

Permitting decisions

Surrender

We have decided to accept the surrender of the permit for Arizona Chemical Limited, Vigo Lane operated by Kraton Chemical Limited.

The permit number is EPR/BT0251IX.

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 provides a record of the decision making process. It summarises the decision making process in the decision checklist to show how all relevant factors have been taken into account.

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- highlights [key issues](#) in the determination
- summarises the decision making process in the [decision checklist](#) to show how all relevant factors have been taken into account

Unless the decision document specifies otherwise we have accepted the applicant's proposals.

Read the permitting decisions in conjunction with the environmental permit and the surrender notice. The introductory note summarises what the notice covers.

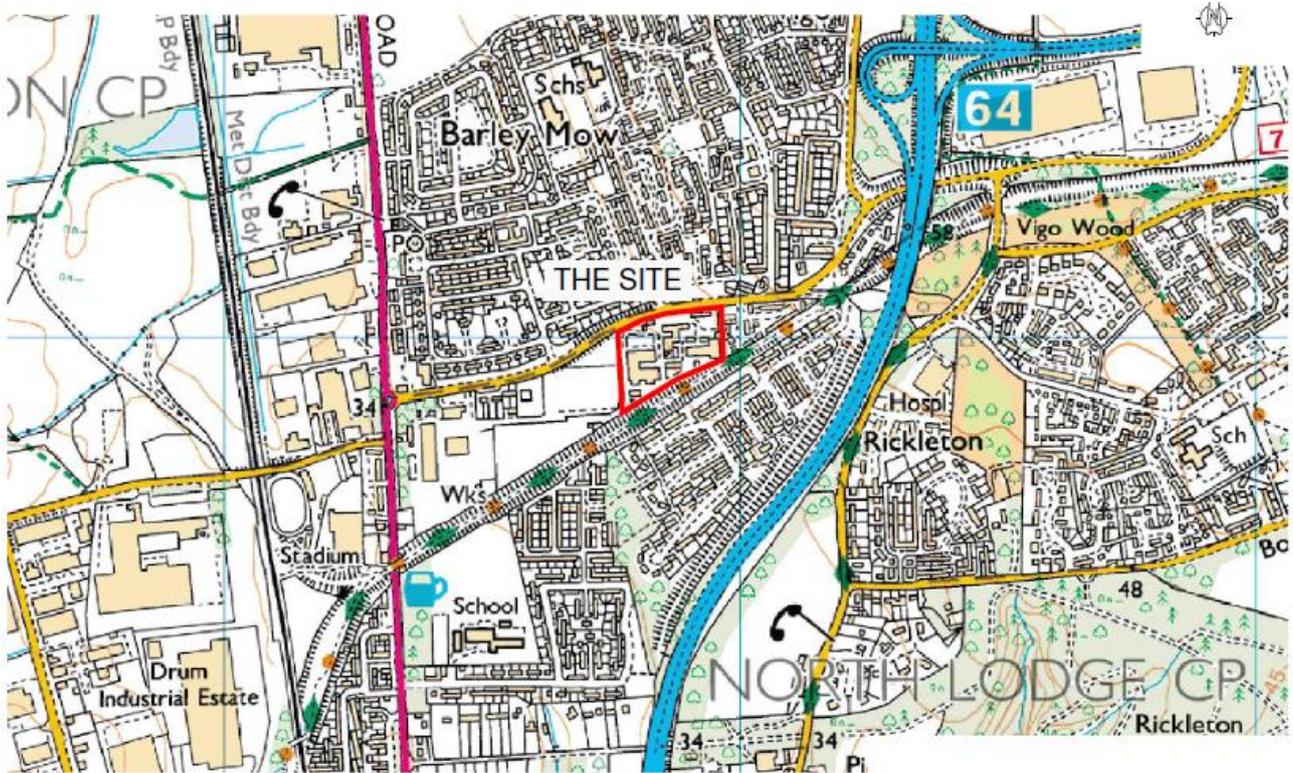
Site overview and operational monitoring programme

Arizona Chemicals Ltd had a name change to Kraton Chemical Ltd on 17/07/17. The site is located to the south of Vigo Lane, Birtley. Chester le Street is 2.5km south and the A1M is approximately 350m southeast. The National Grid Reference for the site is NZ 27866 53956.

