room
Zone 1 - Resources Building	Ground Floor	G/01	Entrance lobby	metal underside of roof, breeze block & plaster on masonry walls, compressed cellulose tile suspended ceiling, carpet floor covering, concrete floor, foam pipework insulation, plasterboard boxing
Zone 1 - Resources Building	Ground Floor	G/02	Kitchen	metal underside of roof, breeze block & plaster on masonry walls, compressed cellulose tile suspended ceiling, modern lino floor covering, concrete floor, plasterboard boxing, modern sink pad, foam pipework insulation, plastic waste pipe
Zone 1 - Resources Building	Ground Floor	G/03	Office	metal underside of roof, breeze block & plaster on masonry walls, compressed cellulose tile suspended ceiling, carpet floor covering, concrete floor, foam pipework insulation, plasterboard boxing, metal duct boxing, mmmf insulation to duct boxing
Zone 1 - Resources Building	Ground Floor	G/04	Office	metal underside of roof, breeze block & plaster on masonry walls, compressed cellulose tile suspended ceiling, carpet floor covering, concrete floor, foam pipework insulation, plasterboard boxing, metal duct boxing, mmmf insulation to duct boxing, plastic waste pipe
Zone 1 - Resources Building	Ground Floor	G/05	Back door lobby	metal underside of roof, breeze block & plaster on masonry walls, compressed cellulose tile suspended ceiling, carpet floor covering, concrete floor, foam pipework insulation, plasterboard boxing
Zone 1 - Resources Building	Ground Floor	G/06	Circulation	metal underside of roof, breeze block & plaster on masonry walls, compressed cellulose tile suspended ceiling, concrete floor, foam pipework insulation, plasterboard boxing, metal duct boxing, mmmf insulation to duct boxing
Zone 1 - Resources Building	Ground Floor	G/07	Office	metal underside of roof, breeze block & plaster on masonry walls, compressed cellulose tile suspended ceiling, carpet floor covering, concrete floor, foam pipework insulation, plasterboard boxing, metal duct boxing, mmmf insulation to duct boxing, plastic waste pipe, modern electrics, metal tank, foam insulation to tank
Zone 1 - Resources Building	Ground Floor	G/08	Conservatory	plastic underside of roof, breeze block & plaster on masonry walls, laminate floor covering, concrete floor, modern mastic to expansion joint
Zone 1 - Resources Building	Ground Floor	G/09	Male WC	metal underside of roof, breeze block & plaster on masonry walls, compressed cellulose tile suspended ceiling, ceramic tile floor, concrete floor, foam pipework insulation, metal duct boxing, mmmf insulation to duct boxing, timber boxing, ceramic cistern, plastic waste pipe

Appendix 3 - Areas Surveyed (cont)

Building	Floor	Room No:	Room Type	Item
Zone 1 - Resources Building	Ground Floor	G/10	Female WC	metal underside of roof, breeze block & plaster on masonry walls, compressed cellulose tile suspended ceiling, ceramic tile floor, concrete floor, foam pipework insulation, metal duct boxing, mmmf insulation to duct boxing, timber boxing, ceramic cistern, plastic waste pipe, modern water heater
Zone 1 - Workshop, Stores & Warehouse	External	E/01	Externals	metal roof, breeze block walls, metal canopy, metal & plastic rainwater goods, modern mastic to expansion joint, metal boxing metal flue, metal & timber panel above door, foam pipework insulation, timber canopy above entrance, metal cladding to walls, mmmf insulation within wall cavity
Zone 1 - Workshop, Stores & Warehouse	Ground Floor	G/01	Entrance/Stairwell lobby	concrete underside of floor above, plaster on masonry & breeze block walls, compressed cellulose tile suspended ceiling, concrete floor, plasterboard boxing, plasterboard boxing to beams, metal panel above door, rubber stair nosing
Zone 1 - Workshop, Stores & Warehouse	Ground Floor	G/02	Circulation	metal underside of floor above, plaster on masonry & breeze block walls, compressed cellulose tile suspended ceiling, concrete floor, metal duct boxing, no asbestos observed to heater, rubber skirting
Zone 1 - Workshop, Stores & Warehouse	Ground Floor	G/03	Disabled WC	metal underside of floor above, plaster on masonry & breeze block walls, compressed cellulose tile suspended ceiling, ceramic tile floor covering, concrete floor, unlagged metal pipework, ceramic cistern, plastic waste pipe, timber & plasterboard boxing
Zone 1 - Workshop, Stores & Warehouse	Ground Floor	G/04	Office	metal underside of floor above, breeze block & plaster on masonry walls, compressed cellulose tile suspended ceiling, modern lino floor covering, concrete floor
Zone 1 - Workshop, Stores & Warehouse	Ground Floor	G/05	Cleaners cupboard	metal underside of floor above, breeze block & plaster on masonry walls, compressed cellulose tile suspended ceiling, concrete floor, metal tank, rubber gasket to tank hatch, rubber skirting
Zone 1 - Workshop, Stores & Warehouse	Ground Floor	G/06	Office	metal underside of floor above, breeze block, plaster on masonry & plasterboard walls, compressed cellulose tile suspended ceiling, modern lino floor covering, concrete floor, plasterboard boxing to beam, rubber skirting, timber panel above door, timber panel below window, polystyrene insulation within wall cavity, foam pipework insulation
Zone 1 - Workshop, Stores & Warehouse	Ground Floor	G/07	Workshop	metal underside of floor above, breeze block & plaster on masonry walls, compressed cellulose tile suspended ceiling, modern lino floor covering, concrete floor, unlagged metal pipework, plastic waste pipe, metal duct boxing
Zone 1 - Workshop, Stores & Warehouse	Ground Floor	G/08	Workshop/Circulation	metal underside of roof & floor above, breeze block walls, concrete floor, metal duct boxing, metal cladding to walls, mmmf firebreaks, modern electrics, metal panel above door, rubber gasket to pipework flange to fire hose pipework

Appendix 3 - Areas Surveyed (cont)

Building	Floor	Room No:	Room Type	Item
Zone 1 - Workshop, Stores & Warehouse	Ground Floor	G/09	Workshop	metal underside of floor above, breeze block walls, modern lino floor covering, concrete floor, no asbestos observed to heater, modern electrics
Zone 1 - Workshop, Stores & Warehouse	Ground Floor	G/10	Instrument Store	metal underside of floor above, breeze block walls, modern lino floor covering, concrete floor, no asbestos observed to heater, modern electrics
Zone 1 - Workshop, Stores & Warehouse	Ground Floor	G/11	Store	metal underside of floor above, breeze block walls, concrete floor, metal panel above door
Zone 1 - Workshop, Stores & Warehouse	Ground Floor	G/12	Office	timber underside of floor above, breeze block walls, concrete floor
Zone 1 - Workshop, Stores & Warehouse	1st Floor	1/01	Stairwell lobby	metal underside of roof, breeze block & plaster on masonry walls, compressed cellulose tile suspended ceiling, mmmf insulation, concrete floor, plasterboard boxing to columns, rubber stair nosing
Zone 1 - Workshop, Stores & Warehouse	1st Floor	1/02	Cleaners cupboard	metal underside of roof, breeze block & plaster on masonry walls, compressed cellulose tile suspended ceiling, mmmf insulation, concrete floor, plasterboard boxing to columns
Zone 1 - Workshop, Stores & Warehouse	1st Floor	1/03	Kitchen	metal underside of roof, breeze block & plaster on masonry walls, compressed cellulose tile suspended ceiling, mmmf insulation, modern lino floor covering, concrete floor, plasterboard boxing to columns
Zone 1 - Workshop, Stores & Warehouse	1st Floor	1/04	Locker room	metal underside of roof, breeze block & plaster on masonry walls, compressed cellulose tile suspended ceiling, mmmf insulation, ceramic tile floor covering, concrete floor, plasterboard boxing to columns, modern electrics
Zone 1 - Workshop, Stores & Warehouse	1st Floor	1/05	Showers	metal underside of roof, breeze block & plaster on masonry walls, compressed cellulose tile suspended ceiling, mmmf insulation, ceramic tile floor covering, concrete floor, plasterboard boxing to columns
Zone 1 - Workshop, Stores & Warehouse	1st Floor	1/06	Male WC	metal underside of roof, breeze block & plaster on masonry walls, compressed cellulose tile suspended ceiling, mmmf insulation, ceramic tile floor covering, concrete floor, plasterboard boxing to columns, timber boxing, ceramic cistern, plastic waste pipe

Appendix 3 - Areas Surveyed (cont)

Building	Floor	Room No:	Room Type	Item
Zone 1 - Workshop, Stores & Warehouse	1st Floor	1/07	Circulation	metal underside of roof, breeze block & plaster on masonry walls, compressed cellulose tile suspended ceiling, mmmf insulation, concrete floor, plasterboard boxing to columns
Zone 1 - Workshop, Stores & Warehouse	1st Floor	1/08	Office	metal underside of roof, breeze block & plaster on masonry walls, compressed cellulose tile suspended ceiling, mmmf insulation, carpet floor covering, concrete floor, plasterboard boxing to columns
Zone 1 - Workshop, Stores & Warehouse	1st Floor	1/09	Female WC	metal underside of roof, breeze block & plaster on masonry walls, compressed cellulose tile suspended ceiling, mmmf insulation, ceramic tile floor covering, concrete floor, plasterboard boxing to columns, foam pipework insulation, timber boxing, ceramic cistern, plastic waste pipe
Zone 1 - Workshop, Stores & Warehouse	1st Floor	1/10	Store	metal underside of roof, breeze block walls, metal floor, metal cladding to walls, metal duct boxing, modern electrics, mmmf insulation within walls
Zone 1 - Workshop, Stores & Warehouse	1st Floor	1/11	Office	metal underside of roof, plasterboard ceiling, plasterboard walls, modern lino floor covering, timber floor, unlagged metal pipework, plasterboard & timber, timber skirting
Zone 1 - Workshop, Stores & Warehouse	Roof Void	R/01	Roof void	metal underside of roof, breeze block walls, compressed cellulose tile underside of ceiling below, mmmf insulation, foam pipework insulation, plasterboard boxing, fibreglass tank, plastic waste pipe

Appendix 4 – Analysis Certificates

Sentinel Environmental Consultancy Limited
Head Office : Unit 17 Gwenfro, Technology Park, Wrexham, LL13 7YP

Certificate of Analysis

Asbestos Fibre Identification in Bulk Sample

Client: Triton Power
Address: Triton Power, Deeside Power Station,
Weighbridge Road, Flintshire, CH5 2UL
Project /Certificate Reference : J007542
Version Number : 1

Site Address: Zone 1, Triton Power, Deeside Power
Station, Weighbridge Road, Flintshire, CH5 2UL

Analyst Signature:



Analyst Name: Lucy Caroe

Samples Collected by: Adam Yates
Date Samples Received: 19 Feb 2021
Analysis Date: 19 Feb 2021
Certificate Issue Date: 8 Mar 2021

Asbestos Fibre Type :

Chrysotile= "White asbestos", Amosite= "Brown asbestos", Crocidolite = "Blue asbestos" Refer to H.S.E. publication HSG 264, for the approximate percentage asbestos content within the presumptive product type.

Analysis Method :

The analysis of the sample(s) detailed on this report is UKAS accredited. Analysis was performed in accordance with our internal Technical Operating Procedures and Health & Safety Executive publication HSG 248 at our Head Office.

Disclaimer :

Any interpretations or opinions expressed in this report are outside the scope of UKAS accreditation. The stated "presumptive product type" is a subjective assessment by our analyst, it is not determined by measurement and it is an opinion. Sentinel Environmental cannot accept responsibility for any discrepancy or inaccuracy arising from collection or labelling of samples by the client. Samples are retained for 6 months only after the analysis date unless requested or contracted otherwise.

Version Revision / Changes : None

Authorisation Signature :



Daniel Roberts - Director

Sentinel Environmental Consultancy Limited
 Head Office : Unit 17 Gwenfro, Technology Park, Wrexham, LL13 7YP

Certificate of Analysis

Project /Job Reference : J007542
 Certificate Issue Date : 08/03/2021

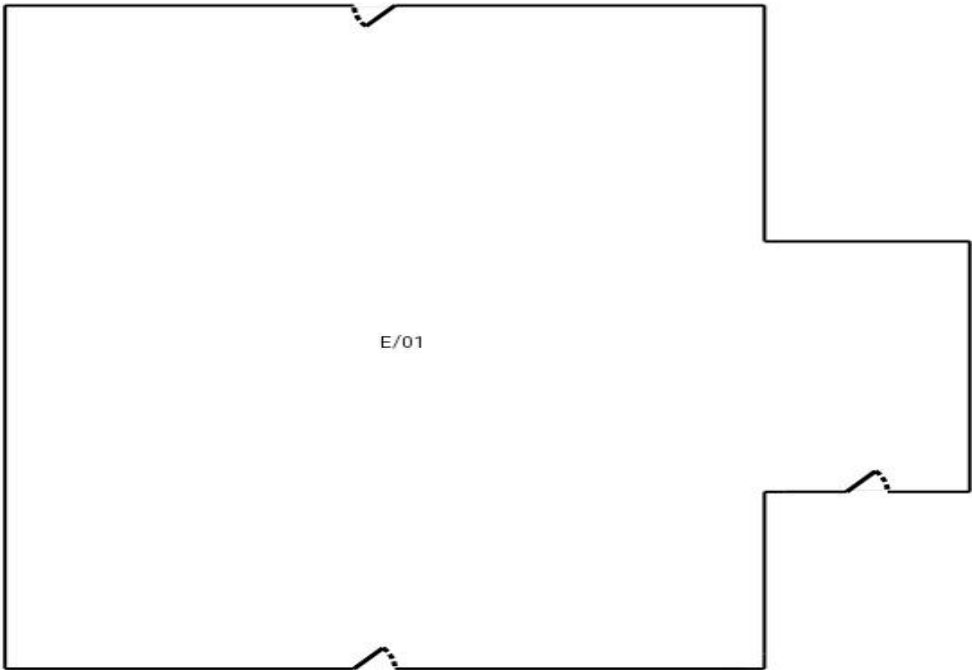
Version Number : 1

Results

Project Reference	Sample Location and Description	Asbestos Fibre Type	Presumptive Product Type
JW004047	Zone 1 - Workshop, Stores & Warehouse, Ground Floor, Entrance/Stairwell lobby – vinyl tile	No Asbestos Detected	Well Bound Material
JW004048	Zone 1 - Workshop, Stores & Warehouse, Ground Floor, Entrance/Stairwell lobby – textured coating	No Asbestos Detected	Textured Coating
JW004049	Zone 1 - Workshop, Stores & Warehouse, Ground Floor, Disabled WC – insulating board panel	No Asbestos Detected	Non Asbestos Insulating Board
JW004050	Zone 1 - Workshop, Stores & Warehouse, Ground Floor, Workshop/Circulation – redundant	No Asbestos Detected	Non Asbestos Textiles/Paper
JW004051	Zone 1 - Workshop, Stores & Warehouse, 1st Floor, Stairwell lobby – vinyl tile	No Asbestos Detected	Well Bound Material
JW004052	Zone 1 - Workshop, Stores & Warehouse, 1st Floor, Kitchen – bituminous pad	No Asbestos Detected	Well Bound Material
JW004053	Zone 1 - Workshop, Stores & Warehouse, 1st Floor, Office – insulating board panel	No Asbestos Detected	Non Asbestos Insulating Board
JW004054	Zone 1 - Resources Building, Ground Floor, Office – vinyl tile	No Asbestos Detected	Well Bound Material

Please Refer to Page 1 of Certificate of Analysis for pertinent details. This Report is only Valid when issued as a complete document with authorising signature on Page 1.

Appendix 5 – Plans



Client: Triton Power
Site: Zone 1
Building: Zone 1 - Resources Building
Floor: External
UPRN No: N/A

Plan Key:

Red Text = Positive Item

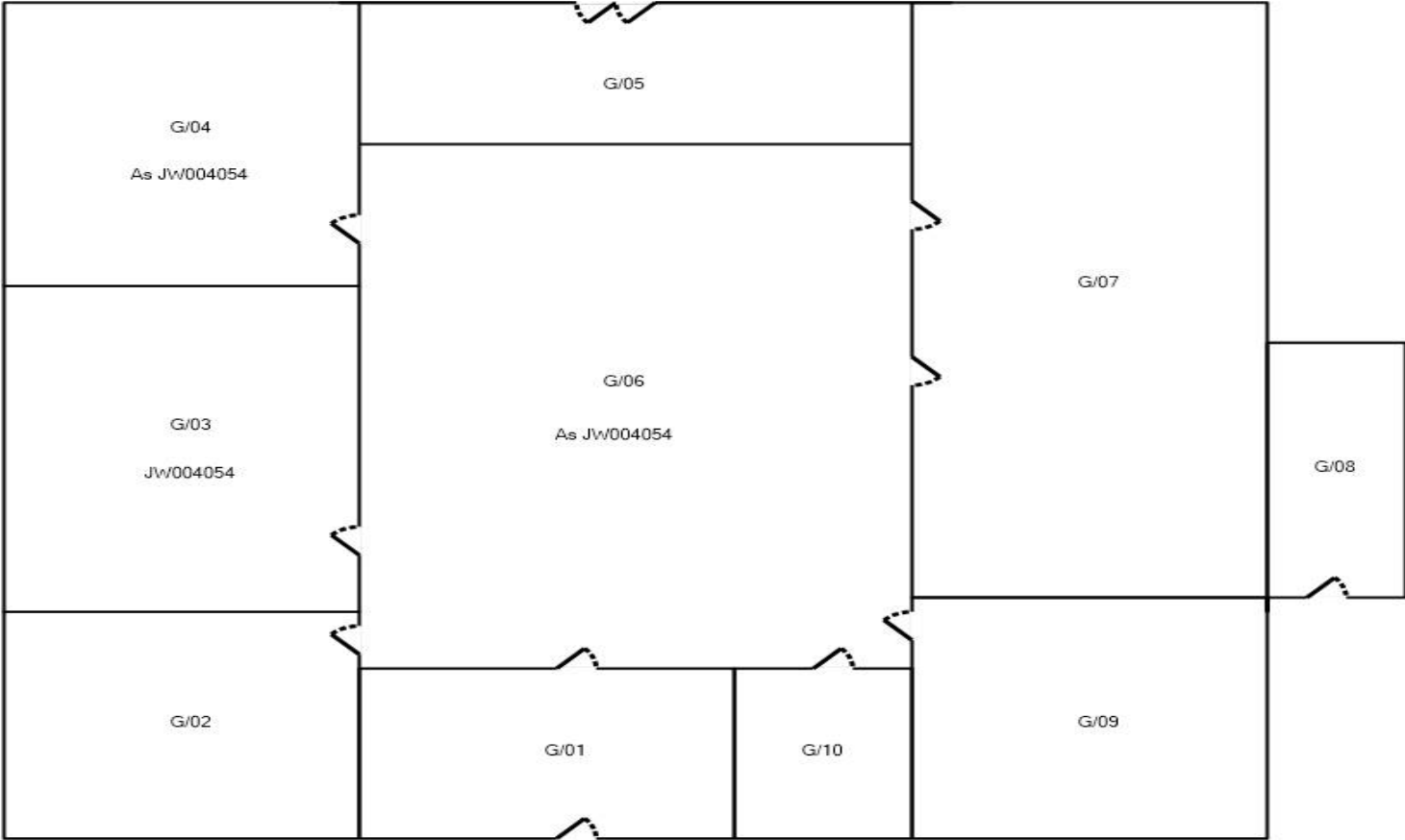
Blue Text = No Access Item

Black Text = No Asbestos Detected Item

Positive or Strongly Presumed Asbestos in area / room

No Access within or to area / room





Client: Triton Power
Site: Zone 1
Building: Zone 1 - Resources Building
Floor: Ground Floor
UPRN No: N/A

Plan Key:

Red Text = Positive Item

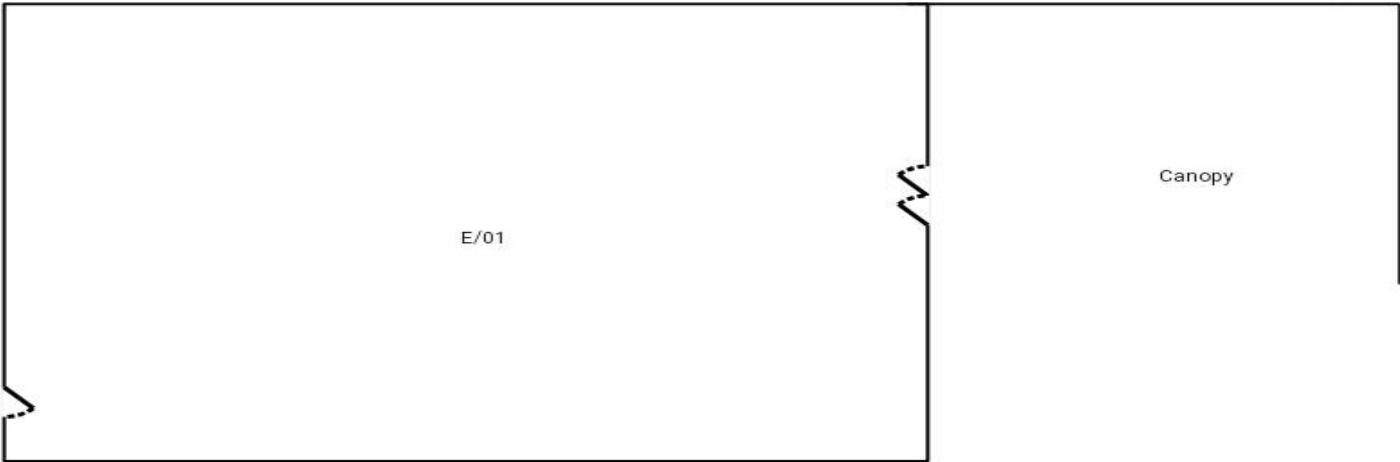
Blue Text = No Access Item

Black Text = No Asbestos Detected Item

 Positive or Strongly Presumed Asbestos in area / room

 No Access within or to area / room





Client: Triton Power
Site: Zone 1
Building: Zone 1 - Workshop, Stores & Warehouse
Floor: External
UPRN No: N/A

Plan Key:

Red Text = Positive Item

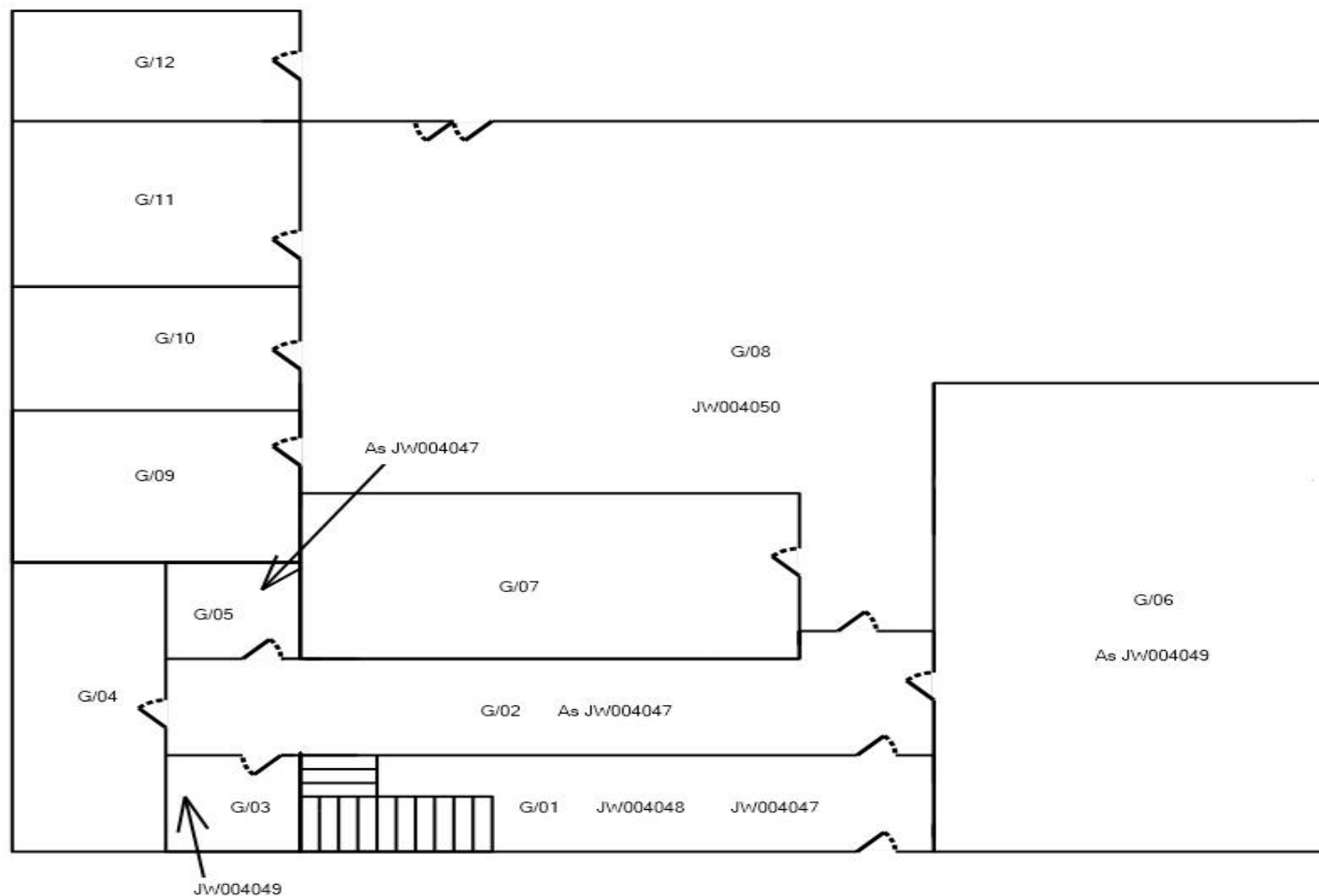
Blue Text = No Access Item

Black Text = No Asbestos Detected Item

 Positive or Strongly Presumed Asbestos in area / room

 No Access within or to area / room





Client: Triton Power

Site: Zone 1

Building: Zone 1 - Workshop, Stores & Warehouse

Floor: Ground Floor

UPRN No: N/A

Plan Key:

Red Text = Positive Item

Blue Text = No Access Item

Black Text = No Asbestos Detected Item

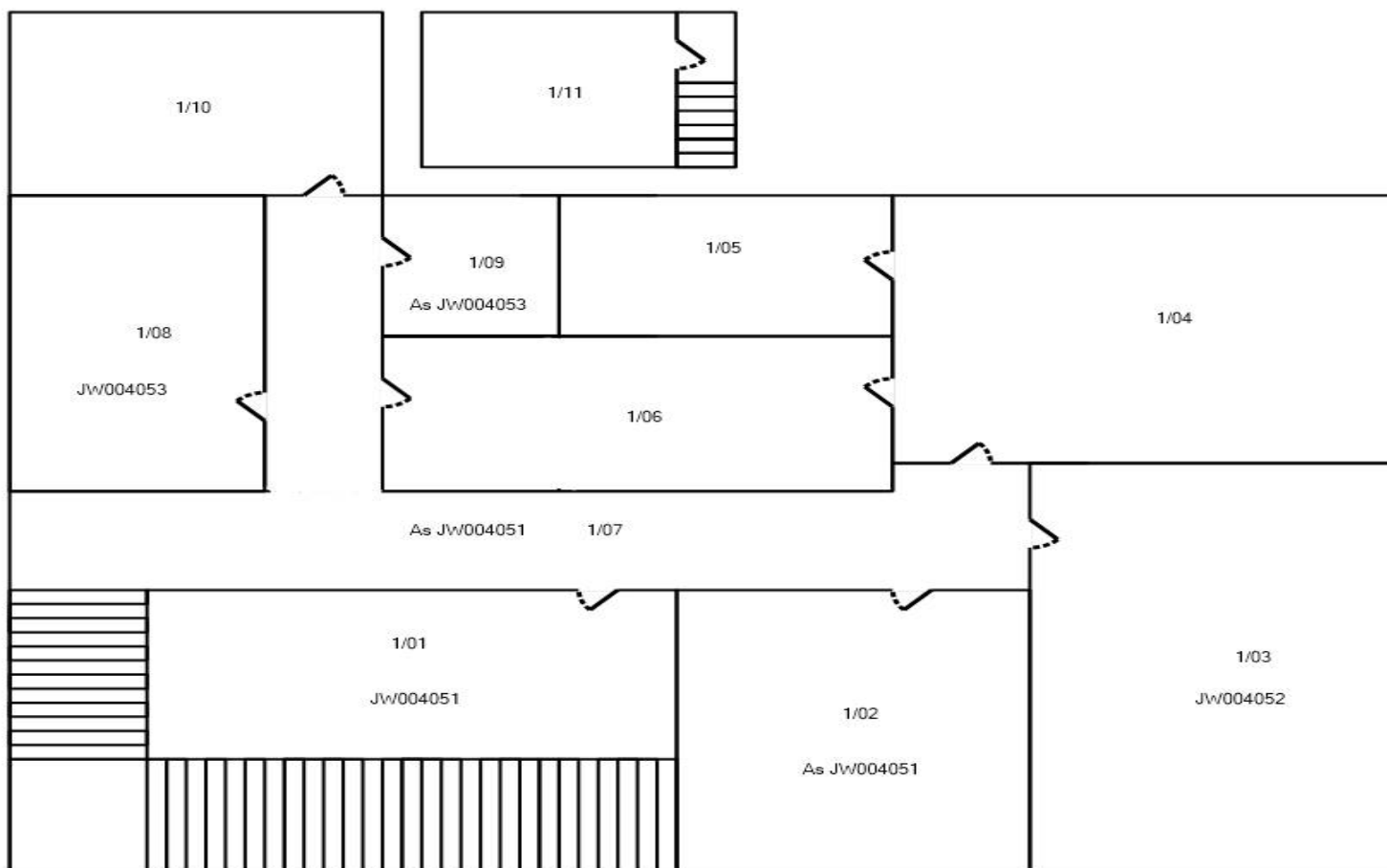


Positive or Strongly Presumed Asbestos in area / room



No Access within or
to area / room





Client: Triton Power

Site: Zone 1

Building: Zone 1 - Workshop, Stores & Warehouse

Floor: 1st Floor

UPRN No: N/A

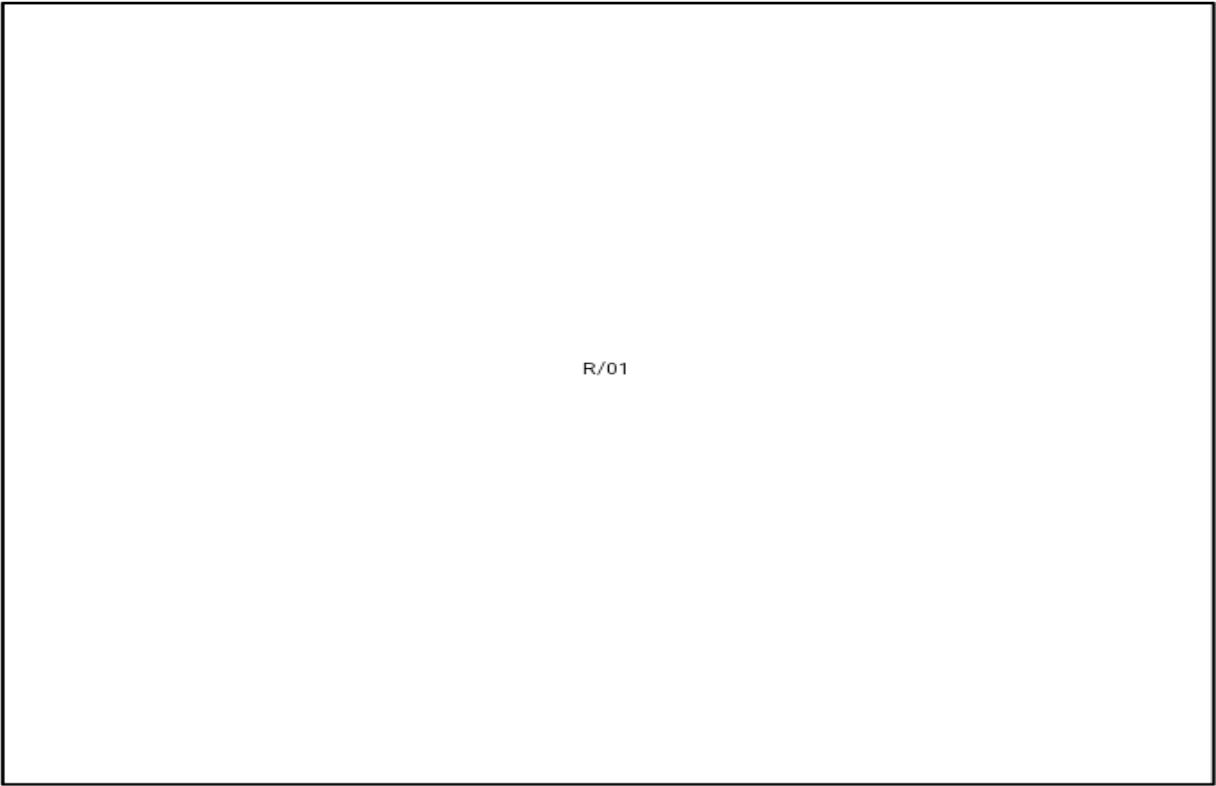
Plan Key:

Red Text = Positive Item

Blue Text = No Access Item

Black Text = No Asbestos Detected Item

Positive or Strongly
Presumed Asbestos
in area / roomNo Access within or
to area / room



Client: Triton Power
Site: Zone 1
Building: Zone 1 - Workshop, Stores & Warehouse
Floor: Roof Void
UPRN No: N/A


Plan Key:

Red Text = Positive Item

Blue Text = No Access Item

Black Text = No Asbestos Detected Item

Positive or Strongly Presumed Asbestos in area / room

No Access within or to area / room



Appendix 6 – Survey Intrusion Photographs

			
Intrusion into boxing	Intrusion into door frame	Intrusion into metal cladding	Intrusion into boxing
			
Intrusion into boxing	Intrusion into wall	Inspection within suspended ceiling	Intrusion into boxing
			
Inspection within hatch	Intrusion into floor	Intrusion into plasterboard wall	Inspection within boxing

Appendix 6 – Survey Intrusion Photographs (continued)

		
Intrusion into floor	Intrusion into boxing	Inspection within boxing

Asbestos Demolition Survey

Zone 2
Triton Power
Deeside Power Station
Weighbridge Road
Flintshire
CH5 2UL



10118



10118

Sentinel Environmental Consultancy Ltd
Unit 17 Gwenfro
Technology Park
Wrexham
LL13 7YP

Company Details
Email: enquiries@sentinelenvironmental.co.uk
Tel: 0333 3058769

1. Executive Summary [Conclusions and actions]
2. Report Summary
3. Introduction - Purpose, Aims and Objectives
4. Agreed Scope, Caveats and Limitations
5. Survey Method
6. Exclusions and Caveats
7. Sampling and Analysis
8. Survey Results - Interpretation
9. Recommendations

APPENDICES - Survey Results

- Appendix 1 - Asbestos Register - Results
- Appendix 2 - Survey Data Sheets
- Appendix 3 - Areas Surveyed
- Appendix 4 - Analysis Certificates
- Appendix 5 - Plans
- Appendix 6 - Intrusion Photographs

1.0 Executive summary:

This Executive Summary provides details on :

- | the locations with identified (or presumed) ACMs;
- | areas not accessed;
- | ACMs with high material assessment scores;
- | clear notes on any actions (and priorities).

