

**Natural Resources Wales permitting decisions**

**Warwick International Group  
Limited (Warwick Chemicals)  
Decision Document**

## Full Surrender of a bespoke Permit

We have decided to accept the surrender the permit for Warwick Chemicals operated by Warwick International Group Limited.

The permit number is EPR/BU2357IP

We are satisfied that the necessary measures have been taken to avoid any pollution risk and to return the site to a satisfactory state.

We consider in reaching that decision we have taken into account all relevant considerations and legal requirements.

### Purpose of this document

This decision document:

- explains how the operator's application has been determined
- provides a record of the decision-making process
- shows how all relevant factors have been taken into account

### Receipt of application

The Operator applied to surrender the permit in full, it was considered a full normal surrender and not a low risk surrender. The application was received into Natural Resources Wales on 24 January 2023. In order to consider the application duly made we had to request further information relating to the site condition report. The request was sent on 20 March 2023 and the response from the Operator was received on 05 April 2023. The application was duly made as of 05 April 2023. Prior to sending the request for information, the Operator was given the opportunity to withdraw the application as there were still chemicals present on the site and a permitted water discharge. The Operator was advised that the surrender was unlikely to be accepted with chemicals on site and a discharge occurring that is not solely uncontaminated surface water. These issues were subsequently resolved.

A claim for commercial or industrial confidentiality has not been made. We have not identified information provided as part of the application that we consider to be confidential. The decision was taken in accordance with our guidance on commercial confidentiality.

### The facility

#### The regulated facility

The permit was issued 14 May 2004. The permit regulated the following listed activities and directly associated activities:

- Section 4.1 Part A(1)(a)(iv) – Producing organic chemicals containing nitrogen (amines)
- Section 5.1 Part A(1)(a) – Incineration of hazardous waste – on site incineration of process wastes

- Section 5.4 Part A(1)(a)(ii) – Disposal of non-hazardous waste in a facility with a capacity exceeding 50 tonnes per day by physico-chemical treatment
- Combustion of natural gas to raise steam and heat thermal transfer fluids

There have been changes during the lifetime of the permit to the regulated activities. The following other activities have been included on the permit in the past, but were subsequently removed by a variation:

- Section 4.1 Part A(1)(a)(ix) – Producing synthetic rubbers where the annual production is less than 2000 tonnes
- Section 4.2 Part A(1)(a)(iv) – Producing inorganic salts (sodium acetate trihydrate)

The site produced up to 50,000 tonnes per year of tetra acetyl ethylene diamine (TAED), a bleaching activator used in the formulation of domestic washing powders. The installation consisted of a continuous process plant producing the intermediate diacetyl ethylene diamine (DAED) by reacting acetic acid with ethylene diamine. Further reaction of DAED with acetic anhydride completes the conversion of TriAED to TAED. Finished product formulations are made by granulation of TAED with binder additives such as surfactants and polymers.

There were releases to air from the facility including:

- Emissions from combustion processes of natural gas and gas oil
- Emissions from the on-site incinerator which burnt liquid process residues containing acetic acid
- Vapours via scrubbing towers of acetic anhydride and acetic acid
- Fugitive releases of acetic anhydride and acetic acid from seals, valves, flanges, sample points and tanker loading displacement

Treated effluent was discharged to the Dee Estuary via a submerged pipeline only after high tide (emission point W1 on the permit). Effluent consisted of process effluents from plant clean downs, vent scrubber draining and surface water run-off from production areas. The raw effluent contained sodium acetate and traces of other raw materials and products, it was treated with caustic soda for pH control prior to discharge. There was another emission point to the Dee Estuary (W2) of uncontaminated site drainage only from the West area of the site during flood conditions. There were no emissions to sewer or land.

The environment management system (EMS) in place at the site was externally accredited to ISO14001:2015 standard. The facility was also subject to the Control of Major Accidents and Hazards (COMAH) Regulations and was deemed an 'Upper Tier' site.

### The site

The facility was located in Mostyn in Deeside, near to the Port of Mostyn. The site had the River Dee estuary on the northern and eastern boundaries, with the A548 road running along the southern

boundary. The area surrounding the site is a mix of industrial (Port of Mostyn) and residential/rural, with the relatively small sized residential areas of Mostyn and Glan-y-don to the south of the site.

