



OTC 20212

## Sakhalin- 1: Project Execution Risks and Management

L.N. Roxburgh and E.A. Kostiuk, ExxonMobil Development Company

Copyright 2009, Offshore Technology Conference

This paper was prepared for presentation at the 2009 Offshore Technology Conference held in Houston, Texas, USA, 4–7 May 2009.

This paper was selected for presentation by an OTC program committee following review of information contained in an abstract submitted by the author(s). Contents of the paper have not been reviewed by the Offshore Technology Conference and are subject to correction by the author(s). The material does not necessarily reflect any position of the Offshore Technology Conference, its officers, or members. Electronic reproduction, distribution, or storage of any part of this paper without the written consent of the Offshore Technology Conference is prohibited. Permission to reproduce in print is restricted to an abstract of not more than 300 words; illustrations may not be copied. The abstract must contain conspicuous acknowledgment of OTC copyright.

---

### Abstract

Phase-1 of the Sakhalin-1 development serves as an example of how to successfully address the multiple challenges associated with working in a frontier environment with limited infrastructure. This paper highlights how the project managed the technical, execution and environmental challenges it faced as it developed the resources at Chayvo field.

A detailed front end execution planning effort identified execution risks and was used to develop plans to mitigate those risks. Major outcomes of this effort included an execution schedule that would allow use of the weather windows provided by the arctic region; winterization plans to continue construction progress during the winter months; the use of large modules built in a fabrication yard versus stick building on site and implementation of a “plug and play” concept to maximize commissioning at the fabrication yard and minimize start-up in the field.

The project also managed the challenges associated with a complex regulatory regime, limited existing infrastructure, limited skilled labor and difficult logistics. All the challenges faced by the Sakhalin Phase-1 development were successfully managed by the integrated project team. This fostered the development of execution strategies that lead to the ultimate success of the project. Lessons learned from this project can be applied at other projects in challenging frontier regions, particularly those in arctic environments with limited existing infrastructure.

### Introduction

The Sakhalin-1 concession area, located along the east coast of Sakhalin Island, Russia, consists of the Chayvo, Odoptu and Arkutun Dagi fields with recoverable resources in excess of 2.3 billion barrels of oil and 17 trillion cubic feet of gas. The Sakhalin-1 Consortium consists of ExxonMobil affiliate Exxon Neftegas Limited (ENL) (30%, operator), SODECO (30%); ONGC Videsh Limited (20%); and two affiliates of the Russian national oil company, Rosneft (20%).<sup>1</sup> The Consortium successfully completed the Phase-1 development of the Chayvo field with first production in late 2006, approximately 10 years after the signing of the Production Sharing Agreement.

### Execution Challenges

Developing a project of this size on the remote island of Sakhalin presented the project with many execution challenges. The most challenging aspects from an execution perspective included:

- Harsh sub-arctic climate which consists of six months of severe winter conditions, two months of muddy spring thaw conditions and extreme seasonal offshore ice flows
- Remote location on the east coast of Russia where all in-country worksites were remote camp locations that required an extensive network of planes, helicopters, trains and vehicles to get to the work sites.
- Minimal infrastructure which required a significant effort and investment to add and improve roads, airports, and bridges
- Complex import custom regulations
- Lack of a skilled labor in this remote region of Russia

---

<sup>1</sup> Exxon Mobil Corporation has numerous affiliates, many with names that include ExxonMobil and Exxon. For convenience and simplicity in this presentation, those terms and terms like corporation, company, our, we and its are sometimes used as abbreviated references to specific affiliates or affiliate groups. Abbreviated references describing global or regional operational organizations and global or regional business lines are also sometimes used for convenience and simplicity.