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## **Tahiti Development Overview**

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### **Abstract**

Tahiti represents one of the largest discoveries in Gulf of Mexico deepwater with an estimated total recoverable resource of 400 to 500 million barrels of oil equivalent. Covering portions of Green Canyon OCS blocks 640, 641, 596 and 597, the Tahiti Field is located in 4,100 to 4,300 ft of water. Tahiti reservoirs are sub-salt, deep and high pressure. This paper will provide an overview of Tahiti development from discovery to concept selection through execution and will briefly note several technology challenges. Chevron USA, Inc. is operator of the Tahiti development with 58% working interest. StatoilHydro (25%) and TOTAL E&P USA (17%) are joint venture partners.

### **Introduction**

Tahiti represents a major opportunity for Chevron (CVX) and the Tahiti joint interest partners to develop a significant deepwater resource. Tahiti's reservoirs are located below a thick, complex salt canopy. The primary Tahiti reservoir is lower Miocene in age with a reservoir pressure approaching 20,000 psi. This geology and pressure presented a major challenge given the limited analogues available. Sub-salt seismic imaging needed to be improved to accurately assess oil in place, reservoir continuity and reservoir compartmentalization. Existing equipment capabilities needed to be extended to drill and complete the Tahiti wells. The development required subsea equipment rated for 15,000 psi, a first for CVX, along with high temperature, high pressure flowlines and steel catenary risers. The project team was challenged to "plan for success" by beginning the process of identifying and assessing development alternatives in parallel with appraisal drilling. This approach created the opportunity to improve project cycle time, but also created the risk of project recycle.

CVX adopted an aggressive appraisal strategy that called for two appraisal wells to be drilled concurrently. Plans were made to obtain an extensive amount of well data to aid in geologic interpretation and reservoir assessment. A well test was planned as a key component of the appraisal program. Seismic data sets were reprocessed and a new proprietary seismic survey was acquired. Subsurface assessment was aligned with surface facility activities, and a three stage evaluation process was developed to facilitate the evaluation of development alternatives in parallel with appraisal operations. The process included extensive use of probabilistic decision analysis to make key development decisions. Development decisions were limited to those that could be made with the subsurface data available at the time, thus reducing the likelihood of project recycle.

Appraisal drilling successfully verified the extent of the field and confirmed the recoverable resource estimate of 400 to 500 million barrels of oil equivalent. As reservoir evaluation progressed, prior development decisions were re-assessed using data obtained from the appraisal program, and it was determined that no project recycle was required. The selected development plan called for the Tahiti Field to be developed in two phases. Initially, Tahiti will be produced from six wells. Two subsea drill centers were placed adjacent to the north and south appraisal wells. Production will flow through multiple flowlines to a floating production facility supported by a truss spar. Tahiti's financial investment decision was endorsed by CVX's Executive Committee in May 2005 and approved by partners in August 2005. Tahiti is on target to deliver first production by mid-2009.

### **Subsurface Assessment**

The discovery well, GC 640 No. 1, was spudded in December 2001 targeting Miocene objectives between 19,500 ft and 28,500 ft true vertical depth (TVD). The Tahiti discovery was announced in April 2002 when the well encountered over 400 ft of net pay in four major pay sands. A downdip sidetrack and an updip sidetrack were drilled to establish continuity of the sands and identify the water/oil contact.