

**1995 NETLA
SOUTHERN NORTHWEST TERRITORIES
REFLECTION SEISMIC REPORT**

SUBMISSION TO THE
GOVERNMENT OF CANADA
FOR WORK CONDUCTED
IN 1995 BY
SHELL CANADA LIMITED (OPERATOR)

NATIONAL ENERGY BOARD PROGRAM NUMBER N94B343
(9229 - S6 - 9E)

9229-S6-9E

SHELL CANADA LIMITED

**1995 NETLA 2D
REFLECTION SEISMIC REPORT**

NEB Program Number	N94B343 (9229 - S6 - 9E)
Exploration Agreement	367
Report Name	1995 NETLA 2D REFLECTION SEISMIC REPORT
Survey Type	2D Reflection Seismic
Survey Location	Latitude 60°40' - 60°50' N Longitude 122°30' - 123°00' E
Name of Program Operator	Shell Canada Limited
Name of Prime Contractor	Geotek Prakla - a division of Schlumberger Canada Limited
Specific Interests Involved	100% Shell Canada Limited
Author	A.D. Adrian, P. Geoph
Signed	
Date	May 14, 1996

Table of Contents

	Page
1.0 Introduction	5
2.0 Statistical Summary	6
2.1 Job History	6
2.2 Weather Conditions/Terrain/Downtime	6
2.3 Production Statistics	6
2.4 Northern Benefits	7
3.0 Safety Program	7
4.0 Survey Procedure	8
5.0 Seismic Data Acquisition Parameters	8
6.0 Seismic Data Processing	9
7.0 Seismic Interpretation	10

List of Tables

Table 1 Table of Seismic Acquisition and Purchase around E.L. 367

Table 2 Table of Velocities used for Depth Conversion

List of Figures

Figure 1 Schematic of Acquisition Geometry

Figure 2 Map of 1995 Netta Seismic Program

List of Enclosures

Encl. 1 1:100000 Shot Point Map

Encl. 2 1:50000 Depth Map of top Middle Devonian Carbonate

Encl. 3 DMO Stack of seismic line A006800093

Encl. 4 Migrated Stack of seismic line A006800093

Encl. 5 DMO Stack of seismic line A006800094

Encl. 6 Migrated Stack of seismic line A006800094

Encl. 7 DMO Stack of seismic line A006800095

Encl. 8 Migrated Stack of seismic line A006800095

Encl. 9 DMO Stack of seismic line A006800096

Encl. 10 Migrated Stack of seismic line A006800096

Encl. 11 DMO Stack of seismic line A006800097

Encl. 12 Migrated Stack of seismic line A006800097

1.0 INTRODUCTION

Two 2D seismic reflection surveys were conducted for Shell Canada Limited in the Southern Northwest Territories (in the Ft. Liard area) in February and March of 1995 by Geco-Prakla (a division of Schlumberger Canada). Shell party 68, over Shell's exploration licences E.L. 367 and E.L. 369. The program acquired approximately 175 kilometers of 2D seismic reflection data. Figure 2 shows the location of the program in the Netla area and enclosure 1 shows the location of the new data in both the Netla and Bovie areas. In the logistical statistics, the seismic program around E.L. 369 are included as the two areas were shot by the same crew at the same time.

The program was designed to investigate the prospectivity of E.L. 367 in an area where trade lines could not be acquired. The topography around the Netla program consisted of tree-covered rolling hills with some muskeg areas in the west part of the program.

Weather conditions were very favorable during the acquisition of the program and zero days were lost due to weather.

The seismic data was processed in house by Shell Canada. The data, along with some older vintage seismic lines and recently and previously purchased trade lines, which were all reprocessed, were loaded into a Landmark workstation for interpretation. Location of the recently purchased trade lines and older vintage seismic which were also used is also shown on enclosure 2. Total kilometers shot and purchased are tabulated in Table 1.

A depth map of the top of the Middle Devonian Carbonate was made and the position of the Devonian Slave Point buildups were interpreted.

2.0 STATISTICAL SUMMARY

2.1 Job History (EL 367 and EL 369)

Feb 01	- Party Manager arrives onsite
Feb 08	- Bulldozing begins
Feb 20	- Surveyors begin
Feb 27	- Recording begins
Mar 18	- Bulldozing complete
Mar 27	- Surveyors complete
Mar 27	- Recording complete
Mar 28	- Demobilization

2.2 Weather / Terrain Conditions / Downtime Factors

Weather conditions were very favorable during the acquisition of the program and zero days were lost due to weather.