The site forms a roughly rectangular plot of land, approximately 2.74 hectares. The land rises steadily in elevation from west (c.37m AOD) to east (c.45m AOD). The site is open to the west which extends into a larger area of cleared land. The site has been cleared of all structures associated with the former chemical works with the exception of some tarmac paving. The surface comprises a mix of crushed concrete intermixed with made ground and natural soils. Occasional mature trees are present along the northern and southern boundaries. Access to the site is via a metal gate on the northern boundary, off Vigo Lane. The boundaries north, east and south consist of steel palisade fencing.

To the west of the site was Former British Oxygen Company (BOC) chemical works (now demolished), maintained grassland, disused land and access track leading to industrial storage facilities. Residential areas predominate to east with further housing and grass verges to the north. The land to the south has a dismantled railway beyond which lies further residential properties.

Environmental Permit BT0251IX was issued by the Environment Agency on 26th March 2004 to Arizona Chemical, Chester-Le-Street, to operate an installation carrying out activities covered by the description in Section 4.1 A(1)(a)(ii) and 4.1A(1)(a)(viii) in Part 1 to Schedule 1 of the PPC Regulations. Production at the facility ceased in December 2015, there were six site visits during the period December 2015 to July 2016 at various points during the demolition and decontamination period. The Environment Agency is satisfied that the permit can be surrendered.



At the time of the application for the permit, a desk study coal mining risk assessment (intrusive soil investigation) was submitted. The objectives:

- Providing information on ground conditions using published data;
- Assess potential impacts of past mining;
- Review whether the site had previously been used for a purpose that may have given rise to significant ground contamination;
- To assess the potential for hazardous ground gas.

The final site closure plan did not identify any significant pollution incidents. Therefore ground remediation work was not considered to be required. However, an intrusive soil investigation took place after the site went back to the brownfield condition. The investigation results reviewed by the EA's Ground Contamination team and they agreed for permit surrender purposes that no remediation was required as there had been no degradation since the base analysis (Appendix G of the Phase II Geoenvironmental Appraisal, dated December 2016 gives a comparison against the baseline data collected in 2003. Based on this comparison with the limited dataset collected in 2003, there appears to be no deterioration during the lifetime of the permit).

Key issues of the decision

The key issue for this determination is whether the operator has demonstrated that the legal test for surrender has been met in that the necessary measures have been undertaken to **avoid a pollution risk** resulting from the operation of the regulated facility and 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.

Decommissioning and removal of pollution Risk

This site closure plan demonstrated that, in its current state, the installation could be decommissioned to avoid any pollution risks and the site could be returned to a satisfactory state. The plan was kept updated as changes occurred to the installation and included provisions to ensure that

- i. The installation was decommissioned to avoid any pollution risk
- ii. The site of operation was returned to a satisfactory state.
- iii. The plan was kept updated as material changes occurred.
- iv. Where appropriate the removal or the flushing out of pipelines and vessels and their complete emptying of any potentially harmful contents was carried out.

At the time of submitting the original application intrusive monitoring of soil quality was carried out and the levels of soil contamination throughout the site was established.

The designs of the plant allowed the safe decommissioning of process systems and enabled the environmental impacts to be easily assessed. These are detailed below;

1. All process pipe-work was above ground except site drains for surface water and process effluent. Below ground process effluent pipework was surveyed on a 5 yearly basis to ensure good system integrity, the last survey was December 2010.
2. All process systems and pipe-work (both above and underground) were documented and recorded on an internal system. These plans were kept up to date.
3. There were no underground tanks on the site other than the effluent interceptor pit. This pit was subject to frequent cleaning and inspection, on an annual basis. The walls of the interceptor pit were relined in 2010 to ensure no seepage to ground and the lining was subject to an annual inspection and was guaranteed for 10 years.
4. The systems serving all tanks enabled them to be emptied and cleaned. This was completed on the multipurpose plant (MPP) Tank farm which was redundant and mothballed. The MPP plant equipment was subsequently stripped out in 2012 and the materials sent off site for reuse and recycling where applicable. An intrusive survey was completed on the MPP building in late 2011 prior to the strip out of redundant equipment.
5. Many of the tanks and process pipework were constructed from stainless steel, this has high reuse value and would be readily recycled where the tanks and pipework was removed.

6. All tanks, delivery and transfer areas were bunded as a minimum to EA requirements. The site operated bund inspection and emptying procedures which require bunds to be empty after rainfall events. Checks for contamination (pH, COD) were carried out as appropriate.
7. The site operated an Asbestos Management Procedure that documented the nature, location and condition of all asbestos containing materials. A survey was carried out annually to update these details or following plant modifications, changes, removal work or accidental damage. The last survey was completed in February 2015.