Asbestos containing materials have been identified during the Demolition Survey and the specific areas are categorized below in order according to the initial Material Risk Assessment made by Sentinel Environmental Consultancy Ltd.

HIGH RISK MATERIALS - SCORES 10+

Asbestos in poor condition, or asbestos debris/contamination has been identified within the following areas listed in the table below. It is recommended that risk assessment (s) are undertaken to ensure that Regulation 4, Regulation 10, Regulation 11, and Regulation 16 of the Control of Asbestos Regulations 2012 are complied with.

Building	Floor	Room	Item	Material	Risk assessment Score	Tentative Recommendations
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There were no results found.

MEDIUM RISK MATERIALS - SCORES 7-9

Asbestos containing materials, which are unsealed or damaged, have been identified within the following areas listed in the table below. It is recommended that remedial work to seal or remove these materials is undertaken as a priority and that air monitoring is carried out within adjacent areas in order to assess airborne fibre levels.

Building	Floor	Room	Item	Material	Risk assessment Score	Tentative Recommendations
There were no results found.						

LOW RISK MATERIALS - SCORES 1-6

Asbestos Containing Materials have been identified which are in good condition, A management policy and plan need to be implemented to manage these materials safely.

Building	Floor	Room	Item	Material	Risk assessment Score	Tentative Recommendations
There were no results found.						

1.0 Executive summary:

PRESUMED ASBESTOS/NO ACCESS AREAS



Asbestos Containing Materials (ACMs) have been presumed as being present to the following areas where access could not be gained. Areas which have not been accessed should be presumed to contain asbestos until proven otherwise.

Building	Floor	Room/Area	Tentative Recommendation	Surveyor Notes
There were no results found.				

Building Notes:

Internal notes: N/A
External notes: N/A

2.0 Report Summary:

Name and address of site:	Zone 2, Triton Power, Deeside Power Station, Weighbridge Road, Flintshire		
Name and address of client:	Triton Power, Triton Power, Deeside Power Station, Weighbridge Road, Flintshire		
Client contact:	Colin Brooks		
Type of survey:	Demolition Survey		
Date of survey:	16 Feb 2021		
Report Revision Number:	1		
TEAMS internal job number:	J007543		
Lead surveyor[s]:	Adam Yates	Signature:	
Technically reviewed by:	Luke Jones	Signature:	
Report issue date:	8 Mar 2021		

3.0 Introduction/Objectives:

Sentinel Environmental Consultancy Ltd received an order of confirmation to undertake a Demolition Survey from Triton Power. This order has been accepted on the basis of the original quotation and our terms and conditions of business.

The order relates to a Demolition survey of:

Zone 2
Triton Power
Deeside Power Station
Weighbridge Road
Flintshire
CH5 2UL

The survey was carried out by Adam Yates, Declan Hughes.

The Type of survey selected / requested by the client was a Demolition survey.

This survey was carried out in accordance with documented in house procedures TOP02 surveying procedures, which are based on the HSE Guidance document HSG 264.

3.1 Purpose of Survey

The purpose of this Demolition Survey is to help the duty holder identify asbestos in these premises, prior to Demolition Works. It provides sufficient information to help the tendering process for removal works prior to any work starting. However it is strongly recommended that any asbestos removal should be undertaken against a detailed specification. We further recommend the appointed removal contractor should attend the site to confirm for themselves the quantities and location of asbestos to be removed, prior to costing.

3.2 Aim of Survey

The aim of the survey was to;

1. Locate and record the location, extent, and product type as far as reasonably practicable of known or presumed ACM's.
2. Inspect and record information on the accessibility, condition and surface treatment of know or presumed ACM's
3. Determine and record the asbestos type based on sampling or by making a presumption based on product type and appearance
4. Locate all ACM's within the fabric of the building prior to demolition.

3.0 Introduction/Objectives (Cont):

- Type of Survey

3.3 Type of Survey – Demolition Survey

Demolition surveys are intended to locate all asbestos within the building. It is a disruptive, fully intrusive survey that involves destructive inspection techniques that penetrate the building structure extensively. This involves breaking into floors, through walls, into wall voids ceilings, cladding, boxing, as necessary to gain access to all areas, including the inner fabric of the building. A full sampling programme is undertaken to identify possible ACM's and estimate their quantities.

The survey is designed to be used to help the tendering process, and should be used to start generating a specification for tendering the removal of ACM's from the building prior to demolition.

Whilst all asbestos materials have been identified as far as is reasonably practicable, some asbestos materials may remain unidentified buried within the fabric of the building during the survey. Asbestos shuttering buried within concrete slabs, asbestos hidden by structural supports, asbestos hidden behind other asbestos products, and building structures which are unsafe to fully access are potential locations.

It must be presumed that asbestos may remain unidentified to these type of areas and if suspect materials are uncovered during demolition then samples should be taken for analysis.

4.0 Agreed Scope, Caveats and Exclusions

4.1 Agreed Scope

Sentinel Environmental Consultancy Ltd have taken measures to ensure a sufficient exchange of information has been carried out with the duty holder / client representative prior to undertaking this survey. This survey has been carried out under the agreed scope outlined in the quotation and terms and conditions of the business. Any significant changes from the agreed scope are clearly identified and agreed with the client prior to issue of the Report.

Description, Current and Historical Use of Property	Industrial property type
Number of Buildings ; age, type and construction details	3 no. buildings (inc.cooling towers), traditionally constructed 1990s
Estimated or known number of rooms	Approx 10 no.
Unusual features or underground areas	Not applicable to survey
Details of alterations to Building (previous extension, refurbishment or demolition works)	Minor works evident, full details unknown
Building Listed or within Conservation Area	No listed status
Surrounding areas & building structures included in scope	Targeted to Zone 2 buildings only
Existing Plans for the Site provided (are plans required to be issued within a specific format)	Plans drawn by surveyor
Proposed Plans and Specification for scope of works	N/A
Building Occupied or Vacant	Vacant
Access Restrictions (working at height)	No access restrictions
Specialist requirements (access to confined spaces / heights where MEWP / Mobile Tower required)	No specialist requirements
Person responsible for arranging access	Arranged via client
Site Specific Hazards	Covid 19 - refer to RAMS & SOP
Photographs to be collected	Yes
Bulk Sampling Requirements	As per HSG 264
Previous Asbestos Information available and whether this information will be used as 3rd party data with the Survey	Previous register provided by client
Client specific requirements ; data extract/ CD / PDF copy / email only	No specific requirements

4.0 Agreed Scope, Caveats and Exclusions (Continued):

4.2 The following areas / elements have been agreed to be included or excluded from the scope, please note inspections are representative across the building, supporting photographs for intrusive inspections can be found in Appendix 6 :

Building Element	Included / Excluded	Survey Technique	Reinstatement Included
Solid wall cavities	Included	Inspection hole created to inspect cavity between walls inspected	No - all areas left safe
Removal of window sills	Included	Window sills removed to inspect beneath	No - all areas left safe
Removal of vent covers	Included	Vent covers removed to inspect behind	No - all areas left safe
Partition wall cavities	Included	Inspection holes created to inspect within / behind partition panels	No - all areas left safe
Above fixed suspended ceilings	Included	Access point created within fixed ceiling to inspect void	No - all areas left safe
Within boxings or risers	Included	Boxing panels and or cover panels to risers removed	No - all areas left safe
Floor voids, removal of flooring	Included	Floor boards lifted to inspect voids	No - all areas left safe
Within fire doors	Included	Inspection hole created to inspect lining of fire door	No - all areas left safe
Beneath fixed flooring materials	Included	Flooring lifted to inspect beneath	No - all areas left safe
Behind skirting and door frames	Included	Skirting board and door frames removed to inspect behind	No - all areas left safe
Beneath or behind furniture	Included	Furniture moved to inspect	No - all areas left safe
Beneath non asbestos insulation	Included	Non asbestos insulation to be removed	No - all areas left safe
Behind non asbestos external soffits / fascias	Included	Non asbestos soffits / fascias inspected beneath	No - all areas left safe
Roof voids Inspection	Included	Roof Voids accessed and inspected	No - all areas left safe
Fireplace / Chimney Breast	Not applicable	Chimney breast inspected	Not applicable

4.3 Agreed Caveat and Limitations

The Survey has been carried out with the following specific caveats agreed with the Client. Areas or items excluded from a survey must be presumed to contain Asbestos.

Item Excluded from Survey	Comments
Within electric switchgear, fuse boxes, plant and other associated services.	Agreed with client not to be inspected as a live service supply which could not be isolated during the Survey
Within operational plant and machinery including boilers / calorifiers / lift machinery etc.	Agreed with client not to be inspected as a live service supply which could not be isolated during the Survey
Access behind / above existing ACM's which would require the use of a LARC and enclosure.	Agreed with client not to be inspected behind / above
Intrusion through solid ceiling slab or solid walls requiring additional specialist support services.	Agreed with client not to be inspected beneath or within
Below external ground level	Agreed with client not to be inspected

5.0 Survey Method

5.1 This survey has been undertaken in accordance with HSG264 and Sentinel Environmental Consultancy Ltd in house procedures (TOP02 Surveying Procedure).

5.2 Clients of Sentinel Environmental Consultancy Ltd have agreed to our terms and conditions and accepted our surveying approach, our sampling strategy, and our standard planning, surveying and reporting format unless they have made specific requests to the contrary.

5.3 The information provided by the client or their representative is recorded within the desk top review and survey planning stage and has been used to establish the scope of the survey.

5.4 Photographs of suspected ACM's, limited access areas / no access areas are taken at the time of the survey unless the client expressly requests otherwise. Sampling points and suspected ACM's are not identified with labels unless the client expressly requests otherwise.

5.5 All items examined by the surveyor at the time of the survey are listed in the inspection detail of this report. This detail includes those items believed by the surveyor not to contain asbestos and an appropriate categorisation of their material composition is given. Employing this rationale, the surveyor can use experience and judgement to form a reasoned argument that there is evidence to suggest that the material may not contain asbestos. Periodically 'non-asbestos' building materials may be sampled by way of a method control to further support the surveyor's argument. These materials do not bear any risk assessment detail.

5.6 Areas that could not be accessed were presumed to have ACM's present until proven otherwise. Each area requiring further inspection is documented within the Executive summary (Inaccessible areas). Inaccessible areas are also shown on the plan drawings (Appendix 5)

5.6 Areas that cannot be accessed are presumed to have ACM's present until proven otherwise. Each area requiring further inspection is documented within the Executive summary (Inaccessible areas). Inaccessible areas are also shown on the plan drawings (Appendix 5)

5.7 Materials that cannot be accessed and in the surveyor's opinion could be dismissed are presumed to be ACMs unless proven otherwise. Materials that are not sampled but, in the surveyor's opinion, have a similar appearance, location and function as a previously sampled material are strongly presumed to be similar to the sampled material.

5.8 In the case of a material or materials being encountered that the surveyor suspects, following visual assessment, as containing asbestos but cannot be sampled for reasons of practicality, that material is strongly presumed to contain asbestos. An assessment (where possible) of the material's extent and condition is made. Materials that are 'strongly presumed' to be similar to a material that has already been sampled are referenced against the original sampled material.

5.9 Intrusive damage that is required to gain access to an area/location that is within the scope of the survey has been agreed with the client or the client's representative. Any remedial action is put in place before such action is attempted. If remedial action cannot be arranged, no attempt to access the area is made and the reasons recorded. The area/location is presumed to have ACM's present until proven otherwise.

5.10 Older electrical equipment, which cannot be shown to contain ACM's is presumed to have ACM's present unless, in the surveyors professional opinion, such items can be excluded.

6.0 Exclusions and Caveats:

Where suspect asbestos containing materials e.g. ceiling finishes, board materials etc exist no attempt (unless otherwise stated) will be made to investigate behind these materials. Sentinel Environmental Consultancy has a duty under Regulation 16 of the Control of Asbestos Regulations (2012) to prevent or reduce the spread of asbestos; penetration of such materials without appropriate control measures may be in contravention of this duty.

Specific areas excluded within this survey report are listed within the executive summary.

This report does not include investigations into land contamination associated with asbestos or any other contaminants.

7.0 Sampling and Analysis:

7.1 The object of bulk sampling is to identify the nature of any visible ACM. The bulk sample description and analysis results can be found in Appendix 4 of this report – The analysis certificate.

Bulk samples are taken in accordance with documented in house procedures (TOP02 Surveying Procedure) following guidelines detailed in HSG264 'The Survey Guide' and HSG248 'The Analyst Guide'. The quantity of samples taken will be minimised by using 'strongly presumed'. Materials that are 'strongly presumed' to be similar to a material that has already been sampled will be recorded in the comments section of the survey record and referenced against the original sampled material.

7.2 All samples taken during this survey have been analysed by a laboratory holding UKAS accreditation to ISO 17025.

7.3 The homogeneity of asbestos containing materials can differ depending on their type. Typically, homogeneous materials include sprayed coatings, insulating board and asbestos cement products. Other materials are typically less homogeneous including pipe lagging (due to patch repairs, hand mixing at time of application), textured coatings (due to low concentration of asbestos fibre and hand application), composites (due to low concentration of asbestos fibre and material matrix). Whilst sampling frequencies / techniques and analysis methods attempt to address the issue of non-homogeneity it should be realised that sampling in accordance with HSG 264 and analysis in accordance with HSG 248 cannot always obviate the problems of determining asbestos fibre content in non-homogeneous materials. The results of sample analysis presented in this report therefore pertain to the samples analysed and so relate only to the time at which sampling took place and to the conditions prevailing during that time.

Survey Results

8.1 The results of the survey inspections and sampling undertaken are recorded on the enclosed Survey Data Sheets (appendix 2), Asbestos Register (appendix 1) and Non-Asbestos Material Register (appendix 3). Where asbestos containing material have been identified or presumed to be present then a Material Assessment Algorithm has been calculated as detailed in HSG 264 and reproduced in the table below:

8.2 Within the survey data sheets the individual scores in brackets, for each sample variable, are added together to form the final material risk assessment algorithm score.

Material Risk Assessment Algorithm

Product type [or debris from product]

Score	Examples of scores
1	Asbestos reinforced composites [plastics, resins, mastics, roofing felts, vinyl floor tiles, semi- rigid paint, decorative finishes and asbestos cement etc]
2	Asbestos insulating board, mill boards, other low-density boards, textiles, gaskets, ropes and woven materials and asbestos paper.
3	Thermal insulation [e.g. pipe and boiler lagging], sprayed asbestos, loose asbestos, asbestos mattresses and packing.

Extent of damage/deterioration

Score	Examples of scores
0	Good condition: no visible damage
1	Low damage: a few scratches or surface marks, broken edges on boards or tiles, etc.
2	Moderate damage: significant breakage of materials or several small areas where material has been damaged exposing fibrous edges.
3	High damage or deterioration of materials, sprays and thermal insulation. Visible asbestos contamination by debris or residues.

Surface treatment

Score	Examples of scores
0	Composite materials containing asbestos, reinforced plastics, resins, vinyl tiles
1	Enclosed sprays or insulation, AIB [with exposed face encapsulated], cement sheets, etc.
2	Unsealed AIB, encapsulated insulation and sprays.
3	Unsealed insulation and sprays.

Asbestos Type

Score	Examples of scores
1	Chrysotile
2	Amphibole asbestos (excluding Crocidolite)
3	Crocidolite

Risk Category	Risk	Score Range	Fibre release potential
R1	HIGH	Material Score 10	High risk with a high potential to release fibres if disturbed
R2	MEDIUM	Material Score Between 7 and 9	Medium risk with a medium potential to release fibres if disturbed
R3	LOW	Material Score 6 or below	Low risk with and having low potential to release fibres if disturbed

9.0 Recommendations:

9.1 To comply with and ensure that the requirements of section 2 & 3 of the Health and Safety at Work Act (as amended) 1974, the Management of Health and Safety at Work Regulations 1999, the Control of Asbestos Regulations 2012 and the Control of Substances Hazardous to Health 2002 are met, the following recommendations should be implemented:

9.2 Undertake suitable and sufficient Risk Assessments of identified asbestos containing materials against normal occupation and maintenance operations, in compliance with Regulations 3 of the Management of Health & Safety at Work Regulations 1999 and Regulation 6 of the Control of Asbestos Regulations 2012.

9.3 The findings of the survey be brought to the attention of those persons who are likely to come in contact with asbestos, in compliance with Section 2 and 3 of the Health and Safety at Work Act (as amended) 1974 and Regulation 10 of the Control of Asbestos Regulations 2012.

9.4 Implement an Asbestos Management Policy, Plan and review process in compliance Regulation 4 of the Control of Asbestos Regulations 2012.

9.5 Instigate regular inspections, to record and update details of retained asbestos containing materials.

9.6 Review the arrangement under the management plan in accordance with regulation 4 of the CAR 2012.

9.7 During the course of the survey it may not have been possible to access all areas of the site. Details of areas requiring further access are identified within the Data Sheets of this report. In accordance with HSG 264, asbestos has been presumed to be present within these areas and should be treated accordingly until further inspection and analysis of building fabric and services proves otherwise.

9.8 Where asbestos debris or asbestos in poor condition has been found it is recommended that access is restricted and or controlled to these areas in accordance with Regulation 11 and Regulation 16 of the Control of Asbestos Regulations 2012.

9.9 If we have identified asbestos materials in poor condition, it is recommended that air monitoring is carried out within a number of areas where asbestos materials have been identified in order to assess airborne fibre levels within adjacent occupied areas in relation to the clearance indicator, as documented by HSG 248 the Analyst Guide.

9.10 All identified asbestos to be appropriately identified and subject to risk assessment, management, and re-inspection.

9.11 Site specific recommendations in respect to the location and condition of asbestos materials identified during the course of this inspection are detailed in the Survey Data Sheets and Asbestos register. In considering the management of asbestos materials identified to date, these recommendations should be taken into consideration.

9.12 In accordance with the Control of Asbestos Regulations 2012 the removal of ACM's fall into one of the three categories below:

Licensed Asbestos Removal

Is defined as any work, which is undertaken on a friable asbestos product or which is likely to exceed the control limit of 0.1f/cm³. A licensed asbestos removal contractor must undertake this work and a 14-day notice must be given to the HSE prior to the commencement of the work.

Notifiable Non Licensed Works

If work on an ACM causes the deterioration of the matrix material in which the asbestos fibres are firmly linked, then these works are Notifiable Non Licensed Work (NNLW). Work of this type does not require an asbestos removal licence, but the company undertaking the work must have the following:

- Notification of the work to the relevant enforcing authority prior to the work commencing.
- Medical examinations to assess each worker's state of health to be carried out, before any possible – exposure to asbestos. Then re-examinations every three years.
- Insurance for working with asbestos containing materials.
- A register of work to be kept by the employer for each employee exposed to asbestos.

Non Notifiable Non Licensed work

-Non-Licensed Works Is defined as any work, which involves short, non-continuous maintenance activities, during which only nonfriable materials are removed. It can also involve the removal of non-friable materials for refurbishment purposes. However, work of this type is only applicable where the matrix material in which the asbestos fibres are firmly linked remains intact.

-If a non-licensed contractor is appointed to undertake the removal works on the above materials, the following points must be adhered to:

-All operatives undertaking work on the material must have asbestos awareness training and practical asbestos training.

9.13 It is recommended that further intrusive investigations and sampling be carried out in accordance with HSG.264, where any major refurbishment, maintenance, installation or similar activity may expose asbestos materials that have remained inaccessible during the survey. This should be as a refurbishment/demolition survey as documented in HSG264.

9.14 The findings of this report should not be solely relied upon in obtaining costs for proposed asbestos abatement work. Any proposed abatement/removal of the asbestos should be undertaken against a detailed specification.

9.15 Any recommendations made within this report are made on the basis of findings collated at the time of survey. Recommendations should undergo careful client evaluation prior to a final management decision being made. Sentinel Environmental Consultancy Limited does not accept any responsibility for any works carried out as a result of recommendations made within this report.

Appendix 1 - Asbestos Register

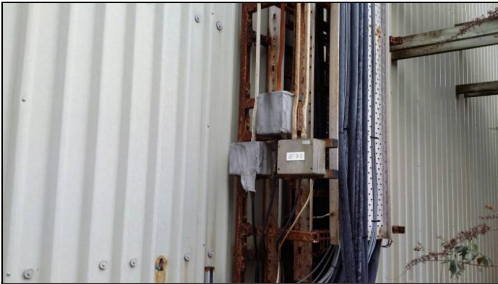
Building	Floor	Location /Room	S,P,SP,AS Sample No	Product Type	Condition	Surface Treatment	Asbestos Type	Quantity	Accessibility	Material Score	Recommendation	Additional Comments
There were no results found.												


KEY:

S – Sampled, P – Presumed, SP – Strongly Presumed, AS – Cross reference to former sample

Appendix 2 – Survey Data Sheets


Service Type	Demolition Survey		
Report Revision Number	1	Surveyors	Adam Yates
TEAMS Job Number	J007543	Survey Date	16 Feb 2021 to 18 Feb 2021
Site Address:	Zone 2 Triton Power Deeside Power Station Weighbridge Road Flintshire CH5 2UL	Bulk Analysis Laboratory	N/A
		Sample Analysis Date	19 Feb 2021


	Survey Date:	Lead Surveyor	Survey Type	Floor	Analysis
	16 Feb 2021 to 18 Feb 2021	Adam Yates	Demolition Survey	External	No Asbestos Detected
	Building	Room	Item	Quantity	
	Zone 2 - Cooling Tower 1	Externals E/01	woven wrap to electrical boxes	2no.	
	Sample No (S,SP,P,As)	Product Type	Surface Treatment	Condition	Accessibility
	JW004055 (S)	N/A	N/A	N/A	N/A
	Material Risk Score				
Recommended action		No further action required			
Surveyor comments		N/A			

	Survey Date:	Lead Surveyor	Survey Type	Floor	Analysis
	16 Feb 2021 to 18 Feb 2021	Adam Yates	Demolition Survey	External	No Asbestos Detected
	Building	Room	Item	Quantity	
	Zone 2 - Cooling Tower 1	Externals E/01	gasket to pipework flange to raw water pipework	1no.	
	Sample No (S,SP,P,As)	Product Type	Surface Treatment	Condition	Accessibility
	JW004056 (S)	N/A	N/A	N/A	N/A
	Material Risk Score				
Recommended action		No further action required			
Surveyor comments		N/A			

KEY:

S – Sampled, P – Presumed, SP – Strongly Presumed, AS – Cross reference to former sample

	Survey Date:	Lead Surveyor	Survey Type	Floor	Analysis
	16 Feb 2021 to 18 Feb 2021	Adam Yates	Demolition Survey	External	No Asbestos Detected
	Building	Room	Item	Quantity	
	Zone 2 - Cooling Tower 2	Externals E/01	woven wrap to pipework flange adjacent shelter	1no.	
	Sample No (S,SP,P,As)	Product Type	Surface Treatment	Condition	Accessibility
	As JW004055 (SP)	N/A	N/A	N/A	N/A
	Material Risk Score				
Recommended action		No further action required			
Surveyor comments		N/A			

	Survey Date:	Lead Surveyor	Survey Type	Floor	Analysis
	16 Feb 2021 to 18 Feb 2021	Adam Yates	Demolition Survey	Ground Floor	No Asbestos Detected
	Building	Room	Item	Quantity	
	Zone 2 - Cooling Tower Pump House, Sodium Hypochlorite & Purge Cooler Building	Loading bay G/01	gasket to pipework flange to MCW pump pipework	2no.	
	Sample No (S,SP,P,As)	Product Type	Surface Treatment	Condition	Accessibility
	JW004057 (S)	N/A	N/A	N/A	N/A
	Material Risk Score				
Recommended action		No further action required			
Surveyor comments		N/A			

KEY:

S – Sampled, P – Presumed, SP – Strongly Presumed, AS – Cross reference to former sample

Appendix 3 - Areas Surveyed

Building	Floor	Room No:	Room Type	Item
Zone 2 - Cooling Tower 1	External	E/01	Externals	timber structure, roof & floor, concrete floor, fibreglass cooling towers, mmmf & fibreglass pipework insulation, modern electrics, timber panel behind electrics, metal duct boxing, rubber seal to motor electrical intake, rubber gasket to pipework flange to motor shafts, fibreglass cladding to walls, plastic damp proof course, rubber gasket to large & small bore pipework, rubber seal to ducting, rubber gasket to pipework flange to sprinkler system pipework, plastic & metal heat syncs, fibreglass cover to shelter
Zone 2 - Cooling Tower 2	External	E/01	Externals	timber structure, roof & floor, concrete floor, fibreglass cooling towers, mmmf & fibreglass pipework insulation, modern electrics, timber panel behind electrics, metal duct boxing, rubber seal to motor electrical intake, rubber gasket to pipework flange to motor shafts, fibreglass cladding to walls, plastic damp proof course, rubber gasket to large & small bore pipework, rubber seal to ducting, rubber gasket to pipework flange to sprinkler system pipework, plastic & metal heat syncs, fibreglass cover to shelter
Zone 2 - Cooling Tower Pump House, Sodium Hypochlorite & Purge Cooler Building	External	E/01	Externals	metal roof, breeze block walls, metal cladding to walls, metal duct boxing, modern electrics, plastic & metal rainwater goods, rubber gasket to pipework flange to purge inlet valve, rubber gasket to cooling water sampling root valve, rubber gasket to pipework flange to waste water pit pump, rubber gasket to pipework flange to purge inlet valve, rubber gasket to cooling water sampling root valve, rubber gasket to pipework flange to waste water pit pump, rubber gasket to pipework flange to acid injection point
Zone 2 - Cooling Tower Pump House, Sodium Hypochlorite & Purge Cooler Building	Ground Floor	G/01	Loading bay	metal underside of roof, breeze block walls, concrete floor, metal cladding to walls, foam pipework insulation, modern electrics, metal duct boxing, foam seal to duct boxing joints, metal panel above door, mmmf insulation to cable penetration, fibreglass tank, plastic damp proof course
Zone 2 - Cooling Tower Pump House, Sodium Hypochlorite & Purge Cooler Building	Ground Floor	G/02	LV switchroom	metal underside of roof, breeze block walls, concrete floor, modern electrics & switchgear, mmmf packing to cable penetration, timber panel to wall & door, metal cladding to walls, foam pipework insulation
Zone 2 - Cooling Tower Pump House, Sodium Hypochlorite & Purge Cooler Building	Ground Floor	G/03	Sulphuric acid store	metal underside of roof, breeze block walls, concrete & ceramic tile floor, metal cladding to walls, modern electrics & switchgear, metal tank, rubber gasket to pipework flange to tank pipework, metal duct boxing, rubber seal to duct boxing joints

Appendix 3 - Areas Surveyed (cont)

Building	Floor	Room No:	Room Type	Item
Zone 2 - Cooling Tower Pump House, Sodium Hypochlorite & Purge Cooler Building	Ground Floor	G/04	Auxiliary transformer 2	metal underside of roof, breeze block walls, concrete floor, mmmf packing to pipework penetration, no asbestos observed to electrics
Zone 2 - Cooling Tower Pump House, Sodium Hypochlorite & Purge Cooler Building	Ground Floor	G/05	Auxiliary transformer 1	metal underside of roof, breeze block walls, concrete floor, mmmf packing to pipework penetration, no asbestos observed to electrics
Zone 2 - Cooling Tower Pump House, Sodium Hypochlorite & Purge Cooler Building	Ground Floor	G/06	Sodium hypochlorite unloading point	metal underside of roof, breeze block walls, concrete floor, fibreglass tank, rubber gasket to tank hatch, rubber gasket to pipework flange to tank pipework, modern electrics
Zone 2 - Cooling Tower Pump House, Sodium Hypochlorite & Purge Cooler Building	Ground Floor	G/07	Sodium hypochlorite dosing room	metal underside of roof, breeze block walls, concrete floor, mmmf pipework insulation, rubber gasket to pipework flange to dosing pump, modern electrics
Zone 2 - Cooling Tower Pump House, Sodium Hypochlorite & Purge Cooler Building	Ground Floor	G/08	Purge cooler room	metal underside of roof, breeze block walls, concrete floor, unlagged metal pipework, rubber gasket to pipework flange to purge cooler pipework, mmmf packing to cable penetration, mmmf pipework insulation

Appendix 4 – Analysis Certificates

Sentinel Environmental Consultancy Limited
Head Office : Unit 17 Gwenfro, Technology Park, Wrexham, LL13 7YP

Certificate of Analysis

Asbestos Fibre Identification in Bulk Sample

Client: Triton Power
Address: Triton Power, Deeside Power Station,
Weighbridge Road, Flintshire, CH5 2UL
Project /Certificate Reference : J007543
Version Number : 1

Site Address: Zone 2, Triton Power, Deeside Power
Station, Weighbridge Road, Flintshire, CH5 2UL

Analyst Signature:



Analyst Name: Lucy Caroe

Samples Collected by: Adam Yates
Date Samples Received: 19 Feb 2021
Analysis Date: 19 Feb 2021
Certificate Issue Date: 8 Mar 2021

Asbestos Fibre Type :

Chrysotile= "White asbestos", Amosite= "Brown asbestos", Crocidolite = "Blue asbestos" Refer to H.S.E. publication HSG 264, for the approximate percentage asbestos content within the presumptive product type.

Analysis Method :

The analysis of the sample(s) detailed on this report is UKAS accredited. Analysis was performed in accordance with our internal Technical Operating Procedures and Health & Safety Executive publication HSG 248 at our Head Office.

Disclaimer :

Any interpretations or opinions expressed in this report are outside the scope of UKAS accreditation. The stated "presumptive product type" is a subjective assessment by our analyst, it is not determined by measurement and it is an opinion. Sentinel Environmental cannot accept responsibility for any discrepancy or inaccuracy arising from collection or labelling of samples by the client. Samples are retained for 6 months only after the analysis date unless requested or contracted otherwise.

Version Revision / Changes : None

Authorisation Signature :



Daniel Roberts - Director

Sentinel Environmental Consultancy Limited
 Head Office : Unit 17 Gwenfro, Technology Park, Wrexham, LL13 7YP

Certificate of Analysis

Project /Job Reference : J007543
 Certificate Issue Date : 08/03/2021

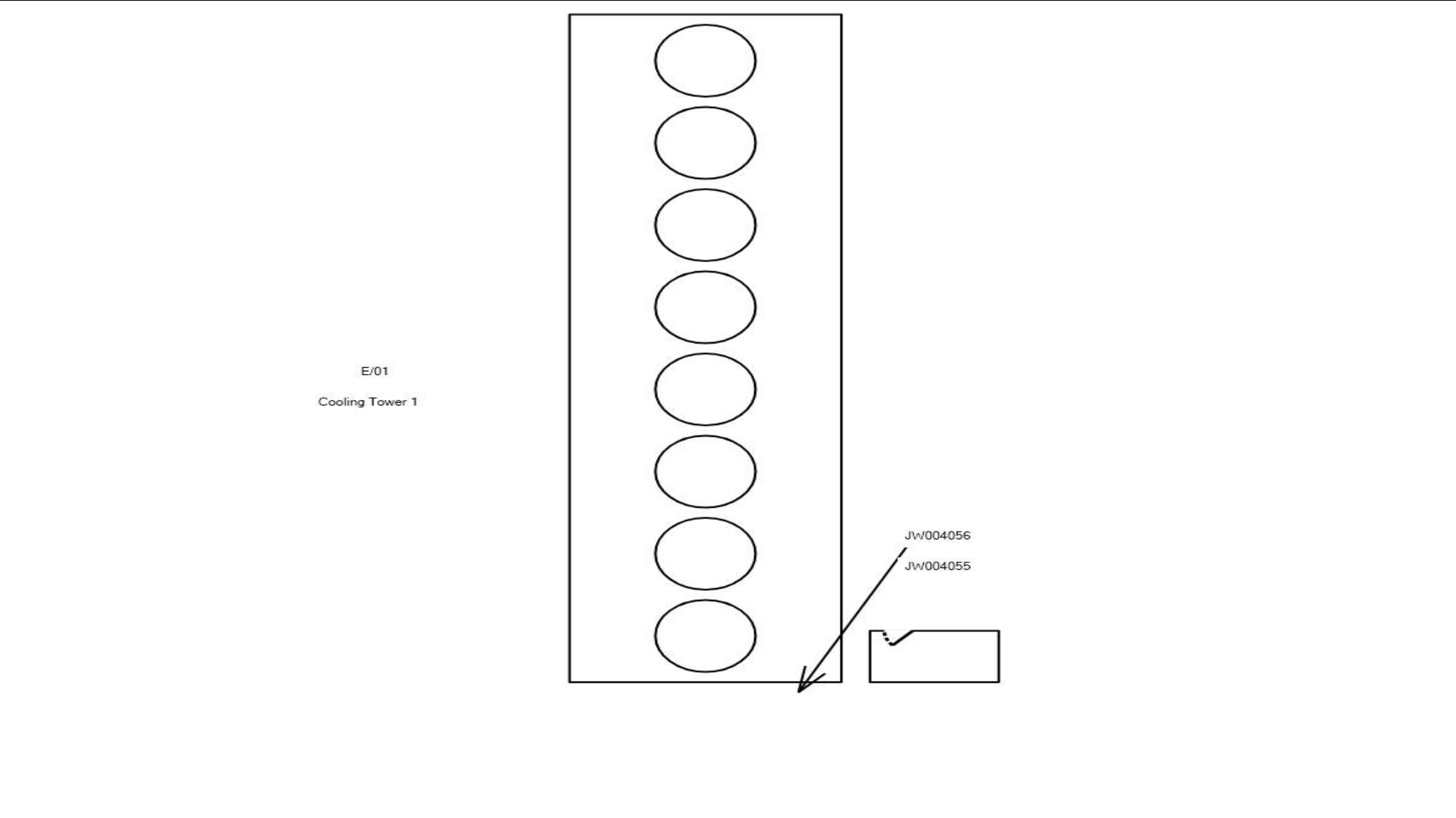
Version Number : 1

Results

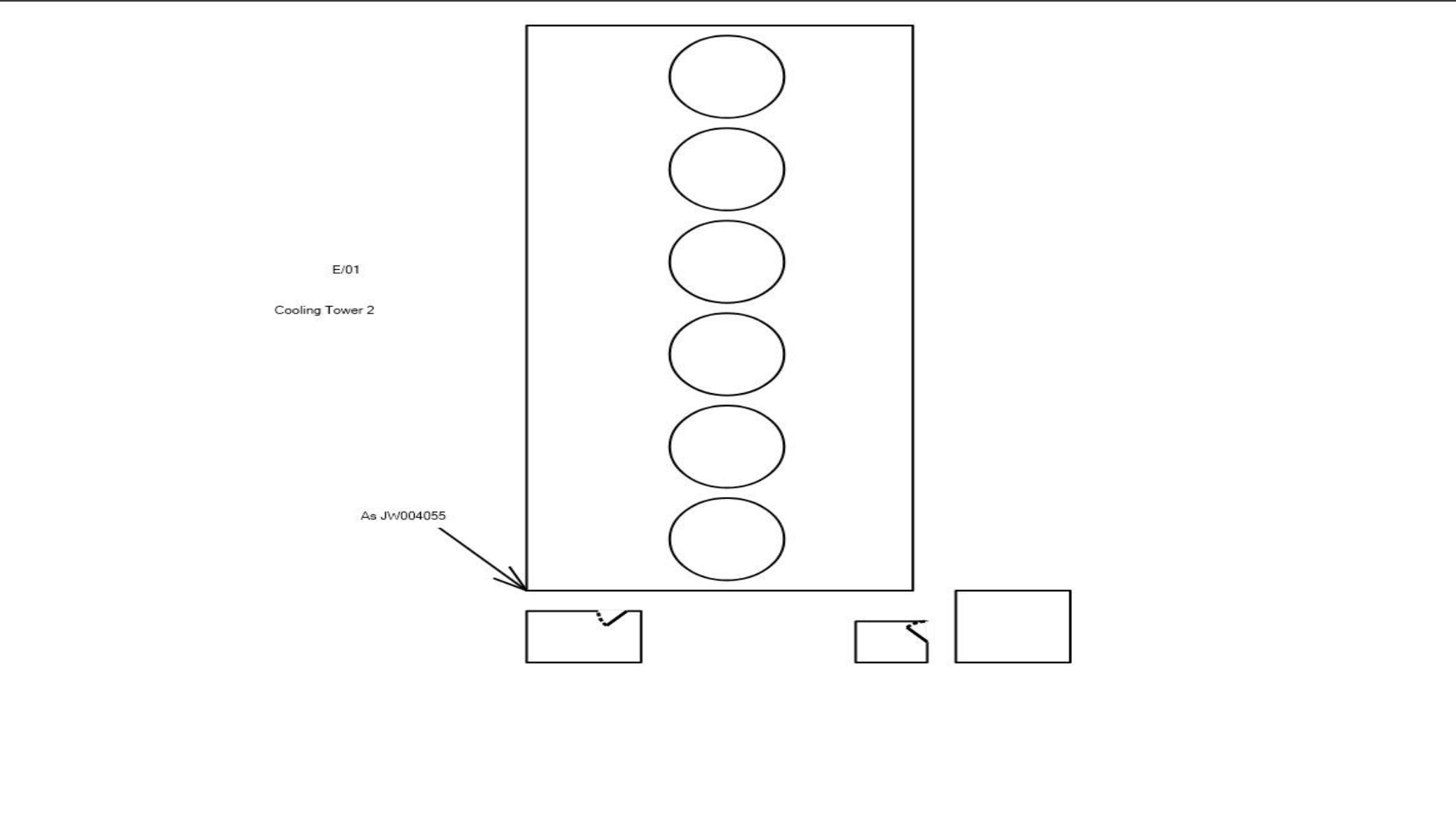
Project Reference	Sample Location and Description	Asbestos Fibre Type	Presumptive Product Type
JW004055	Zone 2 - Cooling Tower 1, External, Externals – woven wrap	No Asbestos Detected	Non Asbestos Textiles/Paper
JW004056	Zone 2 - Cooling Tower 1, External, Externals – gasket to pipework flange	No Asbestos Detected	Well Bound Material
JW004057	Zone 2 - Cooling Tower Pump House, Sodium Hypochlorite & Purge Cooler Building , Ground Floor, Loading bay – gasket to pipework flange	No Asbestos Detected	Non Asbestos Textiles/Paper

Please Refer to Page 1 of Certificate of Analysis for pertinent details. This Report is only Valid when issued as a complete document with authorising signature on Page 1.

