

ProSimulator

MCF AMMONIA PLANT OTS



Mangalore Chemicals and Fertilizers Limited (MCF) located at Mangalore, India manufacturers fertilizers. The Company has a Ammonia plant with ICI, U.K, technology utilizing steam naphtha reforming process with annual production capacity of 217,800 MT. The unit has installed Centum CS3000 DCS and Advanced Process Control technology. Attrition rate and graying of workforce in process industries poses major threats in operating complex plants like **Ammonia plant**, and therefore engaged Sim Infosystems for the supply of Operator training simulator to train the fresh recruits faster as well as provide refresher training to experienced operators/engineers.

Sim Infosystems have installed the OTS with Ammonia plant reformer section model in May 2007 and the remaining portion of the model in June 2008.

The OTS system has all standard training features like snapshot, backtrack, simulation speed, malfunctions, logging, etc. Besides this, OTS system provides state-of-the-art features like performance evaluation, automatic training, monitoring, multi-training session etc for the purpose of effective training.

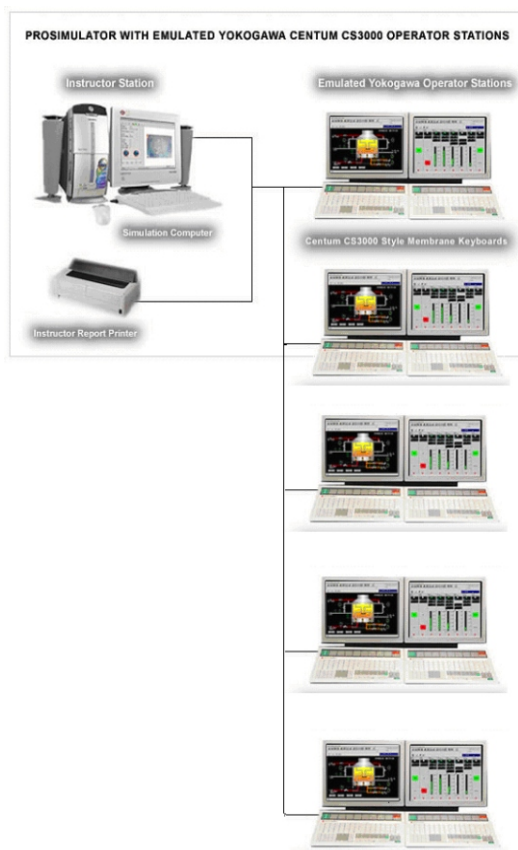
The OTS is developed to emulate the actual Yokogawa CS3000 DCS control system for enhanced training.

All the field devices are simulated in separate FOP pages accessible easily from DCS graphics pages.

The ESD trip systems are fully simulated and the ESD graphics pages are provided as the operator interface on the operator station.

Scope of supply:

- ✓ ProSimulator Instructor station software
- ✓ ProSimulator operator station (emulated Yokogawa CS3000 DCS)
- ✓ ProSimulator Model development toolkit
- ✓ Prosimulator Basic Process models suite
- ✓ Custom model of Ammonia plant
- ✓ Emulated CS3000 keyboard



Ammonia Plant model scope:

Ammonia unit process models are developed based on "First Principles of Chemical Engineering" (conservation of mass and energy), thermodynamic properties and equipment performance / design data. This approach ensures accurate responses in the operations ranging from start-up to normal operation and shutdown. The high-fidelity models can realize efficient and high-level operation training, which means that the operators can acquire a high level of operational knowledge of the plant.

Phase 1

- ✓ ProSimulator Basic Process models suite and standard models for Ammonia and Urea plants.

