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## Services Performed

IRC completed Design and Operations Safety Cases for the Shenzi development. The work included multiple safety assessment studies and determination of overall project risk via quantitative risk analysis; and integration of performance standards and major hazard information into Operational and Maintenance procedures.

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## Objectives

- Influence and verify the adequacy of the design based upon outputs from Formal Safety Assessment (FSA) studies
  - Prepare Design and Operational Safety Cases demonstrating that risks are managed to ALARP
  - Ensure company HSE requirements are met for project sanction and pre-start up
  - Document major hazard management information in a practical and concise manner for Operations
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## Project Description

BHP Billiton is developing the Shenzi field in the Green Canyon block, deepwater GoM. The facility comprises a Tension Leg Platform with main, production, and cellar decks in approximately 4,300 ft of water.

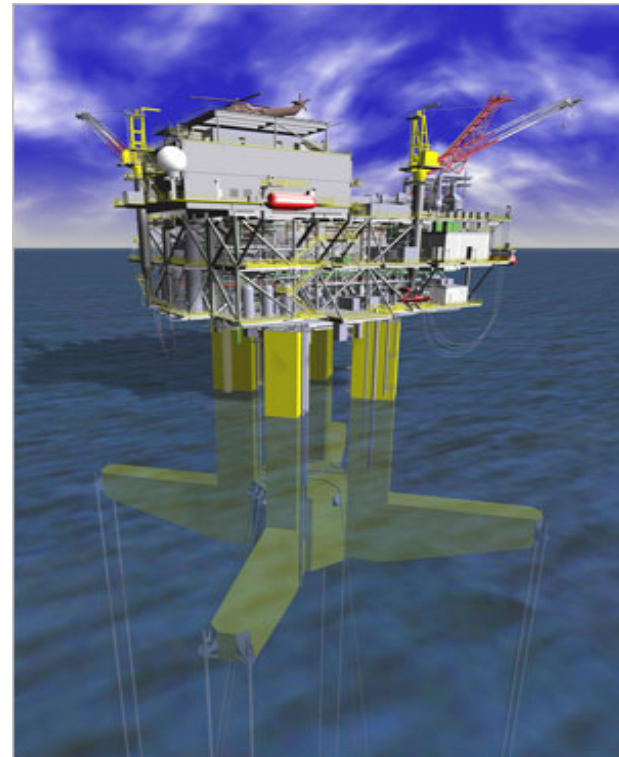
IRC performed FEED and detailed engineering FSA studies and developed both Design and Operations Safety Cases. FEED work was completed to a tight timeframe to meet project sanction requirements.

FEED FSA studies completed included fire and explosion analysis; dropped object, ship collision and helicopter transportation analyses; safety critical system analysis (escape, evacuation and rescue, emergency systems survivability); and quantitative risk analysis.

The FSA work completed by IRC had a fundamental impact on critical safety design aspects including blast design criteria, passive fire protection and location of the TEMPSC.

Subsequent to the FEED Safety Case, an Operations Safety Case was developed. Major hazard information and performance standards for Safety Critical Systems were integrated into supporting operational and maintenance procedures for practical access by Operations.

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## Key Benefits to Client

- The Design Safety Case prepared by IRC facilitated project sanction with minimal issues and no delay; and provided justification for design ratings of the firewalls
  - Changes to design were made to reduce risk to personnel and to help ensure personnel could evacuate to a place of safety for any credible major accident event
  - Cost savings were realized through refinement of blast modeling to determine blast design criteria using probabilistic methods
  - Safety Cases were delivered in electronic format containing all supporting information; facilitating access to, and understanding of, major hazard management information
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