



Overview

Country or Region: Indonesia

Industry: Oil & Gas

Customer Profile

Pertagas built new pipeline as an extension of existing "Pertagas Arun-Belawan pipeline" to meet the gas demand of consumers around Kawasan Industri Medan (KIM) and Kawasan Ekonomi Khusus (KEK) in Sei Mangkei, North Sumatra. The Tie-in point is located at Belawan. Length of KIM-KEK pipeline is 130kms & length of Belawan-KIM pipeline is 15Kms.

Larsen & Toubro (C&A) bagged this prestigious contract for providing Pipeline Management System for the Arun-Belawan extension pipeline. This project is L&T-C&A's flagship pipeline project in Indonesia.

Pipeline Management System for PT. Pertamina Gas, Indonesia



Need

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Project Overview

This extension pipeline is designed for 76 million standard cubic feet per day (MMSCFD) which branches off for 60 MMSCFD and 16 MMSCFD for distribution to users around KIM & KEK station respectively.

Pertagas required a robust & highly reliable

automation solution for control and monitoring of gas supply to consumers around two main stations at KIM & KEK and one main master station at Pangakalan Brandan. L&T-C&A's project responsibility includes design, engineering, development, configuration, supply, installation, testing & commissioning of Process Control System(PCS) for process control & monitoring, an Emergency Shutdown system (ESD) for safe operation and a Supervisory Control Data Acquisition Control System (SCADA) for live data control & monitoring, RTUs for data gathering of the entire pipeline.

A solution for every challenge

A good start means half done. The project started with a site survey and subsequent discussions with customer to understand their requirement to set off the project with clarity & distinct scope distribution.

Best in class: The system is designed for process control & emergency shutdown for controlling and monitoring of Pig launcher and receiver, Compressor systems, Fire

water system, fresh water system, gas engine generator, gas filtering area, diesel engine generator and gas distribution system. The designed system is hot-standby redundant and provides 99.9% reliability with outstanding convenience at the same time. A hot standby redundant configuration at all levels viz. – Siemens process PLC , Siemens safety PLC with SIL 3 certification , Siemens RTU , L&T **iVision_{max}-PipeLine[®]** SCADA, server, HMI workstations, networking equipments and associated accessories, ensures bump less transfer and first-rate performance. Network architecture is designed for communicating the real time data from KIM and KEK station to the central monitoring station at Pangkalan Brandan.

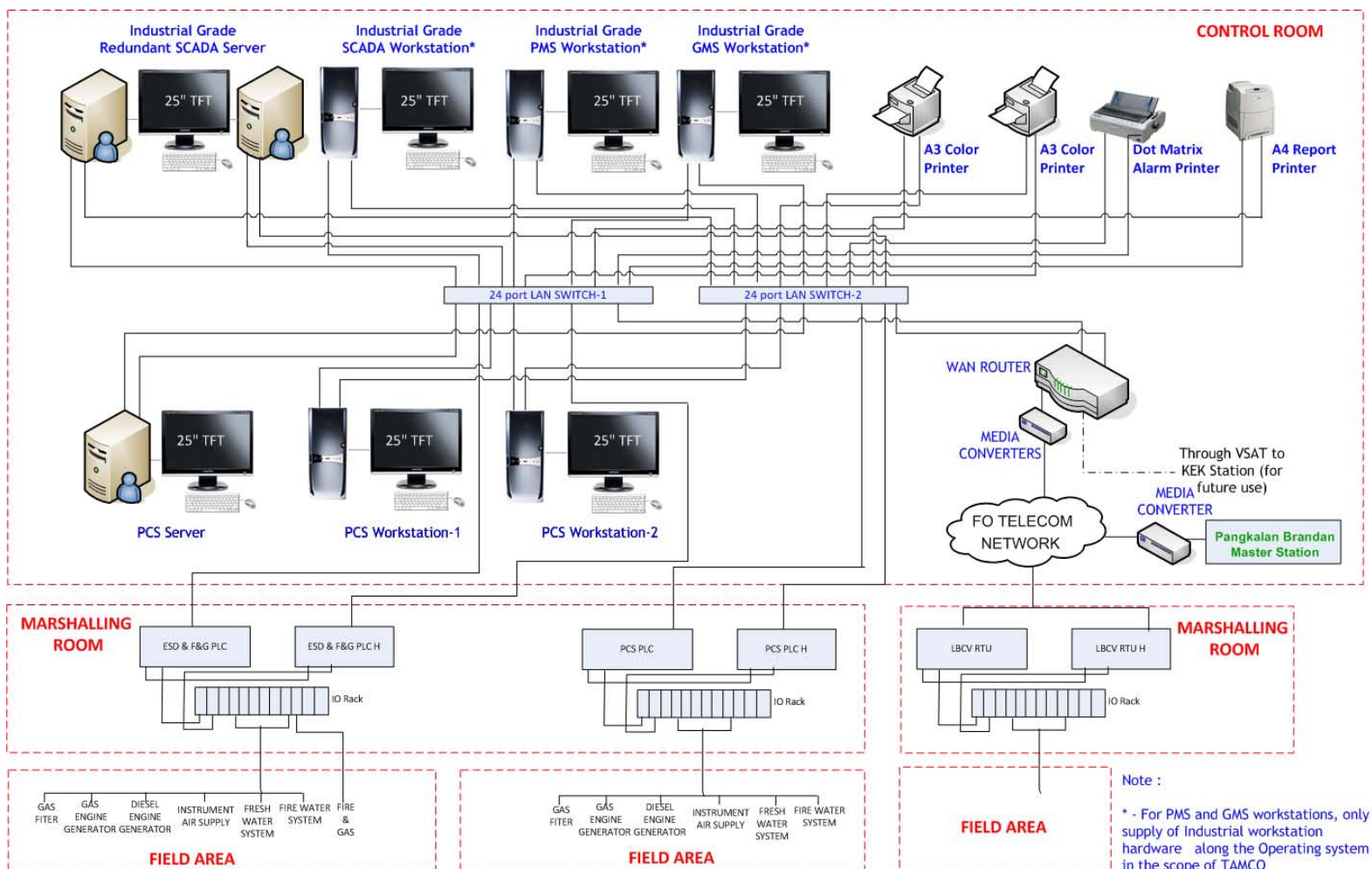
One stop solution: L&T-C&A's supervisory control data acquisition system **iVision_{max}-PipeLine[®]** (SCADA) combined with Siemens process & safety PLC and RTU panel ensures real time modelling and field data control &