Phase 2

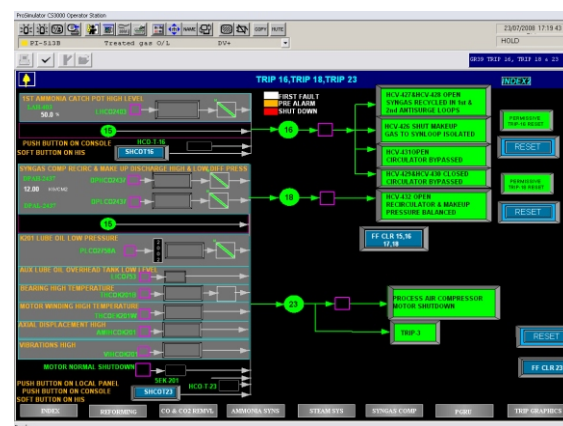
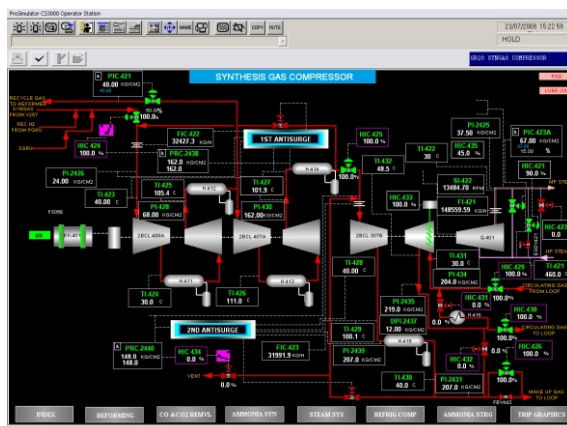
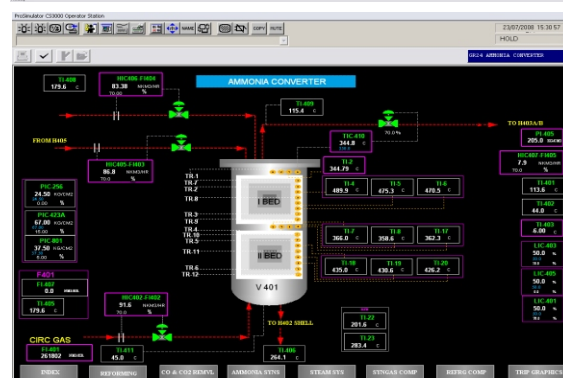
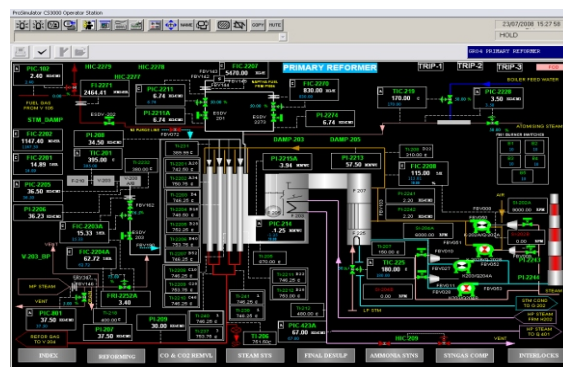
- ✓ Pre treatment
- ✓ Tubular reformer, Shift convertors
- ✓ CO₂ absorber
- ✓ Methanator

Phase 3

- ✓ Synthesis reactor
- ✓ Purification section
- ✓ Ammonia / Hydrogen recovery section,
- ✓ Synthesis gas Compressor

ESD / Trip system

Field Operation Devices Graphics



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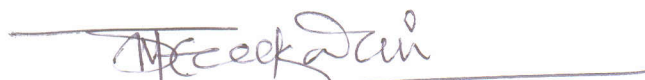
CERTIFICATE

This is to certify that M/s. Sim Infosystems Pvt Ltd, Chennai has supplied an Operator Training Simulator system to our Company during 2007 with the following components:

- Simulation hardware
- Instructor software
- CS3000 emulation software with emulation keyboard
- Standard models for Unit operations
- Custom models for Ammonia plant – reformer section
- Model development toolkit

We are happy with the software performance supplied by Sim Infosystems. We find that Sim Infosystems engineers have professional and sincere attitude towards the work and customer. We are able to use the system now for our operator training and planning to develop OTS models for other process also. Sim Infosystems also provided necessary support after installation. Based on this success, we have now placed the order for the custom Ammonia Plant Model – Synthesis and Recovery sections.

We are happy to recommend Sim Infosystems as a proven and quality OTS vendor to other process companies.


SUNIL M KULKARNI
GENERAL MANAGER - PRODUCTION

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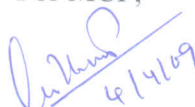
MCF –OTS PROJECT

CLOSURE MEET

The Ammonia Operator Training Simulator Site Acceptance Test for Phase III (along with phase I & II) is completed on April 4th, 2009. All the pending issues are resolved. The system is working satisfactorily. The supplier of the simulator system, Sim Infosystems Private Limited shall provide support as per the agreement.

Any up gradation in the software, Sim Infosystems shall incorporate the same at agreed terms and conditions. Any help required for trouble shooting, Sim Infosystems will assist MCF to over come the same on priority basis. As per the agreement Sim Infosystems will help MCF to maintain the system for a period of one year from SAT.

For MCF,


4/4/09
Gilbert DSouza

For Sim Infosystems,


4/4/2009
William Hazlit

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