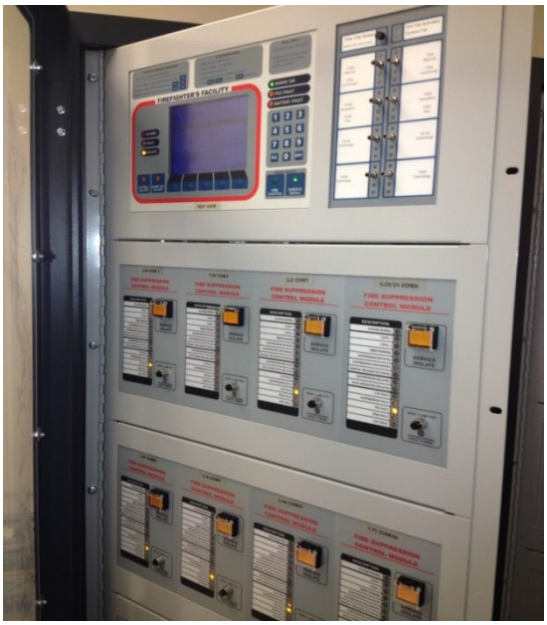
COMPLETED PROJECTS

SITE:	**GORGON NPI - CHEVRON OIL AND GAS PROJECT**
LOCATION:	Barrow Island, WA
SCOPE OF WORK:	Fire Protection - (Deluge Water Mist Suppression, Automatic Water Mist Fire Suppression, Monitored Fire Detection and Alarm System, Gas Suppression system with full Manual and Automatic integrated controls, Onyxworks control system with Graphics system over a Fibre optic network)
COMPLETION DATE:	March 2016



The Chevron Oil and Gas Project, was the most high profile Multi Billion Dollar mining project in Western Australia. The project is located of the coast of Dampier in the Pilbara on Barrow Island.

Firesafe were involved with the Non Process Infrastructure area of the Permanat Operating Facilities (POF), which included for the Central Contorol Facility, laboratory, warehouse, workshop, fire station and hazardous area storage bunkers.

The Permanent Operations Centre Facilities (POF) Fire Suppression and Detection systems, included Deluge watermist, Automatic closed bulb watermist, Automatic Fire Sprinklers, Automatic Early Suppression Fast Response (ESFR) sprinklers, Multiple Aspirated Smoke Detection Systems (MASDS), Full Building and occupant warning systems (BOWS), Intelligent Graphis User Interface (GUI) with full individual manual and automatic controls linked to a site wide Fibre Optic Network.

FIRE SUPPRESSION SYSTEMS

The fire suppression systems consist of manually operated, zoned deluge watermist system to the Central Control Facility (control room), Automatic deluge underfloor protection, automatic closed bulb protection to office facilities, complying with NFPA750, NFPA 20, AS4587.
The warehouse contained ESFR sprinklerd to the high piled storage areas and ordinary hazard sprinklers to the offices, complying with AS2118.
The workshop and Fire Station contained ordinary hazard Automatic sprinklers.

8 x Inert Gas suppression systems were installed in the operations building to protect the integral computer server, network and power supply areas, complying nwith AS14520.

FIRE DETECTION DEVICES

The fire systems as well as providing detection in the form of smoke and thermal detection, included for MSDAS aspirating systems as part of the two stage, watermist and gas suppression pre–actions control.

The fire system also was utilised to monitor the sprinkler systems and fire pump room, providing indication and control for the sprinkler systems and Gas Suppression.

The fire system was connected via the site network to provide ful indiaction status remotely at the Main FIP located within the site operations control room.

The dry fire system also included for the interfacing of mecahnaical plant services to AS1668 providing automatic and a manual control of AHU, smoke extract and smoke spill fans, lift control. access control and security systems.

This was integrated within the fire system cause and effect matrix to provide a fully programmed casue and effect matrix, as required by Fire engineering solution.

SCOPE DETAILS

Within our scope for the various projects completed we were tasked with the Design, Supply, Fabrication installation and commissioning of fire protection systems listed above and comprising the following codes:

- A fully compliant combined fire system to AS2118
- Compliant portable extinguishers to AS2444
- A fully compliant Fire Detection and Occupant Warning System to AS1670.1
- Gas suppression to AS 14520.
- AS 60079 Electrical Apparatus for explosive environments
- AS 4041 Pressure Piping
- ASME B31
- ASME B36
- API codes for fabrication and installation of piping.

CHALLENGES & SOLUTIONS

Throughout the projects there were various challenges which we had to overcome:

- The Gorgon project Operations area was a critical part of the command and control strategy for the whole of the production process facility. As such the production schedules had to be strictly Monitored and achieved to reach critical production delivery dates.

- All employees who work on these projects are required to meet the necessary Chevron stringent mobilisation criteria, with an emphasis being placed on health prior to mobilisation and a very detailed induction process, prior to mobilisation to site.
  All our staff were prepared for the inductions internally and carried out the necessary re-training and competencies to all plant tools and equipment, both prior to mobilisation and on site proof of competency, being carried out for all tasks considered to be high risk.

- Further impacts were the shipping, logistics and notably the stringent quarantine and environmental controls, for all equipment, plant, materials and personnel. This required advanced procurement and stock holding to ensure that shipping dates were met and international equipment arrived on site, on time.

- The quarantine requirements were also a major part of the project challenges and a very complex monitoring system was put into place by Firesafe in line with the Chevron procedures and processes to ensure all plant, materials and equipment were not contaminated and left in a clean environment prior to shipping.

- The Gorgon Project being located on an island presented challenges of material storage which Firesafe overcame with the supply of both 20ft and 40ft containers, fitted out with bespoke design layouts to help with material storage and fabrication of onsite stainless steel.

- The Gorgon Project also presented installation hazards with the height and complexity of the warehouse building, detailed hard plaster ceilings within operations areas, reduced access to internal fire rated compartments within ceiling spaces. The Firesafe SWMS and safety management system neatly documents each step of the process seamlessly providing a safe and productive workplace for Firesafe installers and other trades working within the same areas.