The site is situated within a coal mining area. Mining in the area is known to have been for both coal and metal ore. There are three mine shafts located on site, located to the north of the administrative buildings. Each shaft is surrounded by palisade fencing within concrete bunds. It is understood the shafts are hydraulically connected to the Dee Estuary. Other historical land use at the site has included:

- part of the Mostyn colliery (13<sup>th</sup> Century) and ironworks (1802) up until 1879
- copper and iron works late 19<sup>th</sup> Century until 1915
- general chemical manufacture from 1968 by Palmer Research Ltd

Warwick International Group Ltd acquired the site from Palmer Research Ltd in 1979 and has occupied the site until present day. Warwick International Group Ltd was purchased by Lubrizol Corporation in 2014, however the permit operator remains as Warwick International Group Ltd.

The site is relatively large and the Operator has zoned the site into the following different areas as described in the site condition report (SCR) and preceding that the site protection and monitoring programme (SPMP):

- Main process area - labelled 'P' in diagram below
- Storage areas - labelled 'S' and 'W' in diagram below
- Administrative area - labelled 'A' in diagram below

Raw material and finished product was stored in Warehouses 1 to 5 and chemicals were stored in Plant 1. The main process area includes the main chemical manufacturing areas. The surfacing in the 'Main process' and 'Storage' areas was hardstanding of either concrete or macadam tarmac. The drainage within both those areas was sealed and drained to the treatment plant and combined with the process effluent prior to discharge to the Dee Estuary. There was permeable ground present at the site (soft landscaping or gravels) around the peripheries of the site and around the administrative area where regulated activities did not take place.

The following pollution prevention measures were in place:

- Hazardous chemicals stored within Tank Farms 1 and 2 with concrete bases and bunds with sealed drainage that drained to the effluent treatment plant
- All other chemicals (bulk chemical storage, powder storage, oils) are stored on impermeable hardstanding with sealed drainage that drained to the effluent treatment plant
- Sealed reactor units within process area with hardstanding present
- Majority of pipework present over impermeable hardstanding, one small area in the west had pipework present over gravel surfacing

- All spills and leaks contained within the site drainage system and drained to the effluent treatment plant. Effluent was analysed prior to discharge. CCTV drainage surveys were undertaken every 5 years to check for defects within drainage system.
- Preventative maintenance and inspection programme of all pollution control measures
- As required by COMAH regulations, all tanks were equipped with level alarms and emergency shut off valves
- Wastes contained in skips and stored in areas with impermeable hardstanding
- The drainage system (prior to discharge at point W1) had a series of alarms, reserve pumps and back up power supply to ensure that contaminated effluent did not escape to groundwater.

