

## Providing Mechanical Support for Tank Cleaning Contractors

Having listened to our clients across numerous sectors including Refining, Chemicals, Storage Tank Terminals and others, a common theme would be a preference for versatility from contractors and less interfaces to deal with wherever possible.

The reduction of having to deal with more than one entity for having a tank cleaned is one less hassle for the facility operators to deal with. A tank cleaning contractor who can provide and manage mechanical services such as tank isolation prior to cleaning is an attractive proposition for many clients. Of course, a key factor in placing isolation work under the umbrella of the cleaning contractor would be an assurance of carrying the work out safely, with a high degree of integrity. Although we appreciate many larger facility operators have in house mechanical resources and prefer to co-ordinate and manage multiple contractors, there is an increasing desire to engage with more versatile tank cleaning contractors.



Unit Engineers & Constructors (part of the Unit Birwelco group ) have recently provided mechanical service support to several industrial services contractors and tank cleaners (see our case studies on the next pages). As a long standing direct contractor to major refining and chemical industry operators we are well known for our excellent track record on safety, quality and innovative solutions. By engaging Unit Engineers & Constructors to support them with mechanical services, a tank cleaning contractor and their client can be assured of a safe professional delivery from company with a long history doing what we do best.

The mechanical support services we can offer:

- ④ DESIGN: Feasibility studies, drawings and calculations, optioneering, lifting studies, advice and guidance on process plant codes of practice, such as: API, ASME, BSEN and EEMUA.
- ④ FIELD SERVICES: Cold cutting, hot cutting, flange integrity, demolition, spade to spade isolation and de isolation, management and labour hire, plant & equipment hire, heavy lifting and material handling, heat exchanger removal, offsite and onsite welding and fabrication.

### Talk to us!

Invariably cleaning and remediation projects present mechanical tasks which can be approached with a multitude of solutions. We can guide you through the alternative routes from our extensive experience and our innovative approach to unique situations.

### CONTACT

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## Providing Mechanical Support for Tank Cleaning Contractors - Case Study 1

A West Yorkshire based waste management company had been awarded a contract to internally clean a gas condensate storage tank at a facility on the Saltend Chemicals Park in Hull. After cleaning the facility operator would be carrying out an internal inspection of the tank. The facility operator placed the responsibility for initial tank isolation with the waste management company as part of this 'fast track' contract. The tank isolation had to be carried out before the waste management company could commence any of their cleaning operations.

This element of their work scope was not something the waste management company had the expertise with or the necessary resources. So they contacted the storage tank division of Unit Engineers & Constructors Ltd (UECL) to carry out this scope of work as a sub-contractor.



Following an initial site visit UECL (part of the Unit Birwelco group) provided a detailed method statement and risk assessment (RAMS) of how the tank isolation should safely be carried out. The waste management company submitted these RAMS to the facility operator for approval. In parallel with this UECL procured the bolts, gaskets and blinds required for the isolations. Within a short period of time UECL had provided: approved documentation, procured the materials and arranged the labour, plant and equipment needed for the work.

Following this at the waste management company's request UECL mobilised the squad of skilled and experienced mechanical resources, to safely and efficiently carry out:

- ① The removal of isolation valves and control valves ranging from 6"-12"
- ① Removal of 8" import lines and blanking off all open ends ranging from 2" -12"
- ① Installation of blanks and slip blinds ranging from 2" -12"
- ① Removal of 24" roof manways and other tank roof nozzles
- ① Removal of 30" Shell side manways for tank entry

All line works were carried out using breathing apparatus.

The tank isolation was executed a day earlier than planned and both the waste cleaning company and the facility operator were delighted with UECL's quick response and professional delivery. For the facility operator the reduction of interfaces they had to deal with to get the tank cleaned was of great benefit. It took away the hassle of having to coordinate different parties and removed the commercial risk of downtime claims, enabling them to devote precious time for other things.

For the waste management company the additional capability of providing safe, professionally executed mechanical services through Unit Birwelco to compliment their own core services, is now an attractive and unique service proposition.

## Providing Mechanical Support for Tank Cleaning Contractors - Case Study 2

A Teeside based waste management and remediation company had been awarded a contract to remove solidified Formaldehyde from a Stainless Steel Storage Tank at a timber processing facility in Hexham. Conventional methods of tank cleaning couldn't be employed for this task, so a remote controlled mechanically operated machine had to be used for extracting the product. To enable machine access, a section of the tank shell would have to be removed and an anti slip ramp would need to be built up to the access hole.

Once the product had been removed the tank had to be reinstated for re-use, this meant the shell section would need to be welded back in place. The site owners placed the full responsibility of the ramps and access holes with the waste remediation company as part of their contract. As this element of the work scope was not something the waste remediation company had the expertise in (or the resources), Unit Engineers & Constructors Ltd (UECL) were invited to support them with their project.