monitoring. Alarms, event logging, dynamic reporting and trends provided by L&T-C&A system helps the end users to have a better control & monitoring of the process and in turn helps customers to make sound business decisions.

Seamless Integration: Successful & seamless integration achieved with Millisecond-precise synchronization of third party systems viz. F&G system and gas metering system . F&G system is interfaced with ESD system over modbus TCP/IP protocol and gas metering system is interfaced over modbus RTU protocol.

Safety First: To ensure safety of analog & digital input modules & power supply modules against voltage spikes, surge protection devices are provided. Safety barriers are used in process control system for analog signals coming from hazardous field area.

Focus on strengths: L&T-C&A capitalized on existing Indonesian facility and carried out integrated FAT for the complete &



About Us

L&T Control & Automation (C&A) is a Strategic Business Unit of L&T Electrical & Automation. It is a part of Larsen & Toubro – the multi-billion India-based conglomerate. L&T's C&A business is market leader in delivering integrated electrical & automation solutions in India and overseas. With over three decades of experience in diverse industry segments, C&A delivers value through comprehensive solutions based on varied technology platforms and incorporates the benefits of its wide-ranging experience. L&T's state-of-the-art Electrical & Automation Campus at Navi Mumbai in India has the latest testing and manufacturing equipment. It incorporates a modular manufacturing unit, an application software laboratory and a fully networked office for engineering and project management.

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- Iron & Steel making E&I
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Oil & Gas

Upstream, Midstream and Downstream

- Integrated Process Control
- Pipeline SCADA
- Emergency Shutdown and Fire & Gas
- Terminal Automation & Tank Farm

Power

Generation, Transmission and Distribution

- Integrated controls for Boilers and Turbines
- Station C&I
- E, C&I for CHP, AHP, WTP
- E&I for Solar Plants
- Smart Grid

Infrastructure

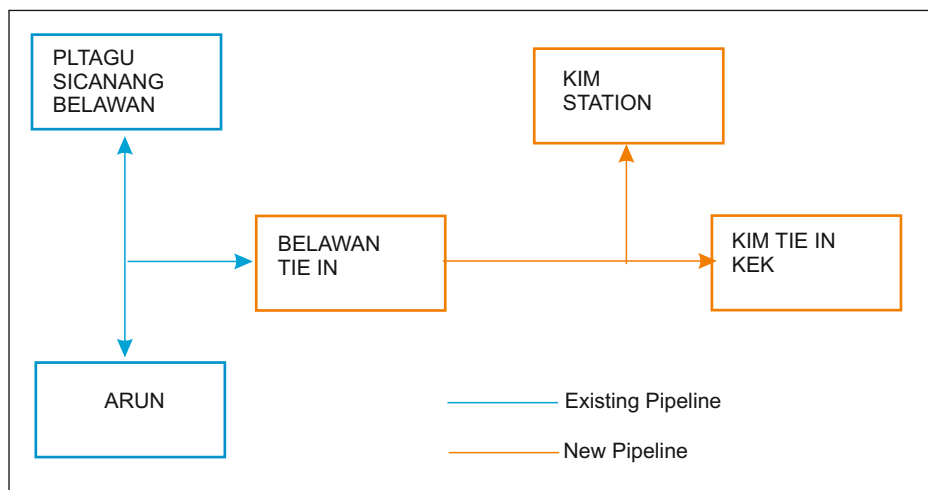
Highways, Ports and Metro Railways

- Highway Traffic Management
- Metro Rail BMS & AFC
- Airport Baggage Handling
- Power Management
- Smart City & ITS

Buildings

Hotels, Hospitals, Factories, Malls, Data Centres

- Substation
- MV / LV Power Distribution System
- ELV / CCTV / Fire Detection & Alarm Systems (FDAS) with suppression solution
- Access Control
- Lighting Control



robust check of system performance including testing of hardware, logic & software. This ensures that minimum time is spent in actual site commissioning which is scheduled by end of Nov 2015.

Technology:

PCS and ESD system

- SCADA: L&T **iVision_{max}-PipeLine[®]**
- PLC: Siemens S7412H fail-safe system with SIL3 certification
- PLC software: Simatic Step7

Communication protocol

Modbus TCP/IP, Modbus RTU

IT infrastructure

- Industrial grade windows 2012 servers

and workstations with windows 8.1

- Managed network switches, routers, firewall
- Server racks

Customer Satisfaction

Our solution & domain expertise will help in control & monitoring of gas supply to consumers & increasing operational efficiency at Pertamina. The design best suits Pertamina's infrastructure. It shall ensure the availability of live data for monitoring various parameters and smooth operation of pipeline. This solution shall be another stepping stone for Pertamina's endeavour for being best Oil & Gas service provider in the world.

