



AGIP Jkpeeze Nigeria

HPI plans to provide service and an overhaul for AGIP's Nuovo Pignone Gas Turbines at their OB-OB gas plant.

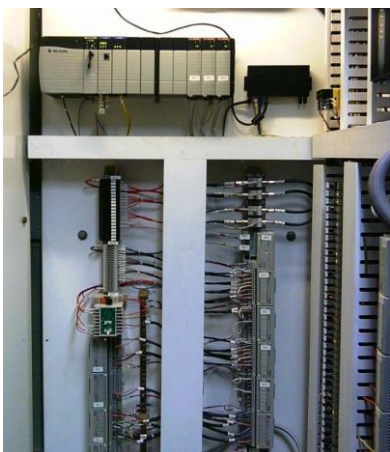
Recently an HPI representative was sent to the OB-OB plant to investigate over heating problems inside several Nuovo Pignone Gas Turbine enclosures.

It was determined that approximately 3 years ago, the then existing fire protection system was replaced with a CO2 fire protection system. With some of the Gas Turbines, the systems are not fully functioning currently, and some of the CO2 bottles are missing.

HPI concluded that the major reason for the detectors failing could be due to short circuits in the original 25 year old cables.

HPI had a few recommendations such as; rewiring, respecifying and replacement of gas detection components, installation of exhaust duct fan motors to reduce overheating, inspecting the control systems, repairing the machine that has a hazardous gas path leak, developing and overseeing a plant wide maintenance program.

HPI supplied qualified personnel on this project, for both on-site work and for home office support. The typical roles of the five-to-six HPI employees on site would include: Site Manager for overall processes, procedures and interfacing with NAOC; Property Manager (who will manage sign-out log for stores, inspection, lay down area coordination), four Supervisors advisers with strong mechanical, instrumentation, hydraulic, rig/crane operating, and ASME-code compliant welding skills; and an assistant Technical Advisor to help in all areas above plus manage QA/QC and safety procedures.



The replacement controller for the new Turbine Control Systems is based upon the Allen Bradley ControlLogix PLC. The PLC is connected with the I/O via an Allen Bradley FlexIO interface system over a ControlNet communications network. Each FlexIO module is mounted on a separate terminal



base and these mount directly on standard terminal rails on the rear panel of the control cabinet.

A typical sub panel layout utilizing Allen Bradley's Flex I/O modules is shown in the photograph on the left.



The HMI on each control panel will be based on the Allen Bradley PanelView Plus 1250, 24 Vdc with touch screen color display.

HPI supplies digital turbine control systems, which are designed for easy retrofit onto existing turbine units. These systems replace the existing control system. HPI is proposing to supply its unique fuel governing software written in Ladder Logic on the Allen Bradley ControlLogix PLC, providing all governing functions.

The HPI facilities are located in Houston, TX and all of the Engineering, Design and Manufacturing will be carried out at the Houston office.

As technological leaders in the supply of turbo-generator services, for both the OEM and retrofit markets, HPI use professional project teams with extensive experience in design of hardware and software, manufacture, testing, installation, commissioning and supporting of turbine systems. Former key VT Controls and HSDE staff with over 150 cumulative years experience in the industry make up the HPI engineering, project, organization and management teams; they have been proven through many years of providing turbine retrofits and are formed of highly qualified personnel who fully understand the demands of this specialized industry.