



PIPELINES & INFRASTRUCTURE

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Our people have expertise in the following areas:

- ✓ **Pipeline Design**
- ✓ **Water Management and Infrastructure**
- ✓ **Plant Building Design**

PIPELINE DESIGN

Our team have worked on projects that have included:

- Stress analysis of GRE suction and discharge header piping to BS 7159 up to size DN1000, calculation and review of piping loads on pumps, filters and supports, stress analysis of HDPE pipe.
- DN450 Crude Oil Pipeline Re-Rate,
- Stress analysis for the re-rate of an existing 7km long crude oil pipeline to AS2885.1, and utilising buried pipeline modelling in CAESAR II.
- Concept study for a HDPE gas gathering system and spine line,
- Infield compression station and new pipeline to an existing gas plant, calculations and documentation to establish the MAOP for HDPE gathering system and pipelines as per AS4130 and AS2566.1,
- Basis of design and Concept Selection reports, preliminary pipeline, piping, valve and major equipment MTO's, TIC estimate for HDPE gathering system and pipelines.
- FEED and Detail Design for a new DN200 CL600 interconnect pipeline and DN150 CL1500 re-injection pipeline to AS2885.1 and associated station piping and mechanical equipment for new compressor station;
- 120km DN600 15.3 MPa pipeline concept work including Concept selection report, Pipeline engineering, Basis of Design Document, Pipeline Estimate.
- Flow assurance studies (FlowTran, transient and steady-state) for pipeline networks

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- Front end engineering design of a 50,000 manhour FEED in accordance with AS2885 for gas collection headers and export pipeline, including risk assessments, fracture control plan and order placement for long lead items, including the 537 km of DN1050 line pipe (approx. 210,000 tonnes).
- FEED for a 10km, DN 500, 1.818MPa pipeline including:
 - Basis of Design,
 - Application of AS2885.1,
 - Wall thickness calcs for both DN500 in X42 materials,
 - Critical defect length,
 - Fracture control calculations,
 - Resistance to penetration,
 - Anchor sizing,
 - Ovality and induction bend requirements,
 - API 1102 crossing calculations,
 - Fracture Control Plans for DN500 & DN300 trunklines,
 - Pipeline material specification,
 - Pipeline & MIJ data sheets,
 - Line pipe requisition,
 - Specification and Drawing development,
 - Technical bid evaluation & order documentation, Induction bend requisition,
 - Sphere launcher receiver scantling drawings.



WATER MANAGEMENT AND INFRASTRUCTURE

- Storage Facilities Sizing
- Pontoon Designs for Suction and Discharge Pipelines
- Water Transfer Station design
- Pumping and Booster Station design

PLANT BUILDINGS

- Determining location of buildings in accordance with best industry practice,
- Prepare layouts of building internals,
- Undertake blast studies to determine blast pressure contours, thermal radiation loads, fragment impacts,
- Design of buildings and their structural components in accordance with local building codes, best industry practice and using the methods provided in the ASCE "Design of Blast Resistant Buildings in Petrochemical Facilities",
- Design of electrical equipment, telecommunications, computing facilities, fire protection, fire and gas detection to maintain integrity,
- Identification of non hazardous areas location for air conditioning intake.