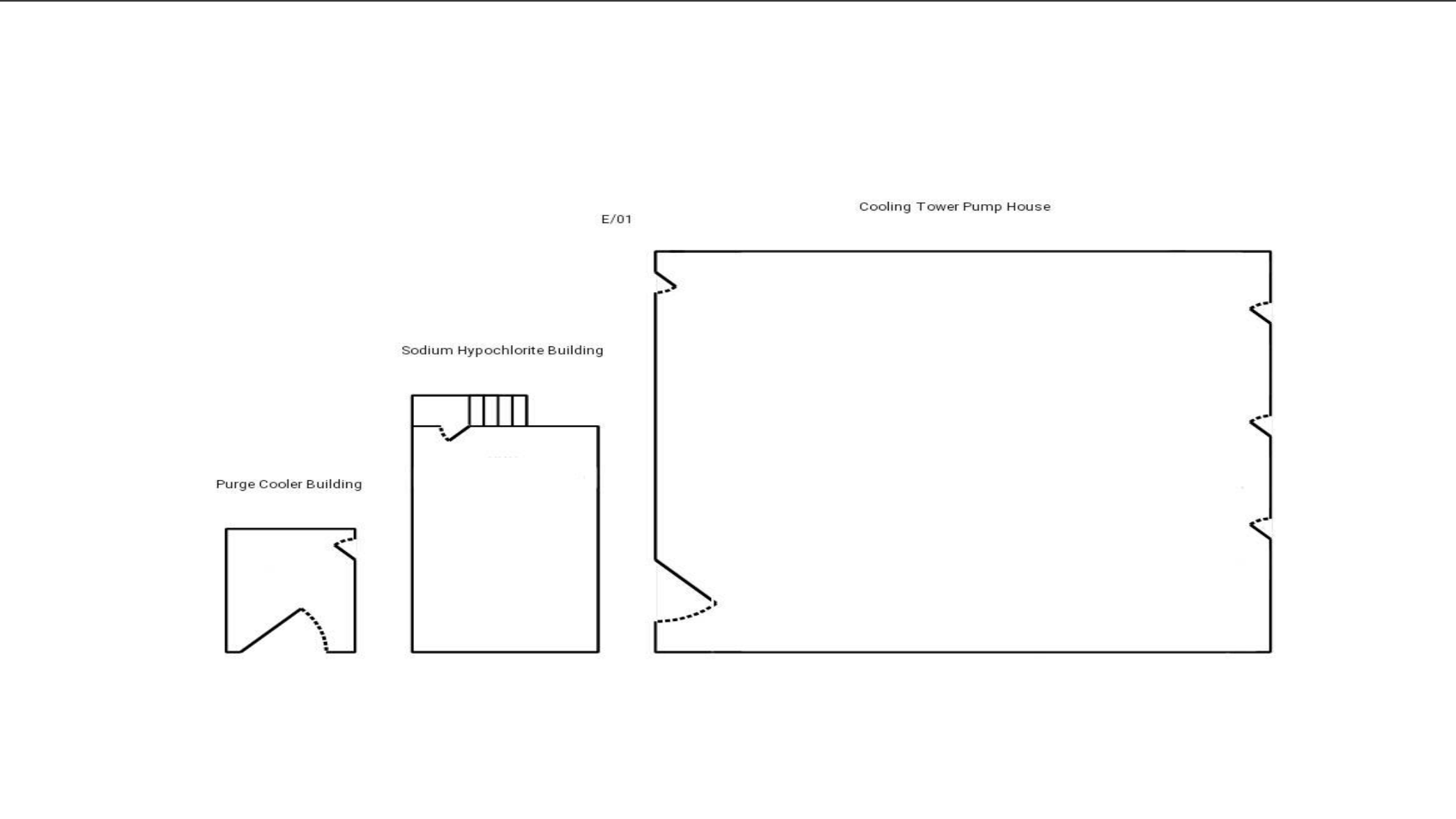
Appendix 5 – Plans






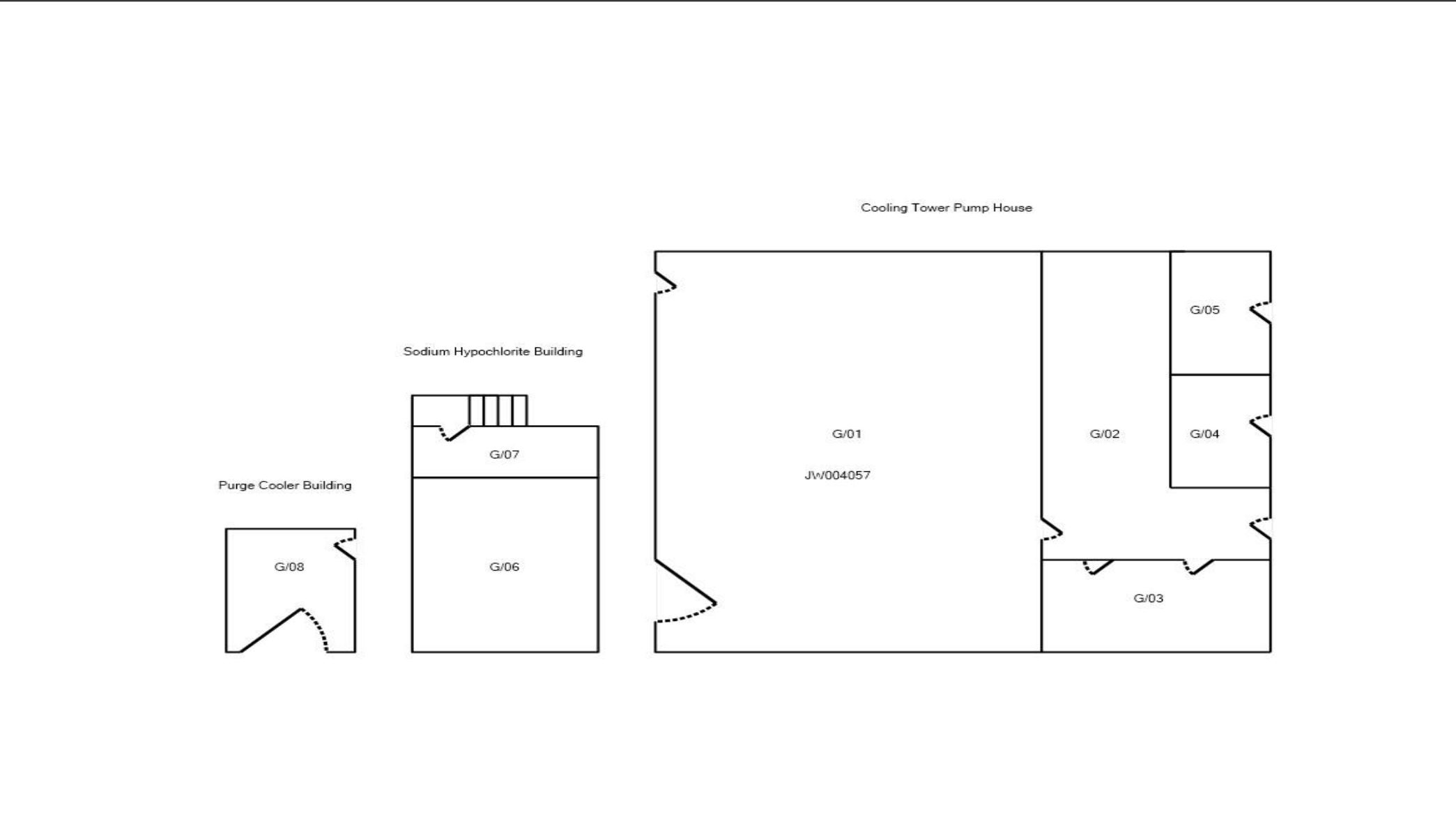
<div>Client: Triton Power</div> <div>Site: Zone 2</div> <div>Building: Zone 2 - Cooling Tower 1</div> <div>Floor: External</div> <div>UPRN No: N/A</div>	<div>Plan Key:</div> <div><div>Red Text = Positive Item</div><div>Blue Text = No Access Item</div><div>Black Text = No Asbestos Detected Item</div><div> Positive or Strongly Presumed Asbestos in area / room</div><div> No Access within or to area / room</div></div>	<div></div>
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<div>Client: Triton Power</div> <div>Site: Zone 2</div> <div>Building: Zone 2 - Cooling Tower 2</div> <div>Floor: External</div> <div>UPRN No: N/A</div>	<div>Plan Key:</div> <div><div>Red Text = Positive Item</div><div>Blue Text = No Access Item</div><div>Black Text = No Asbestos Detected Item</div><div> Positive or Strongly Presumed Asbestos in area / room</div><div> No Access within or to area / room</div></div>	<div></div>
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<div>Client: Triton Power</div> <div>Site: Zone 2</div> <div>Building: Zone 2 - Cooling Tower Pump House, Sodium Hypochlorite & Purge Cooler Building</div> <div>Floor: External</div> <div>UPRN No: N/A</div>	<div>Plan Key:</div> <div><div>Red Text = Positive Item</div><div>Blue Text = No Access Item</div><div>Black Text = No Asbestos Detected Item</div><div><div></div>Positive or Strongly Presumed Asbestos in area / room</div><div><div></div>No Access within or to area / room</div></div>	<div></div>
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<div>Client: Triton Power</div> <div>Site: Zone 2</div> <div>Building: Zone 2 - Cooling Tower Pump House, Sodium Hypochlorite & Purge Cooler Building</div> <div>Floor: Ground Floor</div> <div>UPRN No: N/A</div>	<div>Plan Key:</div> <div><div>Red Text = Positive Item</div><div>Blue Text = No Access Item</div><div>Black Text = No Asbestos Detected Item</div><div><div><div></div></div>Positive or Strongly Presumed Asbestos in area / room</div><div><div></div>No Access within or to area / room</div></div>	<div></div>
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Appendix 6 – Survey Intrusion Photographs

			
Intrusion into floor	Intrusion into pipework	Inspection within electrics	Inspection of pipework flange
			
Inspection of pipework flange	Inspection of pipework flange		

Asbestos Demolition Survey

Zone 3
Triton Power
Deeside Power Station
Weighbridge Road
Flintshire
CH5 2UL



10118



10118

Sentinel Environmental Consultancy Ltd
Unit 17 Gwenfro
Technology Park
Wrexham
LL13 7YP

Company Details
Email: enquiries@sentinelenvironmental.co.uk
Tel: 0333 3058769

1. Executive Summary [Conclusions and actions]
2. Report Summary
3. Introduction - Purpose, Aims and Objectives
4. Agreed Scope, Caveats and Limitations
5. Survey Method
6. Exclusions and Caveats
7. Sampling and Analysis
8. Survey Results - Interpretation
9. Recommendations

APPENDICES - Survey Results

- Appendix 1 - Asbestos Register - Results
- Appendix 2 - Survey Data Sheets
- Appendix 3 - Areas Surveyed
- Appendix 4 - Analysis Certificates
- Appendix 5 - Plans
- Appendix 6 - Intrusion Photographs

1.0 Executive summary:

This Executive Summary provides details on :

- | the locations with identified (or presumed) ACMs;
- | areas not accessed;
- | ACMs with high material assessment scores;
- | clear notes on any actions (and priorities).

Asbestos containing materials have been identified during the Demolition Survey and the specific areas are categorized below in order according to the initial Material Risk Assessment made by Sentinel Environmental Consultancy Ltd.

HIGH RISK MATERIALS - SCORES 10+

Asbestos in poor condition, or asbestos debris/contamination has been identified within the following areas listed in the table below. It is recommended that risk assessment (s) are undertaken to ensure that Regulation 4, Regulation 10, Regulation 11, and Regulation 16 of the Control of Asbestos Regulations 2012 are complied with.

Building	Floor	Room	Item	Material	Risk assessment Score	Tentative Recommendations
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There were no results found.

MEDIUM RISK MATERIALS - SCORES 7-9

Asbestos containing materials, which are unsealed or damaged, have been identified within the following areas listed in the table below. It is recommended that remedial work to seal or remove these materials is undertaken as a priority and that air monitoring is carried out within adjacent areas in order to assess airborne fibre levels.

Building	Floor	Room	Item	Material	Risk assessment Score	Tentative Recommendations
There were no results found.						

LOW RISK MATERIALS - SCORES 1-6

Asbestos Containing Materials have been identified which are in good condition, A management policy and plan need to be implemented to manage these materials safely.

Building	Floor	Room	Item	Material	Risk assessment Score	Tentative Recommendations
Zone 3 - Fuel Oil Pump House	Ground Floor	Fuel oil pump house G/01	gasket to pipework flange	Asbestos Textiles/Paper	LOW (5) R3	Remove
Zone 3 - Gas Compound	External	Externals E/01	gasket to pipework flange	Asbestos Textiles/Paper	LOW (5) R3	Remove
Zone 3 - Gas Compound	External	Externals E/01	gasket to pipework flange	Asbestos Textiles/Paper	LOW (5) R3	Remove

1.0 Executive summary:

PRESUMED ASBESTOS/NO ACCESS AREAS



Asbestos Containing Materials (ACMs) have been presumed as being present to the following areas where access could not be gained. Areas which have not been accessed should be presumed to contain asbestos until proven otherwise.

Building	Floor	Room/Area	Tentative Recommendation	Surveyor Notes
There were no results found.				

Building Notes:

Internal notes: N/A
External notes: N/A

2.0 Report Summary:

Name and address of site:	Zone 3, Triton Power, Deeside Power Station, Weighbridge Road, Flintshire		
Name and address of client:	Triton Power, Triton Power, Deeside Power Station, Weighbridge Road, Flintshire		
Client contact:	Colin Brooks		
Type of survey:	Demolition Survey		
Date of survey:	16 Feb 2021		
Report Revision Number:	1		
TEAMS internal job number:	J007544		
Lead surveyor[s]:	Adam Yates	Signature:	
Technically reviewed by:	Luke Jones	Signature:	
Report issue date:	8 Mar 2021		

3.0 Introduction/Objectives:

Sentinel Environmental Consultancy Ltd received an order of confirmation to undertake a Demolition Survey from Triton Power. This order has been accepted on the basis of the original quotation and our terms and conditions of business.

The order relates to a Demolition survey of:

Zone 3
Triton Power
Deeside Power Station
Weighbridge Road
Flintshire
CH5 2UL

The survey was carried out by Adam Yates, Declan Hughes.

The Type of survey selected / requested by the client was a Demolition survey.

This survey was carried out in accordance with documented in house procedures TOP02 surveying procedures, which are based on the HSE Guidance document HSG 264.

3.1 Purpose of Survey

The purpose of this Demolition Survey is to help the duty holder identify asbestos in these premises, prior to Demolition Works. It provides sufficient information to help the tendering process for removal works prior to any work starting. However it is strongly recommended that any asbestos removal should be undertaken against a detailed specification. We further recommend the appointed removal contractor should attend the site to confirm for themselves the quantities and location of asbestos to be removed, prior to costing.

3.2 Aim of Survey

The aim of the survey was to;

1. Locate and record the location, extent, and product type as far as reasonably practicable of known or presumed ACM's.
2. Inspect and record information on the accessibility, condition and surface treatment of know or presumed ACM's
3. Determine and record the asbestos type based on sampling or by making a presumption based on product type and appearance
4. Locate all ACM's within the fabric of the building prior to demolition.

3.0 Introduction/Objectives (Cont):

- Type of Survey

3.3 Type of Survey – Demolition Survey

Demolition surveys are intended to locate all asbestos within the building. It is a disruptive, fully intrusive survey that involves destructive inspection techniques that penetrate the building structure extensively. This involves breaking into floors, through walls, into wall voids ceilings, cladding, boxing, as necessary to gain access to all areas, including the inner fabric of the building. A full sampling programme is undertaken to identify possible ACM's and estimate their quantities.

The survey is designed to be used to help the tendering process, and should be used to start generating a specification for tendering the removal of ACM's from the building prior to demolition.

Whilst all asbestos materials have been identified as far as is reasonably practicable, some asbestos materials may remain unidentified buried within the fabric of the building during the survey. Asbestos shuttering buried within concrete slabs, asbestos hidden by structural supports, asbestos hidden behind other asbestos products, and building structures which are unsafe to fully access are potential locations.

It must be presumed that asbestos may remain unidentified to these type of areas and if suspect materials are uncovered during demolition then samples should be taken for analysis.

4.0 Agreed Scope, Caveats and Exclusions

4.1 Agreed Scope

Sentinel Environmental Consultancy Ltd have taken measures to ensure a sufficient exchange of information has been carried out with the duty holder / client representative prior to undertaking this survey. This survey has been carried out under the agreed scope outlined in the quotation and terms and conditions of the business. Any significant changes from the agreed scope are clearly identified and agreed with the client prior to issue of the Report.

Description, Current and Historical Use of Property	Industrial / Commercial property type
Number of Buildings ; age, type and construction details	2 no. buildings, traditionally constructed 1990s
Estimated or known number of rooms	< 5 no.
Unusual features or underground areas	Not applicable to survey
Details of alterations to Building (previous extension, refurbishment or demolition works)	Minor works evident, full details unknown
Building Listed or within Conservation Area	No listed status
Surrounding areas & building structures included in scope	Targeted to Zone 3 buildings only
Existing Plans for the Site provided (are plans required to be issued within a specific format)	Plans drawn by surveyor
Proposed Plans and Specification for scope of works	N/A
Building Occupied or Vacant	Vacant
Access Restrictions (working at height)	No access restrictions
Specialist requirements (access to confined spaces / heights where MEWP / Mobile Tower required)	No specialist requirements
Person responsible for arranging access	Arranged via client
Site Specific Hazards	Covid 19 - refer to RAMS & SOP
Photographs to be collected	Yes
Bulk Sampling Requirements	As per HSG 264
Previous Asbestos Information available and whether this information will be used as 3rd party data with the Survey	Previous register provided by client
Client specific requirements ; data extract/ CD / PDF copy / email only	No specific requirements

4.0 Agreed Scope, Caveats and Exclusions (Continued):

4.2 The following areas / elements have been agreed to be included or excluded from the scope, please note inspections are representative across the building, supporting photographs for intrusive inspections can be found in Appendix 6 :

Building Element	Included / Excluded	Survey Technique	Reinstatement Included
Solid wall cavities	Included	Inspection hole created to inspect cavity between walls inspected	No - all areas left safe
Removal of window sills	Included	Window sills removed to inspect beneath	No - all areas left safe
Removal of vent covers	Included	Vent covers removed to inspect behind	No - all areas left safe
Partition wall cavities	Included	Inspection holes created to inspect within / behind partition panels	No - all areas left safe
Above fixed suspended ceilings	Included	Access point created within fixed ceiling to inspect void	No - all areas left safe
Within boxings or risers	Included	Boxing panels and or cover panels to risers removed	No - all areas left safe
Floor voids, removal of flooring	Included	Floor boards lifted to inspect voids	No - all areas left safe
Within fire doors	Included	Inspection hole created to inspect lining of fire door	No - all areas left safe
Beneath fixed flooring materials	Included	Flooring lifted to inspect beneath	No - all areas left safe
Behind skirting and door frames	Included	Skirting board and door frames removed to inspect behind	No - all areas left safe
Beneath or behind furniture	Included	Furniture moved to inspect	No - all areas left safe
Beneath non asbestos insulation	Included	Non asbestos insulation to be removed	No - all areas left safe
Behind non asbestos external soffits / fascias	Included	Non asbestos soffits / fascias inspected beneath	No - all areas left safe
Roof voids Inspection	Included	Roof Voids accessed and inspected	No - all areas left safe
Fireplace / Chimney Breast	Not applicable	Chimney breast inspected	Not applicable

4.3 Agreed Caveat and Limitations

The Survey has been carried out with the following specific caveats agreed with the Client. Areas or items excluded from a survey must be presumed to contain Asbestos.

Item Excluded from Survey	Comments
Within electric switchgear, fuse boxes, plant and other associated services.	Agreed with client not to be inspected as a live service supply which could not be isolated during the Survey
Within operational plant and machinery including boilers / calorifiers / lift machinery etc.	Agreed with client not to be inspected as a live service supply which could not be isolated during the Survey
Access behind / above existing ACM's which would require the use of a LARC and enclosure.	Agreed with client not to be inspected behind / above
Intrusion through solid ceiling slab or solid walls requiring additional specialist support services.	Agreed with client not to be inspected beneath or within
Below external ground level	Agreed with client not to be inspected

5.0 Survey Method

5.1 This survey has been undertaken in accordance with HSG264 and Sentinel Environmental Consultancy Ltd in house procedures (TOP02 Surveying Procedure).

5.2 Clients of Sentinel Environmental Consultancy Ltd have agreed to our terms and conditions and accepted our surveying approach, our sampling strategy, and our standard planning, surveying and reporting format unless they have made specific requests to the contrary.

5.3 The information provided by the client or their representative is recorded within the desk top review and survey planning stage and has been used to establish the scope of the survey.

5.4 Photographs of suspected ACM's, limited access areas / no access areas are taken at the time of the survey unless the client expressly requests otherwise. Sampling points and suspected ACM's are not identified with labels unless the client expressly requests otherwise.

5.5 All items examined by the surveyor at the time of the survey are listed in the inspection detail of this report. This detail includes those items believed by the surveyor not to contain asbestos and an appropriate categorisation of their material composition is given. Employing this rationale, the surveyor can use experience and judgement to form a reasoned argument that there is evidence to suggest that the material may not contain asbestos. Periodically 'non-asbestos' building materials may be sampled by way of a method control to further support the surveyor's argument. These materials do not bear any risk assessment detail.

5.6 Areas that could not be accessed were presumed to have ACM's present until proven otherwise. Each area requiring further inspection is documented within the Executive summary (Inaccessible areas). Inaccessible areas are also shown on the plan drawings (Appendix 5)

5.6 Areas that cannot be accessed are presumed to have ACM's present until proven otherwise. Each area requiring further inspection is documented within the Executive summary (Inaccessible areas). Inaccessible areas are also shown on the plan drawings (Appendix 5)

5.7 Materials that cannot be accessed and in the surveyor's opinion could be dismissed are presumed to be ACMs unless proven otherwise. Materials that are not sampled but, in the surveyor's opinion, have a similar appearance, location and function as a previously sampled material are strongly presumed to be similar to the sampled material.

5.8 In the case of a material or materials being encountered that the surveyor suspects, following visual assessment, as containing asbestos but cannot be sampled for reasons of practicality, that material is strongly presumed to contain asbestos. An assessment (where possible) of the material's extent and condition is made. Materials that are 'strongly presumed' to be similar to a material that has already been sampled are referenced against the original sampled material.

5.9 Intrusive damage that is required to gain access to an area/location that is within the scope of the survey has been agreed with the client or the client's representative. Any remedial action is put in place before such action is attempted. If remedial action cannot be arranged, no attempt to access the area is made and the reasons recorded. The area/location is presumed to have ACM's present until proven otherwise.

5.10 Older electrical equipment, which cannot be shown to contain ACM's is presumed to have ACM's present unless, in the surveyors professional opinion, such items can be excluded.

6.0 Exclusions and Caveats:

Where suspect asbestos containing materials e.g. ceiling finishes, board materials etc exist no attempt (unless otherwise stated) will be made to investigate behind these materials. Sentinel Environmental Consultancy has a duty under Regulation 16 of the Control of Asbestos Regulations (2012) to prevent or reduce the spread of asbestos; penetration of such materials without appropriate control measures may be in contravention of this duty.

Specific areas excluded within this survey report are listed within the executive summary.

This report does not include investigations into land contamination associated with asbestos or any other contaminants.

7.0 Sampling and Analysis:

7.1 The object of bulk sampling is to identify the nature of any visible ACM. The bulk sample description and analysis results can be found in Appendix 4 of this report – The analysis certificate.

Bulk samples are taken in accordance with documented in house procedures (TOP02 Surveying Procedure) following guidelines detailed in HSG264 'The Survey Guide' and HSG248 'The Analyst Guide'. The quantity of samples taken will be minimised by using 'strongly presumed'. Materials that are 'strongly presumed' to be similar to a material that has already been sampled will be recorded in the comments section of the survey record and referenced against the original sampled material.

7.2 All samples taken during this survey have been analysed by a laboratory holding UKAS accreditation to ISO 17025.

7.3 The homogeneity of asbestos containing materials can differ depending on their type. Typically, homogeneous materials include sprayed coatings, insulating board and asbestos cement products. Other materials are typically less homogeneous including pipe lagging (due to patch repairs, hand mixing at time of application), textured coatings (due to low concentration of asbestos fibre and hand application), composites (due to low concentration of asbestos fibre and material matrix). Whilst sampling frequencies / techniques and analysis methods attempt to address the issue of non-homogeneity it should be realised that sampling in accordance with HSG 264 and analysis in accordance with HSG 248 cannot always obviate the problems of determining asbestos fibre content in non-homogeneous materials. The results of sample analysis presented in this report therefore pertain to the samples analysed and so relate only to the time at which sampling took place and to the conditions prevailing during that time.

Survey Results

8.1 The results of the survey inspections and sampling undertaken are recorded on the enclosed Survey Data Sheets (appendix 2), Asbestos Register (appendix 1) and Non-Asbestos Material Register (appendix 3). Where asbestos containing material have been identified or presumed to be present then a Material Assessment Algorithm has been calculated as detailed in HSG 264 and reproduced in the table below:

8.2 Within the survey data sheets the individual scores in brackets, for each sample variable, are added together to form the final material risk assessment algorithm score.

Material Risk Assessment Algorithm

Product type [or debris from product]

Score	Examples of scores
1	Asbestos reinforced composites [plastics, resins, mastics, roofing felts, vinyl floor tiles, semi- rigid paint, decorative finishes and asbestos cement etc]
2	Asbestos insulating board, mill boards, other low-density boards, textiles, gaskets, ropes and woven materials and asbestos paper.
3	Thermal insulation [e.g. pipe and boiler lagging], sprayed asbestos, loose asbestos, asbestos mattresses and packing.

Extent of damage/deterioration

Score	Examples of scores
0	Good condition: no visible damage
1	Low damage: a few scratches or surface marks, broken edges on boards or tiles, etc.
2	Moderate damage: significant breakage of materials or several small areas where material has been damaged exposing fibrous edges.
3	High damage or deterioration of materials, sprays and thermal insulation. Visible asbestos contamination by debris or residues.

Surface treatment

Score	Examples of scores
0	Composite materials containing asbestos, reinforced plastics, resins, vinyl tiles
1	Enclosed sprays or insulation, AIB [with exposed face encapsulated], cement sheets, etc.
2	Unsealed AIB, encapsulated insulation and sprays.
3	Unsealed insulation and sprays.

Asbestos Type

Score	Examples of scores
1	Chrysotile
2	Amphibole asbestos (excluding Crocidolite)
3	Crocidolite

Risk Category	Risk	Score Range	Fibre release potential
R1	HIGH	Material Score 10	High risk with a high potential to release fibres if disturbed
R2	MEDIUM	Material Score Between 7 and 9	Medium risk with a medium potential to release fibres if disturbed
R3	LOW	Material Score 6 or below	Low risk with and having low potential to release fibres if disturbed

9.0 Recommendations:

9.1 To comply with and ensure that the requirements of section 2 & 3 of the Health and Safety at Work Act (as amended) 1974, the Management of Health and Safety at Work Regulations 1999, the Control of Asbestos Regulations 2012 and the Control of Substances Hazardous to Health 2002 are met, the following recommendations should be implemented:

9.2 Undertake suitable and sufficient Risk Assessments of identified asbestos containing materials against normal occupation and maintenance operations, in compliance with Regulations 3 of the Management of Health & Safety at Work Regulations 1999 and Regulation 6 of the Control of Asbestos Regulations 2012.

9.3 The findings of the survey be brought to the attention of those persons who are likely to come in contact with asbestos, in compliance with Section 2 and 3 of the Health and Safety at Work Act (as amended) 1974 and Regulation 10 of the Control of Asbestos Regulations 2012.

9.4 Implement an Asbestos Management Policy, Plan and review process in compliance Regulation 4 of the Control of Asbestos Regulations 2012.

9.5 Instigate regular inspections, to record and update details of retained asbestos containing materials.

9.6 Review the arrangement under the management plan in accordance with regulation 4 of the CAR 2012.

9.7 During the course of the survey it may not have been possible to access all areas of the site. Details of areas requiring further access are identified within the Data Sheets of this report. In accordance with HSG 264, asbestos has been presumed to be present within these areas and should be treated accordingly until further inspection and analysis of building fabric and services proves otherwise.

9.8 Where asbestos debris or asbestos in poor condition has been found it is recommended that access is restricted and or controlled to these areas in accordance with Regulation 11 and Regulation 16 of the Control of Asbestos Regulations 2012.

9.9 If we have identified asbestos materials in poor condition, it is recommended that air monitoring is carried out within a number of areas where asbestos materials have been identified in order to assess airborne fibre levels within adjacent occupied areas in relation to the clearance indicator, as documented by HSG 248 the Analyst Guide.

9.10 All identified asbestos to be appropriately identified and subject to risk assessment, management, and re-inspection.

9.11 Site specific recommendations in respect to the location and condition of asbestos materials identified during the course of this inspection are detailed in the Survey Data Sheets and Asbestos register. In considering the management of asbestos materials identified to date, these recommendations should be taken into consideration.

9.12 In accordance with the Control of Asbestos Regulations 2012 the removal of ACM's fall into one of the three categories below:

Licensed Asbestos Removal

Is defined as any work, which is undertaken on a friable asbestos product or which is likely to exceed the control limit of 0.1f/cm³. A licensed asbestos removal contractor must undertake this work and a 14-day notice must be given to the HSE prior to the commencement of the work.

Notifiable Non Licensed Works

If work on an ACM causes the deterioration of the matrix material in which the asbestos fibres are firmly linked, then these works are Notifiable Non Licensed Work (NNLW). Work of this type does not require an asbestos removal licence, but the company undertaking the work must have the following:

- Notification of the work to the relevant enforcing authority prior to the work commencing.
- Medical examinations to assess each worker's state of health to be carried out, before any possible – exposure to asbestos. Then re-examinations every three years.
- Insurance for working with asbestos containing materials.
- A register of work to be kept by the employer for each employee exposed to asbestos.

Non Notifiable Non Licensed work

-Non-Licensed Works Is defined as any work, which involves short, non-continuous maintenance activities, during which only nonfriable materials are removed. It can also involve the removal of non-friable materials for refurbishment purposes. However, work of this type is only applicable where the matrix material in which the asbestos fibres are firmly linked remains intact.

-If a non-licensed contractor is appointed to undertake the removal works on the above materials, the following points must be adhered to:

-All operatives undertaking work on the material must have asbestos awareness training and practical asbestos training.

9.13 It is recommended that further intrusive investigations and sampling be carried out in accordance with HSG.264, where any major refurbishment, maintenance, installation or similar activity may expose asbestos materials that have remained inaccessible during the survey. This should be as a refurbishment/demolition survey as documented in HSG264.

9.14 The findings of this report should not be solely relied upon in obtaining costs for proposed asbestos abatement work. Any proposed abatement/removal of the asbestos should be undertaken against a detailed specification.

9.15 Any recommendations made within this report are made on the basis of findings collated at the time of survey. Recommendations should undergo careful client evaluation prior to a final management decision being made. Sentinel Environmental Consultancy Limited does not accept any responsibility for any works carried out as a result of recommendations made within this report.

