Gonfreville, France

250 MW

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Combined heat and power for TOTAL FINA ELF - France

First John Cockerill's HRSG's with fresh air fans

Project definition

The Total Fina Elf refinery at Gonfreville, near Le Havre, have to replace old boiler plant and COFIVA, a division of Electricité de France decided to install a combined heat and power scheme to supply the refinery with steam and power. The plant comprises two GE Frame 9E gas turbines and John Cockerill HRSG's with supplementary firing. Steam production can be further boosted by using a forced draught fan in parallel with the gas turbine. If one gas turbine is shut down, then the FD fan operates alone with the fired boiler.

The large quantities of waste gases produced in the refinery are used to fire the boilers. The prime purpose of the power plant is to guarantee steam demand to the refinery. Depending on demand there can be one or two gas turbines running with varying levels of suplementary firing. Also, boilers can be operated on fresh air instead of GT.

The contract

In July 2001 COFIVA awarded a contract to John Cockerill for the two HRSG which included procurement of the FD fans. The HRSG are a vertical, single pressure, assisted circulation design with a low pressure economiser stage heating a common deaerator. The pressure parts were all made in Belgium and erected on site by approved subcontractors working under John Cockerill supervision.

Plant operation

Base load; combined heat and power production

Gas turbines

- GE Type MS9001E
- ISO rated 126.1 MW
- Fuel: natural gas

Heat recovery steam generators

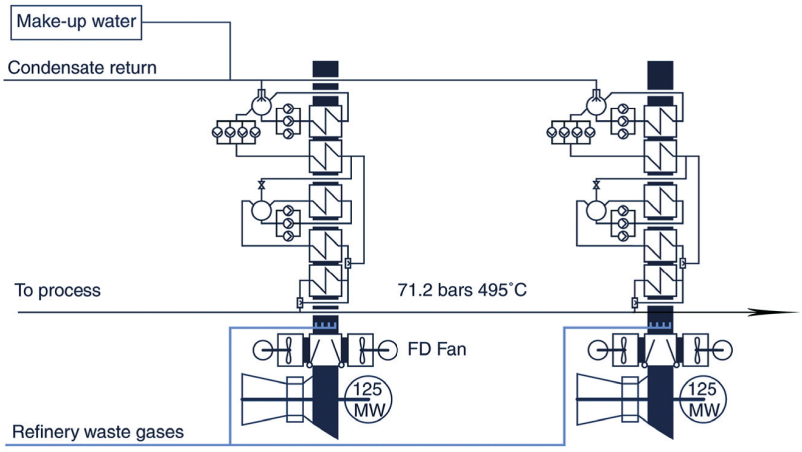
- John Cockerill Vertical, Assisted-circulation design
- Single live pressure output
- Duct Burner 165 MWth with refinery waste gases
- FD Fans for fresh air operation independently of GT
- No bypass stacks
- Stack: 90 m high
- Dual redundancy for maximun HRSG availability
- Indoor HRSG

Performances

GAS	°C		kg/s
Inlet	543		543
Outlet	120		543
STEAM	°C	barA	t/h
HRSG base load	495	71.2	225
HRSG max.load + dilution air	495	71.2	350
HRSG on fresh air alone	495	71.2	110

Schedule

Date of order	June 2001
First HRSG at full load on GT exhaust	August 2003
First HRSG at maximum steam load	November 2003
Commercial operation	June 2004



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