2.3 Production Statistics (EL 367 and EL 369)

Number of Profiles Shot	5758
Number of Days Production	29
Number of Kilometers recorded	173.0
Number of Weather Days	0
Average Daily Production	6.0 km

2.4 Northern Benefits (EL 367 and EL 369)

Shell Canada's policy is to utilize regional and local suppliers of goods, services and manpower, provided local businesses are competitive and manpower is available. Shell requires its contractors to operate while under Shell contract in the same manner and monitors its contractor performance in these areas. With the exception of the major seismic crew contract, Shell did not solicit bids but negotiated with local contractors to supply support services. Local manpower requirements were coordinated through the local employment representatives. A total of 22 local residents were employed with the seismic contractor, line clearing contractor and catering contractor and made up 36% of the manpower requirements. A total of 6 local businesses provided goods and services to the operations.

3.0 SAFETY PROGRAM

All personnel were required to attend a safety orientation meeting prior to commencement of work. Safety meetings were held weekly for all personnel.

All new personnel and visitors were given safety orientation as well before going to the field. Copies of all of these meetings were forwarded to Shell.

Safety committees and emergency response plans were set up for the camp. Periodic inspections of the camp and equipment were made by the various committees and any findings were brought forward and discussed at safety meetings to correct any hazards.

All safety related events and statistics were administered by Shell Canada. They have been forwarded to the National Energy Board March 28, 1995.

4.0 SURVEY PROCEDURE

Positioning for the shot and receiver points employed the use of conventional survey techniques. Total Stations were used to obtain survey measurements of all grade breaks and shot/receiver points. Control for the survey was established using GPS receivers. GPS positions were established at the start and end points of all lines. Previously established Federal government control stations were used as the reference and three dimensional positioning (Northing, Easting and Height) were computed. All survey positions were transformed to NAD 27.

Absolute horizontal accuracy obtained was 3 metres radial at 2 sigma, with a relative accuracy between receiver points of 0.1%. Absolute vertical accuracy obtained was 1 metre with a relative accuracy between receiver points of 0.5 meters.

5.0 SEISMIC DATA ACQUISITION

Details of the seismic data acquisition parameters are outlined below. Refer to Figure 1 for the schematic of the acquisition geometry.

INSTRUMENT

Model	IO System II
Number of channels	400
Sample Interval	2 ms
Record Length	3.0 sec
Low-cut Filter	3 Hz (12 dB / octave)
High-cut Filter	188 Hz
60 Hz Notch	Out
Tape Format	SEG-D

GEOFONES

Model	OYO Geospace 20DX
Frequency	14 Hz
Damping	70%
Pattern	12 inline, centered on station
Spacing	1.4 m deployed evenly over 15 m

5.0 (con't)

SOURCE: VIBROSEIS

Non-linear sweep
6 - 84 Hz

ACQUISITION GEOMETRY (refer to figure 1)

receiver interval 15 m
source interval 30 m

6.0 SEISMIC DATA PROCESSING

Listed below is the data processing sequence as applied to the seismic data acquired or reprocessed

- demultiplex, ident and calculate refraction statics (C & C Systems)
 - Datum 735 metres
 - Replacement Velocity 2700 m/sec
- reformat to Shell format
- resample, anti-alias filter
- apply refraction statics
- gain recovery
- trace edits
- surface consistent residual statics
- KF Filter
- deabsorption
- surface consistent deconvolution
- surface consistent residual statics
- velocity analysis
- surface consistent residual statics
- dip moveout correction
- cmp stack
- Kirchhoff migration
- post stack whitening
- post stack frequency and phase filtering
- display hor scale 1:20000
 vert scale 7.5 ips

7.0 INTERPRETATION

The newly acquired seismic data, along with some older vintage lines, recently and previously purchased (trade lines) (which were all reprocessed) were loaded into a Landmark workstation for interpretation. The major horizons were transferred from nearby well synthetics to the seismic and then picked. The principal formation of interest was the Middle Devonian Carbonate.

A depth map of the top of the Middle Devonian Carbonate was produced using a layer stripping method of depth conversion. The velocities used for the depth conversion are in Table 2 and were derived from nearby wells. The depth values were matched exactly to the wells via back interpolation of the calculated depth values.

The position of the edge of the Slave Point buildup was interpreted using a number of criteria including difference in time thickness of the Middle Devonian carbonate section and the difference in time thickness of the Devonian Fort Simpson shales.

As of yet, no drilling locations have been identified.

