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# **Kiggavik Project Final Environmental Impact Statement**

**Tier 3 Technical Appendix 2K:  
Winter Road Report**

**September 2014**



## Executive Summary

AREVA Resources Canada Inc. (AREVA) is proposing a winter road as the preferred means of transportation of goods from the Baker Lake dock site to the Kiggavik site. An all-season road is also included in the assessment as an option in the event that the preferred winter road is not sufficient to meet operational needs. AREVA has evaluated the environmental impacts of both a winter road and an all-season road. . This document, Appendix 2K, focuses on the evolution of the winter road alternative; a companion document, Appendix 2L, discusses the evolution of the all-season road alternative.

From the time of AREVA's initial consideration of project feasibility to the current development of a final environmental impact statement, six road alternatives have been evaluated for the project and two options remain. Table 1 below presents the six alternatives considered and the narrowing of alternatives at major Project milestones.

**Table 1 Proposed Kiggavik Road Access Alternatives Considered at Major Project Milestones**

Alternative	2007 Pre-Feasibility	November 2008 Project Proposal	November 2009 Community Workshops	June 2010 Inuit Elder visit to Proposed Thelon crossing	2008-2010 Terrestrial, Aquatic and Archaeological Studies	Engineering, geotechnical	April 2012 DEIS	November 2012 Open House Tour on DEIS findings	2014 FEIS
1. North All-Season Thelon Bridge	Included	Remains					Removed		Removed
2. North All-Season Cable Ferry	Included	Remains					Remains (alternate option)		Remaining option for approval (alternate option)
3. Winter Road – North Route	N/A	N/A					Added (alternate option)		Removed
4. Winter Road – South Route (Crossing Baker Lake)	Included	Remains					Remains (preferred option)		Remaining option for approval – (preferred option)
5. South All-Season Road (not connected to the community)	Included	Remains					Removed		Removed
6. Winter Road – End of Narrows	Included	Removed					Removed		Removed

The “winter road- end of narrows” alternative route (Alternative 6) was removed from further consideration due to feasibility. This route was considered in the pre-feasibility evaluation but removed from consideration prior to submitting the Project Proposal as it did not meet the operational needs of the project; it was not carried forward for evaluation and consideration in the environmental assessment.

Four viable alternatives were presented in the Project Proposal that initiated the start of the environmental assessment in 2008. Over the next two years terrestrial and aquatic baseline studies included the alternative routes as well as geotechnical surveys to further evaluate the feasibility. At that time archaeological studies and traditional and local knowledge studies were conducted in order to both locate important areas for protection and also to learn about local conditions.

The potential mine access road was discussed at more than 20 community meetings leading to the submission of the Draft Environmental Impact Statement. For example, in November 2009 AREVA hosted a public open house and held workshops with various groups including the Elders Committee and the Hunter and Trappers Organization to receive feedback that would further inform the alternatives assessment. Each alternative route location was presented on maps and as a simulated video fly-over to give participants good visual representations of the routes. Information such as the number of projected supply trips per day given the seasonal operational windows was presented and the potential use of all-season roads with a bridge or a ferry crossing at the Thelon River were discussed. The connection of the road to the community, potential dust issues, caribou movements, and the potential for controlled public access were also discussed. Participants were asked to indicate their preferred option and provide comments and concerns.

Prior to the submission of the DEIS, feedback received on the south all-season road (alternative 5) during community meetings together with the results of geotechnical investigations and wildlife surveys influenced the removal of that alternative from consideration. Interestingly, the south all-season road was the only alternative not connected to the community and had the lowest community support. The north all-season road with a bridge (alternative 2) was removed due to engineering complexity and capital cost, despite having the lowest rated risk and best operational cost compared to the others. The north all-season road with cable ferry (alternative 1) remained for further consideration.

The North winter road (alternative 3) was added based on the recommendation of an experienced, local expeditor knowledgeable in winter road operation. The south winter road (alternative 4) remained as the preferred alternative due to its shorter distance. Feedback received following the DEIS submission and subsequent reviews indicated that there is confusion regarding AREVA's road options as presented, and the desire was expressed by reviewers for AREVA to have only one winter road option. Upon further comparison, the south winter road (alternative 4) was selected as the preferred option, and the north winter road (alternative 3) has been removed from consideration in the submission of the Final Environmental Impact Statement.