Appendix 1 - Asbestos Register


Building	Floor	Location /Room	S,P,SP,AS Sample No	Product Type	Condition	Surface Treatment	Asbestos Type	Quantity	Accessibility	Material Score	Recommendation	Additional Comments
Zone 3 - Fuel Oil Pump House	Ground Floor	Fuel oil pump house G/01, gasket to pipework flange to pump pipework	S JW004060	Asbestos Textiles/Paper	Low Damage	Surface Sealed	Chrysotile	4no.	Occasionally likely to be disturbed	5	Remove	N/A
Zone 3 - Gas Compound	External	Externals E/01, gasket to pipework flange to fuel gas root valve	S JW004061	Asbestos Textiles/Paper	Low Damage	Surface Sealed	Chrysotile	8no.	Occasionally likely to be disturbed	5	Remove	N/A
Zone 3 - Gas Compound	External	Externals E/01, gasket to pipework flange to fuel oil vent valve	S JW004062	Asbestos Textiles/Paper	Low Damage	Surface Sealed	Chrysotile	2no.	Occasionally likely to be disturbed	5	Remove	N/A


KEY:

S – Sampled, P – Presumed, SP – Strongly Presumed, AS – Cross reference to former sample

Appendix 2 – Survey Data Sheets

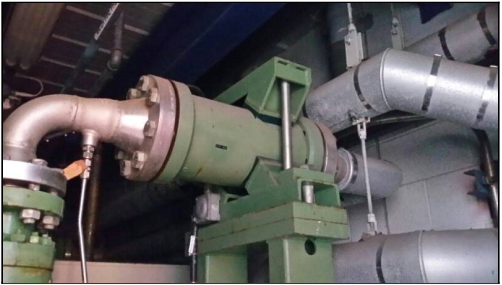
Service Type	Demolition Survey		
Report Revision Number	1	Surveyors	Adam Yates
TEAMS Job Number	J007544	Survey Date	16 Feb 2021 to 18 Feb 2021
Site Address:	Zone 3 Triton Power Deeside Power Station Weighbridge Road Flintshire CH5 2UL	Bulk Analysis Laboratory	N/A
		Sample Analysis Date	19 Feb 2021


	Survey Date:	Lead Surveyor	Survey Type	Floor	Analysis
	16 Feb 2021 to 18 Feb 2021	Adam Yates	Demolition Survey	Ground Floor	No Asbestos Detected
	Building	Room	Item	Quantity	
	Zone 3 - Fuel Oil Pump House	Fuel oil pump house G/01	redundant gasket to top of pump adjacent entrance	1no.	
	Sample No (S,SP,P,As)	Product Type	Surface Treatment	Condition	Accessibility
	JW004058 (S)	N/A	N/A	N/A	N/A
	Material Risk Score				
Recommended action		No further action required			
Surveyor comments		N/A			

	Survey Date:	Lead Surveyor	Survey Type	Floor	Analysis
	16 Feb 2021 to 18 Feb 2021	Adam Yates	Demolition Survey	Ground Floor	No Asbestos Detected
	Building	Room	Item	Quantity	
	Zone 3 - Fuel Oil Pump House	Fuel oil pump house G/01	gasket to pipework flange to pump pipework	6no.	
	Sample No (S,SP,P,As)	Product Type	Surface Treatment	Condition	Accessibility
	JW004059 (S)	N/A	N/A	N/A	N/A
	Material Risk Score				
Recommended action		No further action required			
Surveyor comments		N/A			

KEY:


S – Sampled, P – Presumed, SP – Strongly Presumed, AS – Cross reference to former sample


	Survey Date:	Lead Surveyor	Survey Type	Floor	Analysis
	16 Feb 2021 to 18 Feb 2021	Adam Yates	Demolition Survey	Ground Floor	Chrysotile (1)
	Building	Room	Item	Quantity	
	Zone 3 - Fuel Oil Pump House	Fuel oil pump house G/01	gasket to pipework flange to pump pipework	4no.	Occasionally likely to be disturbed
	Sample No (S,SP,P,As)	Product Type	Surface Treatment	Condition	
	JW004060 (S)	Asbestos Textiles/Paper (2)	Surface Sealed (1)	Low Damage (1)	
Material Risk Score					
5					
Recommended action		Remove			
Surveyor comments		N/A			

	Survey Date:	Lead Surveyor	Survey Type	Floor	Analysis
	16 Feb 2021 to 18 Feb 2021	Adam Yates	Demolition Survey	External	Chrysotile (1)
	Building	Room	Item	Quantity	
	Zone 3 - Gas Compound	Externals E/01	gasket to pipework flange to fuel gat root valve	8no.	Occasionally likely to be disturbed
	Sample No (S,SP,P,As)	Product Type	Surface Treatment	Condition	
	JW004061 (S)	Asbestos Textiles/Paper (2)	Surface Sealed (1)	Low Damage (1)	
Material Risk Score					
5					
Recommended action		Remove			
Surveyor comments		N/A			

KEY:

S – Sampled, P – Presumed, SP – Strongly Presumed, AS – Cross reference to former sample

	Survey Date:	Lead Surveyor	Survey Type	Floor	Analysis
	16 Feb 2021 to 18 Feb 2021	Adam Yates	Demolition Survey	External	Chrysotile (1)
	Building	Room	Item	Quantity	
	Zone 3 - Gas Compound	Externals E/01	gasket to pipework flange to fuel oil vent valve	2no.	
	Sample No (S,SP,P,As)	Product Type	Surface Treatment	Condition	Accessibility
	JW004062 (S)	Asbestos Textiles/Paper (2)	Surface Sealed (1)	Low Damage (1)	Occasionally likely to be disturbed
Material Risk Score					
5					
Recommended action					
Remove					
Surveyor comments					
N/A					

	Survey Date:	Lead Surveyor	Survey Type	Floor	Analysis
	16 Feb 2021 to 18 Feb 2021	Adam Yates	Demolition Survey	Ground Floor	N/A
	Building	Room	Item	Quantity	
	Zone 3 - Laboratory	Laboratory G/01	No suspect materials found within laboratory	N/A	
	Sample No (S,SP,P,As)	Product Type	Surface Treatment	Condition	Accessibility
	Visual (P)	N/A	N/A	N/A	N/A
Material Risk Score					
N/A					
Recommended action					
No further action required					
Surveyor comments					
N/A					

KEY:

S – Sampled, P – Presumed, SP – Strongly Presumed, AS – Cross reference to former sample

Appendix 3 - Areas Surveyed

Building	Floor	Room No:	Room Type	Item
Zone 3 - Fuel Oil Pump House	External	E/01	Externals	metal roof, breeze block walls, mmmf insulation, mmmf insulation within doors, mmmf pipework insulation, metal edging
Zone 3 - Fuel Oil Pump House	Ground Floor	G/01	Fuel oil pump house	metal underside of roof, breeze block walls, concrete floor, mmmf pipework insulation, modern electrics, metal gasket to pipework flange to pump pipework, mmmf insulation within doors, metal tank, mmmf insulation above metal ceiling
Zone 3 - Gas Compound	External	E/01	Externals	breeze block walls, concrete floor, metal cladding to walls, modern mastic to expansion joint, mmmf pipework insulation, rubber gaskets to pipework flanges, metal gasket to pipework flange to fuel gas vent valve, modern electrics & switchgear, metal cover to electrics, metal tanks, mmmf insulation to tank
Zone 3 - Laboratory	External	E/01	Externals	metal roof, metal walls, foam pipework insulation, metal flue, metal panel to pipework penetration
Zone 3 - Laboratory	Ground Floor	G/01	Laboratory	metal ceiling, plasterboard & metal wall, modern lino floor covering, timber floor, foam insulation within wall cavity, unlagged metal pipework, no asbestos observed to extractor, rubber gasket to pipework flange to fume cupboard, modern electrics

Appendix 4 – Analysis Certificates

Sentinel Environmental Consultancy Limited
Head Office : Unit 17 Gwenfro, Technology Park, Wrexham, LL13 7YP

Certificate of Analysis

Asbestos Fibre Identification in Bulk Sample

Client: Triton Power
Address: Triton Power, Deeside Power Station,
Weighbridge Road, Flintshire, CH5 2UL
Project /Certificate Reference : J007544
Version Number : 1

Site Address: Zone 3, Triton Power, Deeside Power
Station, Weighbridge Road, Flintshire, CH5 2UL

Analyst Signature:



Analyst Name: Lucy Caroe

Samples Collected by: Adam Yates
Date Samples Received: 19 Feb 2021
Analysis Date: 19 Feb 2021
Certificate Issue Date: 8 Mar 2021

Asbestos Fibre Type :

Chrysotile= "White asbestos", Amosite= "Brown asbestos", Crocidolite = "Blue asbestos" Refer to H.S.E. publication HSG 264, for the approximate percentage asbestos content within the presumptive product type.

Analysis Method :

The analysis of the sample(s) detailed on this report is UKAS accredited. Analysis was performed in accordance with our internal Technical Operating Procedures and Health & Safety Executive publication HSG 248 at our Head Office.

Disclaimer :

Any interpretations or opinions expressed in this report are outside the scope of UKAS accreditation. The stated "presumptive product type" is a subjective assessment by our analyst, it is not determined by measurement and it is an opinion. Sentinel Environmental cannot accept responsibility for any discrepancy or inaccuracy arising from collection or labelling of samples by the client. Samples are retained for 6 months only after the analysis date unless requested or contracted otherwise.

Version Revision / Changes : None

Authorisation Signature :



Daniel Roberts - Director

Sentinel Environmental Consultancy Limited
 Head Office : Unit 17 Gwenfro, Technology Park, Wrexham, LL13 7YP

Certificate of Analysis

Project /Job Reference : J007544
 Certificate Issue Date : 08/03/2021

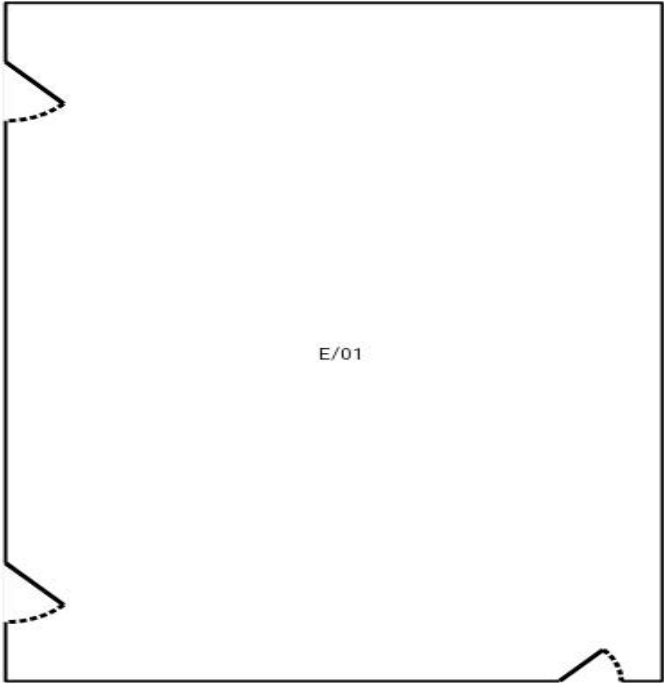
Version Number : 1

Results

Project Reference	Sample Location and Description	Asbestos Fibre Type	Presumptive Product Type
JW004058	Zone 3 - Fuel Oil Pump House, Ground Floor, Fuel oil pump house – redundant gasket	No Asbestos Detected	Non Asbestos Textiles/Paper
JW004059	Zone 3 - Fuel Oil Pump House, Ground Floor, Fuel oil pump house – gasket to pipework flange	No Asbestos Detected	Non Asbestos Textiles/Paper
JW004060	Zone 3 - Fuel Oil Pump House, Ground Floor, Fuel oil pump house – gasket to pipework flange	Chrysotile	Asbestos Textiles/Paper
JW004061	Zone 3 - Gas Compound, External, Externals – gasket to pipework flange	Chrysotile	Asbestos Textiles/Paper
JW004062	Zone 3 - Gas Compound, External, Externals – gasket to pipework flange	Chrysotile	Asbestos Textiles/Paper

Please Refer to Page 1 of Certificate of Analysis for pertinent details. This Report is only Valid when issued as a complete document with authorising signature on Page 1.

Appendix 5 – Plans



Client: Triton Power
Site: Zone 3
Building: Zone 3 - Fuel Oil Pump House
Floor: External
UPRN No: N/A

Plan Key:

Red Text = Positive Item

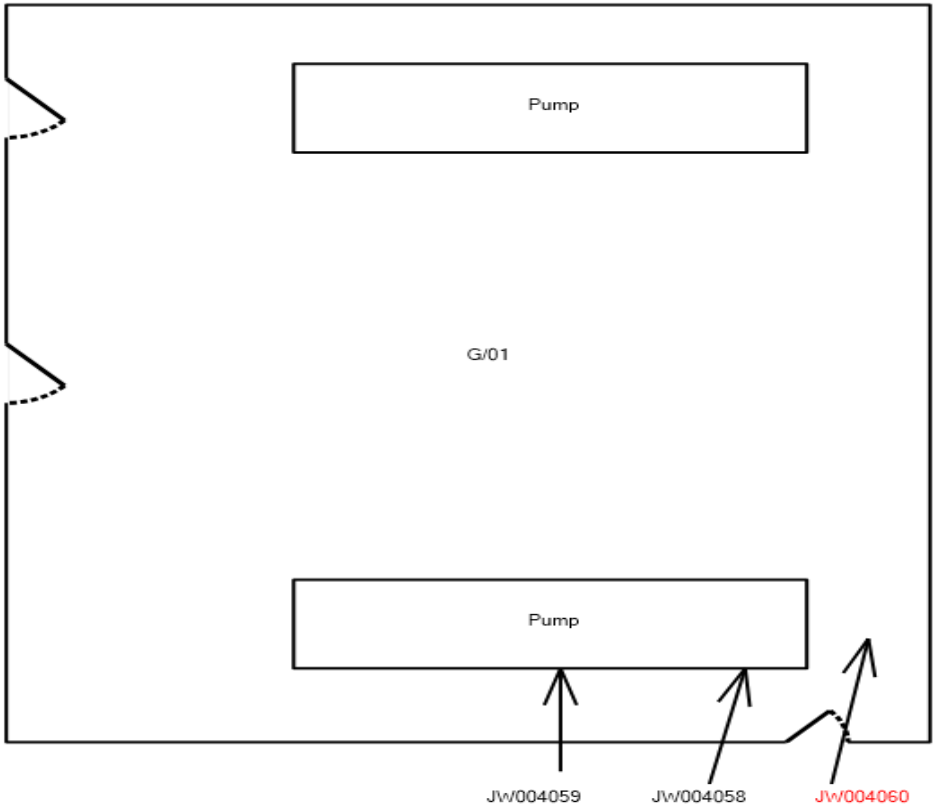
Blue Text = No Access Item

Black Text = No Asbestos Detected Item

Positive or Strongly Presumed Asbestos in area / room

No Access within or to area / room





Client: Triton Power
Site: Zone 3
Building: Zone 3 - Fuel Oil Pump House
Floor: Ground Floor
UPRN No: N/A

Plan Key:

Red Text = Positive Item

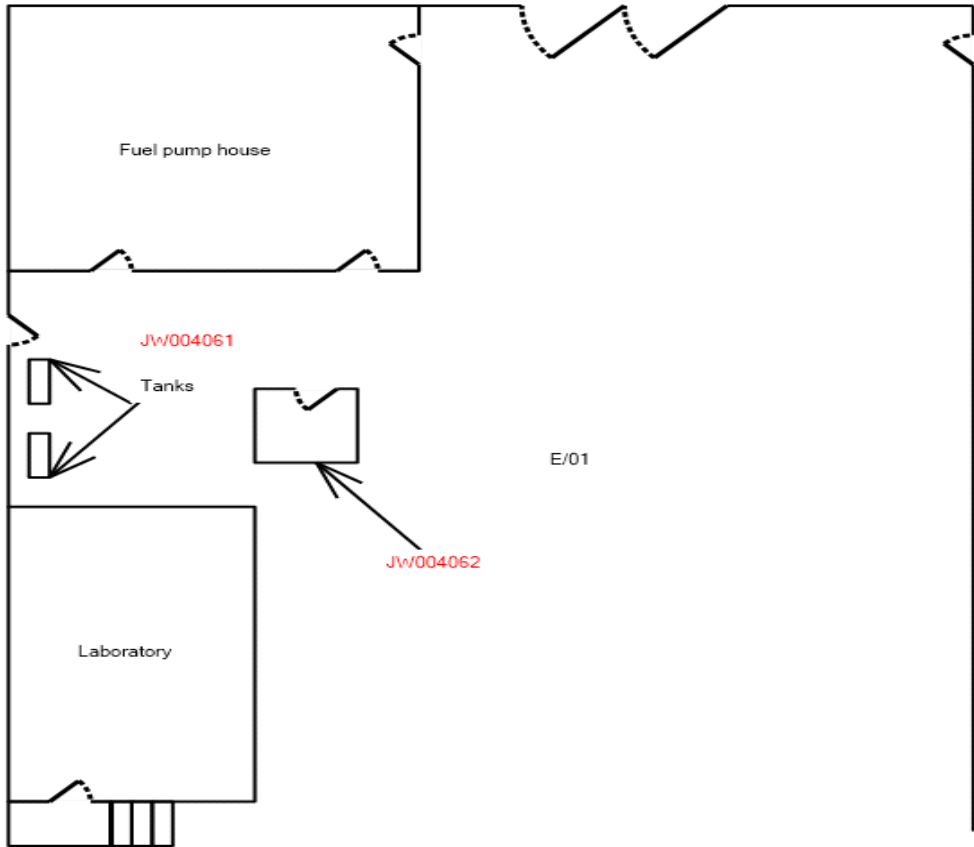
Blue Text = No Access Item

Black Text = No Asbestos Detected Item

Positive or Strongly Presumed Asbestos in area / room

No Access within or to area / room





Client: Triton Power
Site: Zone 3
Building: Zone 3 - Gas Compound
Floor: External
UPRN No: N/A

Plan Key:

Red Text = Positive Item

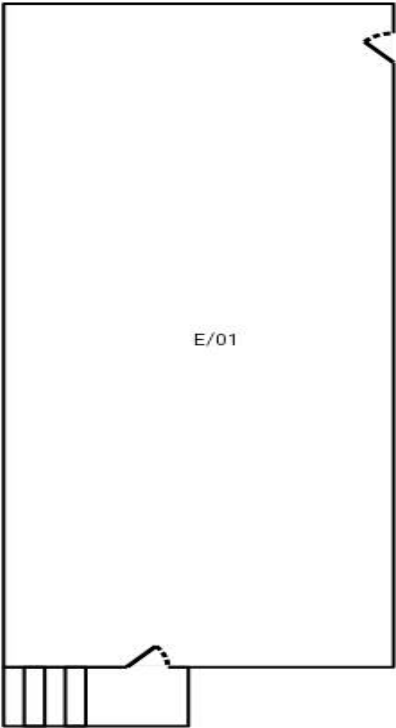
Blue Text = No Access Item

Black Text = No Asbestos Detected Item

Positive or Strongly Presumed Asbestos in area / room

No Access within or to area / room





Client: Triton Power
Site: Zone 3
Building: Zone 3 - Laboratory
Floor: External
UPRN No: N/A

Plan Key:

Red Text = Positive Item

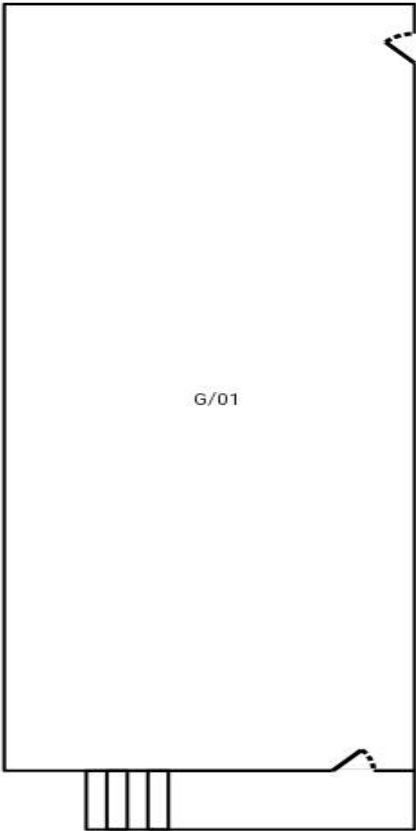
Blue Text = No Access Item

Black Text = No Asbestos Detected Item

Positive or Strongly Presumed Asbestos in area / room

No Access within or to area / room





Client: Triton Power
Site: Zone 3
Building: Zone 3 - Laboratory
Floor: Ground Floor
UPRN No: N/A

Plan Key:

Red Text = Positive Item

Blue Text = No Access Item


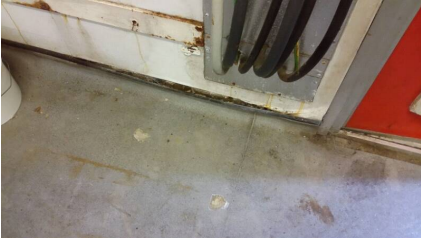






Black Text = No Asbestos Detected Item

Positive or Strongly Presumed Asbestos in area / room

No Access within or to area / room



Appendix 6 – Survey Intrusion Photographs

			
Intrusion into wall	Intrusion into skirting	Intrusion into floor	Intrusion into door
			
Intrusion into ceiling	Inspection to pipework flange	Intrusion into pipework insulation	Inspection to pipework flange

Asbestos Demolition Survey

Zone 4
Triton Power
Deeside Power Station
Weighbridge Road
Flintshire
CH5 2UL



10118



10118

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1. Executive Summary [Conclusions and actions]
2. Report Summary
3. Introduction - Purpose, Aims and Objectives
4. Agreed Scope, Caveats and Limitations
5. Survey Method
6. Exclusions and Caveats
7. Sampling and Analysis
8. Survey Results - Interpretation
9. Recommendations

APPENDICES - Survey Results

- Appendix 1 - Asbestos Register - Results
- Appendix 2 - Survey Data Sheets
- Appendix 3 - Areas Surveyed
- Appendix 4 - Analysis Certificates
- Appendix 5 - Plans
- Appendix 6 - Intrusion Photographs

1.0 Executive summary:

This Executive Summary provides details on :

- | the locations with identified (or presumed) ACMs;
- | areas not accessed;
- | ACMs with high material assessment scores;
- | clear notes on any actions (and priorities).

Asbestos containing materials have been identified during the Demolition Survey and the specific areas are categorized below in order according to the initial Material Risk Assessment made by Sentinel Environmental Consultancy Ltd.

HIGH RISK MATERIALS - SCORES 10+

Asbestos in poor condition, or asbestos debris/contamination has been identified within the following areas listed in the table below. It is recommended that risk assessment (s) are undertaken to ensure that Regulation 4, Regulation 10, Regulation 11, and Regulation 16 of the Control of Asbestos Regulations 2012 are complied with.

Building	Floor	Room	Item	Material	Risk assessment Score	Tentative Recommendations
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There were no results found.

MEDIUM RISK MATERIALS - SCORES 7-9

Asbestos containing materials, which are unsealed or damaged, have been identified within the following areas listed in the table below. It is recommended that remedial work to seal or remove these materials is undertaken as a priority and that air monitoring is carried out within adjacent areas in order to assess airborne fibre levels.

Building	Floor	Room	Item	Material	Risk assessment Score	Tentative Recommendations
There were no results found.						

LOW RISK MATERIALS - SCORES 1-6

Asbestos Containing Materials have been identified which are in good condition, A management policy and plan need to be implemented to manage these materials safely.

Building	Floor	Room	Item	Material	Risk assessment Score	Tentative Recommendations
Zone 4 - Water Treatment Plant, Waste Collection Area & Demin Tank	Ground Floor	Diesel fire pump room G/02	gasket to pipework flange	Asbestos Textiles/Paper	LOW (5) R3	Remove
Zone 4 - Water Treatment Plant, Waste Collection Area & Demin Tank	External	Externals E/01	gasket	Asbestos Textiles/Paper	LOW (5) R3	Remove
Zone 4 - Water Treatment Plant, Waste Collection Area & Demin Tank	External	Externals E/01	gasket to pipework flange	Asbestos Textiles/Paper	LOW (5) R3	Remove

1.0 Executive summary:

PRESUMED ASBESTOS/NO ACCESS AREAS



Asbestos Containing Materials (ACMs) have been presumed as being present to the following areas where access could not be gained. Areas which have not been accessed should be presumed to contain asbestos until proven otherwise.

Building	Floor	Room/Area	Tentative Recommendation	Surveyor Notes
There were no results found.				

Building Notes:

Internal notes: N/A
External notes: N/A

2.0 Report Summary:

Name and address of site:	Zone 4, Triton Power, Deeside Power Station, Weighbridge Road, Flintshire		
Name and address of client:	Triton Power, Triton Power, Deeside Power Station, Weighbridge Road, Flintshire		
Client contact:	Colin Brooks		
Type of survey:	Demolition Survey		
Date of survey:	17 Feb 2021		
Report Revision Number:	1		
TEAMS internal job number:	J007545		
Lead surveyor[s]:	Adam Yates	Signature:	
Technically reviewed by:	Luke Jones	Signature:	
Report issue date:	8 Mar 2021		

3.0 Introduction/Objectives:

Sentinel Environmental Consultancy Ltd received an order of confirmation to undertake a Demolition Survey from Triton Power. This order has been accepted on the basis of the original quotation and our terms and conditions of business.

The order relates to a Demolition survey of:

Zone 4
Triton Power
Deeside Power Station
Weighbridge Road
Flintshire
CH5 2UL

The survey was carried out by Adam Yates, Declan Hughes.

The Type of survey selected / requested by the client was a Demolition survey.

This survey was carried out in accordance with documented in house procedures TOP02 surveying procedures, which are based on the HSE Guidance document HSG 264.

3.1 Purpose of Survey

The purpose of this Demolition Survey is to help the duty holder identify asbestos in these premises, prior to Demolition Works. It provides sufficient information to help the tendering process for removal works prior to any work starting. However it is strongly recommended that any asbestos removal should be undertaken against a detailed specification. We further recommend the appointed removal contractor should attend the site to confirm for themselves the quantities and location of asbestos to be removed, prior to costing.

3.2 Aim of Survey

The aim of the survey was to;

1. Locate and record the location, extent, and product type as far as reasonably practicable of known or presumed ACM's.
2. Inspect and record information on the accessibility, condition and surface treatment of know or presumed ACM's
3. Determine and record the asbestos type based on sampling or by making a presumption based on product type and appearance
4. Locate all ACM's within the fabric of the building prior to demolition.

3.0 Introduction/Objectives (Cont):

- Type of Survey

3.3 Type of Survey – Demolition Survey

Demolition surveys are intended to locate all asbestos within the building. It is a disruptive, fully intrusive survey that involves destructive inspection techniques that penetrate the building structure extensively. This involves breaking into floors, through walls, into wall voids ceilings, cladding, boxing, as necessary to gain access to all areas, including the inner fabric of the building. A full sampling programme is undertaken to identify possible ACM's and estimate their quantities.

The survey is designed to be used to help the tendering process, and should be used to start generating a specification for tendering the removal of ACM's from the building prior to demolition.

Whilst all asbestos materials have been identified as far as is reasonably practicable, some asbestos materials may remain unidentified buried within the fabric of the building during the survey. Asbestos shuttering buried within concrete slabs, asbestos hidden by structural supports, asbestos hidden behind other asbestos products, and building structures which are unsafe to fully access are potential locations.

It must be presumed that asbestos may remain unidentified to these type of areas and if suspect materials are uncovered during demolition then samples should be taken for analysis.

4.0 Agreed Scope, Caveats and Exclusions

4.1 Agreed Scope

Sentinel Environmental Consultancy Ltd have taken measures to ensure a sufficient exchange of information has been carried out with the duty holder / client representative prior to undertaking this survey. This survey has been carried out under the agreed scope outlined in the quotation and terms and conditions of the business. Any significant changes from the agreed scope are clearly identified and agreed with the client prior to issue of the Report.

Description, Current and Historical Use of Property	Industrial property type
Number of Buildings ; age, type and construction details	1 no. building, traditionally constructed 1990s
Estimated or known number of rooms	Approx 5 no.
Unusual features or underground areas	Not applicable to survey
Details of alterations to Building (previous extension, refurbishment or demolition works)	Minor works evident, full details unknown
Building Listed or within Conservation Area	No listed status
Surrounding areas & building structures included in scope	Targeted to Zone 4 buildings only
Existing Plans for the Site provided (are plans required to be issued within a specific format)	Plans drawn by surveyor
Proposed Plans and Specification for scope of works	N/A
Building Occupied or Vacant	Vacant
Access Restrictions (working at height)	No access restrictions
Specialist requirements (access to confined spaces / heights where MEWP / Mobile Tower required)	No specialist requirements
Person responsible for arranging access	Arranged via client
Site Specific Hazards	Covid 19 - refer to RAMS & SOP
Photographs to be collected	Yes
Bulk Sampling Requirements	As per HSG 264
Previous Asbestos Information available and whether this information will be used as 3rd party data with the Survey	Previous register provided by client
Client specific requirements ; data extract/ CD / PDF copy / email only	No specific requirements

4.0 Agreed Scope, Caveats and Exclusions (Continued):

4.2 The following areas / elements have been agreed to be included or excluded from the scope, please note inspections are representative across the building, supporting photographs for intrusive inspections can be found in Appendix 6 :

Building Element	Included / Excluded	Survey Technique	Reinstatement Included
Solid wall cavities	Included	Inspection hole created to inspect cavity between walls inspected	No - all areas left safe
Removal of window sills	Included	Window sills removed to inspect beneath	No - all areas left safe
Removal of vent covers	Included	Vent covers removed to inspect behind	No - all areas left safe
Partition wall cavities	Included	Inspection holes created to inspect within / behind partition panels	No - all areas left safe
Above fixed suspended ceilings	Included	Access point created within fixed ceiling to inspect void	No - all areas left safe
Within boxings or risers	Included	Boxing panels and or cover panels to risers removed	No - all areas left safe
Floor voids, removal of flooring	Included	Floor boards lifted to inspect voids	No - all areas left safe
Within fire doors	Included	Inspection hole created to inspect lining of fire door	No - all areas left safe
Beneath fixed flooring materials	Included	Flooring lifted to inspect beneath	No - all areas left safe
Behind skirting and door frames	Included	Skirting board and door frames removed to inspect behind	No - all areas left safe
Beneath or behind furniture	Included	Furniture moved to inspect	No - all areas left safe
Beneath non asbestos insulation	Included	Non asbestos insulation to be removed	No - all areas left safe
Behind non asbestos external soffits / fascias	Included	Non asbestos soffits / fascias inspected beneath	No - all areas left safe
Roof voids Inspection	Included	Roof Voids accessed and inspected	No - all areas left safe
Fireplace / Chimney Breast	Not applicable	Chimney breast inspected	Not applicable

4.3 Agreed Caveat and Limitations

The Survey has been carried out with the following specific caveats agreed with the Client. Areas or items excluded from a survey must be presumed to contain Asbestos.

Item Excluded from Survey	Comments
Within electric switchgear, fuse boxes, plant and other associated services.	Agreed with client not to be inspected as a live service supply which could not be isolated during the Survey
Within operational plant and machinery including boilers / calorifiers / lift machinery etc.	Agreed with client not to be inspected as a live service supply which could not be isolated during the Survey
Access behind / above existing ACM's which would require the use of a LARC and enclosure.	Agreed with client not to be inspected behind / above
Intrusion through solid ceiling slab or solid walls requiring additional specialist support services.	Agreed with client not to be inspected beneath or within
Below external ground level	Agreed with client not to be inspected

5.0 Survey Method

5.1 This survey has been undertaken in accordance with HSG264 and Sentinel Environmental Consultancy Ltd in house procedures (TOP02 Surveying Procedure).

5.2 Clients of Sentinel Environmental Consultancy Ltd have agreed to our terms and conditions and accepted our surveying approach, our sampling strategy, and our standard planning, surveying and reporting format unless they have made specific requests to the contrary.

5.3 The information provided by the client or their representative is recorded within the desk top review and survey planning stage and has been used to establish the scope of the survey.

5.4 Photographs of suspected ACM's, limited access areas / no access areas are taken at the time of the survey unless the client expressly requests otherwise. Sampling points and suspected ACM's are not identified with labels unless the client expressly requests otherwise.

5.5 All items examined by the surveyor at the time of the survey are listed in the inspection detail of this report. This detail includes those items believed by the surveyor not to contain asbestos and an appropriate categorisation of their material composition is given. Employing this rationale, the surveyor can use experience and judgement to form a reasoned argument that there is evidence to suggest that the material may not contain asbestos. Periodically 'non-asbestos' building materials may be sampled by way of a method control to further support the surveyor's argument. These materials do not bear any risk assessment detail.

5.6 Areas that could not be accessed were presumed to have ACM's present until proven otherwise. Each area requiring further inspection is documented within the Executive summary (Inaccessible areas). Inaccessible areas are also shown on the plan drawings (Appendix 5)

5.6 Areas that cannot be accessed are presumed to have ACM's present until proven otherwise. Each area requiring further inspection is documented within the Executive summary (Inaccessible areas). Inaccessible areas are also shown on the plan drawings (Appendix 5)

5.7 Materials that cannot be accessed and in the surveyor's opinion could be dismissed are presumed to be ACMs unless proven otherwise. Materials that are not sampled but, in the surveyor's opinion, have a similar appearance, location and function as a previously sampled material are strongly presumed to be similar to the sampled material.

5.8 In the case of a material or materials being encountered that the surveyor suspects, following visual assessment, as containing asbestos but cannot be sampled for reasons of practicality, that material is strongly presumed to contain asbestos. An assessment (where possible) of the material's extent and condition is made. Materials that are 'strongly presumed' to be similar to a material that has already been sampled are referenced against the original sampled material.

5.9 Intrusive damage that is required to gain access to an area/location that is within the scope of the survey has been agreed with the client or the client's representative. Any remedial action is put in place before such action is attempted. If remedial action cannot be arranged, no attempt to access the area is made and the reasons recorded. The area/location is presumed to have ACM's present until proven otherwise.

5.10 Older electrical equipment, which cannot be shown to contain ACM's is presumed to have ACM's present unless, in the surveyors professional opinion, such items can be excluded.

6.0 Exclusions and Caveats:

Where suspect asbestos containing materials e.g. ceiling finishes, board materials etc exist no attempt (unless otherwise stated) will be made to investigate behind these materials. Sentinel Environmental Consultancy has a duty under Regulation 16 of the Control of Asbestos Regulations (2012) to prevent or reduce the spread of asbestos; penetration of such materials without appropriate control measures may be in contravention of this duty.

Specific areas excluded within this survey report are listed within the executive summary.

This report does not include investigations into land contamination associated with asbestos or any other contaminants.

7.0 Sampling and Analysis:

7.1 The object of bulk sampling is to identify the nature of any visible ACM. The bulk sample description and analysis results can be found in Appendix 4 of this report – The analysis certificate.

Bulk samples are taken in accordance with documented in house procedures (TOP02 Surveying Procedure) following guidelines detailed in HSG264 'The Survey Guide' and HSG248 'The Analyst Guide'. The quantity of samples taken will be minimised by using 'strongly presumed'. Materials that are 'strongly presumed' to be similar to a material that has already been sampled will be recorded in the comments section of the survey record and referenced against the original sampled material.

7.2 All samples taken during this survey have been analysed by a laboratory holding UKAS accreditation to ISO 17025.

7.3 The homogeneity of asbestos containing materials can differ depending on their type. Typically, homogeneous materials include sprayed coatings, insulating board and asbestos cement products. Other materials are typically less homogeneous including pipe lagging (due to patch repairs, hand mixing at time of application), textured coatings (due to low concentration of asbestos fibre and hand application), composites (due to low concentration of asbestos fibre and material matrix). Whilst sampling frequencies / techniques and analysis methods attempt to address the issue of non-homogeneity it should be realised that sampling in accordance with HSG 264 and analysis in accordance with HSG 248 cannot always obviate the problems of determining asbestos fibre content in non-homogeneous materials. The results of sample analysis presented in this report therefore pertain to the samples analysed and so relate only to the time at which sampling took place and to the conditions prevailing during that time.

Survey Results

8.1 The results of the survey inspections and sampling undertaken are recorded on the enclosed Survey Data Sheets (appendix 2), Asbestos Register (appendix 1) and Non-Asbestos Material Register (appendix 3). Where asbestos containing material have been identified or presumed to be present then a Material Assessment Algorithm has been calculated as detailed in HSG 264 and reproduced in the table below:

8.2 Within the survey data sheets the individual scores in brackets, for each sample variable, are added together to form the final material risk assessment algorithm score.

