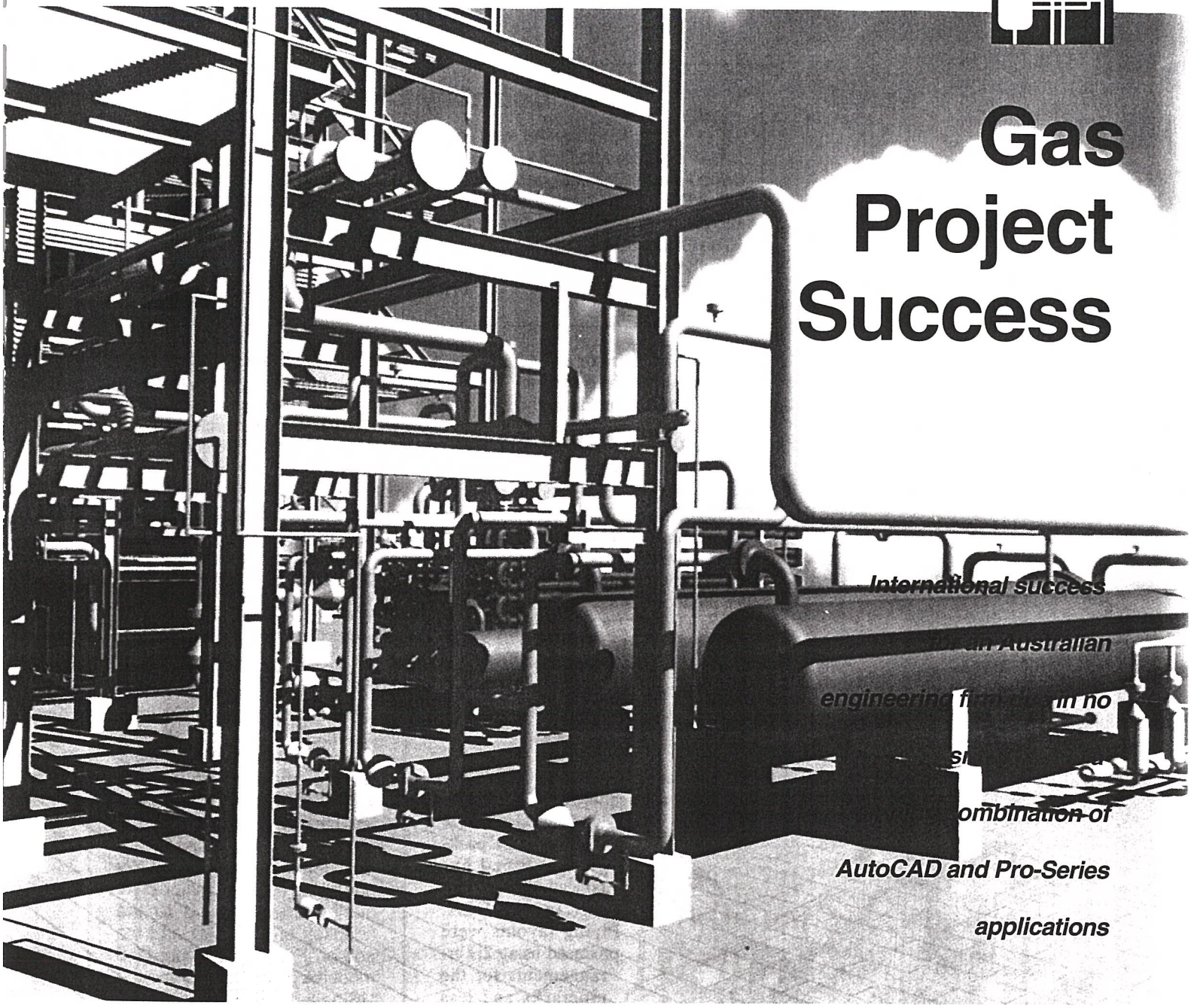
Gas Project Success



3D image produced by Code Design Services on a section of a chemical process plant in western Australia.

Clough Engineering of Perth have successfully completed the engineering and drafting of a turnkey ECP (Engineering design, Procurement and Construction) contract for the development of a large gas process facility in Indonesia.

The project was awarded to PT Petrosea of Jakarta which is a fully-owned subsidiary of Clough Engineering. As well as being the largest project ever undertaken by the Clough Group it was also the first time that the group had carried out the complete detailed engineering and final design of a project of this magnitude wholly within its own organisation. To execute the project, Clough established a new dedicated office for the design team. The team was responsible for all final engineering and the preparation of deliverable and operation documentation running the gammut of facilities from gas wells to export line tie-ins.

