

Adelaide Control Engineering

- ACE are Electrical, Mechanical and Chemical Engineers
- We started in U 1999.
 - HGR, Dry, Pack, Wellhouses
- Other clients: CCO, RIO, PDN, BHPB, AGS
- Working with Urtek to design and build containerised demonstration plant

Containerised Demonstration Plant: Uranium Extraction from Phosphates



Demonstration Plant Objectives

- Verification of the selected process for application to Filter Grade Acid (FGA);
- Confirmation of target operating conditions; and
- Collection of sufficient data for input into the Design Feasibility Study (DFS) and CAPEX and OPEX estimates;

Design Objective

- Design and construct plant within 2 x 40ft (12.5m) side opening shipping containers
- Available to be shipped rapidly anywhere in the world
- Incorporates secondary containment system

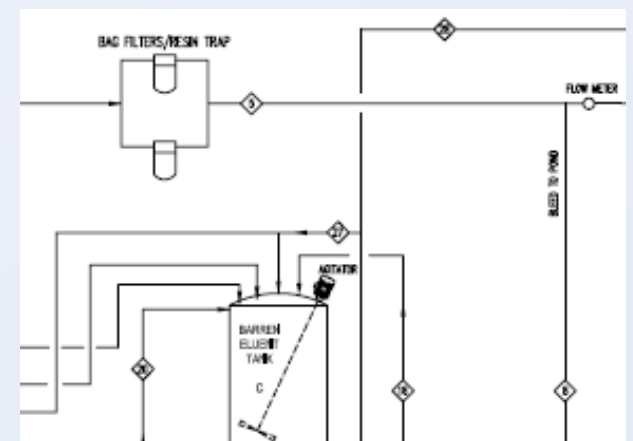
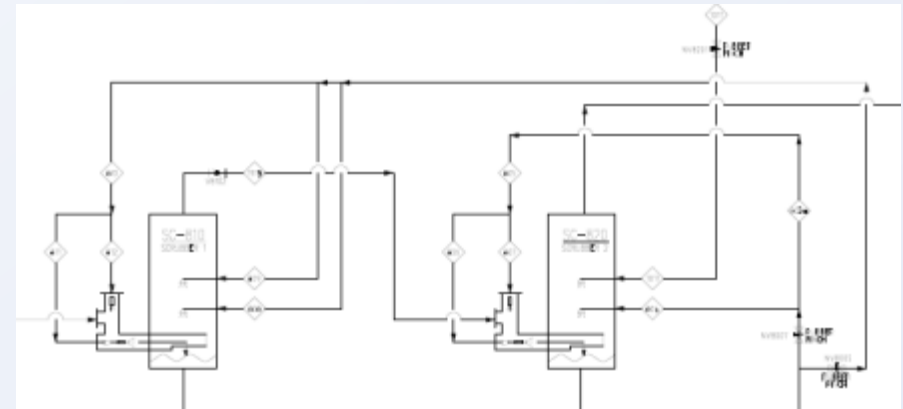