Material Risk Assessment Algorithm

Product type [or debris from product]

Score	Examples of scores
1	Asbestos reinforced composites [plastics, resins, mastics, roofing felts, vinyl floor tiles, semi- rigid paint, decorative finishes and asbestos cement etc]
2	Asbestos insulating board, mill boards, other low-density boards, textiles, gaskets, ropes and woven materials and asbestos paper.
3	Thermal insulation [e.g. pipe and boiler lagging], sprayed asbestos, loose asbestos, asbestos mattresses and packing.

Extent of damage/deterioration

Score	Examples of scores
0	Good condition: no visible damage
1	Low damage: a few scratches or surface marks, broken edges on boards or tiles, etc.
2	Moderate damage: significant breakage of materials or several small areas where material has been damaged exposing fibrous edges.
3	High damage or deterioration of materials, sprays and thermal insulation. Visible asbestos contamination by debris or residues.

Surface treatment

Score	Examples of scores
0	Composite materials containing asbestos, reinforced plastics, resins, vinyl tiles
1	Enclosed sprays or insulation, AIB [with exposed face encapsulated], cement sheets, etc.
2	Unsealed AIB, encapsulated insulation and sprays.
3	Unsealed insulation and sprays.

Asbestos Type

Score	Examples of scores
1	Chrysotile
2	Amphibole asbestos (excluding Crocidolite)
3	Crocidolite

Risk Category	Risk	Score Range	Fibre release potential
R1	HIGH	Material Score 10	High risk with a high potential to release fibres if disturbed
R2	MEDIUM	Material Score Between 7 and 9	Medium risk with a medium potential to release fibres if disturbed
R3	LOW	Material Score 6 or below	Low risk with and having low potential to release fibres if disturbed

9.0 Recommendations:

9.1 To comply with and ensure that the requirements of section 2 & 3 of the Health and Safety at Work Act (as amended) 1974, the Management of Health and Safety at Work Regulations 1999, the Control of Asbestos Regulations 2012 and the Control of Substances Hazardous to Health 2002 are met, the following recommendations should be implemented:

9.2 Undertake suitable and sufficient Risk Assessments of identified asbestos containing materials against normal occupation and maintenance operations, in compliance with Regulations 3 of the Management of Health & Safety at Work Regulations 1999 and Regulation 6 of the Control of Asbestos Regulations 2012.

9.3 The findings of the survey be brought to the attention of those persons who are likely to come in contact with asbestos, in compliance with Section 2 and 3 of the Health and Safety at Work Act (as amended) 1974 and Regulation 10 of the Control of Asbestos Regulations 2012.

9.4 Implement an Asbestos Management Policy, Plan and review process in compliance Regulation 4 of the Control of Asbestos Regulations 2012.

9.5 Instigate regular inspections, to record and update details of retained asbestos containing materials.

9.6 Review the arrangement under the management plan in accordance with regulation 4 of the CAR 2012.

9.7 During the course of the survey it may not have been possible to access all areas of the site. Details of areas requiring further access are identified within the Data Sheets of this report. In accordance with HSG 264, asbestos has been presumed to be present within these areas and should be treated accordingly until further inspection and analysis of building fabric and services proves otherwise.

9.8 Where asbestos debris or asbestos in poor condition has been found it is recommended that access is restricted and or controlled to these areas in accordance with Regulation 11 and Regulation 16 of the Control of Asbestos Regulations 2012.

9.9 If we have identified asbestos materials in poor condition, it is recommended that air monitoring is carried out within a number of areas where asbestos materials have been identified in order to assess airborne fibre levels within adjacent occupied areas in relation to the clearance indicator, as documented by HSG 248 the Analyst Guide.

9.10 All identified asbestos to be appropriately identified and subject to risk assessment, management, and re-inspection.

9.11 Site specific recommendations in respect to the location and condition of asbestos materials identified during the course of this inspection are detailed in the Survey Data Sheets and Asbestos register. In considering the management of asbestos materials identified to date, these recommendations should be taken into consideration.

9.12 In accordance with the Control of Asbestos Regulations 2012 the removal of ACM's fall into one of the three categories below:

Licensed Asbestos Removal

Is defined as any work, which is undertaken on a friable asbestos product or which is likely to exceed the control limit of 0.1f/cm³. A licensed asbestos removal contractor must undertake this work and a 14-day notice must be given to the HSE prior to the commencement of the work.

Notifiable Non Licensed Works

If work on an ACM causes the deterioration of the matrix material in which the asbestos fibres are firmly linked, then these works are Notifiable Non Licensed Work (NNLW). Work of this type does not require an asbestos removal licence, but the company undertaking the work must have the following:

- Notification of the work to the relevant enforcing authority prior to the work commencing.
- Medical examinations to assess each worker's state of health to be carried out, before any possible – exposure to asbestos. Then re-examinations every three years.
- Insurance for working with asbestos containing materials.
- A register of work to be kept by the employer for each employee exposed to asbestos.

Non Notifiable Non Licensed work

-Non-Licensed Works Is defined as any work, which involves short, non-continuous maintenance activities, during which only nonfriable materials are removed. It can also involve the removal of non-friable materials for refurbishment purposes. However, work of this type is only applicable where the matrix material in which the asbestos fibres are firmly linked remains intact.

-If a non-licensed contractor is appointed to undertake the removal works on the above materials, the following points must be adhered to:

-All operatives undertaking work on the material must have asbestos awareness training and practical asbestos training.

9.13 It is recommended that further intrusive investigations and sampling be carried out in accordance with HSG.264, where any major refurbishment, maintenance, installation or similar activity may expose asbestos materials that have remained inaccessible during the survey. This should be as a refurbishment/demolition survey as documented in HSG264.

9.14 The findings of this report should not be solely relied upon in obtaining costs for proposed asbestos abatement work. Any proposed abatement/removal of the asbestos should be undertaken against a detailed specification.

9.15 Any recommendations made within this report are made on the basis of findings collated at the time of survey. Recommendations should undergo careful client evaluation prior to a final management decision being made. Sentinel Environmental Consultancy Limited does not accept any responsibility for any works carried out as a result of recommendations made within this report.

Appendix 1 - Asbestos Register


Building	Floor	Location /Room	S,P,SP,AS Sample No	Product Type	Condition	Surface Treatment	Asbestos Type	Quantity	Accessibility	Material Score	Recommendation	Additional Comments
Zone 4 - Water Treatment Plant, Waste Collection Area & Demin Tank	Ground Floor	Diesel fire pump room G/02, gasket to pipework flange to exhaust pipework	S JW004063	Asbestos Textiles/Paper	Low Damage	Surface Sealed	Chrysotile	7no.	Occasionally likely to be disturbed	5	Remove	N/A
Zone 4 - Water Treatment Plant, Waste Collection Area & Demin Tank	External	Externals E/01, gasket to tank inspection hatch	S JW004069	Asbestos Textiles/Paper	Low Damage	Surface Sealed	Chrysotile	1no.	Occasionally likely to be disturbed	5	Remove	N/A
Zone 4 - Water Treatment Plant, Waste Collection Area & Demin Tank	External	Externals E/01, gasket to pipework flange to pressure gauge pipework	S JW004070	Asbestos Textiles/Paper	Low Damage	Surface Sealed	Chrysotile	1no.	Occasionally likely to be disturbed	5	Remove	N/A


KEY:

S – Sampled, P – Presumed, SP – Strongly Presumed, AS – Cross reference to former sample

Appendix 2 – Survey Data Sheets


Service Type	Demolition Survey		
Report Revision Number	1	Surveyors	Adam Yates
TEAMS Job Number	J007545	Survey Date	17 Feb 2021 to 18 Feb 2021
Site Address:	Zone 4 Triton Power Deeside Power Station Weighbridge Road Flintshire CH5 2UL	Bulk Analysis Laboratory	N/A
		Sample Analysis Date	19 Feb 2021


	Survey Date:	Lead Surveyor	Survey Type	Floor	Analysis
	17 Feb 2021 to 18 Feb 2021	Adam Yates	Demolition Survey	Ground Floor	Chrysotile (1)
	Building	Room	Item	Quantity	
	Zone 4 - Water Treatment Plant, Waste Collection Area & Demin Tank	Diesel fire pump room G/02	gasket to pipework flange to exhaust pipework	7no.	
	Sample No (S,SP,P,As)	Product Type	Surface Treatment	Condition	Accessibility
	JW004063 (S)	Asbestos Textiles/Paper (2)	Surface Sealed (1)	Low Damage (1)	Occasionally likely to be disturbed
Material Risk Score					
5					
Recommended action	Remove				
Surveyor comments	N/A				

	Survey Date:	Lead Surveyor	Survey Type	Floor	Analysis
	17 Feb 2021 to 18 Feb 2021	Adam Yates	Demolition Survey	Ground Floor	No Asbestos Detected
	Building	Room	Item	Quantity	
	Zone 4 - Water Treatment Plant, Waste Collection Area & Demin Tank	Diesel fire pump room G/02	gasket to pipework flange to fire protection deisel pump delivery pipework	9no.	
	Sample No (S,SP,P,As)	Product Type	Surface Treatment	Condition	Accessibility
	JW004064 (S)	N/A	N/A	N/A	N/A
Material Risk Score					
N/A					
Recommended action	No further action required				
Surveyor comments	N/A				

KEY:


S – Sampled, P – Presumed, SP – Strongly Presumed, AS – Cross reference to former sample


	Survey Date:	Lead Surveyor	Survey Type	Floor	Analysis
	17 Feb 2021 to 18 Feb 2021	Adam Yates	Demolition Survey	Ground Floor	No Asbestos Detected
	Building	Room	Item	Quantity	
	Zone 4 - Water Treatment Plant, Waste Collection Area & Demin Tank	Diesel fire pump room G/02	head gasket to to diesel generator	1no.	
	Sample No (S,SP,P,As)	Product Type	Surface Treatment	Condition	Accessibility
	JW004065 (S)	N/A	N/A	N/A	N/A
	Material Risk Score				
Recommended action		No further action required			
Surveyor comments		N/A			

	Survey Date:	Lead Surveyor	Survey Type	Floor	Analysis
	17 Feb 2021 to 18 Feb 2021	Adam Yates	Demolition Survey	Ground Floor	No Asbestos Detected
	Building	Room	Item	Quantity	
	Zone 4 - Water Treatment Plant, Waste Collection Area & Demin Tank	Electric fire pump room G/03	gasket to pipework flange to fire protection electric pump delivery pipework	6no.	
	Sample No (S,SP,P,As)	Product Type	Surface Treatment	Condition	Accessibility
	As JW004064 (SP)	N/A	N/A	N/A	N/A
	Material Risk Score				
Recommended action		No further action required			
Surveyor comments		N/A			

KEY:


S – Sampled, P – Presumed, SP – Strongly Presumed, AS – Cross reference to former sample


	Survey Date:	Lead Surveyor	Survey Type	Floor	Analysis
	17 Feb 2021 to 18 Feb 2021	Adam Yates	Demolition Survey	Ground Floor	No Asbestos Detected
	Building	Room	Item	Quantity	
	Zone 4 - Water Treatment Plant, Waste Collection Area & Demin Tank	Electric fire pump room G/03	gasket to pipework flange to fire protection jockey pump pipework	4no.	
	Sample No (S,SP,P,As)	Product Type	Surface Treatment	Condition	Accessibility
	JW004066 (S)	N/A	N/A	N/A	N/A
	Material Risk Score				
	N/A				
Recommended action	No further action required				
Surveyor comments	N/A				

	Survey Date:	Lead Surveyor	Survey Type	Floor	Analysis
	17 Feb 2021 to 18 Feb 2021	Adam Yates	Demolition Survey	Ground Floor	No Asbestos Detected
	Building	Room	Item	Quantity	
	Zone 4 - Water Treatment Plant, Waste Collection Area & Demin Tank	Water treatment room G/05	gasket to pipework flange to caustic measuring tank outlet pipework	2no.	
	Sample No (S,SP,P,As)	Product Type	Surface Treatment	Condition	Accessibility
	JW004067 (S)	N/A	N/A	N/A	N/A
	Material Risk Score				
	N/A				
Recommended action	No further action required				
Surveyor comments	N/A				

KEY:


S – Sampled, P – Presumed, SP – Strongly Presumed, AS – Cross reference to former sample

	Survey Date:	Lead Surveyor	Survey Type	Floor	Analysis
	17 Feb 2021 to 18 Feb 2021	Adam Yates	Demolition Survey	External	No Asbestos Detected
	Building	Room	Item	Quantity	
	Zone 4 - Water Treatment Plant, Waste Collection Area & Demin Tank	Externals E/01	gasket to pipework flange to make up water flow pipework	2no.	
	Sample No (S,SP,P,As)	Product Type	Surface Treatment	Condition	Accessibility
	JW004068 (S)	N/A	N/A	N/A	N/A
Material Risk Score					
N/A					
Recommended action	No further action required				
Surveyor comments	N/A				

	Survey Date:	Lead Surveyor	Survey Type	Floor	Analysis
	17 Feb 2021 to 18 Feb 2021	Adam Yates	Demolition Survey	External	Chrysotile (1)
	Building	Room	Item	Quantity	
	Zone 4 - Water Treatment Plant, Waste Collection Area & Demin Tank	Externals E/01	gasket to tank inspection hatch	1no.	
	Sample No (S,SP,P,As)	Product Type	Surface Treatment	Condition	Accessibility
	JW004069 (S)	Asbestos Textiles/Paper (2)	Surface Sealed (1)	Low Damage (1)	Occasionally likely to be disturbed
Material Risk Score					
5					
Recommended action	Remove				
Surveyor comments	N/A				

KEY:

S – Sampled, P – Presumed, SP – Strongly Presumed, AS – Cross reference to former sample

	Survey Date:	Lead Surveyor	Survey Type	Floor	Analysis
	17 Feb 2021 to 18 Feb 2021	Adam Yates	Demolition Survey	External	Chrysotile (1)
	Building	Room	Item	Quantity	
	Zone 4 - Water Treatment Plant, Waste Collection Area & Demin Tank	Externals E/01	gasket to pipework flange to pressure gauge pipework	1no.	
	Sample No (S,SP,P,As)	Product Type	Surface Treatment	Condition	Accessibility
	JW004070 (S)	Asbestos Textiles/Paper (2)	Surface Sealed (1)	Low Damage (1)	Occasionally likely to be disturbed
	Material Risk Score				
5					
Recommended action	Remove				
Surveyor comments	N/A				

KEY:

S – Sampled, P – Presumed, SP – Strongly Presumed, AS – Cross reference to former sample

Appendix 3 - Areas Surveyed

Building	Floor	Room No:	Room Type	Item
Zone 4 - Water Treatment Plant, Waste Collection Area & Demin Tank	External	E/01	Externals	metal roof, breeze block walls, metal cladding to walls, metal canopy, mmmf pipework insulation, plastic & metal rainwater goods, plastic damp proof course, fibreglass flue, rubber gasket to sulphuric acid pump pipework, metal gasket to pipework flange to make up water flow pipework
Zone 4 - Water Treatment Plant, Waste Collection Area & Demin Tank	Ground Floor	G/01	Diesel fire pump fuel tank room	metal underside of roof, breeze block walls, concrete floor, unlagged metal pipework, metal tank, mmmf packing to door frame
Zone 4 - Water Treatment Plant, Waste Collection Area & Demin Tank	Ground Floor	G/02	Diesel fire pump room	metal underside of roof, breeze block walls, concrete floor, unlagged metal pipework, metal duct boxing, mmmf packing to door frame, no asbestos observed to heater, rubber gasket to pipework flange to suction pipework, mmmf firebreak, modern electrics
Zone 4 - Water Treatment Plant, Waste Collection Area & Demin Tank	Ground Floor	G/03	Electric fire pump room	metal underside of roof, breeze block walls, concrete floor, unlagged metal pipework, metal duct boxing, mmmf packing to door frame, no asbestos observed to heater, rubber gasket to pipework flange to suction pipework, mmmf insulation to column, modern electrics, modern mastic to expansion joint, mmmf firebreak
Zone 4 - Water Treatment Plant, Waste Collection Area & Demin Tank	Ground Floor	G/04	Switch room	metal underside of roof, breeze block walls, concrete floor, modern electrics, no asbestos observed to air conditioning, timber window sill, foam & mmmf packing to cable penetration, plasterboard panel above door, modern mastic to expansion joints, unlagged metal pipework
Zone 4 - Water Treatment Plant, Waste Collection Area & Demin Tank	Ground Floor	G/05	Water treatment room	metal underside of roof, breeze block walls, concrete floor, foam pipework insulation, modern electrics & switchgear, metal & fibreglass tanks, plasterboard & metal panels panels above doors, metal duct boxing, rubber gasket to pipework flange to acid inlet pipework, rubber gasket to pipework flange to make up water regner pipework, rubber gasket to pipework flange to regen pump delivery pipework, rubber gasket to pipework flange to bag filter inlet pipework, foam seal to tank inspection hatch, rubber gasket to pipework flange to mfa inlet pipework, rubber gasket to pipework flange to acid dilution water alarm pipework, rubber gasket to pipework flange to caustic measuring tank pipework, rubber gasket to pipework flange to plant room sump discharge, rubber gasket to pipework flange to sulphuric acid tank pipework, rubber seal to tank hatch

Appendix 4 – Analysis Certificates

Sentinel Environmental Consultancy Limited
Head Office : Unit 17 Gwenfro, Technology Park, Wrexham, LL13 7YP

Certificate of Analysis

Asbestos Fibre Identification in Bulk Sample

Client: Triton Power
Address: Triton Power, Deeside Power Station,
Weighbridge Road, Flintshire, CH5 2UL
Project /Certificate Reference : J007545
Version Number : 1

Site Address: Zone 4, Triton Power, Deeside Power
Station, Weighbridge Road, Flintshire, CH5 2UL

Analyst Signature:



Analyst Name: Lucy Caroe

Samples Collected by: Adam Yates
Date Samples Received: 19 Feb 2021
Analysis Date: 19 Feb 2021
Certificate Issue Date: 8 Mar 2021

Asbestos Fibre Type :

Chrysotile= "White asbestos", Amosite= "Brown asbestos", Crocidolite = "Blue asbestos" Refer to H.S.E. publication HSG 264, for the approximate percentage asbestos content within the presumptive product type.

Analysis Method :

The analysis of the sample(s) detailed on this report is UKAS accredited. Analysis was performed in accordance with our internal Technical Operating Procedures and Health & Safety Executive publication HSG 248 at our Head Office.

Disclaimer :

Any interpretations or opinions expressed in this report are outside the scope of UKAS accreditation. The stated "presumptive product type" is a subjective assessment by our analyst, it is not determined by measurement and it is an opinion. Sentinel Environmental cannot accept responsibility for any discrepancy or inaccuracy arising from collection or labelling of samples by the client. Samples are retained for 6 months only after the analysis date unless requested or contracted otherwise.

Version Revision / Changes : None

Authorisation Signature :



Daniel Roberts - Director

Sentinel Environmental Consultancy Limited
 Head Office : Unit 17 Gwenfro, Technology Park, Wrexham, LL13 7YP

Certificate of Analysis

Project /Job Reference : J007545
 Certificate Issue Date : 08/03/2021

Version Number : 1

Results

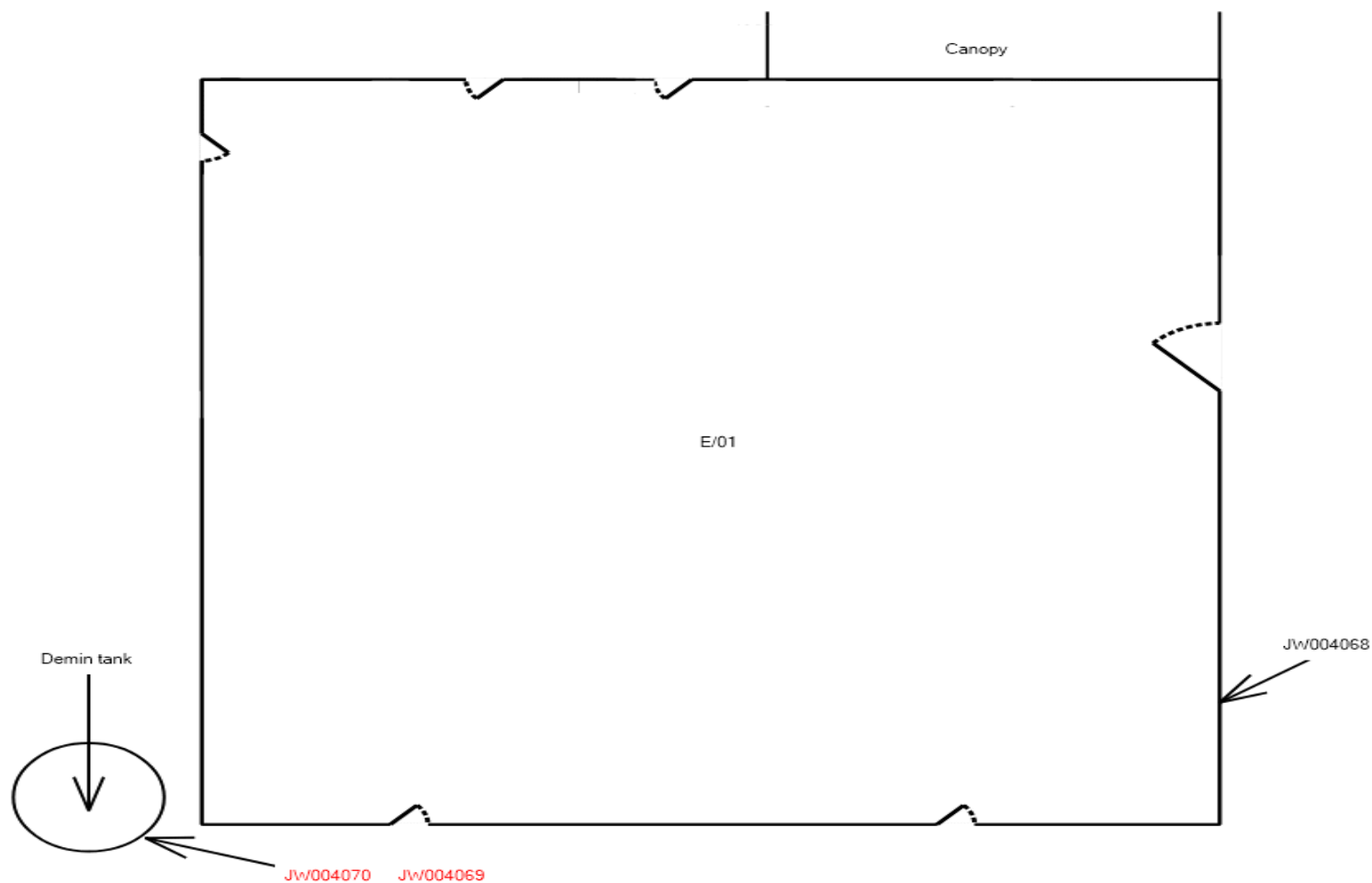
Project Reference	Sample Location and Description	Asbestos Fibre Type	Presumptive Product Type
JW004063	Zone 4 - Water Treatment Plant, Waste Collection Area & Demin Tank, Ground Floor, Diesel fire pump room – gasket to pipework flange	Chrysotile	Asbestos Textiles/Paper
JW004064	Zone 4 - Water Treatment Plant, Waste Collection Area & Demin Tank, Ground Floor, Diesel fire pump room – gasket to pipework flange	No Asbestos Detected	Non Asbestos Textiles/Paper
JW004065	Zone 4 - Water Treatment Plant, Waste Collection Area & Demin Tank, Ground Floor, Diesel fire pump room – head gasket to	No Asbestos Detected	Non Asbestos Textiles/Paper
JW004066	Zone 4 - Water Treatment Plant, Waste Collection Area & Demin Tank, Ground Floor, Electric fire pump room – gasket to pipework flange	No Asbestos Detected	Non Asbestos Textiles/Paper
JW004067	Zone 4 - Water Treatment Plant, Waste Collection Area & Demin Tank, Ground Floor, Water treatment room – gasket to pipework flange	No Asbestos Detected	Non Asbestos Textiles/Paper
JW004068	Zone 4 - Water Treatment Plant, Waste Collection Area & Demin Tank, External, Externals – gasket to pipework flange	No Asbestos Detected	Non Asbestos Textiles/Paper
JW004069	Zone 4 - Water Treatment Plant, Waste Collection Area & Demin Tank, External, Externals – gasket	Chrysotile	Asbestos Textiles/Paper
JW004070	Zone 4 - Water Treatment Plant, Waste Collection Area & Demin Tank, External,	Chrysotile	Asbestos Textiles/Paper

Sentinel Environmental Consultancy Limited
Head Office : Unit 17 Gwenfro, Technology Park, Wrexham, LL13 7YP

	Externals – gasket to pipework flange		
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Please Refer to Page 1 of Certificate of Analysis for pertinent details. This Report is only Valid when issued as a complete document with authorising signature on Page 1.

Appendix 5 – Plans



Client: Triton Power

Site: Zone 4

Building: Zone 4 - Water Treatment Plant, Waste Collection Area & Demin Tank

Floor: External

UPRN No: N/A

Plan Key:

Red Text = Positive Item

Blue Text = No Access Item

Black Text = No Asbestos Detected Item

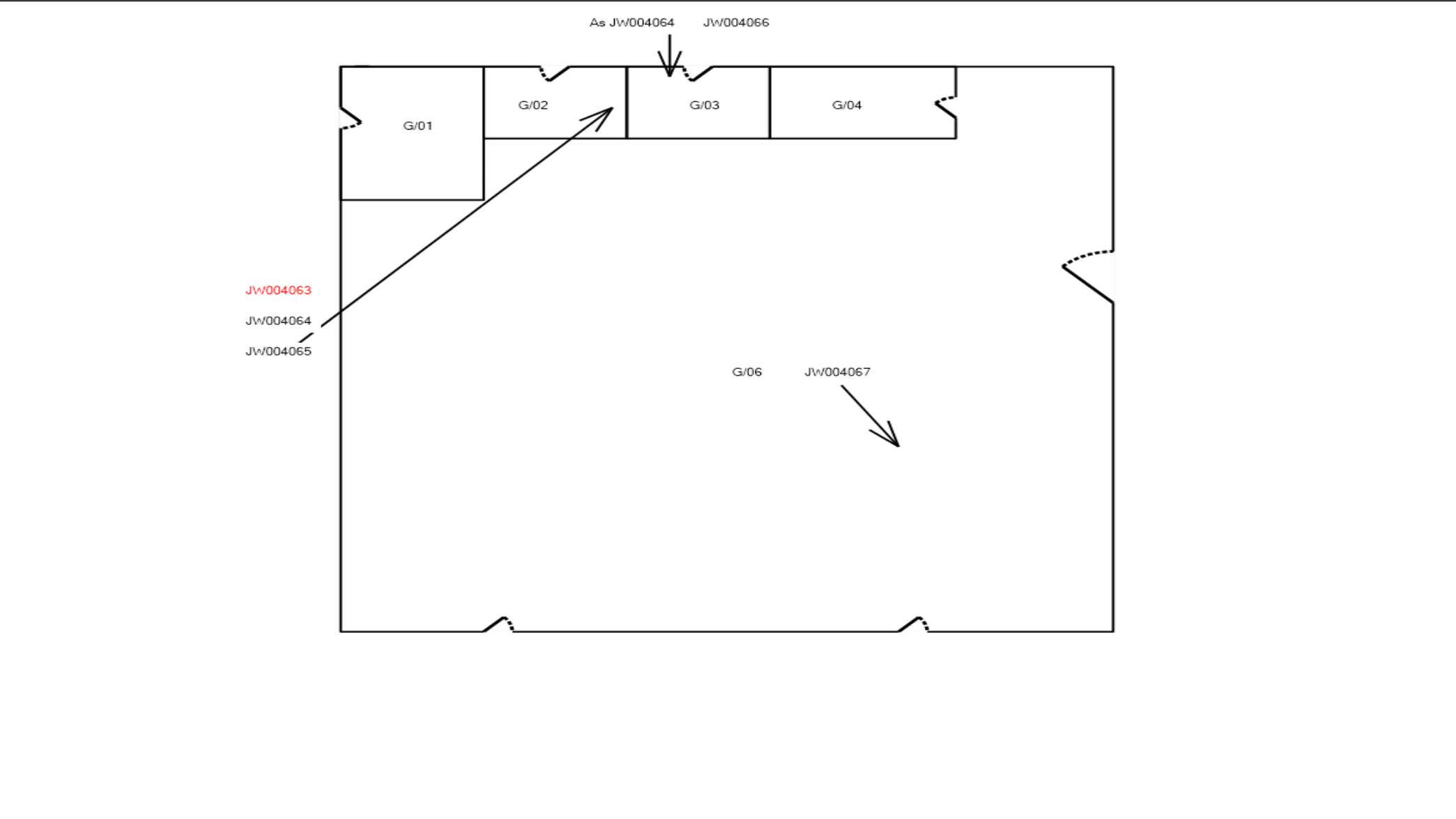



Positive or Strongly Presumed Asbestos in area / room



No Access within or to area / room





<div>Client: Triton Power</div> <div>Site: Zone 4</div> <div>Building: Zone 4 - Water Treatment Plant, Waste Collection Area & Demin Tank</div> <div>Floor: Ground Floor</div> <div>UPRN No: N/A</div>	<div>Plan Key:</div> <div><div>Red Text = Positive Item</div><div>Blue Text = No Access Item</div><div>Black Text = No Asbestos Detected Item</div><div><div></div>Positive or Strongly Presumed Asbestos in area / room</div><div><div></div>No Access within or to area / room</div></div>	<div></div>
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Appendix 6 – Survey Intrusion Photographs



Inspection of pipework flange



Intrusion into pipework casing



Inspection of pipework flange



Intrusion into pipework casing



Intrusion into pipework casing



Inspection of pipework flange



Inspection of pipework flange



Intrusion into panel above door



Intrusion into pipework insulation

Asbestos Demolition Survey

Zone 5
Triton Power
Deeside Power Station
Weighbridge Road
Flintshire
CH5 2UL



10118



10118

Sentinel Environmental Consultancy Ltd
Unit 17 Gwenfro
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Company Details
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1. Executive Summary [Conclusions and actions]
2. Report Summary
3. Introduction - Purpose, Aims and Objectives
4. Agreed Scope, Caveats and Limitations
5. Survey Method
6. Exclusions and Caveats
7. Sampling and Analysis
8. Survey Results - Interpretation
9. Recommendations

APPENDICES - Survey Results

- Appendix 1 - Asbestos Register - Results
- Appendix 2 - Survey Data Sheets
- Appendix 3 - Areas Surveyed
- Appendix 4 - Analysis Certificates
- Appendix 5 - Plans
- Appendix 6 - Intrusion Photographs

1.0 Executive summary:

This Executive Summary provides details on :

- | the locations with identified (or presumed) ACMs;
- | areas not accessed;
- | ACMs with high material assessment scores;
- | clear notes on any actions (and priorities).

Asbestos containing materials have been identified during the Demolition Survey and the specific areas are categorized below in order according to the initial Material Risk Assessment made by Sentinel Environmental Consultancy Ltd.

HIGH RISK MATERIALS - SCORES 10+

Asbestos in poor condition, or asbestos debris/contamination has been identified within the following areas listed in the table below. It is recommended that risk assessment (s) are undertaken to ensure that Regulation 4, Regulation 10, Regulation 11, and Regulation 16 of the Control of Asbestos Regulations 2012 are complied with.

Building	Floor	Room	Item	Material	Risk assessment Score	Tentative Recommendations
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There were no results found.

MEDIUM RISK MATERIALS - SCORES 7-9

Asbestos containing materials, which are unsealed or damaged, have been identified within the following areas listed in the table below. It is recommended that remedial work to seal or remove these materials is undertaken as a priority and that air monitoring is carried out within adjacent areas in order to assess airborne fibre levels.

Building	Floor	Room	Item	Material	Risk assessment Score	Tentative Recommendations
There were no results found.						

LOW RISK MATERIALS - SCORES 1-6

Asbestos Containing Materials have been identified which are in good condition, A management policy and plan need to be implemented to manage these materials safely.

Building	Floor	Room	Item	Material	Risk assessment Score	Tentative Recommendations
Zone 5 - HRSG Building	Ground Floor	HRSG building G/01	composite bearings	Reinforced Composite	VERY LOW (3) R3	Remove
Zone 5 - HRSG Building	Ground Floor	HRSG building G/01	composite bearings	Reinforced Composite	VERY LOW (3) R3	Remove
Zone 5 - HRSG Building	Ground Floor	HRSG building G/01	gasket to pipework flange	Asbestos Textiles/Paper	LOW (5) R3	Remove

1.0 Executive summary:

PRESUMED ASBESTOS/NO ACCESS AREAS



Asbestos Containing Materials (ACMs) have been presumed as being present to the following areas where access could not be gained. Areas which have not been accessed should be presumed to contain asbestos until proven otherwise.

Building	Floor	Room/Area	Tentative Recommendation	Surveyor Notes
Zone 5 - HRSG Building	External	Externals E/01	Inspect Prior to Disturbance	Scaffolding required to fully access roof

Building Notes:

Internal notes: N/A
External notes: N/A

2.0 Report Summary:

Name and address of site:	Zone 5, Triton Power, Deeside Power Station, Weighbridge Road, Flintshire		
Name and address of client:	Triton Power, Triton Power, Deeside Power Station, Weighbridge Road, Flintshire		
Client contact:	Colin Brooks		
Type of survey:	Demolition Survey		
Date of survey:	18 Feb 2021		
Report Revision Number:	1		
TEAMS internal job number:	J007546		
Lead surveyor[s]:	Adam Yates	Signature:	
Technically reviewed by:	Luke Jones	Signature:	
Report issue date:	8 Mar 2021		

3.0 Introduction/Objectives:

Sentinel Environmental Consultancy Ltd received an order of confirmation to undertake a Demolition Survey from Triton Power. This order has been accepted on the basis of the original quotation and our terms and conditions of business.

The order relates to a Demolition survey of:

Zone 5
Triton Power
Deeside Power Station
Weighbridge Road
Flintshire
CH5 2UL

The survey was carried out by Adam Yates, Declan Hughes.

The Type of survey selected / requested by the client was a Demolition survey.

This survey was carried out in accordance with documented in house procedures TOP02 surveying procedures, which are based on the HSE Guidance document HSG 264.

3.1 Purpose of Survey

The purpose of this Demolition Survey is to help the duty holder identify asbestos in these premises, prior to Demolition Works. It provides sufficient information to help the tendering process for removal works prior to any work starting. However it is strongly recommended that any asbestos removal should be undertaken against a detailed specification. We further recommend the appointed removal contractor should attend the site to confirm for themselves the quantities and location of asbestos to be removed, prior to costing.

3.2 Aim of Survey

The aim of the survey was to;

1. Locate and record the location, extent, and product type as far as reasonably practicable of known or presumed ACM's.
2. Inspect and record information on the accessibility, condition and surface treatment of know or presumed ACM's
3. Determine and record the asbestos type based on sampling or by making a presumption based on product type and appearance
4. Locate all ACM's within the fabric of the building prior to demolition.

3.0 Introduction/Objectives (Cont):

- Type of Survey

3.3 Type of Survey – Demolition Survey

Demolition surveys are intended to locate all asbestos within the building. It is a disruptive, fully intrusive survey that involves destructive inspection techniques that penetrate the building structure extensively. This involves breaking into floors, through walls, into wall voids ceilings, cladding, boxing, as necessary to gain access to all areas, including the inner fabric of the building. A full sampling programme is undertaken to identify possible ACM's and estimate their quantities.