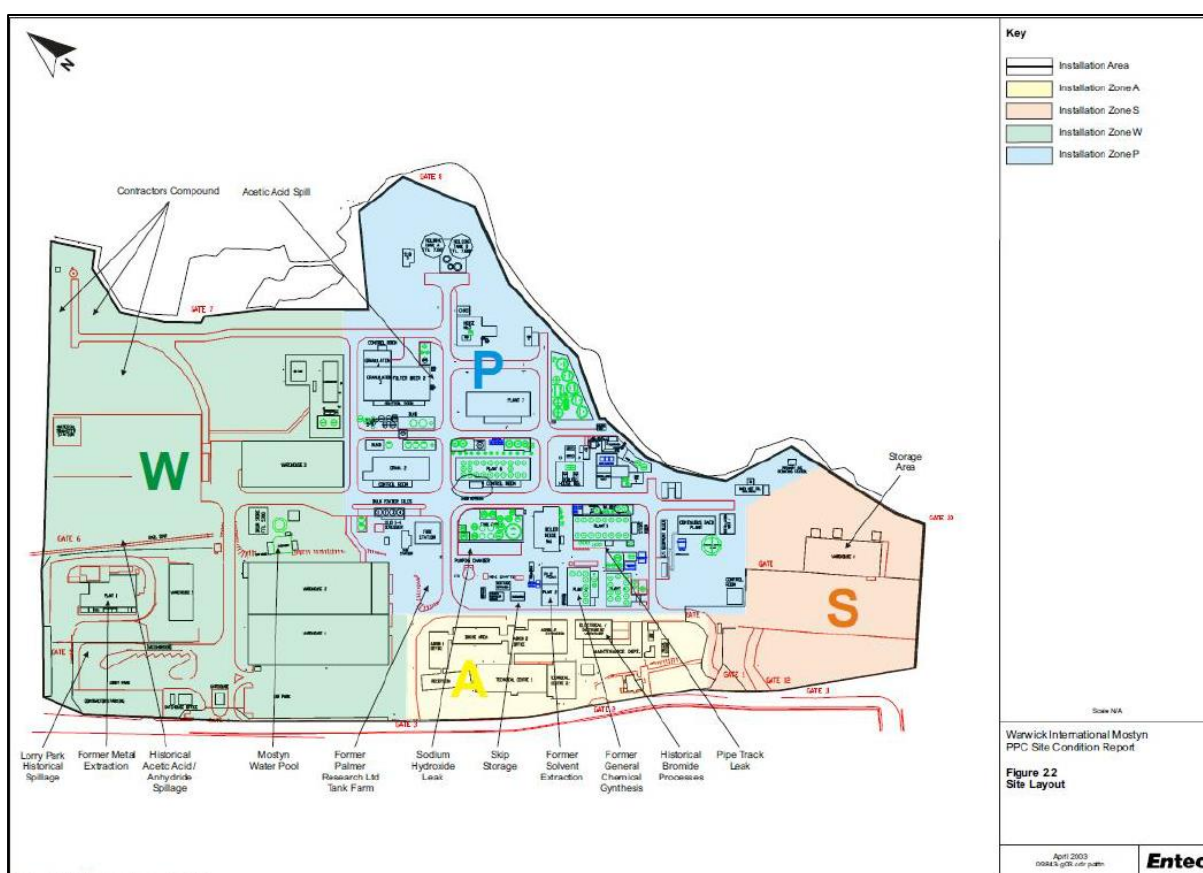


Figure 1: Installation zoning

The site had a firewater deluge system and two firefighter foam deluge systems. These foams are expected (although not confirmed) to contain per- and polyfluoroalkyl substances (PFAS) however these were not permitted to be used in training exercises and it is understood have not been used in an incident. There are no operational records of any releases of PFAS containing firefighting foams.

The Applicant provided further clarification regarding a potential incident involving firefighting foam, in which the foam was observed entering a groundwater monitoring well surface cover and not the well itself. The well comprised of a cast iron plated lockable cap which is sealed with concrete, there was a gas cap on top of the borehole pipe preventing entry of surface liquids. Furthermore, it has not been confirmed that the foam contained PFAS. Given the pollution prevention measures in place it is

considered unlikely that foam entered the monitoring well and no further investigation is required in relation to this particular incident.

## Pollution risk

The Applicant confirmed all potentially polluting materials have now been removed from site, with the Acetic Anhydride removed on 3 May 2023 and the drums of lubricants being removed on 22 June 2023. Final cleaning of the central surface water collection chamber completed on 5 June 2023, final cleaning of water holding tank number 1 was completed on 6 June 2023 and final cleaning of water holding tank number 2 was completed on 7 June 2023 with the effluent disposed of off-site via tanker.

With installation process operations on site having stopped, the only drainage from the site is from rainwater run-off, through site drains. The surface water drainage system was thoroughly investigated by the operator during June to September 2023. This investigation involved several samples, a camera survey, minor repairs, and clarification of previous operational procedures and infrastructure. Further details can be found in submissions from the operator dated 6 July 2023, 21 July 2023, 8 September 2023 and 19 September 2023. This demonstrated a satisfactory state.

The Applicant submitted a site condition report to support the surrender application. We have reviewed the report in line with the principles contained within 'Regulatory Guidance Note, RGN 9: Surrender'. The report included the following detail in line with RGN 9:

- Baseline conditions – conditions of the land at permit issue including baseline soil and groundwater reference data
- Information relating to the permitted activities
- Measures taken to protect the land and groundwater during the lifetime of the permit
- Pollution incidents that may have impact the land and groundwater during the lifetime of the permit and their remediation (all of which were resolved without leaving on site pollution).
- Soil and groundwater data at time of surrender and comparison to baseline data
- Detail regarding decommissioning and removal of the pollution risk from the site
- Statement of a satisfactory site condition

The report indicates that the site is in a 'satisfactory state' and that there appears to have been no notable deterioration in soil and groundwater condition during the life of the permitted installation. This statement is supported by comparison of soil and groundwater data taken before (baseline) and after the regulated activities stopped which demonstrate that there has been no significant impact on soil and groundwater quality during the lifetime of the permit.

We are satisfied that the necessary measures have been taken to avoid a pollution risk resulting from the operation of the regulated facility.

### **Satisfactory state**

We are satisfied that the necessary measures have been taken to return the site of the regulated facility to a satisfactory state.

In coming to this decision we have had regard to the state of the site before the facility was put into operation.