FINAL REPORT

for :

Mackenzie Basin 2D

Reflection Seismic Survey

operation identifier :

[redacted]

location of operations :

Latitude : 65° 20′ to 65° 27′

Longitude : 126° 50′ to 127° 00′

dates of operations :

March 9 - March 18, 1996

contractor :

Western Geophysical

operator :

Stampeder Exploration Ltd.

report by :

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& Dan Sturko

November 15, 1996

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INTRODUCTION

The Mackenzie Basin 2D program was conducted in the spring of 1996 by Western Geophysical working on behalf of Western Atlas International Inc. The program was conducted as a non-exclusive survey. However, line W96-13 was purchased by Stampeder Exploration Ltd. and is now proprietary data.

The project was under the supervision of Mr. Darrel Elliott of Western Geophysical and the field operations were coordinated by Party Managers Lud Letal and Leon Andrew. Residents of the Northwest Territories made up 65% of the crew compliment.

Recording equipment and survey instruments were flown up from Calgary to Western Geophysicals' shop facility and base camp in Norman Wells. Personnel, recording equipment, fuel, food, aircraft, and other essential supplies were coordinated by expediters at base camp and mobilized out to the field operations camp.

Line W96-13 was located 11 km northwest of Norman Wells and crossed the Discovery Ridge of the Norman Range. For line W96-13 the field crew was based at Western's yard in Norman Wells.

Lines were cleared by Borek Construction. Dozing operations were coordinated by Mr. Rocky Arrnt.

Land use supervision was handled by the Northwest Territories. The permit was issued by the Inuvik Office of Indian and Northern Affairs. Prior to the permit being issued, meetings were held in Fort Norman and Norman Wells with Western Geophysical and local interest groups of the area. These meetings resulted in the conditions being drafted into the Land Use Permit.

LOCATION MAP

SUMMARY OF OPERATIONS

SIGNIFICANT DATES :

Surveyors and line clearing commenced March 11, 1996
Recording crew mobilized March 11 and commenced March 13, 1996
Recording was completed March 17, 1996 then the crew demobilized.

PERSONNEL :

Recording

1 - Observer
1 - Assistant Observer
4 - Line Drivers
10 - Line Crew Helpers
1 - Shooter
1 - Shooters Helper
1- Cable Repair Technician

Surveying

1 - Cat Push
2 - Surveyors
3 - Helpers

Catering

2 - Cooks
2 - Assistant Cooks
3 - Camp Attendants

Expediting

2 - Expediters
2 - Fuel Drivers

Source

1 - Vibrator Technician
4 - Vibrator Operators
2 - Night Men

Support

2 - Party Managers
1 - Clerk
3 - Mechanics
2 - Mechanic Helpers
1 - Medic

PERSONNEL : (Cont.)

Line Clearing

7 - Dozer Operators
1 - Foreman
1 - Supply Driver
1 - Monitor

EQUIPMENT:

Camp

2 - Kitchens	Sleigh Mounted 10 x 40
2 - Utility/Storage	Sleigh Mounted 10 x 40
4 - Generator/Shop	Sleigh Mounted 10 x 40
2 - Office/Sleeper	Sleigh Mounted 10 x 40
5 - Sleepers	Sleigh Mounted 10 x 40
6 - Fuel Sloops	Sleigh Mounted 3000 gallon each
1 - Medic	Sleigh Mounted 10 x 40
1 - Grocery	Sleigh Mounted 10 x 40
1 - Garbage	Sleigh Mounted 10 x 40

Recording & Survey

1 - Recorder	Track Unit FN - 110
1 - Shooter Unit	Track Unit FN - 110
5 - Line Units	Track Unit FN - 110
2 - Shop Units	Track Unit FN - 110
2 - Party Manager Units	Track Unit FN - 110
3 - Survey Units	Track Unit FN - 110
2 - Water Unit	Track Unit FN - 110
4 - Vibrators	LRS Buggy
4 - Snow Machines	Elan

Line Clearing

3 - Dozers	Caterpillar D7
1 - Foreman Unit	Delta II
1 - Fuel Supply Unity	Delta III

PRODUCTION :

Total Kilometers Surveyed : 12 km.