The survey is designed to be used to help the tendering process, and should be used to start generating a specification for tendering the removal of ACM's from the building prior to demolition.

Whilst all asbestos materials have been identified as far as is reasonably practicable, some asbestos materials may remain unidentified buried within the fabric of the building during the survey. Asbestos shuttering buried within concrete slabs, asbestos hidden by structural supports, asbestos hidden behind other asbestos products, and building structures which are unsafe to fully access are potential locations.

It must be presumed that asbestos may remain unidentified to these type of areas and if suspect materials are uncovered during demolition then samples should be taken for analysis.

4.0 Agreed Scope, Caveats and Exclusions

4.1 Agreed Scope

Sentinel Environmental Consultancy Ltd have taken measures to ensure a sufficient exchange of information has been carried out with the duty holder / client representative prior to undertaking this survey. This survey has been carried out under the agreed scope outlined in the quotation and terms and conditions of the business. Any significant changes from the agreed scope are clearly identified and agreed with the client prior to issue of the Report.

Description, Current and Historical Use of Property	Industrial / Commercial property type
Number of Buildings ; age, type and construction details	1 no. building, traditionally constructed 1990s
Estimated or known number of rooms	1 no.
Unusual features or underground areas	Not applicable to survey
Details of alterations to Building (previous extension, refurbishment or demolition works)	Minor works evident, full details unknown
Building Listed or within Conservation Area	No listed status
Surrounding areas & building structures included in scope	Targeted to Zone 5 building only
Existing Plans for the Site provided (are plans required to be issued within a specific format)	Plans drawn by surveyor
Proposed Plans and Specification for scope of works	N/A
Building Occupied or Vacant	Vacant
Access Restrictions (working at height)	No access restrictions
Specialist requirements (access to confined spaces / heights where MEWP / Mobile Tower required)	No specialist requirements
Person responsible for arranging access	Arranged via client
Site Specific Hazards	Covid 19 - refer to RAMS & SOP
Photographs to be collected	Yes
Bulk Sampling Requirements	As per HSG 264
Previous Asbestos Information available and whether this information will be used as 3rd party data with the Survey	Previous register provided by client
Client specific requirements ; data extract/ CD / PDF copy / email only	No specific requirements

4.0 Agreed Scope, Caveats and Exclusions (Continued):

4.2 The following areas / elements have been agreed to be included or excluded from the scope, please note inspections are representative across the building, supporting photographs for intrusive inspections can be found in Appendix 6 :

Building Element	Included / Excluded	Survey Technique	Reinstatement Included
Solid wall cavities	Included	Inspection hole created to inspect cavity between walls inspected	No - all areas left safe
Removal of window sills	Included	Window sills removed to inspect beneath	No - all areas left safe
Removal of vent covers	Included	Vent covers removed to inspect behind	No - all areas left safe
Partition wall cavities	Included	Inspection holes created to inspect within / behind partition panels	No - all areas left safe
Above fixed suspended ceilings	Included	Access point created within fixed ceiling to inspect void	No - all areas left safe
Within boxings or risers	Included	Boxing panels and or cover panels to risers removed	No - all areas left safe
Floor voids, removal of flooring	Included	Floor boards lifted to inspect voids	No - all areas left safe
Within fire doors	Included	Inspection hole created to inspect lining of fire door	No - all areas left safe
Beneath fixed flooring materials	Included	Flooring lifted to inspect beneath	No - all areas left safe
Behind skirting and door frames	Included	Skirting board and door frames removed to inspect behind	No - all areas left safe
Beneath or behind furniture	Included	Furniture moved to inspect	No - all areas left safe
Beneath non asbestos insulation	Included	Non asbestos insulation to be removed	No - all areas left safe
Behind non asbestos external soffits / fascias	Included	Non asbestos soffits / fascias inspected beneath	No - all areas left safe
Roof voids Inspection	Included	Roof Voids accessed and inspected	No - all areas left safe
Fireplace / Chimney Breast	Not applicable	Chimney breast inspected	Not applicable

4.3 Agreed Caveat and Limitations

The Survey has been carried out with the following specific caveats agreed with the Client. Areas or items excluded from a survey must be presumed to contain Asbestos.

Item Excluded from Survey	Comments
Within electric switchgear, fuse boxes, plant and other associated services.	Agreed with client not to be inspected as a live service supply which could not be isolated during the Survey
Within operational plant and machinery including boilers / calorifiers / lift machinery etc.	Agreed with client not to be inspected as a live service supply which could not be isolated during the Survey
Access behind / above existing ACM's which would require the use of a LARC and enclosure.	Agreed with client not to be inspected behind / above
Intrusion through solid ceiling slab or solid walls requiring additional specialist support services.	Agreed with client not to be inspected beneath or within
Below external ground level	Agreed with client not to be inspected

5.0 Survey Method

5.1 This survey has been undertaken in accordance with HSG264 and Sentinel Environmental Consultancy Ltd in house procedures (TOP02 Surveying Procedure).

5.2 Clients of Sentinel Environmental Consultancy Ltd have agreed to our terms and conditions and accepted our surveying approach, our sampling strategy, and our standard planning, surveying and reporting format unless they have made specific requests to the contrary.

5.3 The information provided by the client or their representative is recorded within the desk top review and survey planning stage and has been used to establish the scope of the survey.

5.4 Photographs of suspected ACM's, limited access areas / no access areas are taken at the time of the survey unless the client expressly requests otherwise. Sampling points and suspected ACM's are not identified with labels unless the client expressly requests otherwise.

5.5 All items examined by the surveyor at the time of the survey are listed in the inspection detail of this report. This detail includes those items believed by the surveyor not to contain asbestos and an appropriate categorisation of their material composition is given. Employing this rationale, the surveyor can use experience and judgement to form a reasoned argument that there is evidence to suggest that the material may not contain asbestos. Periodically 'non-asbestos' building materials may be sampled by way of a method control to further support the surveyor's argument. These materials do not bear any risk assessment detail.

5.6 Areas that could not be accessed were presumed to have ACM's present until proven otherwise. Each area requiring further inspection is documented within the Executive summary (Inaccessible areas). Inaccessible areas are also shown on the plan drawings (Appendix 5)

5.6 Areas that cannot be accessed are presumed to have ACM's present until proven otherwise. Each area requiring further inspection is documented within the Executive summary (Inaccessible areas). Inaccessible areas are also shown on the plan drawings (Appendix 5)

5.7 Materials that cannot be accessed and in the surveyor's opinion could be dismissed are presumed to be ACMs unless proven otherwise. Materials that are not sampled but, in the surveyor's opinion, have a similar appearance, location and function as a previously sampled material are strongly presumed to be similar to the sampled material.

5.8 In the case of a material or materials being encountered that the surveyor suspects, following visual assessment, as containing asbestos but cannot be sampled for reasons of practicality, that material is strongly presumed to contain asbestos. An assessment (where possible) of the material's extent and condition is made. Materials that are 'strongly presumed' to be similar to a material that has already been sampled are referenced against the original sampled material.

5.9 Intrusive damage that is required to gain access to an area/location that is within the scope of the survey has been agreed with the client or the client's representative. Any remedial action is put in place before such action is attempted. If remedial action cannot be arranged, no attempt to access the area is made and the reasons recorded. The area/location is presumed to have ACM's present until proven otherwise.

5.10 Older electrical equipment, which cannot be shown to contain ACM's is presumed to have ACM's present unless, in the surveyors professional opinion, such items can be excluded.

6.0 Exclusions and Caveats:

Where suspect asbestos containing materials e.g. ceiling finishes, board materials etc exist no attempt (unless otherwise stated) will be made to investigate behind these materials. Sentinel Environmental Consultancy has a duty under Regulation 16 of the Control of Asbestos Regulations (2012) to prevent or reduce the spread of asbestos; penetration of such materials without appropriate control measures may be in contravention of this duty.

Specific areas excluded within this survey report are listed within the executive summary.

This report does not include investigations into land contamination associated with asbestos or any other contaminants.

7.0 Sampling and Analysis:

7.1 The object of bulk sampling is to identify the nature of any visible ACM. The bulk sample description and analysis results can be found in Appendix 4 of this report – The analysis certificate.

Bulk samples are taken in accordance with documented in house procedures (TOP02 Surveying Procedure) following guidelines detailed in HSG264 'The Survey Guide' and HSG248 'The Analyst Guide'. The quantity of samples taken will be minimised by using 'strongly presumed'. Materials that are 'strongly presumed' to be similar to a material that has already been sampled will be recorded in the comments section of the survey record and referenced against the original sampled material.

7.2 All samples taken during this survey have been analysed by a laboratory holding UKAS accreditation to ISO 17025.

7.3 The homogeneity of asbestos containing materials can differ depending on their type. Typically, homogeneous materials include sprayed coatings, insulating board and asbestos cement products. Other materials are typically less homogeneous including pipe lagging (due to patch repairs, hand mixing at time of application), textured coatings (due to low concentration of asbestos fibre and hand application), composites (due to low concentration of asbestos fibre and material matrix). Whilst sampling frequencies / techniques and analysis methods attempt to address the issue of non-homogeneity it should be realised that sampling in accordance with HSG 264 and analysis in accordance with HSG 248 cannot always obviate the problems of determining asbestos fibre content in non-homogeneous materials. The results of sample analysis presented in this report therefore pertain to the samples analysed and so relate only to the time at which sampling took place and to the conditions prevailing during that time.

Survey Results

8.1 The results of the survey inspections and sampling undertaken are recorded on the enclosed Survey Data Sheets (appendix 2), Asbestos Register (appendix 1) and Non-Asbestos Material Register (appendix 3). Where asbestos containing material have been identified or presumed to be present then a Material Assessment Algorithm has been calculated as detailed in HSG 264 and reproduced in the table below:

8.2 Within the survey data sheets the individual scores in brackets, for each sample variable, are added together to form the final material risk assessment algorithm score.

Material Risk Assessment Algorithm

Product type [or debris from product]

Score	Examples of scores
1	Asbestos reinforced composites [plastics, resins, mastics, roofing felts, vinyl floor tiles, semi- rigid paint, decorative finishes and asbestos cement etc]
2	Asbestos insulating board, mill boards, other low-density boards, textiles, gaskets, ropes and woven materials and asbestos paper.
3	Thermal insulation [e.g. pipe and boiler lagging], sprayed asbestos, loose asbestos, asbestos mattresses and packing.

Extent of damage/deterioration

Score	Examples of scores
0	Good condition: no visible damage
1	Low damage: a few scratches or surface marks, broken edges on boards or tiles, etc.
2	Moderate damage: significant breakage of materials or several small areas where material has been damaged exposing fibrous edges.
3	High damage or deterioration of materials, sprays and thermal insulation. Visible asbestos contamination by debris or residues.

Surface treatment

Score	Examples of scores
0	Composite materials containing asbestos, reinforced plastics, resins, vinyl tiles
1	Enclosed sprays or insulation, AIB [with exposed face encapsulated], cement sheets, etc.
2	Unsealed AIB, encapsulated insulation and sprays.
3	Unsealed insulation and sprays.

Asbestos Type

Score	Examples of scores
1	Chrysotile
2	Amphibole asbestos (excluding Crocidolite)
3	Crocidolite

Risk Category	Risk	Score Range	Fibre release potential
R1	HIGH	Material Score 10	High risk with a high potential to release fibres if disturbed
R2	MEDIUM	Material Score Between 7 and 9	Medium risk with a medium potential to release fibres if disturbed
R3	LOW	Material Score 6 or below	Low risk with and having low potential to release fibres if disturbed

9.0 Recommendations:

9.1 To comply with and ensure that the requirements of section 2 & 3 of the Health and Safety at Work Act (as amended) 1974, the Management of Health and Safety at Work Regulations 1999, the Control of Asbestos Regulations 2012 and the Control of Substances Hazardous to Health 2002 are met, the following recommendations should be implemented:

9.2 Undertake suitable and sufficient Risk Assessments of identified asbestos containing materials against normal occupation and maintenance operations, in compliance with Regulations 3 of the Management of Health & Safety at Work Regulations 1999 and Regulation 6 of the Control of Asbestos Regulations 2012.

9.3 The findings of the survey be brought to the attention of those persons who are likely to come in contact with asbestos, in compliance with Section 2 and 3 of the Health and Safety at Work Act (as amended) 1974 and Regulation 10 of the Control of Asbestos Regulations 2012.

9.4 Implement an Asbestos Management Policy, Plan and review process in compliance Regulation 4 of the Control of Asbestos Regulations 2012.

9.5 Instigate regular inspections, to record and update details of retained asbestos containing materials.

9.6 Review the arrangement under the management plan in accordance with regulation 4 of the CAR 2012.

9.7 During the course of the survey it may not have been possible to access all areas of the site. Details of areas requiring further access are identified within the Data Sheets of this report. In accordance with HSG 264, asbestos has been presumed to be present within these areas and should be treated accordingly until further inspection and analysis of building fabric and services proves otherwise.

9.8 Where asbestos debris or asbestos in poor condition has been found it is recommended that access is restricted and or controlled to these areas in accordance with Regulation 11 and Regulation 16 of the Control of Asbestos Regulations 2012.

9.9 If we have identified asbestos materials in poor condition, it is recommended that air monitoring is carried out within a number of areas where asbestos materials have been identified in order to assess airborne fibre levels within adjacent occupied areas in relation to the clearance indicator, as documented by HSG 248 the Analyst Guide.

9.10 All identified asbestos to be appropriately identified and subject to risk assessment, management, and re-inspection.

9.11 Site specific recommendations in respect to the location and condition of asbestos materials identified during the course of this inspection are detailed in the Survey Data Sheets and Asbestos register. In considering the management of asbestos materials identified to date, these recommendations should be taken into consideration.

9.12 In accordance with the Control of Asbestos Regulations 2012 the removal of ACM's fall into one of the three categories below:

Licensed Asbestos Removal

Is defined as any work, which is undertaken on a friable asbestos product or which is likely to exceed the control limit of 0.1f/cm³. A licensed asbestos removal contractor must undertake this work and a 14-day notice must be given to the HSE prior to the commencement of the work.

Notifiable Non Licensed Works

If work on an ACM causes the deterioration of the matrix material in which the asbestos fibres are firmly linked, then these works are Notifiable Non Licensed Work (NNLW). Work of this type does not require an asbestos removal licence, but the company undertaking the work must have the following:

- Notification of the work to the relevant enforcing authority prior to the work commencing.
- Medical examinations to assess each worker's state of health to be carried out, before any possible – exposure to asbestos. Then re-examinations every three years.
- Insurance for working with asbestos containing materials.
- A register of work to be kept by the employer for each employee exposed to asbestos.

Non Notifiable Non Licensed work

-Non-Licensed Works Is defined as any work, which involves short, non-continuous maintenance activities, during which only nonfriable materials are removed. It can also involve the removal of non-friable materials for refurbishment purposes. However, work of this type is only applicable where the matrix material in which the asbestos fibres are firmly linked remains intact.

-If a non-licensed contractor is appointed to undertake the removal works on the above materials, the following points must be adhered to:

-All operatives undertaking work on the material must have asbestos awareness training and practical asbestos training.

9.13 It is recommended that further intrusive investigations and sampling be carried out in accordance with HSG.264, where any major refurbishment, maintenance, installation or similar activity may expose asbestos materials that have remained inaccessible during the survey. This should be as a refurbishment/demolition survey as documented in HSG264.

9.14 The findings of this report should not be solely relied upon in obtaining costs for proposed asbestos abatement work. Any proposed abatement/removal of the asbestos should be undertaken against a detailed specification.

9.15 Any recommendations made within this report are made on the basis of findings collated at the time of survey. Recommendations should undergo careful client evaluation prior to a final management decision being made. Sentinel Environmental Consultancy Limited does not accept any responsibility for any works carried out as a result of recommendations made within this report.

Appendix 1 - Asbestos Register


Building	Floor	Location /Room	S,P,SP,AS Sample No	Product Type	Condition	Surface Treatment	Asbestos Type	Quantity	Accessibility	Material Score	Recommendation	Additional Comments
Zone 5 - HRSG Building	Ground Floor	HRSG building G/01, composite bearings within HRSG 2 glandless motor pump	P Visual	Reinforced Composite	Low Damage	Completely Sealed	Chrysotile	Unknown	Usually inaccessible or unlikely to be disturbed	3	Remove	Unable to access within machinery for sampling, 2 pumps observed
Zone 5 - HRSG Building	Ground Floor	HRSG building G/01, composite bearings to HRSG 1 glandless motor pump	P Visual	Reinforced Composite	Low Damage	Completely Sealed	Chrysotile	Unknown	Usually inaccessible or unlikely to be disturbed	3	Remove	N/A
Zone 5 - HRSG Building	Ground Floor	HRSG building G/01, gasket to pipework flange to high level pump pipework	S JW004076	Asbestos Textiles/Paper	Low Damage	Surface Sealed	Chrysotile	2no.	Occasionally likely to be disturbed	5	Remove	N/A
Zone 5 - HRSG Building	External	Externals E/01, limited access to high level roof features	P Visual	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Inspect Prior to Disturbance	Scaffolding required to fully access roof


KEY:

S – Sampled, P – Presumed, SP – Strongly Presumed, AS – Cross reference to former sample

Appendix 2 – Survey Data Sheets


Service Type	Demolition Survey		
Report Revision Number	1	Surveyors	Adam Yates
TEAMS Job Number	J007546	Survey Date	18 Feb 2021 to 23 Feb 2021
Site Address:	Zone 5 Triton Power Deeside Power Station Weighbridge Road Flintshire CH5 2UL	Bulk Analysis Laboratory	N/A
		Sample Analysis Date	24 Feb 2021


	Survey Date:	Lead Surveyor	Survey Type	Floor	Analysis
	18 Feb 2021 to 23 Feb 2021	Adam Yates	Demolition Survey	Ground Floor	Chrysotile (1)
	Building	Room	Item	Quantity	
	Zone 5 - HRSG Building	HRSG building G/01	composite bearings within HRSG 2 glandless motor pump	Unknown	
	Sample No (S,SP,P,As)	Product Type	Surface Treatment	Condition	Accessibility
	Visual (P)	Reinforced Composite (1)	Completely Sealed (0)	Low Damage (1)	Usually inaccessible or unlikely to be disturbed
Material Risk Score					
3					
Recommended action		Remove			
Surveyor comments		Unable to access within machinery for sampling, 2 pumps observed			

	Survey Date:	Lead Surveyor	Survey Type	Floor	Analysis
	18 Feb 2021 to 23 Feb 2021	Adam Yates	Demolition Survey	Ground Floor	No Asbestos Detected
	Building	Room	Item	Quantity	
	Zone 5 - HRSG Building	HRSG building G/01	gasket to pipework flange to HRSG MP pump pipework	5no.	
	Sample No (S,SP,P,As)	Product Type	Surface Treatment	Condition	Accessibility
	JW004072 (S)	N/A	N/A	N/A	N/A
Material Risk Score					
N/A					
Recommended action		No further action required			
Surveyor comments		N/A			

KEY:


S – Sampled, P – Presumed, SP – Strongly Presumed, AS – Cross reference to former sample

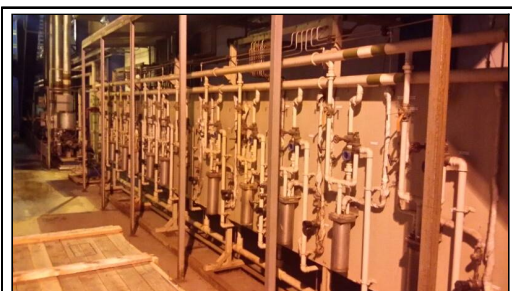
	Survey Date:	Lead Surveyor	Survey Type	Floor	Analysis
	18 Feb 2021 to 23 Feb 2021	Adam Yates	Demolition Survey	Ground Floor	No Asbestos Detected
	Building	Room	Item	Quantity	
	Zone 5 - HRSG Building	HRSG building G/01	gasket to pipework flange to HRSG 1 tank pipework	4no.	
	Sample No (S,SP,P,As)	Product Type	Surface Treatment	Condition	Accessibility
	JW004073 (S)	N/A	N/A	N/A	N/A
Material Risk Score					
N/A					
Recommended action					
No further action required					
Surveyor comments					
N/A					

	Survey Date:	Lead Surveyor	Survey Type	Floor	Analysis
	18 Feb 2021 to 23 Feb 2021	Adam Yates	Demolition Survey	Ground Floor	Chrysotile (1)
	Building	Room	Item	Quantity	
	Zone 5 - HRSG Building	HRSG building G/01	composite bearings to HRSG 1 glandless motor pump	Unknown	
	Sample No (S,SP,P,As)	Product Type	Surface Treatment	Condition	Accessibility
	Visual (P)	Reinforced Composite (1)	Completely Sealed (0)	Low Damage (1)	Usually inaccessible or unlikely to be disturbed
Material Risk Score					
3					
Recommended action					
Remove					
Surveyor comments					
N/A					

KEY:


S – Sampled, P – Presumed, SP – Strongly Presumed, AS – Cross reference to former sample


	Survey Date:	Lead Surveyor	Survey Type	Floor	Analysis
	18 Feb 2021 to 23 Feb 2021	Adam Yates	Demolition Survey	Ground Floor	No Asbestos Detected
	Building	Room	Item	Quantity	
	Zone 5 - HRSG Building	HRSG building G/01	woven expansion to HRSG 1	10m ²	
	Sample No (S,SP,P,As)	Product Type	Surface Treatment	Condition	Accessibility
	JW004074 (S)	N/A	N/A	N/A	N/A
	Material Risk Score				
Recommended action		No further action required			
Surveyor comments		N/A			

	Survey Date:	Lead Surveyor	Survey Type	Floor	Analysis
	18 Feb 2021 to 23 Feb 2021	Adam Yates	Demolition Survey	Ground Floor	No Asbestos Detected
	Building	Room	Item	Quantity	
	Zone 5 - HRSG Building	HRSG building G/01	woven wrap to cooling water pipework	20lm	
	Sample No (S,SP,P,As)	Product Type	Surface Treatment	Condition	Accessibility
	As JW004074 (SP)	N/A	N/A	N/A	N/A
	Material Risk Score				
Recommended action		No further action required			
Surveyor comments		N/A			

KEY:


S – Sampled, P – Presumed, SP – Strongly Presumed, AS – Cross reference to former sample

	Survey Date:	Lead Surveyor	Survey Type	Floor	Analysis
	18 Feb 2021 to 23 Feb 2021	Adam Yates	Demolition Survey	Ground Floor	No Asbestos Detected
	Building	Room	Item	Quantity	
	Zone 5 - HRSG Building	HRSG building G/01	gasket to cooling water compressor	12no.	
	Sample No (S,SP,P,As)	Product Type	Surface Treatment	Condition	Accessibility
	JW004075 (S)	N/A	N/A	N/A	N/A
	Material Risk Score				
Recommended action		No further action required			
Surveyor comments		N/A			

	Survey Date:	Lead Surveyor	Survey Type	Floor	Analysis
	18 Feb 2021 to 23 Feb 2021	Adam Yates	Demolition Survey	Ground Floor	Chrysotile (1)
	Building	Room	Item	Quantity	
	Zone 5 - HRSG Building	HRSG building G/01	gasket to pipework flange to high level pump pipework	2no.	
	Sample No (S,SP,P,As)	Product Type	Surface Treatment	Condition	Accessibility
	JW004076 (S)	Asbestos Textiles/Paper (2)	Surface Sealed (1)	Low Damage (1)	Occasionally likely to be disturbed
	Material Risk Score				
Recommended action		Remove			
Surveyor comments		N/A			

KEY:

S – Sampled, P – Presumed, SP – Strongly Presumed, AS – Cross reference to former sample

	Survey Date:	Lead Surveyor	Survey Type	Floor	Analysis
	18 Feb 2021 to 23 Feb 2021	Adam Yates	Demolition Survey	External	N/A
	Building	Room	Item	Quantity	
	Zone 5 - HRSG Building	Externals E/01	limited access to high level roof features	N/A	
	Sample No (S,SP,P,As)	Product Type	Surface Treatment	Condition	Accessibility
	Visual (P)	N/A	N/A	N/A	N/A
	Material Risk Score				
N/A					
Recommended action	Inspection Required				
Surveyor comments	Scaffolding required to fully access roof				

KEY:

S – Sampled, P – Presumed, SP – Strongly Presumed, AS – Cross reference to former sample

Appendix 3 - Areas Surveyed

Building	Floor	Room No:	Room Type	Item
Zone 5 - HRSG Building	External	E/01	Externals	metal roof, breeze block walls, metal cladding to walls, metal flues, metal & plastic rainwater goods, modern mastic to expansion joint
Zone 5 - HRSG Building	Ground Floor	G/01	HRSG building	metal underside of roof, breeze block walls, concrete floor, metal cladding to walls, modern electrics & switchgear, mmmf pipework insulation, no asbestos observed to heaters, metal duct boxing, metal tank, mmmf insulation to tank, metal gasket to pipework flange to pump inlet filter, metal gasket to pipework flange to pump pipework, mmmf insulation within HRSG, mmmf insulation within wall cavity, rubber gasket to pipework flange to fire main pipework, plastic rainwater goods, mmmf packing within vent, rubber gasket to pipework flange to cool water pipework, metal gasket to pipework flange to feed water pipework, rubber seal to tank, metal gasket to pipework flange to steam stop pipework metal panel to pipework penetration, metal gasket to pipework flange to drum safety pipework, metal flue

Appendix 4 – Analysis Certificates

Sentinel Environmental Consultancy Limited
Head Office : Unit 17 Gwenfro, Technology Park, Wrexham, LL13 7YP

Certificate of Analysis

Asbestos Fibre Identification in Bulk Sample

Client: Triton Power
Address: Triton Power, Deeside Power Station,
Weighbridge Road, Flintshire, CH5 2UL
Project /Certificate Reference : J007546
Version Number : 1

Site Address: Zone 5, Triton Power, Deeside Power
Station, Weighbridge Road, Flintshire, CH5 2UL

Analyst Signature:



Analyst Name: Lucy Caroe

Samples Collected by: Adam Yates
Date Samples Received: 24 Feb 2021
Analysis Date: 24 Feb 2021
Certificate Issue Date: 8 Mar 2021

Asbestos Fibre Type :

Chrysotile= "White asbestos", Amosite= "Brown asbestos", Crocidolite = "Blue asbestos" Refer to H.S.E. publication HSG 264, for the approximate percentage asbestos content within the presumptive product type.

Analysis Method :

The analysis of the sample(s) detailed on this report is UKAS accredited. Analysis was performed in accordance with our internal Technical Operating Procedures and Health & Safety Executive publication HSG 248 at our Head Office.

Disclaimer :

Any interpretations or opinions expressed in this report are outside the scope of UKAS accreditation. The stated "presumptive product type" is a subjective assessment by our analyst, it is not determined by measurement and it is an opinion. Sentinel Environmental cannot accept responsibility for any discrepancy or inaccuracy arising from collection or labelling of samples by the client. Samples are retained for 6 months only after the analysis date unless requested or contracted otherwise.

Version Revision / Changes : None

Authorisation Signature :



Daniel Roberts - Director

Sentinel Environmental Consultancy Limited
 Head Office : Unit 17 Gwenfro, Technology Park, Wrexham, LL13 7YP

Certificate of Analysis

Project /Job Reference : J007546
 Certificate Issue Date : 08/03/2021

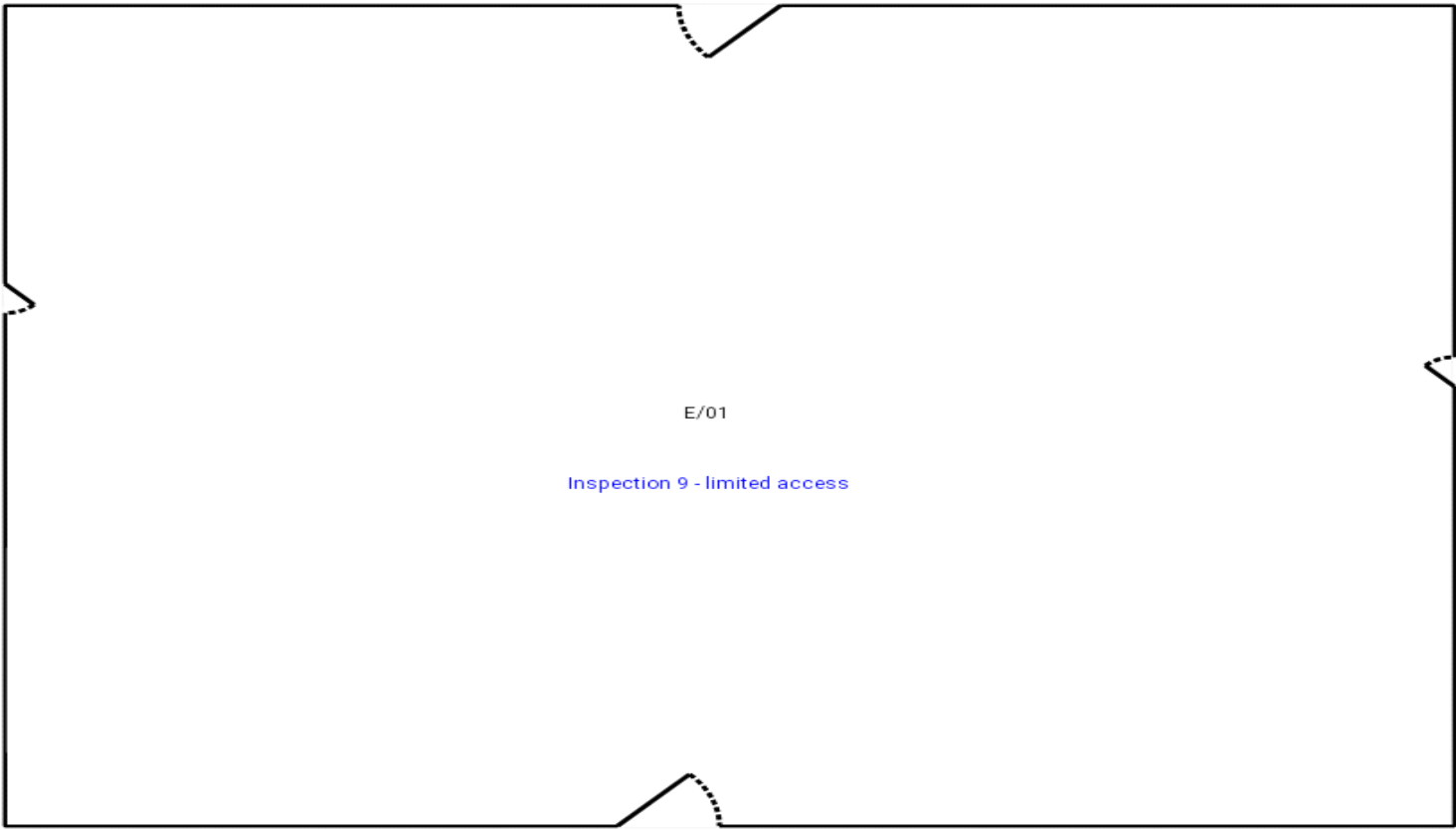
Version Number : 1

Results

Project Reference	Sample Location and Description	Asbestos Fibre Type	Presumptive Product Type
JW004072	Zone 5 - HRSG Building, Ground Floor, HRSG building – gasket to pipework flange	No Asbestos Detected	Non Asbestos Textiles/Paper
JW004073	Zone 5 - HRSG Building, Ground Floor, HRSG building – gasket to pipework flange	No Asbestos Detected	Non Asbestos Textiles/Paper
JW004074	Zone 5 - HRSG Building, Ground Floor, HRSG building – woven expansion	No Asbestos Detected	Non Asbestos Textiles/Paper
JW004075	Zone 5 - HRSG Building, Ground Floor, HRSG building – gasket to	No Asbestos Detected	Non Asbestos Textiles/Paper
JW004076	Zone 5 - HRSG Building, Ground Floor, HRSG building – gasket to pipework flange	Chrysotile	Asbestos Textiles/Paper

Please Refer to Page 1 of Certificate of Analysis for pertinent details. This Report is only Valid when issued as a complete document with authorising signature on Page 1.

