

**MALIN
ABRAM**

**CONTRACT
RECORD M456**

TURNKEY TRANSPORTATION



OVERVIEW

The Malin Abram team were delighted to successfully carry out a full turnkey project for EFAB Industrial Solutions Limited (EFAB), on behalf of their client Ensus UK Ltd. EFAB were contracted by Ensus UK Ltd to build a new caustic tank for the Ensus site in Middlesbrough. Ensus operates one of Europe's largest production plants for renewable ethanol at Wilton on Teesside in Northeast England.

Malin Abram were brought on board to manage the transportation of the new tank from EFAB's facility in Immingham to the Ensus site, as well as the safe and efficient removal of the existing tank. This represented a relatively complex scope, with lots of moving parts owing to the need to transport by land and sea, and the number of parties involved. Indeed, this multi-faceted project required expert co-ordination from a project management perspective ensuring that all key services were aligned, including mobile craneage, port craneage, road haulage, coaster vessel chartering, Police, Network Rail, and removal of street furniture to make it all possible. The project also represented the first with a new client, EFAB, and whilst the project had its challenges, the old tank was removed, and the new tank installed safely and successfully.



Figure 1: Tank secured in coaster vessel using chains

THE CLIENT

EFAB combine high level engineering skills with a wealth of construction expertise, capability and 48 years' experience across all UK industry sectors including Oil, Gas, Power, Chemical, Energy from Waste and Renewables.

They operate from three locations in the UK, with all sites linked through a dedicated communications network, which extends to their project sites across the UK.

Ensus operates one of Europe's largest production plants for renewable ethanol at Wilton on Teesside in Northeast England. Their vision is to create a climate friendly world in which renewable resources are key to ensuring the welfare of today's and future generations.

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LOCATION

The caustic tank, or cargo, was loaded at EFAB Immingham site, to be transported by a 12 axle hydraulic platform trailer to the Port of Immingham. From here, it was transported by sea to AV Dawsons site in Middlesbrough. The hydraulic trailer was then again used to transport the cargo to its final discharge point at Ensus's site.

All of the above sites see extensive industrial use and as such, berthing timings are exceptionally tight, with a strong likelihood of competing vessels on either side of timeslots. As a result, it was crucial to ensure that Malin Abram, and, by extension, our partner always had the most up to date information regarding berth availability and that this was communicated to all stakeholders routinely.

THE SHIPMENTS

SHIPMENT OF THE NEW CAUSTIC TANK

Malin Abram chartered a suitable coaster vessel for shipment of the new tank and performed all required engineering (including stow/securing plans and RAMS) to ensure the cargo was transported safely and securely.

As noted above, our client was looking for a turnkey solution, which meant that all road moves, (including liaising with Police and Council Authorities), the loadout to coaster vessel, securing and seafastening, unsecuring and removal, discharge to road transport, road move to Ensus and the installation of the new tank were all part of our overall scope of work. As such, project planning was critical, ensuring all required stakeholders were aligned, avoiding unnecessary delays and a safe delivery of the new tank to the Ensus site.



Figure 2: Discharging at AV Dawsons



Figure 3: Tandem crane lift at AV Dawsons

REMOVAL OF THE EXISTING TANK AT ENSUS

Our scope included the removal of the existing tank from its position on the Ensus site, to make way for the new tank. Various items of pipework and supports were removed from the tank, before the tank was cut into three off sections – a roof, middle and bottom section. A 400Te crawler crane was used to lift the old sections out. The scope was made even more challenging due to scaffolding that was required around the perimeter of the tank to provide access for the duration of the project. This meant that there was a half metre gap, which the removal of the old tank and the installation of the new tank had to contend with, thereby increasing the complexity of the lifts, with spotters required at various locations on the scaffold to ensure there were no clashes.

Removal of the old sections required the use of a square lift beam to ensure the rigging was aligned with the four lift points on each section.

INSTALLATION OF NEW TANK AT ENSUS

The installation of the new tank was carried out with two cranes to top and tail the tank of the trailer and into the upright position. From this position the tailing crane was then disconnected, and the tank was slewed round into position for final lowering. The lowering of the tank was completed in a controlled manner with spotters again ensuring that there were no clashes. The task was made all the harder due to the fact that the centre of gravity (COG) of the tank was slightly off centre; therefore there was a slight tilt in the tank when in the vertical position as it was being lifted with a single lift beam. From lifting the tank of the trailer to landing it in position took 90 minutes, but many hours were spent planning this part of the scope due to the inherent risk.