Average Kilometers Recorded per day : 3 km/day

Date	Locations	Kilometers	Time	Cost	Comment
Jan 13	7	0.27	13.5	5130.0	Begin recording. Very tough going.
Jan 14	64	2.79	12.0	53010.0	Vibe down at end of day.
Jan 15	69	3.12	12.0	59280.0	Long day. Finished S.W. end of line.
Jan 16	32	1.245	12.0	23655.0	Slow going. Surface shots strong wind.
Jan 17	103	4.59	12.5	87210.0	Complete job.
Jan 18			12.5		Picking up line. Problems with chopper.
Jan 19			13.0		Finish picking line. Project completed.

WEATHER AND TOPOGRAPHY

Temperatures ranged from -24 to +3 Celsius through out the course of operations. The sky was mainly clear with winds slight to moderate. There were no foul weather days to hamper the operations.

Although the terrain was rugged, particularly the south half of the line, 90% of the line was cat cut. There were two areas on the line that required special attention due to extreme slopes. First, between stations 593 to 560 (500m) the crew was only able to walk through. This resulted in the use of 8 surface dynamite source locations. The second area of rugged terrain was the crossing of Discovery Ridge. This location was impassable due to the 300m (1000 ft.) shear drop. A helicopter was used to transport personnel across and slung recording cable up the cliff to connect the line equipment. The cats and vibrators accessed around via Oscar Creek Gap, a 61 km detour that took 12 hrs. to complete.

RECORDING PARAMETERS

Instruments	LRS VISION -1000
Number of Traces	360
Geophone Type	LRS - 1011
Geophone Frequency	14 Hz.
Geophone Array	9 geophones over 13.4 m. (1.67 m. spacing)
Sample Rate	2 ms.
Record Length	4 sec.
Anti-Alias Filter	135 Hz.
Low Cut Filter	3 Hz.
Receiver Interval	15 m.
Source Interval	45 m.
Fold	6000%
Spread	2715 - 30 - X - 30 - 2715 m
Source	Buggy mounted 311 vibrator (33,000 lb.)
Number of Vibrators	4
Source Array	drag over 37 m. centered on flag
Number of Sweeps	8
Length of Sweep	8 sec.
Sweep Frequencies	8 Hz. - 96 Hz., 3 segmented linear
Survey Instruments	Nikon E.D.M.
GPS Instruments	Trimble SST

DATA PROCESSING SEQUENCE

Demultiplex		2 ms Sample rate
Amplitude Recovery		(T)exp(BT) B = 0.0008
Deconvolution		Type: Adaptive 5 Component Surface Consistent Signature With Zero Phase Frequency Domain Offset Component Domain: Frequency Gate: 250-1500 ms at Zero Offset 850-1800 ms at 2715 m. Offset Note: System Converted to Minimum Phase
Structural Corrections		Datum Elevation: 750 m Datum Velocity: 3500 m/sec Processing Datum: 0 ms Elevation, Weathering, and Drift

Note: All Following Times Referenced From Processing Datum

Analysis		Preliminary Velocities and Statics
Statics Trace Kills		Surface Stack Residual
Velocity Analysis Final Moveout		Interval: 50 CDPS
Mean Scaling		Window: 300-2000 ms
Time-Variant Scaling		Window: 0-300 ms
Mute	Distance(m) Time(ms)	210 900 2100 2715 350 500-800 1200-1300 1500
Statics		Surface Consistent Residual Window: 200-1500 ms

DATA PROCESSING SEQUENCE (continued)

T-P Noise Reduction	Type:	Slant Stack
	Window:	0-3000 ms
	P-Max:	+/- 260ms at 2715 m
	P-Increment: +/- 18 ms	
	% Model:	60 %
Trace Gather	Maximum Fold: 62	
Statics	CDP Cross Correlation Window: 200-1500 ms	
Stack	Cross Correlation Weighted	
F-D Migration	100 % Theoretical Velocities	
Filter	14/18-50/55 Hz	
Equalization	Mean Window: 300-2000 ms	
A.G.C.	Window: 300 ms	

SHOTPOINT MAP

Note: this data is also contained on the attached disk in SEG-P1 format.

MIGRATED SEISMIC SECTION

Note: Due to the nature of the seismic program (single line) no interpretive maps were generated.