

9227 - N 46 - 1 D A

Report Date: January 8th, 2002

Work Period: October 2000

**SEISMIC TRADE DATA PURCHASE
REPORT**

**for
MACKAY AREA
Tertiary Creek Prospect
Block EL - 397
Northwest Territories**

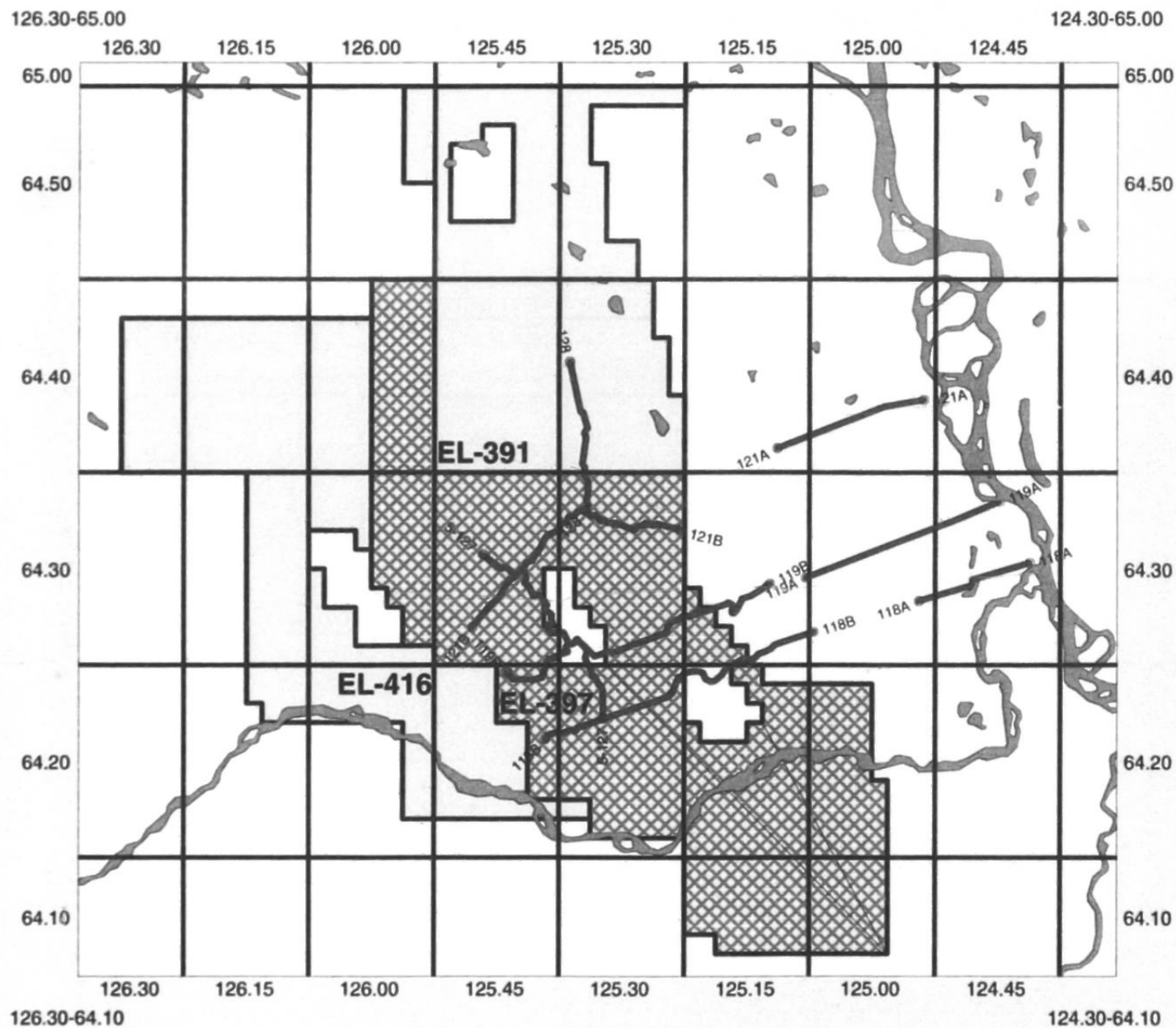
LOCATION:

Latitude: 64° 10' to 64° 40' Longitude: 125° 00' to 126° 00'