Table 1 Seismic Line Acquisition and Purchase for EL 367

New seismic program shot in 1995, NEB program number 9229-S6-9E

Seismic Line Number	Total kms shot	Allowable kms(within 3kms)
A006800093	12.5	11.4
A006800094	11.7	11.7
A006800095	12.3	12.2
A006800096	13.5	13.5
A006800097	11.8	11.8
Total	61.8	60.6

Trade Lines Purchased for Reprocessing

Seismic Line Number	Total kms shot	Allowable kms(within 3kms)
AT00101758	14.6	6.7
AT00101759	21.85	8.9
AT00101760	14.75	3.6
AT00101761	32.8	20.9
AT00101762	19.8	17.6
AT00101763	19.8	0.0
AT07801072	19.2	19.2
AT10001958	53.7	23.1
Total	196.5	100.0

Table 2 Velocities used for Depth Conversion

Geological Formation	Interval Velocity
Replacement velocity	2600 m/s
Cretaceous	2600 m/s
Permian/Mississippian Mattison	4900 m/s
Mississippian Fleet	3750 m/s
Mississippian Bant	3200 m/s
Devonian Ft. Simpson shales	3400 m/s
Devonian Jean Marie	5860 m/s

Figure 1 Seismic Line Acquisition Spread Geometry

200 x 200 Split Spread Geometry

Near Offsets: 7.5 m

Far Offsets: 2992.5 m

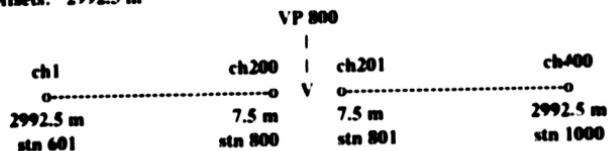
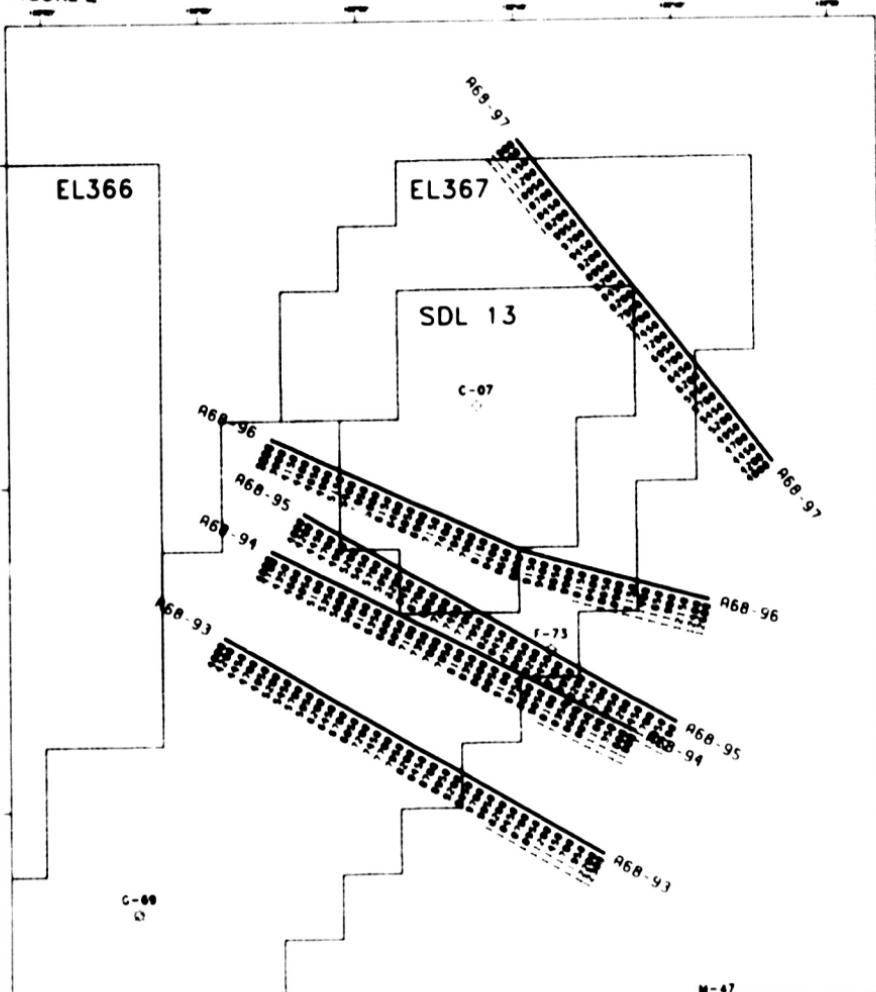


FIGURE 2



M-47

SHELL CANADA LIMITED CALGARY, ALBERTA
WELL 107, NELVA SOUTHERN 100-110 1995 2D SEISMIC SURVEY LOCATION MAP