Appendix 5 – Plans



Client: Triton Power
Site: Zone 5
Building: Zone 5 - HRSG Building
Floor: External
UPRN No: N/A

Plan Key:

Red Text = Positive Item

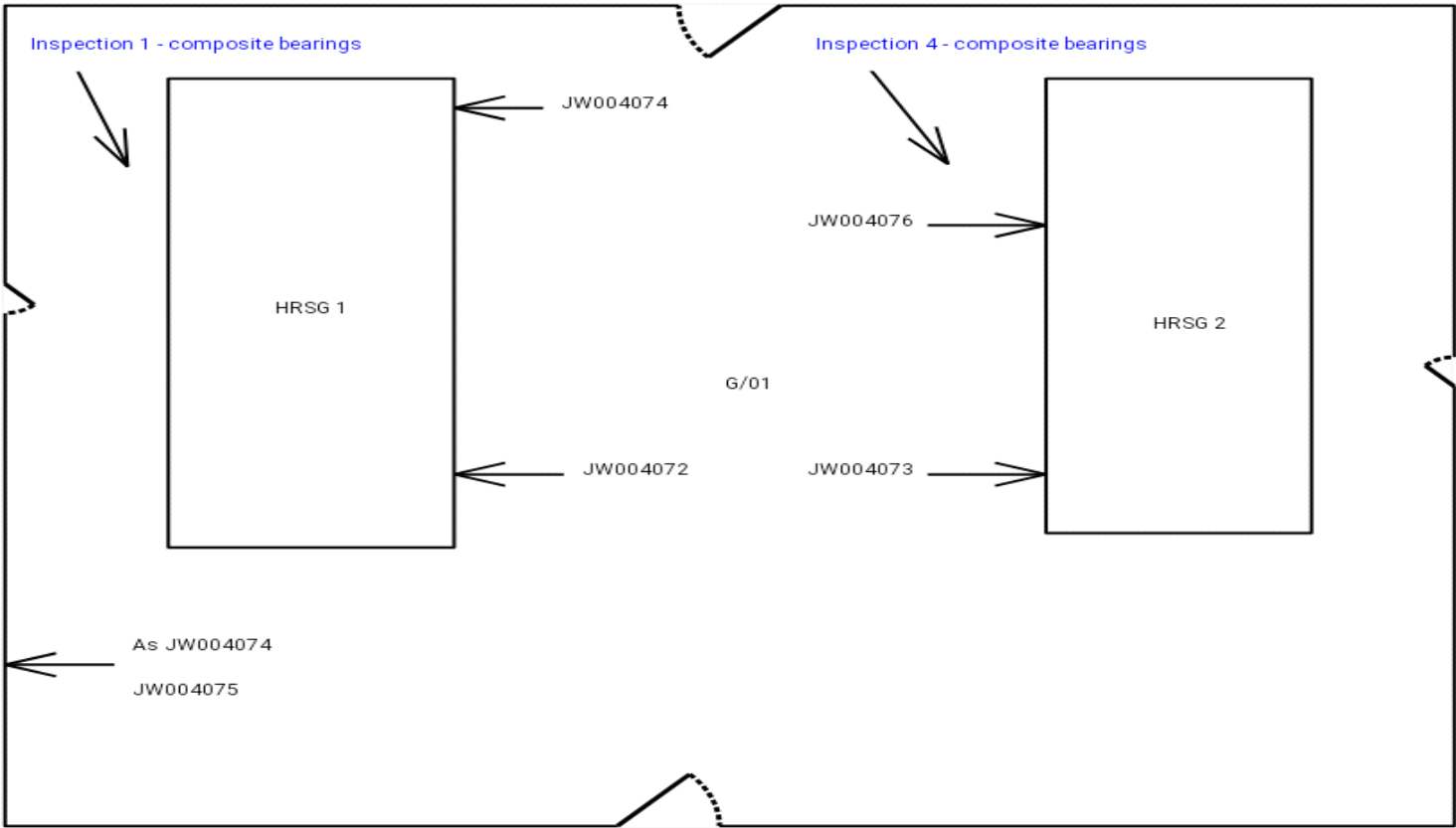
Blue Text = No Access Item

Black Text = No Asbestos Detected Item

Positive or Strongly Presumed Asbestos in area / room

No Access within or to area / room





Client: Triton Power
Site: Zone 5
Building: Zone 5 - HRSG Building
Floor: Ground Floor
UPRN No: N/A

Plan Key:

Red Text = Positive Item

Blue Text = No Access Item

Black Text = No Asbestos Detected Item

 Positive or Strongly Presumed Asbestos in area / room

 No Access within or to area / room



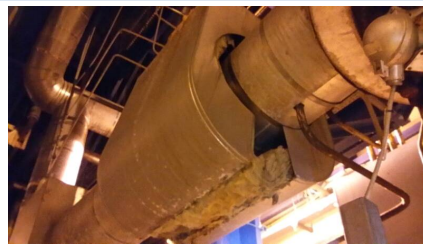
Appendix 6 – Survey Intrusion Photographs



Inspection of pipework flange



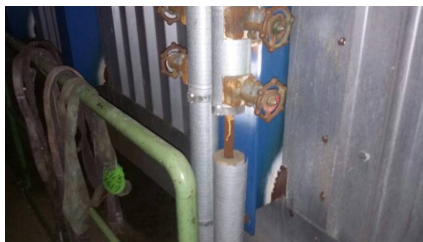
Inspection of pipework flanges



Inspection of pipework flange



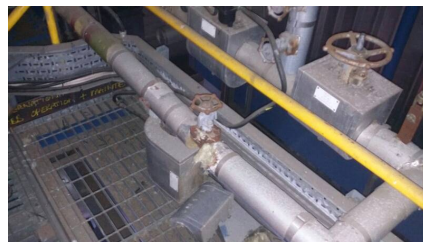
Inspection of pipework flange



Intrusion into pipework



Inspection of gasket



Inspection of valve



Intrusion into pipework insulation

Asbestos Demolition Survey

Zone 6
Triton Power
Deeside Power Station
Weighbridge Road
Flintshire
CH5 2UL



10118



10118

Sentinel Environmental Consultancy Ltd
Unit 17 Gwenfro
Technology Park
Wrexham
LL13 7YP

Company Details
Email: enquiries@sentinelenvironmental.co.uk
Tel: 0333 3058769

1. Executive Summary [Conclusions and actions]
2. Report Summary
3. Introduction - Purpose, Aims and Objectives
4. Agreed Scope, Caveats and Limitations
5. Survey Method
6. Exclusions and Caveats
7. Sampling and Analysis
8. Survey Results - Interpretation
9. Recommendations

APPENDICES - Survey Results

- Appendix 1 - Asbestos Register - Results
- Appendix 2 - Survey Data Sheets
- Appendix 3 - Areas Surveyed
- Appendix 4 - Analysis Certificates
- Appendix 5 - Plans
- Appendix 6 - Intrusion Photographs

1.0 Executive summary:

This Executive Summary provides details on :

- | the locations with identified (or presumed) ACMs;
- | areas not accessed;
- | ACMs with high material assessment scores;
- | clear notes on any actions (and priorities).

Asbestos containing materials have been identified during the Demolition Survey and the specific areas are categorized below in order according to the initial Material Risk Assessment made by Sentinel Environmental Consultancy Ltd.

HIGH RISK MATERIALS - SCORES 10+

Asbestos in poor condition, or asbestos debris/contamination has been identified within the following areas listed in the table below. It is recommended that risk assessment (s) are undertaken to ensure that Regulation 4, Regulation 10, Regulation 11, and Regulation 16 of the Control of Asbestos Regulations 2012 are complied with.

Building	Floor	Room	Item	Material	Risk assessment Score	Tentative Recommendations
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There were no results found.

MEDIUM RISK MATERIALS - SCORES 7-9

Asbestos containing materials, which are unsealed or damaged, have been identified within the following areas listed in the table below. It is recommended that remedial work to seal or remove these materials is undertaken as a priority and that air monitoring is carried out within adjacent areas in order to assess airborne fibre levels.

Building	Floor	Room	Item	Material	Risk assessment Score	Tentative Recommendations
There were no results found.						

LOW RISK MATERIALS - SCORES 1-6

Asbestos Containing Materials have been identified which are in good condition, A management policy and plan need to be implemented to manage these materials safely.

Building	Floor	Room	Item	Material	Risk assessment Score	Tentative Recommendations
There were no results found.						

1.0 Executive summary:

PRESUMED ASBESTOS/NO ACCESS AREAS



Asbestos Containing Materials (ACMs) have been presumed as being present to the following areas where access could not be gained. Areas which have not been accessed should be presumed to contain asbestos until proven otherwise.

Building	Floor	Room/Area	Tentative Recommendation	Surveyor Notes
There were no results found.				

Building Notes:

Internal notes: N/A
External notes: N/A

2.0 Report Summary:

Name and address of site:	Zone 6, Triton Power, Deeside Power Station, Weighbridge Road, Flintshire		
Name and address of client:	Triton Power, Triton Power, Deeside Power Station, Weighbridge Road, Flintshire		
Client contact:	Colin Brooks		
Type of survey:	Demolition Survey		
Date of survey:	19 Feb 2021		
Report Revision Number:	1		
TEAMS internal job number:	J007547		
Lead surveyor[s]:	Adam Yates	Signature:	
Technically reviewed by:	Luke Jones	Signature:	
Report issue date:	8 Mar 2021		

3.0 Introduction/Objectives:

Sentinel Environmental Consultancy Ltd received an order of confirmation to undertake a Demolition Survey from Triton Power. This order has been accepted on the basis of the original quotation and our terms and conditions of business.

The order relates to a Demolition survey of:

Zone 6
Triton Power
Deeside Power Station
Weighbridge Road
Flintshire
CH5 2UL

The survey was carried out by Adam Yates, Declan Hughes.

The Type of survey selected / requested by the client was a Demolition survey.

This survey was carried out in accordance with documented in house procedures TOP02 surveying procedures, which are based on the HSE Guidance document HSG 264.

3.1 Purpose of Survey

The purpose of this Demolition Survey is to help the duty holder identify asbestos in these premises, prior to Demolition Works. It provides sufficient information to help the tendering process for removal works prior to any work starting. However it is strongly recommended that any asbestos removal should be undertaken against a detailed specification. We further recommend the appointed removal contractor should attend the site to confirm for themselves the quantities and location of asbestos to be removed, prior to costing.

3.2 Aim of Survey

The aim of the survey was to;

1. Locate and record the location, extent, and product type as far as reasonably practicable of known or presumed ACM's.
2. Inspect and record information on the accessibility, condition and surface treatment of know or presumed ACM's
3. Determine and record the asbestos type based on sampling or by making a presumption based on product type and appearance
4. Locate all ACM's within the fabric of the building prior to demolition.

3.0 Introduction/Objectives (Cont):

- Type of Survey

3.3 Type of Survey – Demolition Survey

Demolition surveys are intended to locate all asbestos within the building. It is a disruptive, fully intrusive survey that involves destructive inspection techniques that penetrate the building structure extensively. This involves breaking into floors, through walls, into wall voids ceilings, cladding, boxing, as necessary to gain access to all areas, including the inner fabric of the building. A full sampling programme is undertaken to identify possible ACM's and estimate their quantities.

The survey is designed to be used to help the tendering process, and should be used to start generating a specification for tendering the removal of ACM's from the building prior to demolition.

Whilst all asbestos materials have been identified as far as is reasonably practicable, some asbestos materials may remain unidentified buried within the fabric of the building during the survey. Asbestos shuttering buried within concrete slabs, asbestos hidden by structural supports, asbestos hidden behind other asbestos products, and building structures which are unsafe to fully access are potential locations.

It must be presumed that asbestos may remain unidentified to these type of areas and if suspect materials are uncovered during demolition then samples should be taken for analysis.

4.0 Agreed Scope, Caveats and Exclusions

4.1 Agreed Scope

Sentinel Environmental Consultancy Ltd have taken measures to ensure a sufficient exchange of information has been carried out with the duty holder / client representative prior to undertaking this survey. This survey has been carried out under the agreed scope outlined in the quotation and terms and conditions of the business. Any significant changes from the agreed scope are clearly identified and agreed with the client prior to issue of the Report.

Description, Current and Historical Use of Property	Industrial property type
Number of Buildings ; age, type and construction details	2 no. buildings, traditionally constructed 1990s
Estimated or known number of rooms	2 no.
Unusual features or underground areas	Not applicable to survey
Details of alterations to Building (previous extension, refurbishment or demolition works)	Minor works evident, full details unknown
Building Listed or within Conservation Area	No listed status
Surrounding areas & building structures included in scope	Targeted to Zone 6 buildings only
Existing Plans for the Site provided (are plans required to be issued within a specific format)	Plans drawn by surveyor
Proposed Plans and Specification for scope of works	N/A
Building Occupied or Vacant	Vacant
Access Restrictions (working at height)	No access restrictions
Specialist requirements (access to confined spaces / heights where MEWP / Mobile Tower required)	No specialist requirements
Person responsible for arranging access	Arranged via client
Site Specific Hazards	Covid 19 - refer to RAMS & SOP
Photographs to be collected	Yes
Bulk Sampling Requirements	As per HSG 264
Previous Asbestos Information available and whether this information will be used as 3rd party data with the Survey	Previous register provided by client
Client specific requirements ; data extract/ CD / PDF copy / email only	No specific requirements

4.0 Agreed Scope, Caveats and Exclusions (Continued):

4.2 The following areas / elements have been agreed to be included or excluded from the scope, please note inspections are representative across the building, supporting photographs for intrusive inspections can be found in Appendix 6 :

Building Element	Included / Excluded	Survey Technique	Reinstatement Included
Solid wall cavities	Included	Inspection hole created to inspect cavity between walls inspected	No - all areas left safe
Removal of window sills	Included	Window sills removed to inspect beneath	No - all areas left safe
Removal of vent covers	Included	Vent covers removed to inspect behind	No - all areas left safe
Partition wall cavities	Included	Inspection holes created to inspect within / behind partition panels	No - all areas left safe
Above fixed suspended ceilings	Included	Access point created within fixed ceiling to inspect void	No - all areas left safe
Within boxings or risers	Included	Boxing panels and or cover panels to risers removed	No - all areas left safe
Floor voids, removal of flooring	Included	Floor boards lifted to inspect voids	No - all areas left safe
Within fire doors	Included	Inspection hole created to inspect lining of fire door	No - all areas left safe
Beneath fixed flooring materials	Included	Flooring lifted to inspect beneath	No - all areas left safe
Behind skirting and door frames	Included	Skirting board and door frames removed to inspect behind	No - all areas left safe
Beneath or behind furniture	Included	Furniture moved to inspect	No - all areas left safe
Beneath non asbestos insulation	Included	Non asbestos insulation to be removed	No - all areas left safe
Behind non asbestos external soffits / fascias	Included	Non asbestos soffits / fascias inspected beneath	No - all areas left safe
Roof voids Inspection	Included	Roof Voids accessed and inspected	No - all areas left safe
Fireplace / Chimney Breast	Not applicable	Chimney breast inspected	Not applicable

4.3 Agreed Caveat and Limitations

The Survey has been carried out with the following specific caveats agreed with the Client. Areas or items excluded from a survey must be presumed to contain Asbestos.

Item Excluded from Survey	Comments
Within electric switchgear, fuse boxes, plant and other associated services.	Agreed with client not to be inspected as a live service supply which could not be isolated during the Survey
Within operational plant and machinery including boilers / calorifiers / lift machinery etc.	Agreed with client not to be inspected as a live service supply which could not be isolated during the Survey
Access behind / above existing ACM's which would require the use of a LARC and enclosure.	Agreed with client not to be inspected behind / above
Intrusion through solid ceiling slab or solid walls requiring additional specialist support services.	Agreed with client not to be inspected beneath or within
Below external ground level	Agreed with client not to be inspected

5.0 Survey Method

5.1 This survey has been undertaken in accordance with HSG264 and Sentinel Environmental Consultancy Ltd in house procedures (TOP02 Surveying Procedure).

5.2 Clients of Sentinel Environmental Consultancy Ltd have agreed to our terms and conditions and accepted our surveying approach, our sampling strategy, and our standard planning, surveying and reporting format unless they have made specific requests to the contrary.

5.3 The information provided by the client or their representative is recorded within the desk top review and survey planning stage and has been used to establish the scope of the survey.

5.4 Photographs of suspected ACM's, limited access areas / no access areas are taken at the time of the survey unless the client expressly requests otherwise. Sampling points and suspected ACM's are not identified with labels unless the client expressly requests otherwise.

5.5 All items examined by the surveyor at the time of the survey are listed in the inspection detail of this report. This detail includes those items believed by the surveyor not to contain asbestos and an appropriate categorisation of their material composition is given. Employing this rationale, the surveyor can use experience and judgement to form a reasoned argument that there is evidence to suggest that the material may not contain asbestos. Periodically 'non-asbestos' building materials may be sampled by way of a method control to further support the surveyor's argument. These materials do not bear any risk assessment detail.

5.6 Areas that could not be accessed were presumed to have ACM's present until proven otherwise. Each area requiring further inspection is documented within the Executive summary (Inaccessible areas). Inaccessible areas are also shown on the plan drawings (Appendix 5)

5.6 Areas that cannot be accessed are presumed to have ACM's present until proven otherwise. Each area requiring further inspection is documented within the Executive summary (Inaccessible areas). Inaccessible areas are also shown on the plan drawings (Appendix 5)

5.7 Materials that cannot be accessed and in the surveyor's opinion could be dismissed are presumed to be ACMs unless proven otherwise. Materials that are not sampled but, in the surveyor's opinion, have a similar appearance, location and function as a previously sampled material are strongly presumed to be similar to the sampled material.

5.8 In the case of a material or materials being encountered that the surveyor suspects, following visual assessment, as containing asbestos but cannot be sampled for reasons of practicality, that material is strongly presumed to contain asbestos. An assessment (where possible) of the material's extent and condition is made. Materials that are 'strongly presumed' to be similar to a material that has already been sampled are referenced against the original sampled material.

5.9 Intrusive damage that is required to gain access to an area/location that is within the scope of the survey has been agreed with the client or the client's representative. Any remedial action is put in place before such action is attempted. If remedial action cannot be arranged, no attempt to access the area is made and the reasons recorded. The area/location is presumed to have ACM's present until proven otherwise.

5.10 Older electrical equipment, which cannot be shown to contain ACM's is presumed to have ACM's present unless, in the surveyors professional opinion, such items can be excluded.

6.0 Exclusions and Caveats:

Where suspect asbestos containing materials e.g. ceiling finishes, board materials etc exist no attempt (unless otherwise stated) will be made to investigate behind these materials. Sentinel Environmental Consultancy has a duty under Regulation 16 of the Control of Asbestos Regulations (2012) to prevent or reduce the spread of asbestos; penetration of such materials without appropriate control measures may be in contravention of this duty.

Specific areas excluded within this survey report are listed within the executive summary.

This report does not include investigations into land contamination associated with asbestos or any other contaminants.

7.0 Sampling and Analysis:

7.1 The object of bulk sampling is to identify the nature of any visible ACM. The bulk sample description and analysis results can be found in Appendix 4 of this report – The analysis certificate.

Bulk samples are taken in accordance with documented in house procedures (TOP02 Surveying Procedure) following guidelines detailed in HSG264 'The Survey Guide' and HSG248 'The Analyst Guide'. The quantity of samples taken will be minimised by using 'strongly presumed'. Materials that are 'strongly presumed' to be similar to a material that has already been sampled will be recorded in the comments section of the survey record and referenced against the original sampled material.

7.2 All samples taken during this survey have been analysed by a laboratory holding UKAS accreditation to ISO 17025.

7.3 The homogeneity of asbestos containing materials can differ depending on their type. Typically, homogeneous materials include sprayed coatings, insulating board and asbestos cement products. Other materials are typically less homogeneous including pipe lagging (due to patch repairs, hand mixing at time of application), textured coatings (due to low concentration of asbestos fibre and hand application), composites (due to low concentration of asbestos fibre and material matrix). Whilst sampling frequencies / techniques and analysis methods attempt to address the issue of non-homogeneity it should be realised that sampling in accordance with HSG 264 and analysis in accordance with HSG 248 cannot always obviate the problems of determining asbestos fibre content in non-homogeneous materials. The results of sample analysis presented in this report therefore pertain to the samples analysed and so relate only to the time at which sampling took place and to the conditions prevailing during that time.

Survey Results

8.1 The results of the survey inspections and sampling undertaken are recorded on the enclosed Survey Data Sheets (appendix 2), Asbestos Register (appendix 1) and Non-Asbestos Material Register (appendix 3). Where asbestos containing material have been identified or presumed to be present then a Material Assessment Algorithm has been calculated as detailed in HSG 264 and reproduced in the table below:

8.2 Within the survey data sheets the individual scores in brackets, for each sample variable, are added together to form the final material risk assessment algorithm score.

Material Risk Assessment Algorithm

Product type [or debris from product]

Score	Examples of scores
1	Asbestos reinforced composites [plastics, resins, mastics, roofing felts, vinyl floor tiles, semi- rigid paint, decorative finishes and asbestos cement etc]
2	Asbestos insulating board, mill boards, other low-density boards, textiles, gaskets, ropes and woven materials and asbestos paper.
3	Thermal insulation [e.g. pipe and boiler lagging], sprayed asbestos, loose asbestos, asbestos mattresses and packing.

Extent of damage/deterioration

Score	Examples of scores
0	Good condition: no visible damage
1	Low damage: a few scratches or surface marks, broken edges on boards or tiles, etc.
2	Moderate damage: significant breakage of materials or several small areas where material has been damaged exposing fibrous edges.
3	High damage or deterioration of materials, sprays and thermal insulation. Visible asbestos contamination by debris or residues.

Surface treatment

Score	Examples of scores
0	Composite materials containing asbestos, reinforced plastics, resins, vinyl tiles
1	Enclosed sprays or insulation, AIB [with exposed face encapsulated], cement sheets, etc.
2	Unsealed AIB, encapsulated insulation and sprays.
3	Unsealed insulation and sprays.

Asbestos Type

Score	Examples of scores
1	Chrysotile
2	Amphibole asbestos (excluding Crocidolite)
3	Crocidolite

Risk Category	Risk	Score Range	Fibre release potential
R1	HIGH	Material Score 10	High risk with a high potential to release fibres if disturbed
R2	MEDIUM	Material Score Between 7 and 9	Medium risk with a medium potential to release fibres if disturbed
R3	LOW	Material Score 6 or below	Low risk with and having low potential to release fibres if disturbed

9.0 Recommendations:

9.1 To comply with and ensure that the requirements of section 2 & 3 of the Health and Safety at Work Act (as amended) 1974, the Management of Health and Safety at Work Regulations 1999, the Control of Asbestos Regulations 2012 and the Control of Substances Hazardous to Health 2002 are met, the following recommendations should be implemented:

9.2 Undertake suitable and sufficient Risk Assessments of identified asbestos containing materials against normal occupation and maintenance operations, in compliance with Regulations 3 of the Management of Health & Safety at Work Regulations 1999 and Regulation 6 of the Control of Asbestos Regulations 2012.

9.3 The findings of the survey be brought to the attention of those persons who are likely to come in contact with asbestos, in compliance with Section 2 and 3 of the Health and Safety at Work Act (as amended) 1974 and Regulation 10 of the Control of Asbestos Regulations 2012.

9.4 Implement an Asbestos Management Policy, Plan and review process in compliance Regulation 4 of the Control of Asbestos Regulations 2012.

9.5 Instigate regular inspections, to record and update details of retained asbestos containing materials.

9.6 Review the arrangement under the management plan in accordance with regulation 4 of the CAR 2012.

9.7 During the course of the survey it may not have been possible to access all areas of the site. Details of areas requiring further access are identified within the Data Sheets of this report. In accordance with HSG 264, asbestos has been presumed to be present within these areas and should be treated accordingly until further inspection and analysis of building fabric and services proves otherwise.

9.8 Where asbestos debris or asbestos in poor condition has been found it is recommended that access is restricted and or controlled to these areas in accordance with Regulation 11 and Regulation 16 of the Control of Asbestos Regulations 2012.

9.9 If we have identified asbestos materials in poor condition, it is recommended that air monitoring is carried out within a number of areas where asbestos materials have been identified in order to assess airborne fibre levels within adjacent occupied areas in relation to the clearance indicator, as documented by HSG 248 the Analyst Guide.

9.10 All identified asbestos to be appropriately identified and subject to risk assessment, management, and re-inspection.

9.11 Site specific recommendations in respect to the location and condition of asbestos materials identified during the course of this inspection are detailed in the Survey Data Sheets and Asbestos register. In considering the management of asbestos materials identified to date, these recommendations should be taken into consideration.

9.12 In accordance with the Control of Asbestos Regulations 2012 the removal of ACM's fall into one of the three categories below:

Licensed Asbestos Removal

Is defined as any work, which is undertaken on a friable asbestos product or which is likely to exceed the control limit of 0.1f/cm³. A licensed asbestos removal contractor must undertake this work and a 14-day notice must be given to the HSE prior to the commencement of the work.

Notifiable Non Licensed Works

If work on an ACM causes the deterioration of the matrix material in which the asbestos fibres are firmly linked, then these works are Notifiable Non Licensed Work (NNLW). Work of this type does not require an asbestos removal licence, but the company undertaking the work must have the following:

- Notification of the work to the relevant enforcing authority prior to the work commencing.
- Medical examinations to assess each worker's state of health to be carried out, before any possible – exposure to asbestos. Then re-examinations every three years.
- Insurance for working with asbestos containing materials.
- A register of work to be kept by the employer for each employee exposed to asbestos.

Non Notifiable Non Licensed work

-Non-Licensed Works Is defined as any work, which involves short, non-continuous maintenance activities, during which only nonfriable materials are removed. It can also involve the removal of non-friable materials for refurbishment purposes. However, work of this type is only applicable where the matrix material in which the asbestos fibres are firmly linked remains intact.

-If a non-licensed contractor is appointed to undertake the removal works on the above materials, the following points must be adhered to:

-All operatives undertaking work on the material must have asbestos awareness training and practical asbestos training.

9.13 It is recommended that further intrusive investigations and sampling be carried out in accordance with HSG.264, where any major refurbishment, maintenance, installation or similar activity may expose asbestos materials that have remained inaccessible during the survey. This should be as a refurbishment/demolition survey as documented in HSG264.

9.14 The findings of this report should not be solely relied upon in obtaining costs for proposed asbestos abatement work. Any proposed abatement/removal of the asbestos should be undertaken against a detailed specification.

9.15 Any recommendations made within this report are made on the basis of findings collated at the time of survey. Recommendations should undergo careful client evaluation prior to a final management decision being made. Sentinel Environmental Consultancy Limited does not accept any responsibility for any works carried out as a result of recommendations made within this report.

Appendix 1 - Asbestos Register


Building	Floor	Location /Room	S,P,SP,AS Sample No	Product Type	Condition	Surface Treatment	Asbestos Type	Quantity	Accessibility	Material Score	Recommendation	Additional Comments
There were no results found.												


KEY:

S – Sampled, P – Presumed, SP – Strongly Presumed, AS – Cross reference to former sample

Appendix 2 – Survey Data Sheets

Service Type	Demolition Survey		
Report Revision Number	1	Surveyors	Adam Yates
TEAMS Job Number	J007547	Survey Date	19 Feb 2021 to 23 Feb 2021
Site Address:	Zone 6 Triton Power Deeside Power Station Weighbridge Road Flintshire CH5 2UL	Bulk Analysis Laboratory	N/A
		Sample Analysis Date	24 Feb 2021

	Survey Date:	Lead Surveyor	Survey Type	Floor	Analysis
	19 Feb 2021 to 23 Feb 2021	Adam Yates	Demolition Survey	External	No Asbestos Detected
	Building	Room	Item	Quantity	
	Zone 6 - Fuel Oil Pumphouse	Externals E/01	gasket to pipework flange to fuel oil unload pipework	18no.	
	Sample No (S,SP,P,As)	Product Type	Surface Treatment	Condition	Accessibility
	JW004077 (S)	N/A	N/A	N/A	N/A
Material Risk Score					
N/A					
Recommended action					
No further action required					
Surveyor comments					
N/A					

	Survey Date:	Lead Surveyor	Survey Type	Floor	Analysis
	19 Feb 2021 to 23 Feb 2021	Adam Yates	Demolition Survey	Ground Floor	N/A
	Building	Room	Item	Quantity	
	Zone 6 - Fuel Oil Store	Fuel oil store G/01	No suspect materials found within fuel oil store	N/A	
	Sample No (S,SP,P,As)	Product Type	Surface Treatment	Condition	Accessibility
	Visual (P)	N/A	N/A	N/A	N/A
Material Risk Score					
N/A					
Recommended action					
No further action required					
Surveyor comments					
N/A					

KEY:

S – Sampled, P – Presumed, SP – Strongly Presumed, AS – Cross reference to former sample

Appendix 3 - Areas Surveyed

Building	Floor	Room No:	Room Type	Item
Zone 6 - Fuel Oil Pumphouse	External	E/01	Externals	metal roof, breeze block walls, metal cladding to walls, plastic & metal rainwater goods, plastic damp proof course, modern mastic to expansion joint, mmmf pipework insulation, plastic tank
Zone 6 - Fuel Oil Pumphouse	Ground Floor	G/01	Fuel oil tanks	metal underside of roof, breeze block walls, concrete floor
Zone 6 - Fuel Oil Pumphouse	Ground Floor	G/02	Fuel oil pumphouse	metal underside of roof, breeze block walls, concrete floor, unlagged metal pipework, modern electrics & switchgear, metal cladding to walls, metal boxing to beams, mmmf packing to cable penetration, no asbestos observed to heater, metal upstands to extractor
Zone 6 - Fuel Oil Store	External	E/01	Externals	metal roof, breeze block walls, metal cladding to walls, plastic & metal rainwater goods, plastic damp proof course
Zone 6 - Fuel Oil Store	Ground Floor	G/01	Fuel oil store	metal underside of roof, breeze block walls, concrete floor, metal cladding to walls, metal tank, modern mastic to expansion joint

Appendix 4 – Analysis Certificates

Sentinel Environmental Consultancy Limited
Head Office : Unit 17 Gwenfro, Technology Park, Wrexham, LL13 7YP

Certificate of Analysis

Asbestos Fibre Identification in Bulk Sample

Client: Triton Power
Address: Triton Power, Deeside Power Station,
Weighbridge Road, Flintshire, CH5 2UL
Project /Certificate Reference : J007547
Version Number : 1

Site Address: Zone 6, Triton Power, Deeside Power
Station, Weighbridge Road, Flintshire, CH5 2UL

Analyst Signature:



Analyst Name: Lucy Caroe

Samples Collected by: Adam Yates
Date Samples Received: 24 Feb 2021
Analysis Date: 24 Feb 2021
Certificate Issue Date: 8 Mar 2021

Asbestos Fibre Type :

Chrysotile= "White asbestos", Amosite= "Brown asbestos", Crocidolite = "Blue asbestos" Refer to H.S.E. publication HSG 264, for the approximate percentage asbestos content within the presumptive product type.

Analysis Method :

The analysis of the sample(s) detailed on this report is UKAS accredited. Analysis was performed in accordance with our internal Technical Operating Procedures and Health & Safety Executive publication HSG 248 at our Head Office.

Disclaimer :

Any interpretations or opinions expressed in this report are outside the scope of UKAS accreditation. The stated "presumptive product type" is a subjective assessment by our analyst, it is not determined by measurement and it is an opinion. Sentinel Environmental cannot accept responsibility for any discrepancy or inaccuracy arising from collection or labelling of samples by the client. Samples are retained for 6 months only after the analysis date unless requested or contracted otherwise.

Version Revision / Changes : None

Authorisation Signature :



Daniel Roberts - Director

Sentinel Environmental Consultancy Limited
Head Office : Unit 17 Gwenfro, Technology Park, Wrexham, LL13 7YP

Certificate of Analysis

Project /Job Reference : J007547
Certificate Issue Date : 08/03/2021

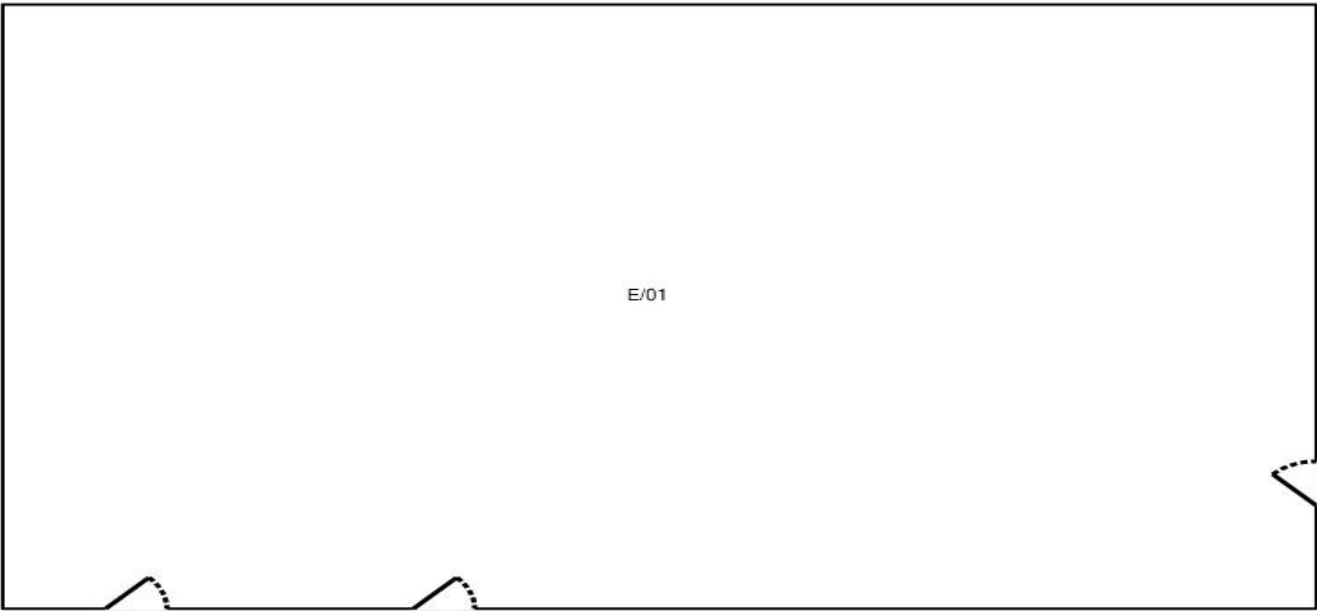
Version Number : 1

Results

Project Reference	Sample Location and Description	Asbestos Fibre Type	Presumptive Product Type
JW004077	Zone 6 - Fuel Oil Pumphouse, External, Externals – gasket to pipework flange	No Asbestos Detected	Non Asbestos Textiles/Paper

Please Refer to Page 1 of Certificate of Analysis for pertinent details. This Report is only Valid when issued as a complete document with authorising signature on Page 1.

