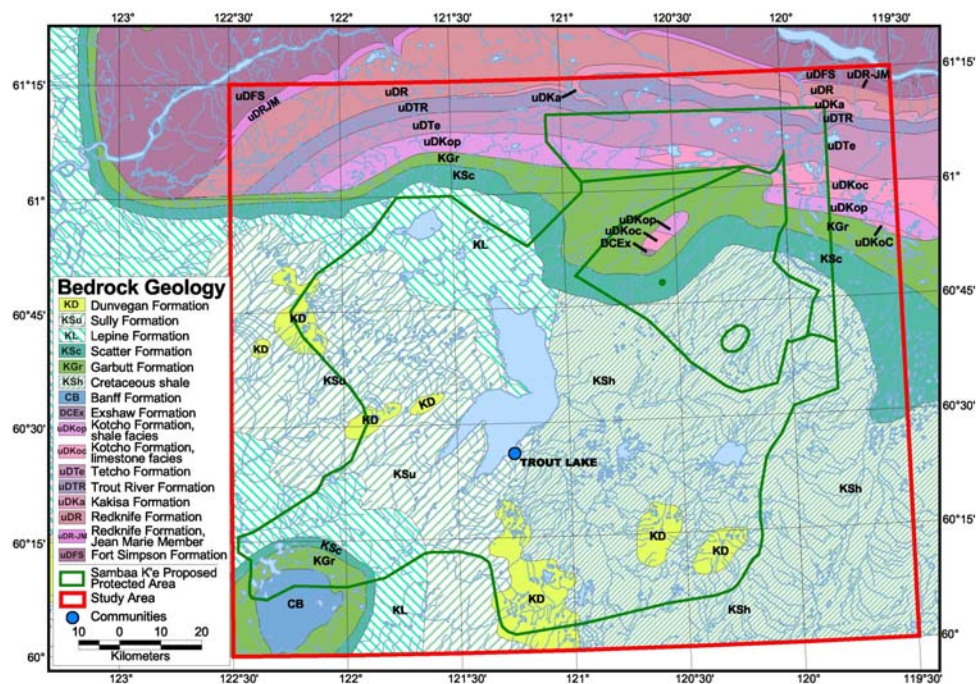


# Hydrocarbon Potential of Smbaa K'e (Trout Lake) Candidate Protected Area<sup>1</sup>

## Introduction

This summary report presents an assessment of the hydrocarbon (oil and gas) resource potential of the proposed Smbaa K'e Candidate Protected Area. Smbaa K'e covers approximately 10,700 square kilometres or 1.07 million hectares, in an area surrounding Trout Lake, between the 60<sup>th</sup> parallel in the south, Liard River in the northwest, and Mackenzie River in the northeast. The community of Trout Lake is located near the centre of the proposed protected area, on the southeast shore of Trout Lake. Smbaa K'e lies within the Interior Platform geological province, an area of generally undeformed Phanerozoic aged sedimentary rock, here comprising Devonian (or older) to Cretaceous limestone, dolostone, anhydrite, shale, siltstone, and sandstone. The bedrock under the northern quarter of the study area is Upper Devonian limestone and shale, while Cretaceous shale and sandstone underlies the remainder.



*Bedrock geology of the Smbaa K'e area (from Gal 2007).*

## How did we determine potential?

The assessment is based on our best understanding of the geology of the area including surface rocks, those below the surface, and features found within the rocks. We relied on geological maps and studies of the area, work done by the Canadian Gas Potential Committee on the hydrocarbon plays, and information from exploration wells that had been drilled in the study area. Thirty-one hydrocarbon wells were drilled between 1954 and 1990 within the proposed boundaries of the Smbaa K'e Candidate Protected Area. Most of the wells were drilled during the 1960s and 70s, and were concentrated in a few distinct areas. There is one significant gas discovery within Smbaa K'e plus a number of gas shows, mainly within Middle Devonian reefal

<sup>1</sup> Present summary report modified after: Gal, L.P. 2007. Smbaa K'e Candidate Protected Area, Non-renewable Resource Assessment (Phase I) – Petroleum. Northwest Territories Geoscience Office, NWT Open File 2007-02.

limestones and dolomites. There are a few indications of oil. An economic assessment is beyond the scope of a geological analysis so is not included in this report.

### **Summary of Potential**

The mapped boundaries between rock types and play definitions are mostly based on work previously published by other workers. Several hydrocarbon plays have been delineated within the study area. The plays generally correspond here to stratigraphic packages and those judged to have the greatest exploration potential are: Slave Point edge and Slave Point back barrier, Jean Marie, and Keg River/Cordova Embayment. These are considered to have the greatest exploration potential within the area, being associated with significant occurrences or discoveries within or near Trout Lake (e.g., Cameron Hills gas field). The Lonely Bay/Nahanni platform, Horn Plateau reefs, and Late Paleozoic subcrop plays have somewhat less potential. Cretaceous clastic, and Arnica/Landry platform plays have fairly good potential, but are regionally restricted within the study area. Kakisa platform and Pre-Devonian basal clastic plays probably have less potential, although there is not much information on which to judge these.

Consideration of all the plays together gives the area a moderate to high potential for oil and gas. Drummond Consulting, in a recent assessment of the oil and gas resources in the Deh Cho territory, assigned an undiscovered potential of approximately 400 billion cubic feet of gas and 7.0 million barrels of oil to the Smbaa K'e Candidate Protected Area.

### **Future work**

A new set of quantitative hydrocarbon play assessments for the Northwest Territories is being prepared by the Geological Survey of Canada for release in 2008-2009.