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## Attachments

- Attachment A October 2010 EBA Winter Road Report
- Attachment B NUNA Review of EBA Report

# **1 Introduction**

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## **1.1 Overview**

As part of the Kiggavik Project, AREVA Resources Canada Inc. (AREVA) is proposing a winter road as the preferred means of transportation of goods from the Baker Lake dock site to the Kiggavik site. The transportation of yellowcake is not included in the consideration of the roads; yellowcake will be shipped from the Kiggavik site via air transportation departing from the Pointer Lake airstrip. An all-season road is included in the assessment as an option in the event that the preferred winter road is not sufficient to meet the operational needs of the Project.

The enclosed document forms part of the Kiggavik Project Environmental Impact Statement (EIS) submission. The submission has been prepared for the Nunavut Impact Review Board by AREVA Resources Canada Inc. to fulfill the requirements of the “Guidelines for the Preparation of an Environmental Impact Statement for AREVA Resources Canada Inc.’s Kiggavik Project (NIRB File No. 09MN003)” and subsequent revisions to fulfil requirements of the “Pre-Hearing Conference Decision”.

## **1.2 Purpose and Scope**

The purpose of this document is to provide a historical overview of the evolution of the winter road routing and describe how Inuit Qaujimajatuqangit and stakeholder engagement played an integral role in the development of the winter road routing, and the selection of a winter road as the preferred option over an all-season road.

Technical Appendix 2K of the Draft Environmental Impact Statement (DEIS) contained a winter road report prepared by EBA engineering. This report should be considered as a design reference. This document is intended to provide an accurate depiction of the current winter road option and provide context around the rationale for route selection and road preference. The original EBA winter road report is contained within this document to provide relevant design information for the winter road.

## **1.3 Related Documents**

AREVA is assessing the potential environmental impacts of both a winter road and an all season road alternative. This document presents the winter road only with references to the all-season road where appropriate. Technical Appendix 2L represents the all-season road alternative including consideration of the routing selection and the selection of a cable ferry. Technical Appendix 2M

provides an overview of the road management plan and gives guidance on the decision to maintain solely a winter road, or when an all-season road may be developed.



## **2 Work Prior to 2008 Project Proposal**

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### **2.1 Winter Road from the End of the Narrows**

Early work on the Kiggavik Project contemplated a winter road from the end of the narrows to the Kiggavik site. This route would eliminate the need for barging of cargo from the Narrows to Baker Lake. This would, however increase the haulage distance by ~60km. At a best value decision workshop held in February 2008 in Saskatoon, this option was eliminated as a possibility for the following reasons:

- Additional haulage distance seen as a disadvantage
- Dock facility required at the Narrows would be less accessible to the community of Baker Lake and would provide little if any benefit to the community of Baker Lake.
- Due to the length of the road, and the limited operating window, the road would not have good operational flexibility
- Pressure ridges along Baker Lake could be problematic, causing ice breakage

Based on the findings of the workshop, no further work was completed on the winter road from the end of the narrows and this option was not included in the project proposal.

### **2.2 2007 Pre-feasibility Study**

In support of the 2007 Pre-feasibility Study, AREVA commissioned EBA Engineering to evaluate road options for the Kiggavik Project. Several road options were presented in EBA's report including all-season roads, causeway roads and a winter road. The road options presented in the 2007 EBA report are shown in Figure 2.2-1.

Only one winter road option was presented in the EBA's report, indicated by the bottom white line in Figure 2.2-1.. This option was carried forward to the feasibility study, along with all-season road options. In the prefeasibility study, the winter road was considered the most environmentally acceptable route. The winter road presented in the 2007 prefeasibility study is shown in Figure 2.2-2. The routing presented in the 2007 feasibility study is general in nature, with the general routing being similar to the current proposed routing from the Kiggavik site to the Annigguq River.