The project also included extensive utility and infrastructure works including;

- An airport complete with hangars and refuelling facilities,
- Harbour and land-backed jetty complete with fire services,
- Condensate storage, metering and load out facilities,
- Power generation and distribution,
- Reverse osmosis water supply system using seawater feed,
- Utility and instrument air system,
- Fire water supply and distribution system,
- Waste water treatment plant,

Company Overview

Clough Engineering was founded in 1919 in Perth. As the Clough Engineering Group, it has developed into one of the largest privately owned multi-discplinary engineering and contruction organisations in Australia. Diversification in the 1950s has seen Clough diversify from building into civil and heavy engineering generally.

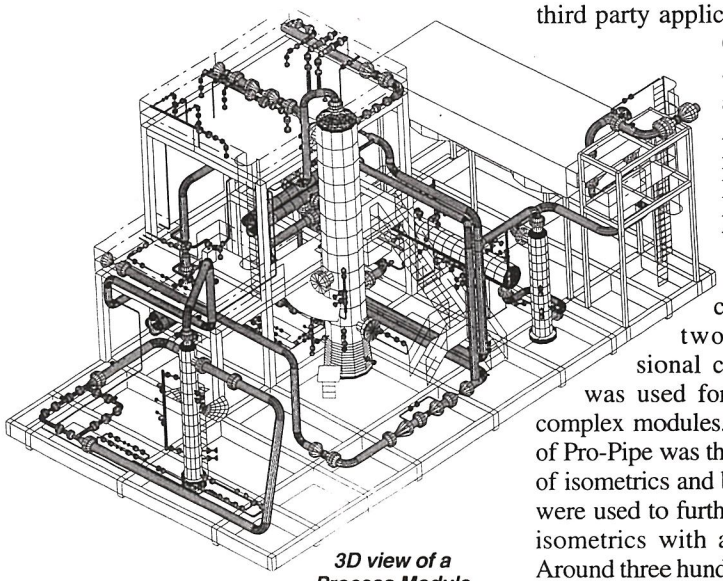
The Clough Group is now a major contractor in the oil and gas industry and with the acquisition of the Petrosea Group in Singapore, is expanding its operations into Indonesia, Papua New Guinea and the Pacific region.

- Waste incinerator and
- Communications system.

Site constructed buildings included full living quarters complete with recreation facilities for staff. A laboratory, plant control room, offices, workshop, security buildings and fire station were also part of the project.

Altogether, the drawing count for the project is over 3,500 documents as well as more than 950 isometrics. All drawings were produced using AutoCAD and both releases 11 and 12 were employed in the design office. All disciplines were designed and documented in CAD, including civil, structural, mechanical, piping, electrical, instrumentation and telecommunications.

A vital component of the piping and instrumentation design was the use of a third party application with AutoCAD. Clough used the Pro-Series Pro-Pipe package developed by Applications Development in the USA. Piping layouts were produced using 2D arrangements for the piperacks and less complex modules. The two-and-a-half dimensional capability of Pro-Pipe was used for modelling the more complex modules. A very useful feature of Pro-Pipe was the automatic generation of isometrics and bill of materials. These were used to further generate fabrication isometrics with a minimum of effort. Around three hundred of the total number of isometrics were produced this way. The Pro-Iso applications module was used to customise the automatically generated isometrics and for producing all the other isometrics. Bills of materials generated from the isometrics were electronically transferred to a database used to control the piping materials.



3D view of a Process Module

Clough engaged the assistance of Code Design Services in the use of the Pro-Series. As well as software, Code Design provided skilled Pro-Series designers and technical support.

Clough Engineering has recently been awarded yet another international project, for a similar turnkey project in Pakistan. AutoCAD and Pro-Series applications continue to play a key role in winning and executing major international projects and are now an integral part of Clough's engineering workflow process. □

Circle Reader Enquiry No. 3342

Code Design

Code Design was founded in 1981 and has established a reputation as one of the most technically advanced and innovative plant design consultants in Australia. Investigations into methods to simplify the complex and time-consuming task of manually producing detailed major plant design drawings led to the adoption of AutoCAD and the add-on Pro-Series application modules developed by the the US-based Applications Developers, Inc. (ADev).

As a result of Code Design's extensive experience in both contract work and research and development with Pro-Series, the company's expertise is recognised internationally. Code Design's work has also contributed strongly to the development and enhancement of the application suite. Code Design fulfils the dual roles of plant design consultants and national distributor for the Pro-Series modules which include tools for the creation piping orthographics, sections, isometrics and 3D models as well as associated reports.