

Case Study

Client: **Sembcorp**
Location: **Nitrogen Cavity, Wilton Site**
Duration: **10 Days**
Contract Type: **Fixed Price**

Project: **Sembcorp Nitrogen Cavity Makeover (Work Pack 1)**

Scope of Work: Installation and testing of Valves and Pipework into an existing piping system.

Disciplines/Trades: Pipefitting, Rigging, Machining, Fitting, Welding, Pressure Testing and NDT.

Description: All defective valves including 12 sets of double block and bleed valves together with the associated pipework was replaced during the Nitrogen System Outage. A comprehensive list of existing flanges was required to be broken, inspected, cleaned and where necessary repaired prior to being re-jointed with new gaskets/bolts and torqued to the correct settings. Working to exacting standards the number of Non-Pressure Tested Closure welds was to be kept to a minimum and where unavoidable the 'golden' welds were subject to ultrasonic and radiographic inspection.

The nitrogen system feeds a number of different manufacturing plants on the Wilton complex and as such the outage timing had to be arranged with a number of stakeholder companies and carried out under exacting time constraints.

The external nature of the work, together with the February weather conditions and short hours of daylight intensified the complexity of the project.

Existing Defective Valves & Bobbin



Various Flanges for Inspection/Re-jointing



The work consisted of:

HPN Pipework

18 x 4" & 16 x 1" Gate valves replaced

Brine Pipework

3 x 10", 2 x 8" & 6 x 1" Gate valves replaced

IPN Pipework

2 x 6" & 2 x 1" Gate valves replaced

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A total of 105 various size Flanges were broken, inspected and rejoined and 94 welds completed consisting of:

- 31 x 1" Butt welds
- 58 x 1" Socket welds
- 3 x 1" Branch welds
- 2 x 4" Butt welds

All pipework was Sch80 A106 Gr B material

All welds were subjected to 100% Volumetric RT testing of butt welds + 100% DPI testing of all completed welds.

Project Highlights:

- All welds passed both Visual, Surface & Volumetric testing.
- Health and Safety, and Housekeeping were acknowledged as being to a very high standard throughout the project.
- Full scope achieved within the timeframes including a small element of emergent works