Yokogawa Completes State-of-the-art Operator Training Simulator System of LNG Terminals in Hazira, Gujarat (India)

Location: Hazira, Gujarat, India
Order & Completion: 2010 & 2011
Industry :LNG Terminal

Executive Summary

Yokogawa and Sim Infosystems implemented full-replica plant simulator by using Omega Land to train safe and smooth plant operation. Yokogawa's Omega Land simulator was effectively used for:

    - Operator training

For Hazira LNG Private Limited (HLPL), a safe plant operation was the highest priority and particularly emphasized on the operators' training to operate as per the management directives. HLPL utilized Yokogawa's Omega Land simulator because it could meet their training needs & that no individual shall carry out a task unless they are trained, competent and authorized to do so. This was possible only by using a full scope complete replica plant simulator. Actually, during and after the completion of the project, HLPL was satisfied with the achievement of stable and safe plant Operation. This was possible due to the OTS solutions & engineering carried out by Yokogawa team. Yokogawa project team worked closely with HLPL team during the project implementation, and engineered a OTS as per the contracted terms.

The Challenges and the Solutions

Even from the conception stage, this project was considered very important & vital not only to HLPL but for Yokogawa too as HLPL is the one of major LNG terminals in India. Yokogawa's OmegaLand would help HLPL to avoid the lost productions and incidents, reduce the unplanned shutdown, optimize LNG terminal processes, and improve reliability by training new operator staff in trouble-free start-up and load operation, prior to real plant operation. By establishing a network connection between OmegaLand and an actual Yokogawa's DCS (CENTUM CS 3000), it made possible for operators to receive realistic training in a Virtual environment. Training became available for procedures such as plant startup and load change, abnormal conditions such as an instrument or equipment failure, and emergencies such as earthquakes, fires and runaway reactions etc. Because the simulator used exactly the same algorithms as the actual control system, it enabled individuals to be fully trained in order to respond to emergencies that could lead to a Plant shutdown.

Customer Satisfaction

HLPL is highly satisfied with the OTS itself and Yokogawa's OmegaLand capabilities.
Mr. Dhirendra Kumar Mishra, Operations Manager, of HLPL had these comments after the successful completion of the project:

I sincerely thank and appreciate YIL team's effort in completing the HLPL OTS project on time. The project has been a great success for HLPL. Sincere efforts put in by the YIL team assigned for the project is praiseworthy. The team has worked seamlessly with HLPL OTS team to deliver the OTS as per requirement given by HLPL team. I would like to thank you for keeping focus on the project and leading the team to successful completion. We will look forward to such cooperation for all future support to OTS maintenance and upgrades in future.

Omega Simulation Co.,Ltd.

YOKOGAWA

About Project

This is the OTS configuration for HLPL LNG terminal.
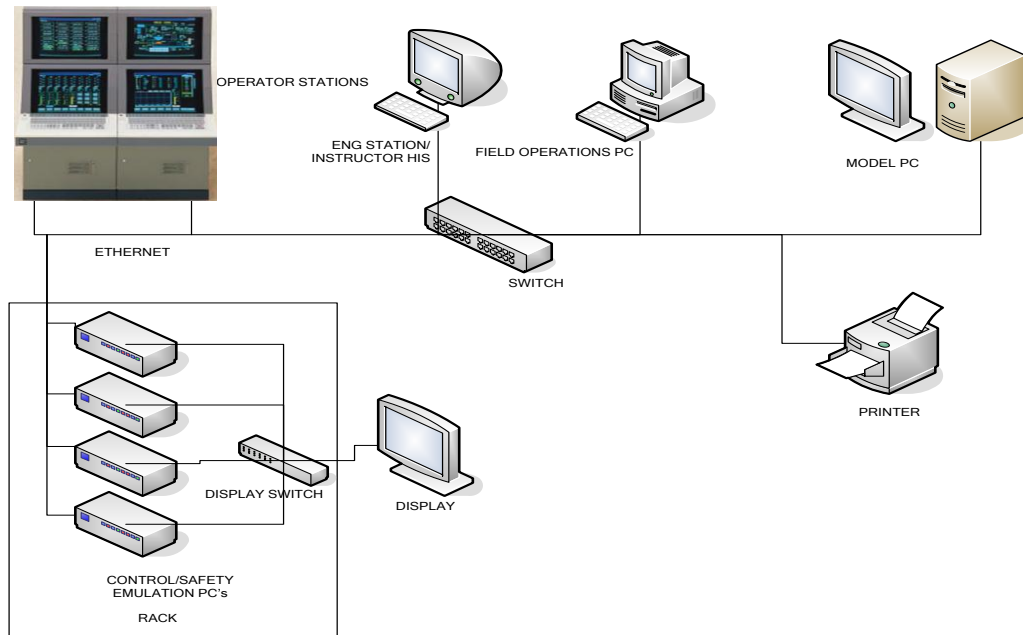
Yokogawa's Omega Land simulator contributed to the training of operational personnel for various operational Conditions including malfunctions or disturbance that may occur at their actual plant. For this project, 10 initial Conditions, 22 custom malfunctions, 11 Instructor variables, 10 Evaluation and 10 Scenarios were provided beforehand in the simulator. From the initial states, even the inexperienced operators can get proficient in the following:

1. Normal operation

Training for ordinary operation including switching the equipment, changing the control manner and load up/down of send out gas can be carried out.

2. First time Unloading LNG

Unloading of the first LNG tanker after the completion of pre commissioning activity can be carried out on this OTS.

3. Unloading LNG

Inexperienced operators learned the unloading procedures including cooling down the arms, starting of Loading and unloading LNG from the tankers can be carried out.

4. Preparation Emergency situations

With prepared malfunctions, trainees can be trained for emergency situations of OTS DCS/IPS operation,

field validation/operation.

Instructor's Roles

During the training, an instructor selected an appropriate initial condition, issue or malfunction based on the training curriculum. An instructor was also able to change the send out load or receive a call in place of an operator of other plant. Particularly, when unloading LNG from the tanker, the instructor is required to perform the operation on the ship side and achieved by the simulation training with OmegaLand.

Central Control Room (CCR) operators

The OTS was especially aiming to improve the CCR operators' capabilities. They went through the training by a simulator to master the basic operation and operational control so that they would be able to judge and handle abnormal situations appropriately.

Field Operator

His/her main work is to confirm the field information. However, occasionally they would be trained by a CCR operator so that they could be prepared to perform field operation adequately.

About Customer

HAZIRA LNG Private Limited (HLPL) is a joint venture between Shell Gas B.V. and Total Gaz Electricite Holdings, France. HLPL operates LNG receiving, re-gasification and auxiliary facilities for handling 3 million Tons/Year LNG which is located along the coastline at Hazira, approx. 35 km from Surat city in the state of Gujarat. The Sectionalizing Valve (SV) station is located 4 km away from the site and LNG custody transfer metering (CTM) station is located 14 KM away from the from the site.

About Yokogawa's Omega Simulation in the LNG Terminal Field

We are contributing to development of plant operation through simulation technology.

Yokogawa's Omega Simulation has outstanding capabilities in the LNG terminal field, proven by the extensive experiences with the following major customers.

- Tokyo Gas (Japan)
- Osaka Gas (Japan)
- Toho Gas (Japan)
- Adriatic LNG terminal (Italy)
- GNL (Chile)
- ShangHai LNG (China)
- Gas de France / Dynamic simulation model (France)
- South Hook LNG (UK)
- & now the Shell LNG at Hazira.