## SECTION 1.0 – INTRODUCTION

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1.0 INTRODUCTION

1.1 Project Summary

Imperial Oil Resources Limited (Imperial) is applying to the Alberta Energy Regulator (AER) to continue phased development of its in situ Cold Lake Operations (CLO). The proposed Cold Lake Expansion Project (the project), will have a bitumen production capacity up to 8,740 m³/cd (55,000 bbl/cd).

The project is located on Crown land approximately 23 km northwest of the City of Cold Lake, Alberta in the Municipal District of Bonnyville No. 87. The project area covers parts of Townships 65 and 66 in Ranges 2, 3 and 4, West of the Fourth Meridian.

Existing CLO facilities support cyclic steam simulation crude bitumen extraction from the Clearwater Formation and share common infrastructure including water supply, water disposal, power supply, diluent supply and shipping pipelines. Water is managed at a district level and coordinated between facilities.

The project is an expansion of existing operations that will target bitumen resources in the Grand Rapids Formation using a solvent-assisted steam-assisted gravity drainage (SA-SAGD) recovery process. Although there is some spatial overlap between the project and existing operations, high-pressure cyclic steam simulation and SA-SAGD recovery will not simultaneously occur in overlapping areas.

Imperial plans to develop 52 pads in the project area to recover approximately 87.5 million m³ (550 million bbl) of bitumen from the Grand Rapids Formation. Over the 30-year life of the project, continued delineation and improvements in recovery efficiency are expected to increase the potential recoverable resource. Up to 37 potential well pads could further extend the life of the project and have been included in the project footprint for the environmental assessment.

The project will use a SA-SAGD thermal recovery process, where horizontal wellpairs are spaced 100 m apart laterally and about 5 m apart vertically. Steam mixed with solvent will be sent into an upper injection well to heat bitumen and allow it to flow by gravity into a lower production well located near the reservoir base.

Construction will start as early as 2019 with site clearing. The project will include a central processing facility, well pads, associated field facilities and related infrastructure including interconnections with existing Imperial facilities in the Cold Lake area (Figure 1.0-1). Where practical, access to the project and associated facilities will utilize existing roads and pre-disturbed areas developed and utilized by Imperial as well as other stakeholders and land users in the area.
NOTES:
- Source: AB TPR
- ATLAS Townships Fabric is AT3 version 4.1
- Contains information licensed under the Open Government Licence – Alberta, Canada.
- Baseline Disturbance current to March 2015, created by Amec Foster Wheeler. 3D Seismic not displayed.
- Project Layout received from Imperial July 15, 2015 and last modified by Amec Foster Wheeler August 28, 2015.
This application seeks amendments to existing CLO approvals to include the project. Specifically, amendments are requested for:

- Commercial Scheme Approval 8558; and
- *Environmental Protection and Enhancement Act* Approval 73534-01-00 to construct, operate and reclaim a proposed in situ oil sands commercial scheme development.

The EIA was completed as part of this amendment to assess the potential effects of the project. Incremental and cumulative effects of the project, beyond what has already been approved for full field development, are described, mitigation has been reviewed and updated as required, and residual effects are identified and ranked.

The project occurs on Imperial’s Cold Lake leases. Therefore, the monitoring programs and information generated for CLO are directly relevant to this application and have been incorporated into the assessment of the project.

Project design incorporated environmental constraints planning to guide the placement of all surface disturbances within the project area. This involved selecting key environmental constraints early in the design process, mapping those constraints and then locating project facilities to optimize placement relative to the constraints (i.e., away from areas of higher sensitivity and preferentially in areas of lower sensitivity). Constraints planning, including environment, social and economic factors, will continue to be used throughout the life of the project to locate facilities so that potential for effects to the environment are reduced.

### 1.2 Application Guide

The application for the project is presented in three volumes: the Project Description (Volume 1), the Environmental Impact Assessment (EIA) (Volume 2), and EIA Appendices (Volume 3). The purpose of the EIA (Volume 2) is to identify, evaluate and report the potential environmental and socio-economic effects of the proposed development, both as a stand-alone project (Application Case) and in combination with other existing, approved and publicly disclosed projects in the area (Planned Development Case).

The EIA has been prepared in accordance with the:

- *Environmental Protection and Enhancement Act*;
- AER Draft Directive 23: *Oil Sands Project Applications*;
- Part 1 of the *Guide to Content for Energy Project Applications*; and
- Final Terms of Reference (Volume 3, Appendix A).

The EIA forms part of Imperial's application to the AER.

This volume of the application provides the results of the environmental and the socio-economic impact assessments (including a traffic impact assessment) conducted for the project. A summary of the EIA is presented in Volume 1, Section 5.0.