



**RVA GROUP**

Specialist consulting engineering, safety and environmental management  
for decommissioning; decontamination; dismantling; demolition.

## Case Study: 4,500 tonne UK Ammonia Plant Dismantled for Relocation and Reassembly

### *The final piece in a vast jigsaw puzzle*

A highly complex programme of plant decommissioning, isolation, demolition and ground remediation was completed at GrowHow UK Limited's former 100-acre fertiliser production site at Severnside under the guidance of project management consultants and CDM coordinators RVA Group.



Having successfully supervised more than 60,000 man-hours during an initial project, RVA was engaged by both GrowHow and American assets company Sigma Investment Holdings, L.L.C to co-ordinate the safe and precise dismantling and packaging of two remaining LCA (leading concept ammonia) plants and a utilities area, bought by Sigma for resale.

Following two months of RVA planning, a specialist dismantling contractor was appointed by Sigma to begin the meticulous process of coding, extracting and preserving every single vessel and associated pipework for exportation.

This exacting project then resulted in the shipping of 4,500 tonnes of ammonia production plant, in no less than 120 containers, 60 enclosed crates, 80 open stillages plus 30 outside items of deck cargo, all ready for reassembly and return to production once it reached its new destination.

RVA Group had been employed in two capacities at Severnside: GrowHow had engaged RVA as specialist project managers to ensure that the high standards adopted on site were maintained, with no corners cut or safety measures compromised.

Sigma meanwhile appointed RVA as CDM co-ordinators. There was a legal requirement for CDM-C, although Sigma was not obliged to choose the RVA team. However they did because of RVA's knowledge of this site and their expertise in the field – for example RVA had previously supervised the sequential dismantling, for relocation, of a 6,500 tonne papermaking machine in Aberdeenshire in 2008.

It is rare for one consultancy to be appointed for both roles and there are those who might question how RVA could effectively represent both clients. Yet in reality it worked very well because it ensured a co-ordinated approach, with common standards and universal protection of interests in a collaborative environment.

Using the original construction designs and drawings, the team prepared intricate methodology and processes for dismantling each individual component and match-marking it with codes for ease and accuracy of reconstruction.



It is fortunate that the drawings were of a high standard, as this gave a clear indication of the dimensions and weights being dealt with – up to 116 tonnes.

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The biggest challenge was the logistics of actually moving people and machinery around such a restricted space – only 100m square in total.

To a large extent the team had to work inwards from the periphery, removing components step by step. As progress was made, the craneage then had the access needed to extract some of the more intricate equipment clear and in tact on their steelwork skids.

Smaller vessels and pipework were tightly packed into containers, while larger components such as a range of 42 tonne PSA (pressure swing adsorption) vessels were lifted by crane and loaded onto heavy haulage vehicles.



Due to the design of the tank-like PSA vessels, it was necessary for the contractor to manufacture a bespoke attachment to aid the lifting process. Once this shackle was connected to the top lifting point of the tank, the seal to the floor was cracked and a 450 tonne crawler crane lifted each tank clear in a vertical position. The hook of a smaller 160 tonne crawler crane was then attached to the tailing lifting point at the base of the vessels, to enable the tank to be lifted into a horizontal position for transportation.

The LCA plants were cleaned and decontaminated as part of a previous decommissioning project. However preparing them

for reuse demanded a secondary cleanliness review and the application of a protective coating to preserve the equipment throughout the journey.

Other equipment employed on the project included a 55 tonne mobile crane, four telehandlers, five mobile elevating work platforms and a 35 tonne tracked excavator.



Once this intricate removal operation was complete, RVA brought its three year stay at Severnside to a close.

### Timeline box out, detailing work undertaken on site to date:

Phase	Timescales
Site closure announcement	September 2007
Decommissioning, isolation and contractor selection	January – June 2008
Demolition works	June 2008 – February 2009
Final site clearance including ground remediation	February – November 2009
RVA engaged by Sigma and GrowHow to begin planning for the LCA plant dismantling	November 2009 – January 2010
Dismantling contractor brought on to site to begin preparatory dismantling processes	January 2010
Major lifts of 42 tonne PSA vessels	Began April 2010

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