



PNG Gas Project: RAM Study

Services Performed

IRC completed a reliability, availability, and maintainability (RAM) analysis for Chevron's Papua New Guinea (PNG) and Australian-based gas production facilities from the onshore wells to the take-off point at Brisbane. The study included analysis of the line pack in the pipeline from PNG to Brisbane as well as performance at the daily contract quota (DCQ) and maximum daily quota (MDQ) production rates.

Objectives

- Develop a production availability model to analyze performance of processing facilities at the daily contract quota (DCQ)
- Compare the performance of facilities at the DCQ and maximum daily quota (MDQ)
- Analyze the impact of line pack in the pipeline (from PNG to Brisbane) on the overall production availability

Project Description

The PNG gas project is a significant hydrocarbon development spanning Papua New Guinea and Australia. It will draw on significant natural gas and oil reserves in PNG for delivery of lean, dry natural gas to Queensland, Australia. In addition to the existing oil export operations, the project will include liquefied petroleum gas (LPG) and condensate extraction and shipment.

As part of the conceptual design stage, IRC performed a RAM study of the proposed facilities. The study analyzed eight cases, four on the performance of the upstream (PNG-based) facilities and four on the full development. The study determined that the introduction of line pack significantly increased the availability from 95.7 percent to 99.4 percent when operating at the daily contract quota (DCQ). Operating at the maximum daily quota (MDQ) production rate resulted in a much reduced availability of 93.9 percent.

The analysis also showed that aligning maintenance activities of the customer and the Marine Processing Facility (MPF) provided significant performance benefits. At the DCQ production rate, availability increased to 99.8 percent and missed contracts per year dropped significantly.



Key Benefits to Client

- Understanding the positive impact of line pack on production availability
- Understanding optimum gas contract production rates such as significant availability increase when operating at DCQ instead of MDQ
- Significant benefits during gas contract negotiations when aligning customer and MPF maintenance activities



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