The Stybarrow and Eskdale oil fields development represents the first deep water development by BHP Billiton in Australia and Australia’s deepest development at a water depth of approx. 825 m. The joint venture partners are BHP Billiton (50% and Operator) and Woodside Energy Limited (50%). The development drilling campaign resulted in the successful construction of 3 water injection wells and 4 horizontal production wells at Stybarrow; and a single oil production well and gas injection well at Eskdale.

**NauticAWT Disciplines:**
- Completions Engineering
- Production Technology

**Quick Facts:**
- **Location:** WA-32-L, some 65 km from Exmouth in Western Australia
- **Nature of the Field:** Complex offshore field Remote deep water location Heavy oil & poorly consolidated sandstone reservoir Pressure support requirement by water injection Gas disposal is via a gas injector into the gas cap of the adjacent Eskdale field.
- **Reserves:** 60 to 90 MMstb (Initial Recoverable)

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**The Client**
- BHP Billiton

**The Scope**
- After a successful exploration and appraisal campaign, NauticAWT personnel assisted BHP Billiton with the design and planning of the development wells which included horizontal oil producers, deviated water injectors and a vertical gas injector.
  - This work included:
    - conceptual well design and input into the field development plan
    - completion time and cost estimation for AFE,
    - material selection and tubing stress analysis
    - completion equipment specifications
    - tender documents for completion equipment and related services, including sand control
    - evaluation of tenders, contract negotiations and vendor management
    - completion installation procedures
    - interfacing with other parts of project team including drilling, subsurface, production technology, subsea engineering, production operations
  - It was concluded from the study and design that all production wells would require
    - horizontal open hole gravel packs for production wells
    - deviated water injectors with wire wrapped screens
    - pressure actuated formation isolation valve
    - permanent downhole gauges
    - gas lift mandrels
    - deep set tubing retrievable subsurface safety valve 5-1/2” and 7” tubing for producers with design production rates of up to 35,000 bpd

**The Value Added**
- NauticAWT was able to deliver a completion design for the deep water high oil reserve Stybarrow Field which incorporated innovative designs enabling a sand free production and a deliverability above expectations when the field was brought online earlier this; producing on average 50,000+ bpd from wells, with the capacity to produce up to of 80,000 bpd.
- The open hole horizontal gravel packs were successfully installed, well deliverability exceeded expectations without sand production. The field commenced production in November 2007, two month ahead of schedule. Note: AWT was not involved in the execution phase of the project.