Measures to be taken on closure of the site

1. To ensure that there was no pollution risk from materials once used on the site all tanks, vessels and pipe-work were drained and emptied. Any materials collected were either sold to customers or disposed as waste. All vessels and pipework underwent cleaning and purging as described in detail in attachment 'A' below.

Once empty all man-ways on tanks and vessels were removed to demonstrate that the tank was empty, clean and pollution potential removed.

2. On definitive cessation of activities at the site a desktop review of all leaks and spills was carried out to identify areas of potential land contamination. This data along with the data collected during the compilation of the Application Site Report used to define requirements for intrusive monitoring.

Under duty of care and due diligence an intrusive ground and soil survey was commissioned.

3. A further review of this data was carried out to quantify changes in levels of pollution that have occurred during the lifetime of the operation. Where significant pollution is identified clean up regimes were discussed and agreed with the Environment Agency.
4. Funding required for environmental clean up to required standards was allocated and included in the considerations by Arizona Chemical management in decisions to close the installation.
5. The site was demolished to ground including breakout and crushing of all slabs and foundations, funding required was allocated and included in the considerations by Arizona Chemical Management in decisions to close the installation.

ATTACHMENT A – Detailed Clean-up Plan

- Fatty Acid Storage – Tanks 940, 941 & 942, all fatty acid from these tanks pumped to tank 901 to MT – any residual fatty acid loaded to RTW from TK901 for EU Sales.
Tank 940 filled to 70MT with water from the deluge tank. A mild solution of washing soda charged from IBC (100kgs soda and topped with water) through the offloading pumps. Then heated to 85-90°C and held for 24hrs with the stirrer on.
The solution was then transferred to TK941, another solution of soda from IBC charged then the operation repeated as above.
Material then transferred to TK942 for the same operation repeated as above. The solution was then transferred to TK901 – this gives a full tank for boil outs through reactor.
All side ports opened and tanks left vented to atmosphere to physically see inside.
- Reactor V905 – 20 tonne soda boil out from TK901, 50kgs soda ash was charged manually to powder hopper and reactor boiled for 24hrs prior to transfer to the dump tank. This was repeated up to four times as required depending on reactor cleanliness. Manway removed and left vented to atmosphere.
- Dump Tank V906 – soda boil from reactor held for 24hrs and rinse prior to jetting or just soda boil out if jetting not required. Manway removed and left vented to atmosphere.
- Pre-coat tank - soda boil and drain. Manway removed and left vented to atmosphere.
- Clay filter F910 – Filter leaves removed, clay residue dug out to the clay skip, the dump tank boil out circulated through the filter body. Transferred to one of the CDA tanks. The filter leaves pressure wash. Filter left open and vented to atmosphere.
- Finished Goods Tank Farm – Filled two tanks on each side with 25-30MT water and 50 kgs soda. Boil the tanks with stirrer on / circulating for 24 hrs. These were then transferred from tank to tank repeating the process until all finished goods tanks / CDA tanks were cleaned. Tanks to be then water rinsed after boil out to remove residual soda. Remove top manway and vent to atmosphere.

