3A

RANGER OIL LIMITED

9229-B059-7E/9E

REPORT ON SEISMIC SURVEYS

CONDUCTED ON

EL 362, EL 363, EL 364

FORT LIARD AREA, N.W.T.

COVERING PROGRAMS CONDUCTED BETWEEN

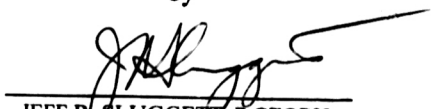
JUNE - JULY 1997
and
MAY - JULY 1998

SUBMITTED TO THE NATIONAL ENERGY BOARD

CALGARY, ALBERTA

FEBRUARY 1999

by



JEFF R. SLUGGETT, P.GEOPH.
CHIEF GEOPHYSICIST

NEB AUTHORIZATION #s - 9229-B059-007E and 59-009E

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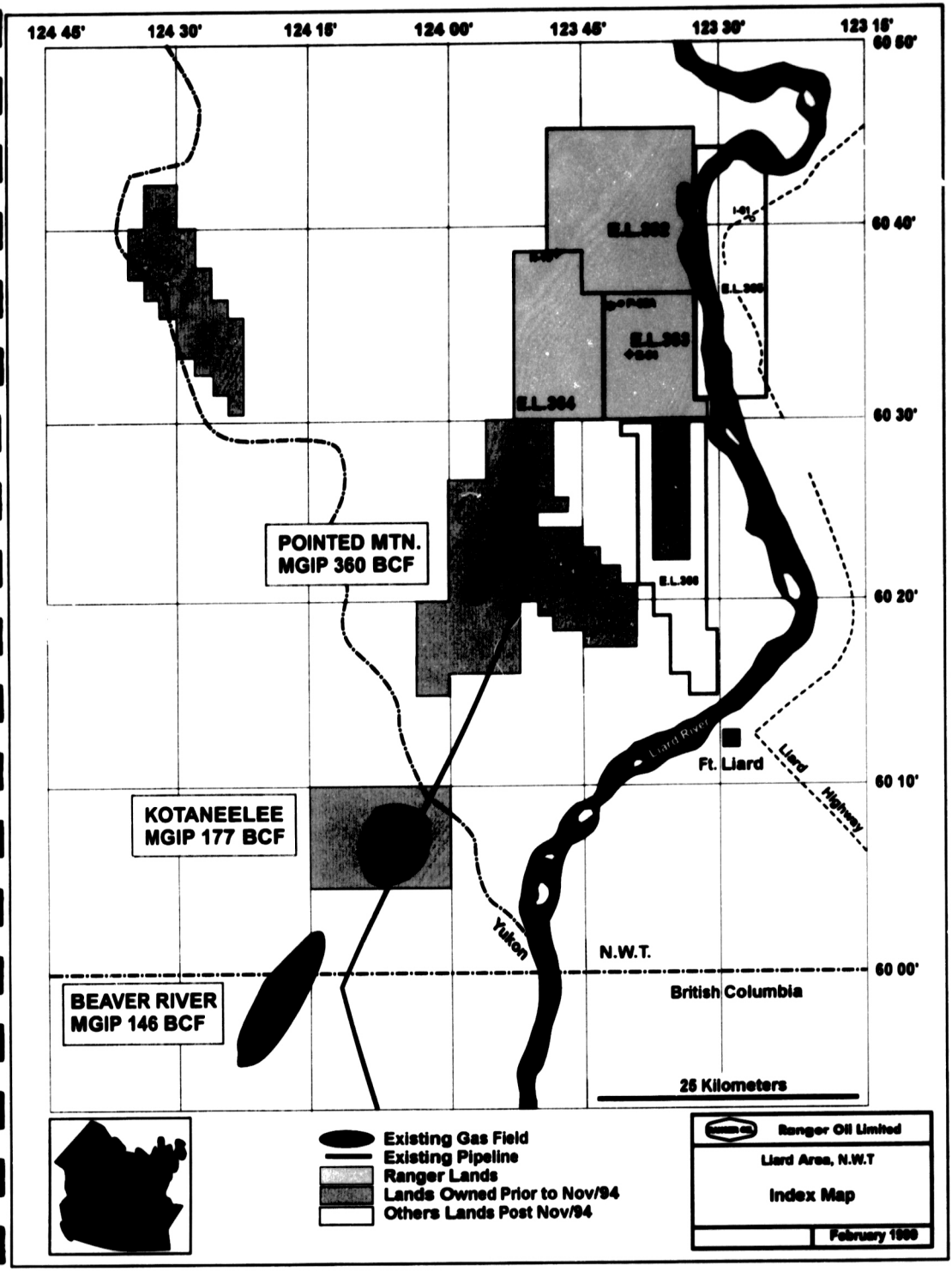
I ABSTRACT

Two separate seismic surveys were conducted across Ranger's EL 362, 363 and 364 in JUNE 1997, and MAY-JULY 1998 (see INDEX MAP). The two summer programs were heli-portable dynamite surveys. Both programs were designed to delineate the thrusted structures of the Middle Devonian Nahanni formation, specifically the porous Manetoe facies which is the reservoir rock in the Pointed Mountain field to the south west and was encountered in Ranger's P-66A well.