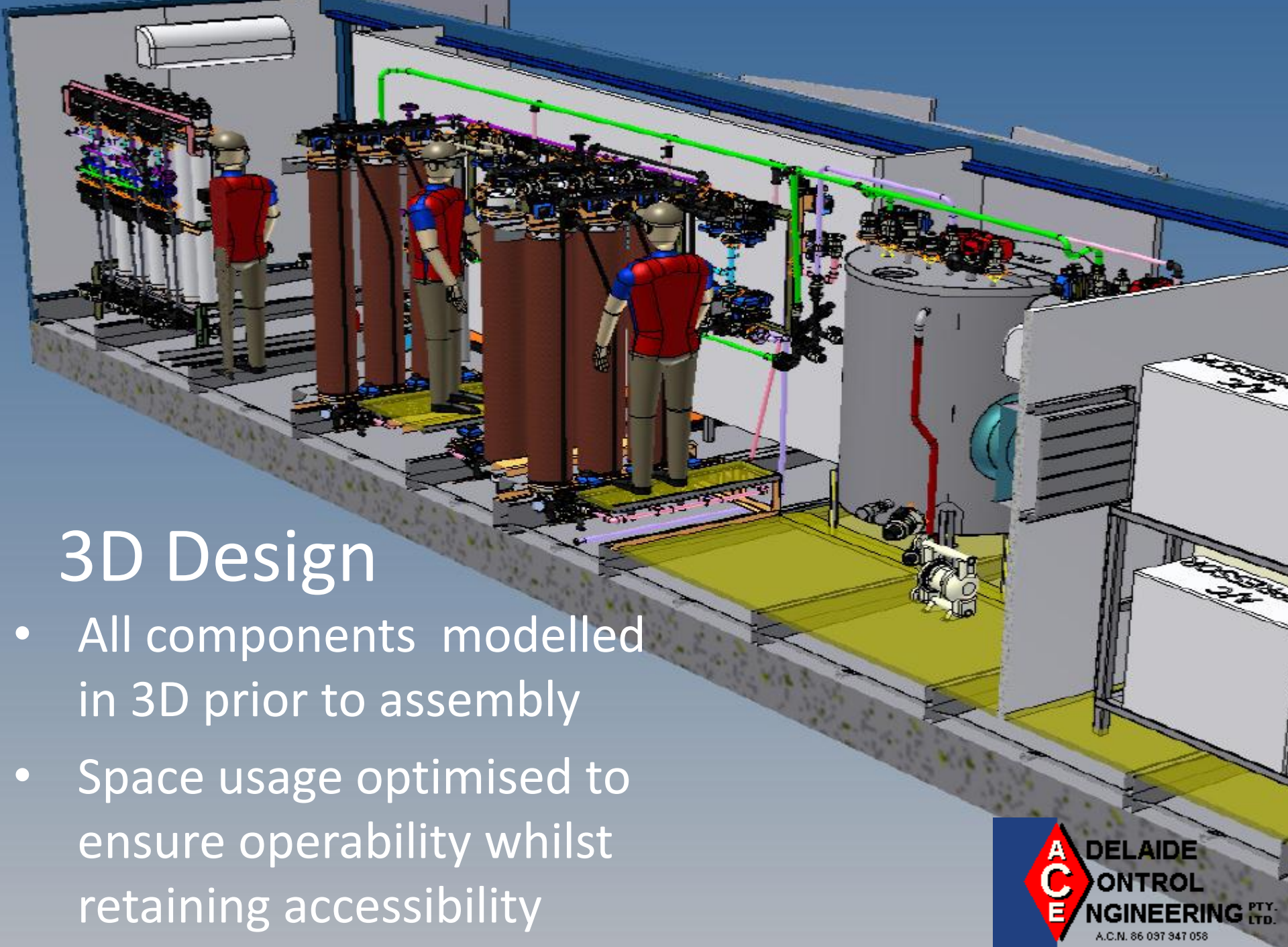
Design Objective

- Compliant with International safety standards
- No penetrations in the containers
- Full process control
- Integrated from feed through to Secondary IX
- Onsite commissioning – minimal interruption/inconvenience to acid plant operators
- Able to be operated with any Voltage/Frequency
- Self contained process water system
- Secondary Containment System

Design

- Drawing of Process Flow diagrams, P&IDs
- Detailed modelling of all electrical, mechanical, flow and safety systems
- Design revised to improve systems, meet client expectations





3D Design

- All components modelled in 3D prior to assembly
- Space usage optimised to ensure operability whilst retaining accessibility

Construction and Assembly



- Containerised modules assembled at Regency Park
- All systems tested prior to shipping
- Available to be shipped anywhere in the world

Contract Assembly



- To speed up construction the modules were built simultaneously with about 6 contract companies working simultaneously

Demonstration Plant



- Scale 1:1000 of processing facility
- Complexity same as full scale plant
- Full SCADA control

Demonstration Plant Complexity



- Automation and quantity of equipment similar to full scale process
 - 349 Valves
 - 22 Pumps
 - Flow meters, level transmitters, temperature controllers
- PIX system fully automated
- Services plugged in

Electrical and Electronic Systems



- All systems installed, tested and commissioned prior to shipping
- All electrical equipment can be isolated at usage point without complete shutdown

Control



- Monitoring and control of temperature, level, flow, pH
- Automated switching between all systems
- Flow switching controlled by Allen Bradley PLC
- Offsite monitoring and control available

Safety Management

HAZID and HAZOP studies conducted and controls implemented:

- Automated Emergency Shutdown System
- Scrubber to remove pollutants
- Eyewash and safety showers
- Earthing and Barrier protection for all electrical equipment
- Secondary Containment drain system
- Meets Aus, US, world safety standards

Spares

- 1 20 foot shipping container contains spares necessary for fixing problems.

KEZU1000155

MGW 11.670 KG. PAYLOAD 10.500 KG



Shipped June 30 2011



Thank You!