Following an initial site visit UECL (part of the Unit Birwelco group) provided a detailed method statement and risk assessment (RAMS) of how the access door should be removed and replaced. This preceded further discussions with all parties including the client, the waste remediators and the scaffold contractors as to the placement of the ramp and how it should be constructed. The structural effects of 500 Tons of residual product on the integrity of the tank when the access hole was cut was also a key concern for the tank operator. The size of hole was proved acceptable through calculations provided by UECL. There were also further obstacles that had to be overcome by the remediation company to allow their forklift to access the tank by passing over existing pipelines. UECL provided tailored solutions for mitigating this problem. The remediation company submitted the RAMS and design proposals to the facility operator for approval.



At the remedial company's request UECL mobilised a squad of skilled and experienced mechanical resources, to safely and efficiently carry out:

### ① Phase 1 (cleaning enabling works)

Pre-fabrication and installation of structural ramps and anti slip plates for forklift access Facilitating the cold cutting of the access door and removing it from the shell hole for scrap

### ① Phase 2 (following cleaning)

Supply and welding of replacement rolled stainless steel shell plate into access hole Carrying out emergent repairs to the tank shell following tank remediation Supply and Coordinating of NDT including shell seams X-ray following welding Removal of all structural steel & assisting with full demobilization to allow the tank to return to operability

Both the remediation company and facility operator were delighted with UECL's professional approach and delivery.

For the facility operator the reduction of interfaces they had to deal with to get the tank emptied and fit for return to service was of great benefit. It took away the hassle of having to coordinate different parties and removed the commercial risk of downtime claims, enabling them to devote precious time for other things. For the waste management company the additional capability of providing safe, professionally executed mechanical services through Unit Birwelco to compliment their own core services, is now an attractive and unique service proposition

## Providing Mechanical Support for Tank Cleaning Contractors - Case Study 3

A Teeside based Waste Management and Remediation Company had been awarded a contract to remove solidified Formaldehyde from a Stainless Steel Storage Tank at a timber processing facility in Stirling. Over time the product had settled in the tank and solidified to such an extent that the tank shell had serious buckling and structural damage rendering it totally inoperable for future use. After the product had been removed the tank was to be demolished and removed from site. Once the product had been removed the tank was to be demolished due to its poor state. The facility owner placed the full responsibility of the tank demolition and initial tank isolation with the waste remediation company as part of their contract. As the demolition was not something the waste remediation company had the expertise in (or the resources), Unit Engineers & Constructors Ltd (UECL) were invited to support them with their project.



During an initial site visit UECL (part of the Unit Birwelco group) risk assessed the impact of demolishing the tank in its position surrounded by live plant and constant moving traffic such as tankers (significant hotwork would have been required). UECL advised against in situ demolition in favour of removing the tank as a whole and demolishing offsite. Due to the site layout a large 500T rated crane would be required to reach the tank, however following the cost analysis and risk assessment presented by UECL this solution was now the much favoured option from the facility operator. To enable tank lifting, some issues



had to be solved by UECL. The lower section of the tank shell had peeled away from the sub frame that supported the tank and there was a risk of this peeling completely when the tank was lifted. Another problem would be the amount of windows that were to be cut from the tank shell for cleaning access, there was a risk of the tank buckling once top and tailed onto the trailer plus a question of structural integrity of tank during cleaning. UECL provided the solutions for these hurdles following discussions and the issue of calculations and detailed method statements. The remediation company submitted the RAMS and design proposals to the facility operator for approval. At the remedial company's request UECL mobilised a squad of skilled and experienced mechanical resources, to safely and efficiently carry out:

### Phase 1 (cleaning enabling works)

- ① Supply of MEWP and crane to remove ancillary items from the tank—caged ladder, existing pipework
- ① Isolate tank from 4" import lines



## Providing Mechanical Support for Tank Cleaning Contractors - Case Study 3

Phase 2 (following cleaning)

- ① Supply and welding of straps for tie-ing the subframe back to the tank—to prevent it peeling from the tank when lifted
- ① Supplying and welding of bracing around the access windows that had been cut into the tank—to prevent the tank buckling during top and tailing
- ① Mobilisation of 500 T crane supplied from the Heavy Lift Division of UECL's approved and trusted crane operator

Lifting and removal of the tank from it's bund

- ① Final siting of crane onto waiting trailer and removal from site for demolition
- ① Removal of all structural steel and assisting with full demobilization

Throughout the 3 days it took to prepare and remove the tank from site there were minimal disruptions for the facility operator. This was major plus for the waste remediators' client who had originally anticipated 2 weeks of in situ demolition with potential disruptions from hotworks, cranes and vehicles.



Both the remediation company and facility operator were delighted with UECL's professional approach and delivery.

For the facility operator the reduction of interfaces and removal of exposure to a loss of production, for getting the tank emptied and removed from site , was of great benefit.

For the waste management company the additional capability of providing safe, professionally executed mechanical services through UnitBirwelco to compliment their own core services, is an attractive and unique service proposition.