- Phosphoric Tank and additions pot – Water rinse when emptied and pumped through additions pot into the dump tank. Open and vent to atmosphere.
- Diesel Tanks – The tank was drained and vented to atmosphere.
- Other Tanks – scrubber and scrubber tank 936 , tank 927, tank 929, tank 931 tank 951, tank 921, Soda boil out for 24hrs and up to vac jets where applicable. TK 921 drained. All tanks opened and vented to atmosphere.
- MPP tanks - old amine and resinate tanks, waste oil tank' make up water tank. - These tanks were contaminated with dimer sludge and needed to be gulped prior to boiling out as per SOP, boil out material used from plant then gulper again post boil out. Water rinse followed. All tanks opened and vented to atmosphere.
- Hot oil System's – Systems drained individually to drain down tank and pump to IBC's for removal off site. System purged with nitrogen as per SOP's and blanking plates inserted at HOH's and safe removal of heaters as required.
- Removal of BOC Equipment - Rented from BOC, they were vent of any residual nitrogen and BOC removed their equipment; this equipment was required until all the storage tanks were empty. There was a cost to have the system decommissioned and removed; the liquid nitrogen was drawn off where required, small quantities were gassed off to atmosphere.
- Rocket – Side door removed and dug out as required. Water rinse where required. Left opened and vented to atmosphere.
- Bulk salt silo – Drained and water rinsed.
- Clay handling system – The filter bags removed and hoovered out the dust as per SOP's. Filters bagged and sealed.
- Powder hoppers – The filter bags removed and hoovered out the dust as per SOP's. Filters bagged and sealed.
- Foul vapour system – knockout pots X 4, pipework broken and vent to atmosphere, (Odour counteractant to be utilised where required).
- Waste water – Grit catcher, interceptor pit, metering pit, gulp residual clay, these pits were cleaned with all the boilout water and rinse water passing through Tk922, gulp prior to boiling out then drained as per SOP.
- Distillation plant – Degasser, WFE and associated pipework, heat exchangers and 4 and 5 stage ejectors/intercoolers/augmenters, V903, 904, 908 & 909, soda boil out. – Individual soda boil out. Left opened and vented to atmosphere.
- Re-work tank – Soda boil and drain. Left opened and vented to atmosphere
- Soda tank – Residual soda sludge dug out, followed with water boil out. Left opened and vented to atmosphere
- Shift tanks – Soda boil for 24 hrs (transferred from CDA tank), rinsed and drained.
- Tank farm vac/vent pots – Soda boil from finished goods tank then open to atmosphere.
- Boiler house – hot well, blowdown tanks, old water softening system and make up tank – Open and rinse with water left to vent to atmosphere.
- Tank ex tall oil – Left opened and vented to atmosphere.
- Boiler 802, 803, - Drained and vented to atmosphere as SOP's.
- Cooling towers – ponds, pipework and users chlorinated and drained as SOP. Clean out of packing completed as per SOP by Chemaqua.
- Ex MPP Water make up header tank in the MPP penthouse – Drained and vented to atmosphere.
- Air Conditioning Units – Refrigerant drained and vented by Hadrian Air Con as per their supplied method statement.

All doors and manways were removed and left open to enable venting and visual inspections from completion of clean up through to demolition.

Records of pollution incidents

Instances that have, or might have, impacted on the state of the site, are recorded along with details of the investigation and ameliorating work carried out. This ensures that there is a coherent record of the state of the site throughout the period of the IPPC Permit.

June 2015 Incident

- Bottom valves opened on fatty acid storage tanks overnight (intruders) releasing the product from the vessels. Fortunately due to the inventory volume this was contained within the secondary containment. (Concrete tank farm bund).

Corrective Actions

- The product was sampled and pumped back into the storage tanks and used as planned in manufacturing. A bund emptying process was in place which ensured that there was no contamination of product due to water or materials within the bund prior to the release.
- All tank bottom valves were then chained and padlocked to prevent further malicious activity
- The bund interior, external tank walls etc were power jetted by Total Recycling Ltd and the washings removed from site.

March 2008 Incident

- Smell complaint received coming from storm drains
- Investigation work commenced and all drains on site were surveyed with cameras to identify cause, it was traced to an amount of clay material which was found in the drain.
- Further investigation showed that the drain point next to the clay skip bund was routed to the storm drains and not to the effluent interceptor system as thought. This was a historical design issue and small amounts of clay waste had been building up over the previous 18 years.
- Huge rainfall the previous 48hrs had pushed this blockage through the drains to a point where it lodged in the drain system behind local residential properties.

Corrective actions

- Arranged cleaning of all drains to remove contamination before it reached the NWL facility
- Confirmation with NWL that no contamination had occurred at their treatment facility.
- All drains on site and through neighboring site were relined post cleanup activities
- Drain point next to clay skip bund was rerouted to direct the flow through the effluent interceptor pit and grit catcher system

The EA were happy with the corrective action taken. A drain survey was carried out 13/05/2008. 24/07/2008 this was reviewed on site during an inspection, internal visit report available.

Any other spillages that occurred on site due to being a chemical manufacturing facility were small in nature (<25kgs) and within concrete banded secondary containment.

A final inspection was performed on 6 November 2017 by the Environment Agency. It was agreed that Arizona Chemicals Limited could proceed with permit surrender.

Decision checklist

Aspect considered	Decision
Receipt of application	
Confidential information	A claim for commercial or industrial confidentiality has not been made.
Identifying confidential information	<p>We have not identified information provided as part of the application that we consider to be confidential.</p> <p>The decision was taken in accordance with our guidance on confidentiality.</p>
The site	
Pollution risk	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	<p>We are satisfied that the necessary measures have been taken to return the site of the regulated facility to a satisfactory state.</p> <p>In coming to this decision we have had regard to the state of the site before the facility was put into operation.</p>