



# Condensate Tank

Value Tracking Case Study



# Condensate Tank

## Background

National Gas currently captures natural gas condensate and compressor oils that are occasionally present in the NTS. The condensate is captured by the scrubbers (which contain a level gauge) and then transferred to a condensate tank by a manual operation as necessary. Currently, most compressor stations have a permanent condensate tank installed to allow for condensate to be collected and stored before it is taken away for safe disposal. These tanks are classed as pressure vessels with various associated equipment that requires regular safety inspections and routine maintenance.

It has been observed that the compressor stations and terminals on the NTS with condensate tanks do not collect significant amounts; some of which have collected little to no significant condensate over the last 25 years. This equipment increases the number of hazardous areas on site and by extension requires maintenance staff to be knowledgeable of condensate collection at each site. The current two-person manual removal of condensate from the scrubber to the storage tanks is a hazardous activity, requires significant amounts of manual handling and requires technicians to follow special operating procedures.

The project will investigate the feasibility of designing and fabricating two mobile condensate storage tanks that can be stored at a central National Gas location and then be transported to a required site if and when the scrubbers need emptying and then returned back to the central location.

## What's new?

The Project has met all the original project aims with a good level of success. The main successes are below:

**Mobile Solution** - The design has ensured that the vessel is suitable for mobile usage, with lifting locations having been provided on the vessel to allow National Grid to locate the vessel in a suitable location on the compressor site. Therefore, this outcome has been successfully achieved.

**Simple Solution** - The proposed solution has minimal equipment and is a solely mechanical discipline to reduce the complexity of the overall solution. Human factors have been taken into consideration and the design has aimed to reduce and eliminate reliance on human operation where possible. This objective has been achieved.

**Successful Interfacing with National Grid Compressor Sites** - The mobile solution has a standard connection type, a 50mm NB Class 600 RTJ flange, which enables a standardised connection point to be included during future site modifications which will enable the site to accommodate the mobile solution.

**Vessel Pressure Rating** - The Vessel has been designed to the highest pressure on the National Transmission System therefore eliminating the risk of the vessel becoming over pressurised. This has been a success.

**Suitable to Decant Condensate Oil** - The vessel is able to decant the condensate oil from the scrubbers on site under the same parameters as the current condensate collection tank. This project aim has been successfully achieved following the trial activities at PMC Ambergate in late March 2021.



Decanting Process Plan - A process plan has been created for the transfer of the condensate oil from the scrubber to the proposed mobile vessel. This project aim has been successfully achieved.

Formal Process Safety Assessments - Both a HAZID and HAZOP has been successfully undertaken and closed out. A SWDS will be carried out for all future permanent pipework designs. This project aim has been successfully achieved.

including increasing the quantity of units and certain design options to improve usage of equipment onsite. Work to be developed via Operations Leads as part of upcoming project work.

New Procedures and Specifications:

T/PM/MAINT/6 - Management Procedure for Maintenance of terminals and compressor installations operating on the national transmission system (excluding PSSR inspections)

T/SP/COMP/33 - Specification for mechanical equipment on compressor installations

A policy update against COMP/33 will be included.

## The benefits

Cost avoidance in maintaining static tanks onsite or disposing of liquids in traditional methods.

Could be utilised for collecting other liquids for other applications, this could be an opportunity for National Gas Services (e.g. sediment removal). It could also be used as a venting filter during Pigging but to be picked as part of upcoming Operations development.

## Financial savings

£250k per tank not replaced but benefits to be reviewed with upcoming Operations development.

Solution requires development to increase usage by business and realise proposed savings.

## Implementation

Following completion of the project the equipment was introduced to the business but further development has been identified for this solution

