Report of Aubette Turnaround 2010

Short after the establishment of BHDT Service at the end of 2009 the first major contract was concluded with an LDPE client in Berre L'Etang / Marseille / France. The contract consisted of the planning and the realisation of a major turnaround. Almost all of the HP-work to be performed during this turnaround was in the responsibility of BHDT Service. The BHDT Service part of the turnaround was scheduled with a maximum duration of 4,5 weeks and with a total number of 19 persons on site.

The Turnaround of this 285KTA plant was necessary due to the European legislation after an operation period of 12 years. Already after 6 years of plant operation a smaller turnaround has been performed on the same plant. The regulation requirements and the corresponding inspections & pressure tests shall guarantee a safe permanent operation of the plant. Therefore the main task was to disassemble parts of the equipment in order to allow Inspection authorities to inspect specific predefined sections of the HP Equipment. In addition it was the requirement to perform specific HP & LP pressure tests on the equipment located within the reactor bay and to perform the regular exchange of numerous items installed with spare parts foreseen accordingly.

The scope of work for BHDT Service consisted of the disassembly of specific HP Flange connections for the Inspection. On every part of the Reactor equipment – Preheater, Reactor, Aftercooler, Sidecooler – approximately 14 pcs. 180° bends, 10 pcs. 90° bends, 3 pcs. HP-rupture discs and 2pcs. HP-tee blocks were disassembled for the internal inspection of the HP tubes & equipment.

Furthermore BHDT Service performed the scheduled replacement of three valves (Control valves & T-emergency valves) which were disassembled and replaced by spare valves on

stock. The disassembled valves will be returned to the original equipment manufacturer for refurbishment.

For the exchange of a special device and the add. installation of one measuring tool (process optiomisation) BHDT Service was also assigned the job to completely remove a special tube, the rupture disc bloc inbetween the Preheater and the Reactor and the mixing block which combines the two lines prior to the Reactor inlet.

This was a very critical task since the two blocks and the corresponding piping assembly are very heavy and difficult to access in the vertical orientation in which they are positioned reaching from ground floor to a height of approx. 7m.

For the stress free reassembly of the equipment it was twice necessary to manufacture special sized lens rings out of stock material at the BHDT workshop in Austria. These lens rings had to be on site after 48 hours since the project progress was depending on this equipment.

The disassembled equipment such as T-blocks and HP-bends were separately inspected within a dedicated workshop whereas the HP tubes were inspected in situ on the steel structure.

One of the dissasembled 180° HP bends of the reactor had to be replaced due to technical reasons.

The two lens seats of every disassembled HP connection were separately inspected and prepared for the reassembly of the equipment. The majority of the lens ring seats has been prepared with a grinding tool on a drilling machine. But a considerable number of lens seats could not be repaired with this method. Instead a special turning machine has been used on the more heavily destroyed lens seats. With this machine it was possible to remachine the cone surface of the lens seat in situ on the tubes which where not removed from the steel structure and on the bends which where temporarily stocked in the warehouse. In addition BHDT Service has also performed the remachining of several lens seats of equipment for other companies working on the same turnaround.

All disassembled lens rings were stamped with an abbreviation indicating the position in which they were installed. The clients inspection department will test all disassembled lens rings in order verify the effect of the 12 years of operation on the material properties. The target is to analyse and to verify if the maintenance schedule needs to be adapted for the coming years of operation. The process department of the client will also try to gain valuable

information regarding process details and eventual optimizations that could be realised during the next turnaround.

Besides the standard HP equipment two vessels – the reactor blow down vessel & the HP product separator were prepared for internal inspection and pressure tests.

At the reactor blow down vessel – a LP vessel – the bottom man hole had to be opened for internal inspection. In addition one of the inserts from the blow off lines had to be removed for internal inspection of the insert tube which is a part of the vessel. For the pressure test of this vessel not only the bottom side man hole and the insert tube had to be blind plugged but also the top outlet which normally leads into a chimney had to be blind plugged. The chimney was therefore loosened and lifted and a blind disc with an approx. diameter of 2 m was then inserted from the side. Also several smaller sized standard ANSI flange connections for diverse inlets and outlets to the vessel had to be blind plugged for the pressure test. The pressure test was successfully performed.

At the reactor let down vessel - a HP vessel - the upper insert had to be removed for internal inspection. This insert was loosened and removed. For the pressure test of this vessel the upper insert had to be repositioned and blind plugged on top. In addition one 90° long radius bend had to be removed at the bottom side of the vessel in order to blind plug the outlet. The pressure test was successfully performed.

The pressure tests of the below listed equipment were also successfully performed by BHDT Service during the turnaround.

- Intercooler E-1209 A & E-1209 B
- Softcooler E-1401-1 & E-1401-2
- Aftercooler E-1302 & E-1303
- PS/TS Line

Besides the above described scope of work BHDT Service also prepared the complete heating Jacket for the pressure test. This scope included the disassembly and blind plugging of approx. 40 pcs. of rupture discs. It also included the blind plugging of approx. 60 pcs. standard type ANSI flanges reaching from the size ½” to 16” on connections which had been

disassembled by other companies working on the turnaround. The pressure test has been successfully completed.

BHDT Service successfully finished all of the above described work within the scheduled 4,5 weeks with the 19 workers that had been originally assigned for the job. The completion of this job can be considered the first real success of BHDT Service.