

PROJECT PROFILE

BP Australia Civil / Structural / Mechanical Design of Bund Upgrades to BP Kalgoorlie Terminal

CDMS were commissioned by BP Australia Pty Ltd to provide civil, structural and mechanical engineering design and detailing services for the upgrades at BP Kalgoorlie Terminal, Western Australia.

OUTCOME

- Design and detailing of strengthening/modifications to existing bund walls and new bund walls to increase storage volume
- Installation of 2 new 110kL Diesel Tanks and design of footings
- Design of mechanical piping for upgrades to fuel terminal layout
- Removal of redundant tanks

BACKGROUND

BP Australia is part of a global network engaged in exploring and production of oil and gas products to supply the Australian industrial sector. BP Kalgoorlie terminal bund was found to have non-compliances to Australian Standard AS 1940. Several upgrades to the terminal were required to bring the facility up to current standards. CDMS Consulting Engineers were contracted by BP Australia to provide engineering design and detailing services for the project.

PROJECT OBJECTIVES

The upgrades to the existing terminal included increasing the capacity of the bund storage volume and area. Existing concrete bund walls had to be strengthened and modified to accommodate additional height. New precast concrete bund walls were to be installed to increase the bund area. New 110kL diesel tanks were to be installed with upgrades to the existing drainage systems, piping and access stairways. Engineering calculations were also provided for the removal of the existing redundant tanks.

CHALLENGES

The use of precast panels to act as bund walls and also retaining walls proved to be challenging as traditional analysis methods proved to be uneconomical. Advanced analysis of the bund wall using sheet pile theory was used to provide an efficient design for the client.

OUR APPROACH

Based on the scope of works and client specifications, CDMS developed preliminary design and general arrangement layout drawings of the terminal which included a proposal for the new bund walls to be made from precast concrete panels instead of conventional in-situ concrete walls. Upon approval of the drawings, CDMS began finalising the engineering design calculations and produced engineering design drawings for tender issue.

CDMS were regularly involved in technical meetings with the client and provided weekly project status reports providing updated to the client on budget, timeframe and deliverables. CDMS also produced construction specifications and inspection quality plans for the project and provided technical advice during the construction stages of the project.

Designs were required to comply with all the relevant regulatory and Australian standards including BP Australia project specifications.