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SCOPE – PROJECT SEQUENCE

PROJECT SEQUENCE

The new tank was in the vertical at EFAB's site, meaning that two cranes were required to tandem lift the tank on to the 12 axle hydraulic platform trailer. The tank was secured by way of 14 off 12Te chains and moved to the Port of Immingham ready to loadout by port craneage to the vessel. Our team were responsible for securing and seafastening the tank prior to vessel sailing.

ARRIVAL AT MIDDLESBROUGH AND DISCHARGE

The coaster vessel then sailed up the coast to AV Dawsons facility at the Port of Middlesbrough whereby the tank was discharged from the vessel using a tandem crane lift to lift the tank on to the trailer once again for onward transport to site.

ROAD MOVE TO ENSUS, POLICE ESCORTS, READY FOR INSTALL TO COMMENCE

The road move was a challenging operation to undertake due to the size of the tank and the speed at which the trailer could travel. The route from AV Dawsons facility was approximately eight miles and required transiting along the A66 dual carriageway for the majority of it. To facilitate this a Police escort was required to safely move the cargo. This was undertaken at 5am to avoid as much traffic as possible and took approximately 2.5 hours to complete.

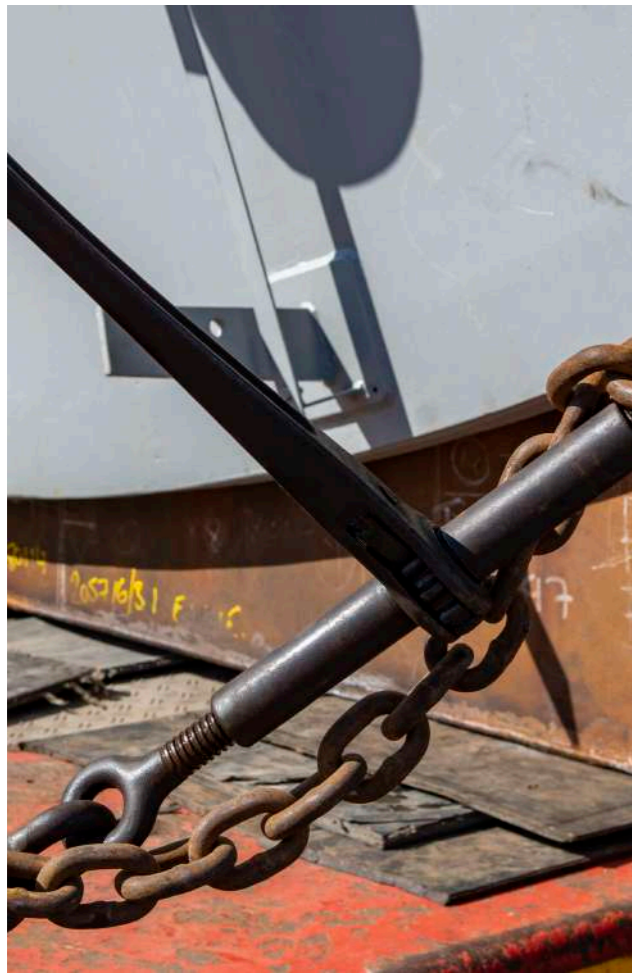


Figure 6: Securing tank to 12 axle trailer

CARGO DETAILS

19.044 x 7.44 x 7.647m @ 62Te

Figures 4 and 5: Securing tank at Immingham and tandem crane lift

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CONCLUSION

This project represented the opportunity to work with a new client, providing a truly turnkey offering. A relatively complex scope, the project had lots of moving parts owing to the need to transport by land and sea, and the number of parties involved. Indeed, this multi-faceted project required expert co-ordination from a project management perspective ensuring that all key services were aligned, including mobile craneage, port craneage, road haulage, coaster vessel chartering, Police, Network Rail, and removal of street furniture to make it all possible.

Whilst the physical transportation scope took place within relatively short timescales, the need to liaise with so many parties, combined with tidal variations resulted in a project that could have very easily resulted in delays. Despite these challenges, the old tank was removed, and the new tank installed safely and successfully.



Figure 7: Road move on 12 axle trailer



Figure 8: Police escort from AV Dawsons to Ensus



Figure 9: Lifting tank into final position