**Block Operator:
Northrock Resources Ltd.**

**Project Operator:
Northrock Resources Ltd.
3500, 700 - 2 Street S.W.
Calgary, AB
T2P 2W2**

**Seismic Processing Contractor:
Eclipse Seismic Processors Inc.**



Projection
Longitude / Latitude
Longitude / Latitude (NAD 27 for Canada)

EL-397 Seismic Data Purchase Scale 1:655,543



EL-397
Seismic Data
Purchase
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February 26, 2002
S. Goddard



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ENCLOSURES

FINAL SEISMIC SHOTPOINT BASE MAP

INTERPRETED normal polarity migrated seismic sections for Lines:

**118 A & B
119 A & B
121 A & B
127
128**

INTERPRETIVE SEISMIC MAPS:

**Cretaceous Radioactive Shale Time Structure
Devonian Hume Time Structure
Pre-Cambrian Time Structure
Radioactive Shale to Pre-Cambrian Basement Isochron**

1. INTRODUCTION

The MacKay project site is known 'in-house' at Northrock Resources Ltd. as Tertiary Creek 2001. This program is located in the Mackenzie River Valley of Northwest Territories. The project area is south of the community of Tulita (Fort Norman).

In the winter of 1999–2000 Northrock Resources and partners, conducted a reconnaissance seismic program over open federal lands, to evaluate potential structural anomalies observed on the GSC regional Aeromagnetic data recorded in 1999. That program was subject to a previous report submitted under N.E.B. Authorization # 9229-N46-1E.

The Northrock seismic program was, in part, conducted along some very old pre-existing seismic cut lines. Prior to our seismic acquisition, we had been unable to locate the original operators who conducted these earlier surveys. However, since our successful work commitment bid on EL-397, with further research by Sigma Explorations Inc., we have been able to locate that data as single fold dynamite acquired by Shell in 1964.

Northrock and partners purchased a multi-user license to this data, and reprocessed the lines using modern data processing methods, unavailable in 1964.

Ray Geophysical originally recorded these data, as analog records in 1964. They used a dynamite source of varying charge sizes, the average being 9kg with 15m hole depths. The data quality was exceptionally good, but suffered from having very short far offsets of only 800m.

These data, although too poor to locate a well location, was adequate to image the deeper structures, which consequentially assisted in helping with laying out the proposed seismic program for the winter 2000-2001 seismic program.

2. SEISMIC PROCESSING

The seismic data was processed by Mr. David Sherwood, of Eclipse Seismic Data Processors, Calgary, Alberta, using Paradigm software.

The data had been transcribed from analog to digital by Shell at an earlier time.

Deconvolution of the data was carried out by using a Time variant surface consistent minimum phase operator, followed by a Time variant zero phase decon, to whiten the bandwidth.

The data was corrected with both the weathering and elevation statics, to a seismic datum of 1100m ASL, using a replacement velocity of 3000 m/sec.

Due to the complex nature of the observed structures, the data was migrated, employing pre-stack methodology, utilizing a Finite Difference algorithm.

No post stack noise attenuation was applied to the data, however a 500ms AGC was required to image the data below the over thrust.

For a detailed processing sequence refer to the side labels on the accompanying sections.

3. SEISMIC INTERPRETATION

The data was purchased to compliment the earlier Northrock 2000 2D Vibroseis seismic program.

The data was tied to the previous survey, which had been interpreted using synthetic seismograms created from the Little Bear wells, and the Tate J-65 and B-30 wells, and extrapolated into the project area using the digitally scanned N.E.B. public file data available from Lynx Information systems. The key seismic reflectors of the Cretaceous Radioactive shale marker and the Devonian Hume platform, were interpreted from this method. The eroded Pre-Cambrian Basement was interpreted from thickness calculations from a selection of wells throughout the Mackenzie Basin, and is highlighted by an angular unconformity at the top of the Mackenzie Mountains Supergroup, as defined by Don Cook and Bernie Maclean of the GSC.

Three key time structure maps were produced from the Cretaceous Radioactive shale marker, the Devonian Hume platform, and the Pre-Cambrian Unconformity. An isochron map of the Cretaceous Radioactive Shale to the Pre-Cambrian Basement was also produced. These are all included with the report.

The data has helped to define a structural complex, with closure at the Devonian Nahanni/Hume level, which will require additional new seismic to detail prior to committing to a well test.