Appendix 5 – Plans



JW004077

Client: Triton Power
Site: Zone 6
Building: Zone 6 - Fuel Oil Pumphouse
Floor: External
UPRN No: N/A

Plan Key:

Red Text = Positive Item

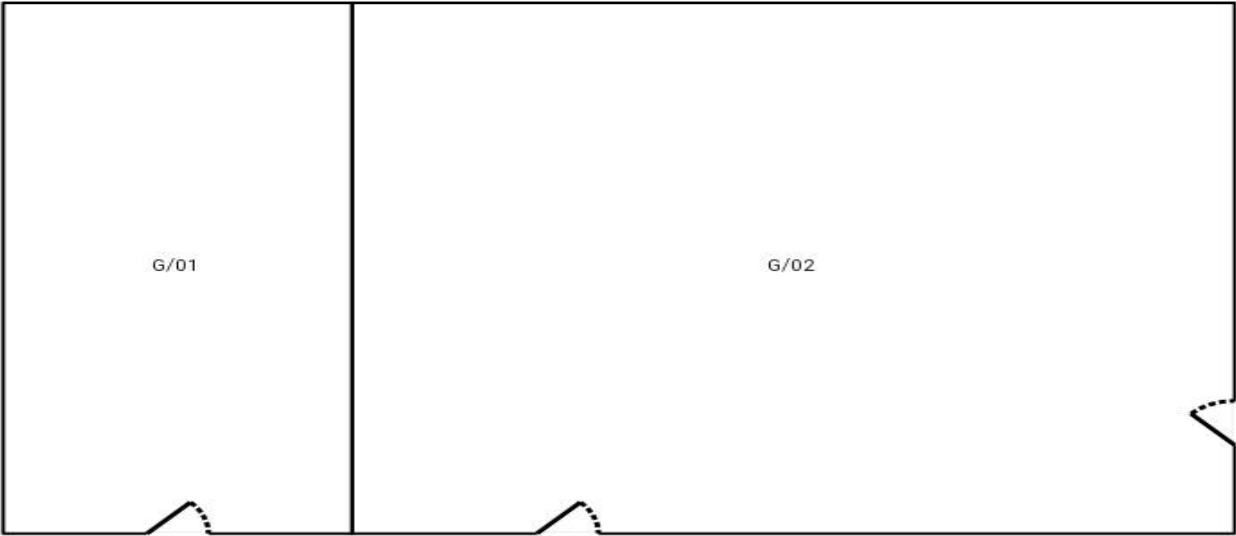
Blue Text = No Access Item

Black Text = No Asbestos Detected Item

Positive or Strongly Presumed Asbestos in area / room

No Access within or to area / room





Client: Triton Power
Site: Zone 6
Building: Zone 6 - Fuel Oil Pumphouse
Floor: Ground Floor
UPRN No: N/A

Plan Key:

Red Text = Positive Item

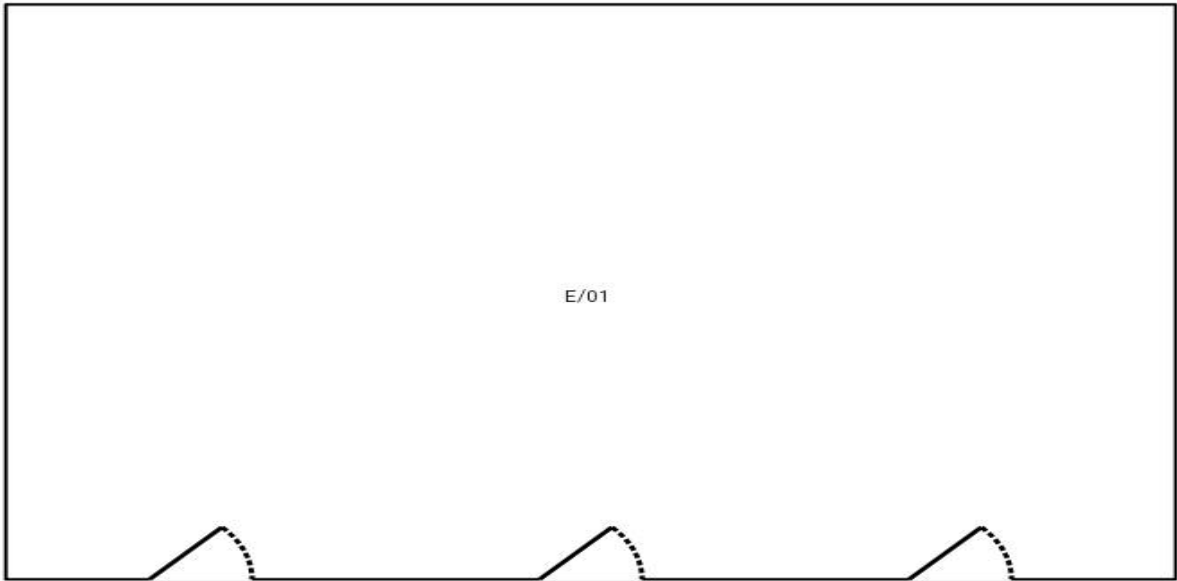
Blue Text = No Access Item

Black Text = No Asbestos Detected Item

Positive or Strongly Presumed Asbestos in area / room

No Access within or to area / room





Client: Triton Power
Site: Zone 6
Building: Zone 6 - Fuel Oil Store
Floor: External
UPRN No: N/A

Plan Key:

Red Text = Positive Item

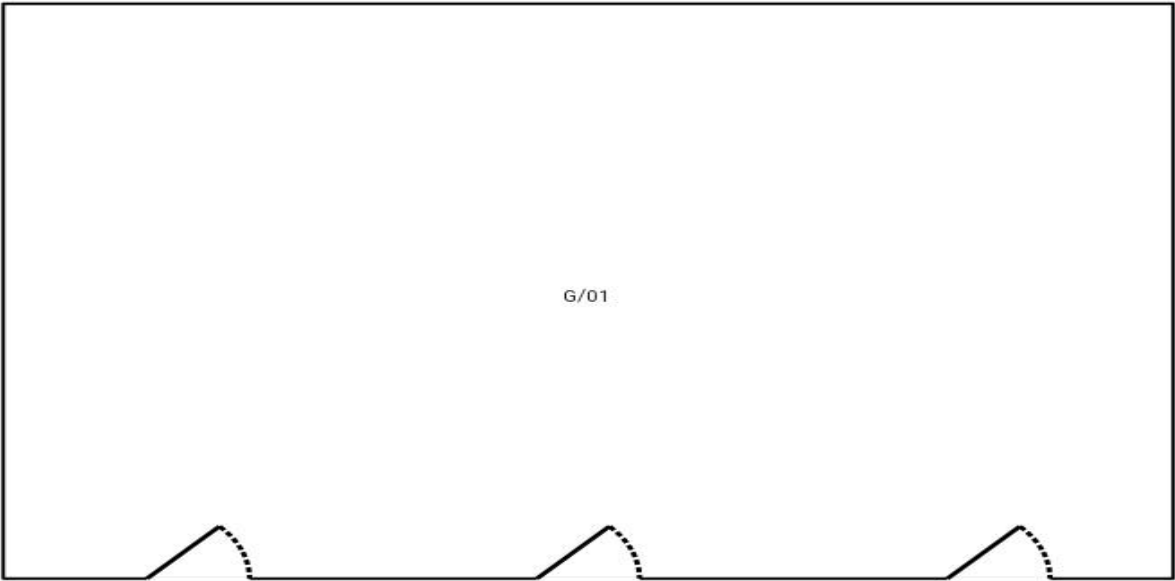
Blue Text = No Access Item

Black Text = No Asbestos Detected Item

Positive or Strongly Presumed Asbestos in area / room

No Access within or to area / room





Client: Triton Power
Site: Zone 6
Building: Zone 6 - Fuel Oil Store
Floor: Ground Floor
UPRN No: N/A

Plan Key:

Red Text = Positive Item

Blue Text = No Access Item


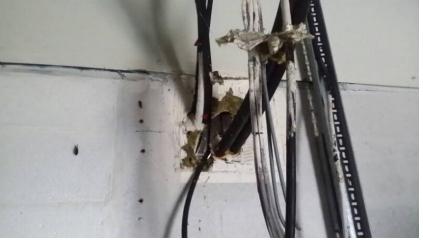

Black Text = No Asbestos Detected Item

Positive or Strongly Presumed Asbestos in area / room

No Access within or to area / room



Appendix 6 – Survey Intrusion Photographs

		
Intrusion into boxing	Intrusion into packing	Modern electrics & switchgear

Asbestos Demolition Survey

Zone 7
Triton Power
Deeside Power Station
Weighbridge Road
Flintshire
CH5 2UL



10118



10118

Sentinel Environmental Consultancy Ltd
Unit 17 Gwenfro
Technology Park
Wrexham
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Company Details
Email: enquiries@sentinelenvironmental.co.uk
Tel: 0333 3058769

1. Executive Summary [Conclusions and actions]
2. Report Summary
3. Introduction - Purpose, Aims and Objectives
4. Agreed Scope, Caveats and Limitations
5. Survey Method
6. Exclusions and Caveats
7. Sampling and Analysis
8. Survey Results - Interpretation
9. Recommendations

APPENDICES - Survey Results

- Appendix 1 - Asbestos Register - Results
- Appendix 2 - Survey Data Sheets
- Appendix 3 - Areas Surveyed
- Appendix 4 - Analysis Certificates
- Appendix 5 - Plans
- Appendix 6 - Intrusion Photographs

1.0 Executive summary:

This Executive Summary provides details on :

- | the locations with identified (or presumed) ACMs;
- | areas not accessed;
- | ACMs with high material assessment scores;
- | clear notes on any actions (and priorities).

Asbestos containing materials have been identified during the Demolition Survey and the specific areas are categorized below in order according to the initial Material Risk Assessment made by Sentinel Environmental Consultancy Ltd.

HIGH RISK MATERIALS - SCORES 10+

Asbestos in poor condition, or asbestos debris/contamination has been identified within the following areas listed in the table below. It is recommended that risk assessment (s) are undertaken to ensure that Regulation 4, Regulation 10, Regulation 11, and Regulation 16 of the Control of Asbestos Regulations 2012 are complied with.

Building	Floor	Room	Item	Material	Risk assessment Score	Tentative Recommendations
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There were no results found.

MEDIUM RISK MATERIALS - SCORES 7-9

Asbestos containing materials, which are unsealed or damaged, have been identified within the following areas listed in the table below. It is recommended that remedial work to seal or remove these materials is undertaken as a priority and that air monitoring is carried out within adjacent areas in order to assess airborne fibre levels.

Building	Floor	Room	Item	Material	Risk assessment Score	Tentative Recommendations
There were no results found.						

LOW RISK MATERIALS - SCORES 1-6

Asbestos Containing Materials have been identified which are in good condition, A management policy and plan need to be implemented to manage these materials safely.

Building	Floor	Room	Item	Material	Risk assessment Score	Tentative Recommendations
There were no results found.						

1.0 Executive summary:

PRESUMED ASBESTOS/NO ACCESS AREAS



Asbestos Containing Materials (ACMs) have been presumed as being present to the following areas where access could not be gained. Areas which have not been accessed should be presumed to contain asbestos until proven otherwise.

Building	Floor	Room/Area	Tentative Recommendation	Surveyor Notes
There were no results found.				

Building Notes:

Internal notes: N/A
External notes: N/A

2.0 Report Summary:

Name and address of site:	Zone 7, Triton Power, Deeside Power Station, Weighbridge Road, Flintshire		
Name and address of client:	Triton Power, Triton Power, Deeside Power Station, Weighbridge Road, Flintshire		
Client contact:	Colin Brooks		
Type of survey:	Demolition Survey		
Date of survey:	22 Feb 2021		
Report Revision Number:	1		
TEAMS internal job number:	J007548		
Lead surveyor[s]:	Adam Yates	Signature:	
Technically reviewed by:	Luke Jones	Signature:	
Report issue date:	8 Mar 2021		

3.0 Introduction/Objectives:

Sentinel Environmental Consultancy Ltd received an order of confirmation to undertake a Demolition Survey from Triton Power. This order has been accepted on the basis of the original quotation and our terms and conditions of business.

The order relates to a Demolition survey of:

Zone 7
Triton Power
Deeside Power Station
Weighbridge Road
Flintshire
CH5 2UL

The survey was carried out by Adam Yates, Declan Hughes.

The Type of survey selected / requested by the client was a Demolition survey.

This survey was carried out in accordance with documented in house procedures TOP02 surveying procedures, which are based on the HSE Guidance document HSG 264.

3.1 Purpose of Survey

The purpose of this Demolition Survey is to help the duty holder identify asbestos in these premises, prior to Demolition Works. It provides sufficient information to help the tendering process for removal works prior to any work starting. However it is strongly recommended that any asbestos removal should be undertaken against a detailed specification. We further recommend the appointed removal contractor should attend the site to confirm for themselves the quantities and location of asbestos to be removed, prior to costing.

3.2 Aim of Survey

The aim of the survey was to;

1. Locate and record the location, extent, and product type as far as reasonably practicable of known or presumed ACM's.
2. Inspect and record information on the accessibility, condition and surface treatment of know or presumed ACM's
3. Determine and record the asbestos type based on sampling or by making a presumption based on product type and appearance
4. Locate all ACM's within the fabric of the building prior to demolition.

3.0 Introduction/Objectives (Cont):

- Type of Survey

3.3 Type of Survey – Demolition Survey

Demolition surveys are intended to locate all asbestos within the building. It is a disruptive, fully intrusive survey that involves destructive inspection techniques that penetrate the building structure extensively. This involves breaking into floors, through walls, into wall voids ceilings, cladding, boxing, as necessary to gain access to all areas, including the inner fabric of the building. A full sampling programme is undertaken to identify possible ACM's and estimate their quantities.

The survey is designed to be used to help the tendering process, and should be used to start generating a specification for tendering the removal of ACM's from the building prior to demolition.

Whilst all asbestos materials have been identified as far as is reasonably practicable, some asbestos materials may remain unidentified buried within the fabric of the building during the survey. Asbestos shuttering buried within concrete slabs, asbestos hidden by structural supports, asbestos hidden behind other asbestos products, and building structures which are unsafe to fully access are potential locations.

It must be presumed that asbestos may remain unidentified to these type of areas and if suspect materials are uncovered during demolition then samples should be taken for analysis.

4.0 Agreed Scope, Caveats and Exclusions

4.1 Agreed Scope

Sentinel Environmental Consultancy Ltd have taken measures to ensure a sufficient exchange of information has been carried out with the duty holder / client representative prior to undertaking this survey. This survey has been carried out under the agreed scope outlined in the quotation and terms and conditions of the business. Any significant changes from the agreed scope are clearly identified and agreed with the client prior to issue of the Report.

Description, Current and Historical Use of Property	Industrial property type
Number of Buildings ; age, type and construction details	1 no. building, traditionally constructed 1990s
Estimated or known number of rooms	4 no.
Unusual features or underground areas	Not applicable to survey
Details of alterations to Building (previous extension, refurbishment or demolition works)	Minor works evident, full details unknown
Building Listed or within Conservation Area	No listed status
Surrounding areas & building structures included in scope	Targeted to Zone 7 building only
Existing Plans for the Site provided (are plans required to be issued within a specific format)	Plans drawn by surveyor
Proposed Plans and Specification for scope of works	N/A
Building Occupied or Vacant	Vacant
Access Restrictions (working at height)	No access restrictions
Specialist requirements (access to confined spaces / heights where MEWP / Mobile Tower required)	No specialist requirements
Person responsible for arranging access	Arranged via client
Site Specific Hazards	Covid 19 - refer to RAMS & SOP
Photographs to be collected	Yes
Bulk Sampling Requirements	As per HSG 264
Previous Asbestos Information available and whether this information will be used as 3rd party data with the Survey	Previous register provided by client
Client specific requirements ; data extract/ CD / PDF copy / email only	No specific requirements

4.0 Agreed Scope, Caveats and Exclusions (Continued):

4.2 The following areas / elements have been agreed to be included or excluded from the scope, please note inspections are representative across the building, supporting photographs for intrusive inspections can be found in Appendix 6 :

Building Element	Included / Excluded	Survey Technique	Reinstatement Included
Solid wall cavities	Included	Inspection hole created to inspect cavity between walls inspected	No - all areas left safe
Removal of window sills	Included	Window sills removed to inspect beneath	No - all areas left safe
Removal of vent covers	Included	Vent covers removed to inspect behind	No - all areas left safe
Partition wall cavities	Included	Inspection holes created to inspect within / behind partition panels	No - all areas left safe
Above fixed suspended ceilings	Included	Access point created within fixed ceiling to inspect void	No - all areas left safe
Within boxings or risers	Included	Boxing panels and or cover panels to risers removed	No - all areas left safe
Floor voids, removal of flooring	Included	Floor boards lifted to inspect voids	No - all areas left safe
Within fire doors	Included	Inspection hole created to inspect lining of fire door	No - all areas left safe
Beneath fixed flooring materials	Included	Flooring lifted to inspect beneath	No - all areas left safe
Behind skirting and door frames	Included	Skirting board and door frames removed to inspect behind	No - all areas left safe
Beneath or behind furniture	Included	Furniture moved to inspect	No - all areas left safe
Beneath non asbestos insulation	Included	Non asbestos insulation to be removed	No - all areas left safe
Behind non asbestos external soffits / fascias	Included	Non asbestos soffits / fascias inspected beneath	No - all areas left safe
Roof voids Inspection	Included	Roof Voids accessed and inspected	No - all areas left safe
Fireplace / Chimney Breast	Not applicable	Chimney breast inspected	Not applicable

4.3 Agreed Caveat and Limitations

The Survey has been carried out with the following specific caveats agreed with the Client. Areas or items excluded from a survey must be presumed to contain Asbestos.

Item Excluded from Survey	Comments
Within electric switchgear, fuse boxes, plant and other associated services.	Agreed with client not to be inspected as a live service supply which could not be isolated during the Survey
Within operational plant and machinery including boilers / calorifiers / lift machinery etc.	Agreed with client not to be inspected as a live service supply which could not be isolated during the Survey
Access behind / above existing ACM's which would require the use of a LARC and enclosure.	Agreed with client not to be inspected behind / above
Intrusion through solid ceiling slab or solid walls requiring additional specialist support services.	Agreed with client not to be inspected beneath or within
Below external ground level	Agreed with client not to be inspected

5.0 Survey Method

5.1 This survey has been undertaken in accordance with HSG264 and Sentinel Environmental Consultancy Ltd in house procedures (TOP02 Surveying Procedure).

5.2 Clients of Sentinel Environmental Consultancy Ltd have agreed to our terms and conditions and accepted our surveying approach, our sampling strategy, and our standard planning, surveying and reporting format unless they have made specific requests to the contrary.

5.3 The information provided by the client or their representative is recorded within the desk top review and survey planning stage and has been used to establish the scope of the survey.

5.4 Photographs of suspected ACM's, limited access areas / no access areas are taken at the time of the survey unless the client expressly requests otherwise. Sampling points and suspected ACM's are not identified with labels unless the client expressly requests otherwise.

5.5 All items examined by the surveyor at the time of the survey are listed in the inspection detail of this report. This detail includes those items believed by the surveyor not to contain asbestos and an appropriate categorisation of their material composition is given. Employing this rationale, the surveyor can use experience and judgement to form a reasoned argument that there is evidence to suggest that the material may not contain asbestos. Periodically 'non-asbestos' building materials may be sampled by way of a method control to further support the surveyor's argument. These materials do not bear any risk assessment detail.

5.6 Areas that could not be accessed were presumed to have ACM's present until proven otherwise. Each area requiring further inspection is documented within the Executive summary (Inaccessible areas). Inaccessible areas are also shown on the plan drawings (Appendix 5)

5.6 Areas that cannot be accessed are presumed to have ACM's present until proven otherwise. Each area requiring further inspection is documented within the Executive summary (Inaccessible areas). Inaccessible areas are also shown on the plan drawings (Appendix 5)

5.7 Materials that cannot be accessed and in the surveyor's opinion could be dismissed are presumed to be ACMs unless proven otherwise. Materials that are not sampled but, in the surveyor's opinion, have a similar appearance, location and function as a previously sampled material are strongly presumed to be similar to the sampled material.

5.8 In the case of a material or materials being encountered that the surveyor suspects, following visual assessment, as containing asbestos but cannot be sampled for reasons of practicality, that material is strongly presumed to contain asbestos. An assessment (where possible) of the material's extent and condition is made. Materials that are 'strongly presumed' to be similar to a material that has already been sampled are referenced against the original sampled material.

5.9 Intrusive damage that is required to gain access to an area/location that is within the scope of the survey has been agreed with the client or the client's representative. Any remedial action is put in place before such action is attempted. If remedial action cannot be arranged, no attempt to access the area is made and the reasons recorded. The area/location is presumed to have ACM's present until proven otherwise.

5.10 Older electrical equipment, which cannot be shown to contain ACM's is presumed to have ACM's present unless, in the surveyors professional opinion, such items can be excluded.

6.0 Exclusions and Caveats:

Where suspect asbestos containing materials e.g. ceiling finishes, board materials etc exist no attempt (unless otherwise stated) will be made to investigate behind these materials. Sentinel Environmental Consultancy has a duty under Regulation 16 of the Control of Asbestos Regulations (2012) to prevent or reduce the spread of asbestos; penetration of such materials without appropriate control measures may be in contravention of this duty.

Specific areas excluded within this survey report are listed within the executive summary.

This report does not include investigations into land contamination associated with asbestos or any other contaminants.

7.0 Sampling and Analysis:

7.1 The object of bulk sampling is to identify the nature of any visible ACM. The bulk sample description and analysis results can be found in Appendix 4 of this report – The analysis certificate.

Bulk samples are taken in accordance with documented in house procedures (TOP02 Surveying Procedure) following guidelines detailed in HSG264 'The Survey Guide' and HSG248 'The Analyst Guide'. The quantity of samples taken will be minimised by using 'strongly presumed'. Materials that are 'strongly presumed' to be similar to a material that has already been sampled will be recorded in the comments section of the survey record and referenced against the original sampled material.

7.2 All samples taken during this survey have been analysed by a laboratory holding UKAS accreditation to ISO 17025.

7.3 The homogeneity of asbestos containing materials can differ depending on their type. Typically, homogeneous materials include sprayed coatings, insulating board and asbestos cement products. Other materials are typically less homogeneous including pipe lagging (due to patch repairs, hand mixing at time of application), textured coatings (due to low concentration of asbestos fibre and hand application), composites (due to low concentration of asbestos fibre and material matrix). Whilst sampling frequencies / techniques and analysis methods attempt to address the issue of non-homogeneity it should be realised that sampling in accordance with HSG 264 and analysis in accordance with HSG 248 cannot always obviate the problems of determining asbestos fibre content in non-homogeneous materials. The results of sample analysis presented in this report therefore pertain to the samples analysed and so relate only to the time at which sampling took place and to the conditions prevailing during that time.

Survey Results

8.1 The results of the survey inspections and sampling undertaken are recorded on the enclosed Survey Data Sheets (appendix 2), Asbestos Register (appendix 1) and Non-Asbestos Material Register (appendix 3). Where asbestos containing material have been identified or presumed to be present then a Material Assessment Algorithm has been calculated as detailed in HSG 264 and reproduced in the table below:

8.2 Within the survey data sheets the individual scores in brackets, for each sample variable, are added together to form the final material risk assessment algorithm score.

Material Risk Assessment Algorithm

Product type [or debris from product]

Score	Examples of scores
1	Asbestos reinforced composites [plastics, resins, mastics, roofing felts, vinyl floor tiles, semi- rigid paint, decorative finishes and asbestos cement etc]
2	Asbestos insulating board, mill boards, other low-density boards, textiles, gaskets, ropes and woven materials and asbestos paper.
3	Thermal insulation [e.g. pipe and boiler lagging], sprayed asbestos, loose asbestos, asbestos mattresses and packing.

Extent of damage/deterioration

Score	Examples of scores
0	Good condition: no visible damage
1	Low damage: a few scratches or surface marks, broken edges on boards or tiles, etc.
2	Moderate damage: significant breakage of materials or several small areas where material has been damaged exposing fibrous edges.
3	High damage or deterioration of materials, sprays and thermal insulation. Visible asbestos contamination by debris or residues.

Surface treatment

Score	Examples of scores
0	Composite materials containing asbestos, reinforced plastics, resins, vinyl tiles
1	Enclosed sprays or insulation, AIB [with exposed face encapsulated], cement sheets, etc.
2	Unsealed AIB, encapsulated insulation and sprays.
3	Unsealed insulation and sprays.

Asbestos Type

Score	Examples of scores
1	Chrysotile
2	Amphibole asbestos (excluding Crocidolite)
3	Crocidolite

Risk Category	Risk	Score Range	Fibre release potential
R1	HIGH	Material Score 10	High risk with a high potential to release fibres if disturbed
R2	MEDIUM	Material Score Between 7 and 9	Medium risk with a medium potential to release fibres if disturbed
R3	LOW	Material Score 6 or below	Low risk with and having low potential to release fibres if disturbed

9.0 Recommendations:

9.1 To comply with and ensure that the requirements of section 2 & 3 of the Health and Safety at Work Act (as amended) 1974, the Management of Health and Safety at Work Regulations 1999, the Control of Asbestos Regulations 2012 and the Control of Substances Hazardous to Health 2002 are met, the following recommendations should be implemented:

9.2 Undertake suitable and sufficient Risk Assessments of identified asbestos containing materials against normal occupation and maintenance operations, in compliance with Regulations 3 of the Management of Health & Safety at Work Regulations 1999 and Regulation 6 of the Control of Asbestos Regulations 2012.

9.3 The findings of the survey be brought to the attention of those persons who are likely to come in contact with asbestos, in compliance with Section 2 and 3 of the Health and Safety at Work Act (as amended) 1974 and Regulation 10 of the Control of Asbestos Regulations 2012.

9.4 Implement an Asbestos Management Policy, Plan and review process in compliance Regulation 4 of the Control of Asbestos Regulations 2012.

9.5 Instigate regular inspections, to record and update details of retained asbestos containing materials.

9.6 Review the arrangement under the management plan in accordance with regulation 4 of the CAR 2012.

9.7 During the course of the survey it may not have been possible to access all areas of the site. Details of areas requiring further access are identified within the Data Sheets of this report. In accordance with HSG 264, asbestos has been presumed to be present within these areas and should be treated accordingly until further inspection and analysis of building fabric and services proves otherwise.

9.8 Where asbestos debris or asbestos in poor condition has been found it is recommended that access is restricted and or controlled to these areas in accordance with Regulation 11 and Regulation 16 of the Control of Asbestos Regulations 2012.

9.9 If we have identified asbestos materials in poor condition, it is recommended that air monitoring is carried out within a number of areas where asbestos materials have been identified in order to assess airborne fibre levels within adjacent occupied areas in relation to the clearance indicator, as documented by HSG 248 the Analyst Guide.

9.10 All identified asbestos to be appropriately identified and subject to risk assessment, management, and re-inspection.

9.11 Site specific recommendations in respect to the location and condition of asbestos materials identified during the course of this inspection are detailed in the Survey Data Sheets and Asbestos register. In considering the management of asbestos materials identified to date, these recommendations should be taken into consideration.

9.12 In accordance with the Control of Asbestos Regulations 2012 the removal of ACM's fall into one of the three categories below:

Licensed Asbestos Removal

Is defined as any work, which is undertaken on a friable asbestos product or which is likely to exceed the control limit of 0.1f/cm³. A licensed asbestos removal contractor must undertake this work and a 14-day notice must be given to the HSE prior to the commencement of the work.

Notifiable Non Licensed Works

If work on an ACM causes the deterioration of the matrix material in which the asbestos fibres are firmly linked, then these works are Notifiable Non Licensed Work (NNLW). Work of this type does not require an asbestos removal licence, but the company undertaking the work must have the following:

- Notification of the work to the relevant enforcing authority prior to the work commencing.
- Medical examinations to assess each worker's state of health to be carried out, before any possible – exposure to asbestos. Then re-examinations every three years.
- Insurance for working with asbestos containing materials.
- A register of work to be kept by the employer for each employee exposed to asbestos.

Non Notifiable Non Licensed work

-Non-Licensed Works Is defined as any work, which involves short, non-continuous maintenance activities, during which only nonfriable materials are removed. It can also involve the removal of non-friable materials for refurbishment purposes. However, work of this type is only applicable where the matrix material in which the asbestos fibres are firmly linked remains intact.

-If a non-licensed contractor is appointed to undertake the removal works on the above materials, the following points must be adhered to:

-All operatives undertaking work on the material must have asbestos awareness training and practical asbestos training.

9.13 It is recommended that further intrusive investigations and sampling be carried out in accordance with HSG.264, where any major refurbishment, maintenance, installation or similar activity may expose asbestos materials that have remained inaccessible during the survey. This should be as a refurbishment/demolition survey as documented in HSG264.

9.14 The findings of this report should not be solely relied upon in obtaining costs for proposed asbestos abatement work. Any proposed abatement/removal of the asbestos should be undertaken against a detailed specification.

9.15 Any recommendations made within this report are made on the basis of findings collated at the time of survey. Recommendations should undergo careful client evaluation prior to a final management decision being made. Sentinel Environmental Consultancy Limited does not accept any responsibility for any works carried out as a result of recommendations made within this report.

Appendix 1 - Asbestos Register


Building	Floor	Location /Room	S,P,SP,AS Sample No	Product Type	Condition	Surface Treatment	Asbestos Type	Quantity	Accessibility	Material Score	Recommendation	Additional Comments
There were no results found.												

KEY:

S – Sampled, P – Presumed, SP – Strongly Presumed, AS – Cross reference to former sample

Appendix 2 – Survey Data Sheets

Service Type	Demolition Survey		
Report Revision Number	1	Surveyors	Adam Yates
TEAMS Job Number	J007548	Survey Date	22 Feb 2021 to 23 Feb 2021
Site Address:	Zone 7 Triton Power Deeside Power Station Weighbridge Road Flintshire CH5 2UL	Bulk Analysis Laboratory	N/A
		Sample Analysis Date	24 Feb 2021

	Survey Date:	Lead Surveyor	Survey Type	Floor	Analysis
	22 Feb 2021 to 23 Feb 2021	Adam Yates	Demolition Survey	Ground Floor	No Asbestos Detected
	Building	Room	Item	Quantity	
	Zone 7 - Intake & Outfall System	Compressor room G/02	gasket to pipework flange to tank pipework	5no.	
	Sample No (S,SP,P,As)	Product Type	Surface Treatment	Condition	Accessibility
	JW004089 (S)	N/A	N/A	N/A	N/A
	Material Risk Score				
Recommended action		No further action required			
Surveyor comments		N/A			

KEY:

S – Sampled, P – Presumed, SP – Strongly Presumed, AS – Cross reference to former sample

Appendix 3 - Areas Surveyed

Building	Floor	Room No:	Room Type	Item
Zone 7 - Intake & Outfall System	External	E/01	Externals	metal roof, brick walls, plastic & metal rainwater goods, plastic damp proof course, metal soffit, rubber gasket to pipework flange to sodium hypochlorite intake point pipework, modern electrics, foam pipework insulation
Zone 7 - Intake & Outfall System	Ground Floor	G/01	Sodium hypochlorite store	metal underside of roof, breeze block walls, concrete floor, fibreglass tank, mmmf pipework insulation, rubber seal to tank inspection hatch, plastic duct boxing, rubber gasket to pipework flange to tank pipework, modern mastic to expansion joint
Zone 7 - Intake & Outfall System	Ground Floor	G/02	Compressor room	metal underside of roof, breeze block walls, concrete floor, metal tank, plastic duct boxing, mmmf pipework insulation, modern electrics
Zone 7 - Intake & Outfall System	Ground Floor	G/03	CW pump house distribution room	metal underside of roof, breeze block walls, concrete floor, unlagged metal pipework, modern electrics, mmmf insulation to door
Zone 7 - Intake & Outfall System	Ground Floor	G/04	LV switch room	metal underside of roof, breeze block walls, concrete floor, modern electrics, unlagged metal pipework, no asbestos observed to heater, mmmf foam & packing to cable penetration

Appendix 4 – Analysis Certificates

Sentinel Environmental Consultancy Limited
Head Office : Unit 17 Gwenfro, Technology Park, Wrexham, LL13 7YP

Certificate of Analysis

Asbestos Fibre Identification in Bulk Sample

Client: Triton Power
Address: Triton Power, Deeside Power Station,
Weighbridge Road, Flintshire, CH5 2UL
Project /Certificate Reference : J007548
Version Number : 1

Site Address: Zone 7, Triton Power, Deeside Power
Station, Weighbridge Road, Flintshire, CH5 2UL

Analyst Signature:



Analyst Name: Lucy Caroe

Samples Collected by: Adam Yates
Date Samples Received: 24 Feb 2021
Analysis Date: 24 Feb 2021
Certificate Issue Date: 8 Mar 2021

Asbestos Fibre Type :

Chrysotile= "White asbestos", Amosite= "Brown asbestos", Crocidolite = "Blue asbestos" Refer to H.S.E. publication HSG 264, for the approximate percentage asbestos content within the presumptive product type.

Analysis Method :

The analysis of the sample(s) detailed on this report is UKAS accredited. Analysis was performed in accordance with our internal Technical Operating Procedures and Health & Safety Executive publication HSG 248 at our Head Office.

Disclaimer :

Any interpretations or opinions expressed in this report are outside the scope of UKAS accreditation. The stated "presumptive product type" is a subjective assessment by our analyst, it is not determined by measurement and it is an opinion. Sentinel Environmental cannot accept responsibility for any discrepancy or inaccuracy arising from collection or labelling of samples by the client. Samples are retained for 6 months only after the analysis date unless requested or contracted otherwise.

Version Revision / Changes : None

Authorisation Signature :



Daniel Roberts - Director

Sentinel Environmental Consultancy Limited
Head Office : Unit 17 Gwenfro, Technology Park, Wrexham, LL13 7YP

Certificate of Analysis

Project /Job Reference : J007548
Certificate Issue Date : 08/03/2021

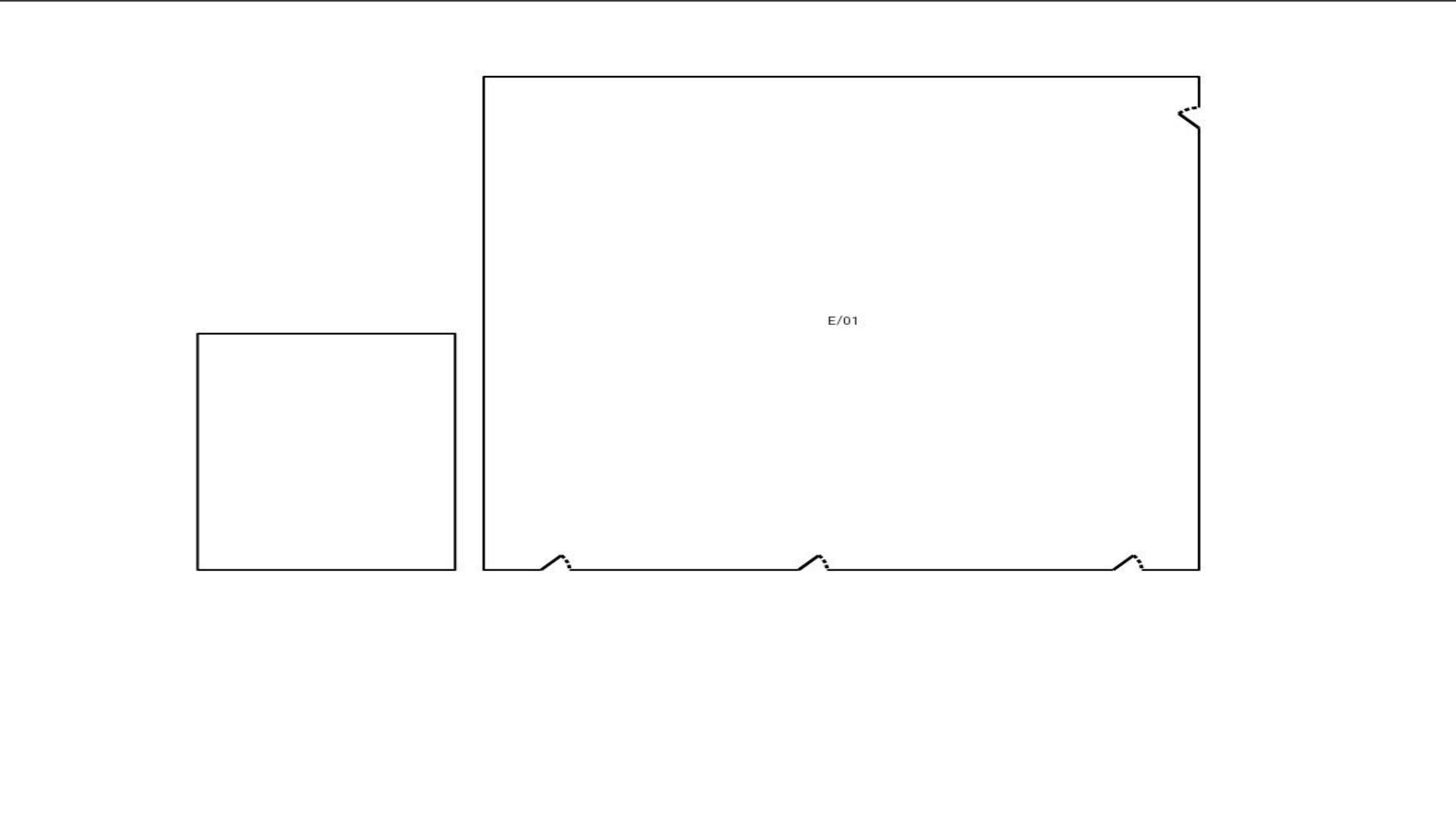
Version Number : 1



Results

Project Reference	Sample Location and Description	Asbestos Fibre Type	Presumptive Product Type
JW004089	Zone 7 - Intake & Outfall System, Ground Floor, Compressor room – gasket to pipework flange	No Asbestos Detected	Non Asbestos Textiles/Paper

Please Refer to Page 1 of Certificate of Analysis for pertinent details. This Report is only Valid when issued as a complete document with authorising signature on Page 1.

Appendix 5 – Plans



<div>Client: Triton Power</div> <div>Site: Zone 7</div> <div>Building: Zone 7 - Intake & Outfall System</div> <div>Floor: External</div> <div>UPRN No: N/A</div>	<div>Plan Key:</div> <div><div>Red Text = Positive Item</div><div>Blue Text = No Access Item</div><div>Black Text = No Asbestos Detected Item</div><div> Positive or Strongly Presumed Asbestos in area / room</div><div> No Access within or to area / room</div></div>	<div></div>
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Client: Triton Power
Site: Zone 7
Building: Zone 7 - Intake & Outfall System
Floor: Ground Floor
UPRN No: N/A

Plan Key:

Red Text = Positive Item

Blue Text = No Access Item

Black Text = No Asbestos Detected Item

Positive or Strongly Presumed Asbestos in area / room

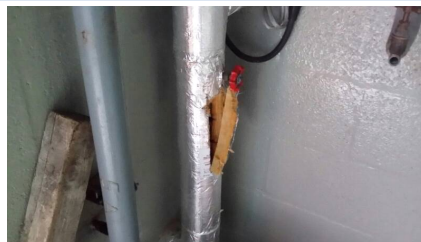
No Access within or to area / room



Appendix 6 – Survey Intrusion Photographs



Inspection within electrics



Intrusion into pipework insulation



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