After a lengthy processing sequence including pre-stack time migration, velocity modelling and pre-stack depth migration a depth map was prepared on the Nahanni carbonate. This map clearly shows a NNW-SSE trending Laramide thrust fault feature with a vertical relief from the crest of some 900m. These lines are detailing earlier work reported in the OCTOBER 1996 report by Jeff R. Sluggett. The structure appears to be cut by a cross fault as seen on line NAQ-010.

II INDEX MAPS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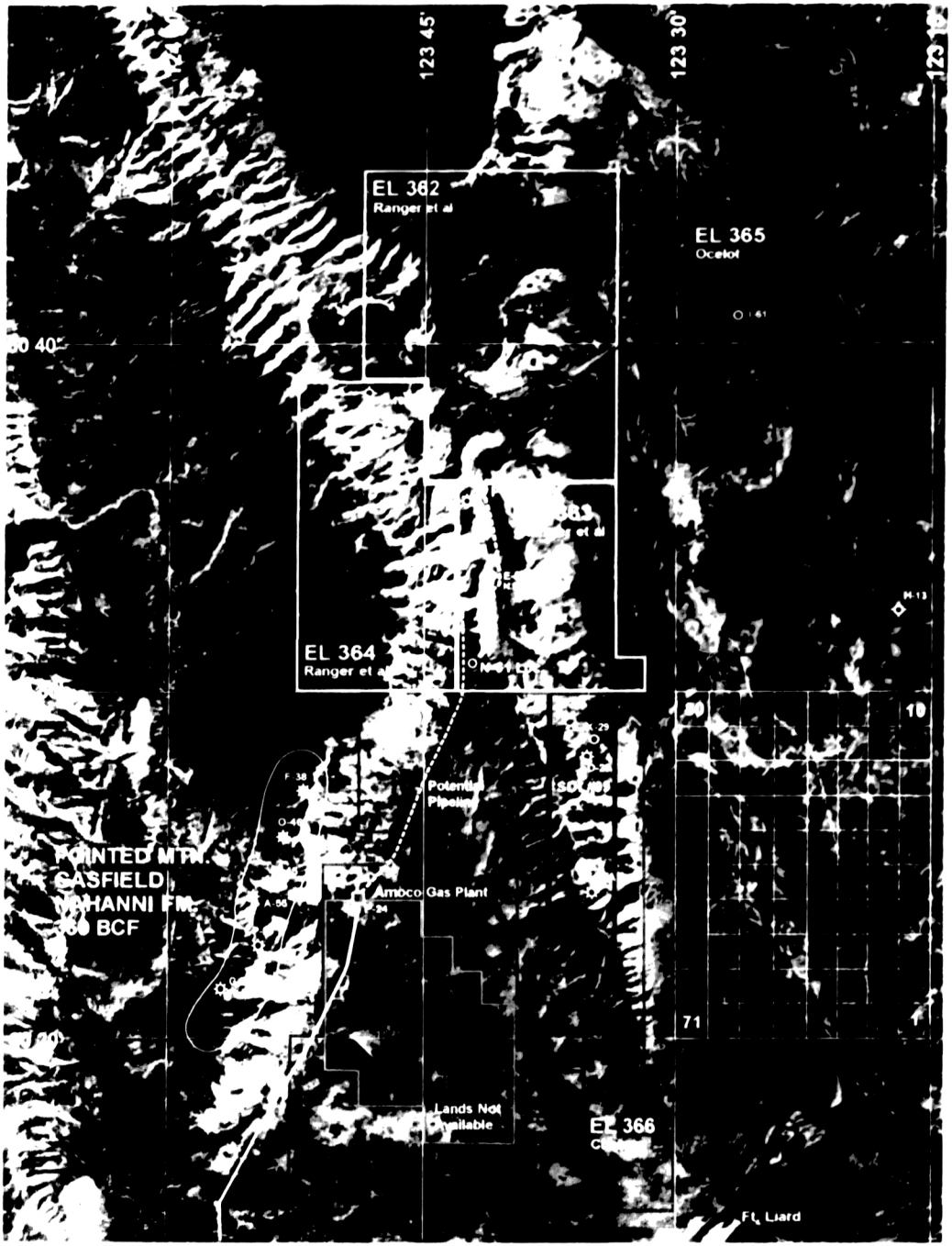
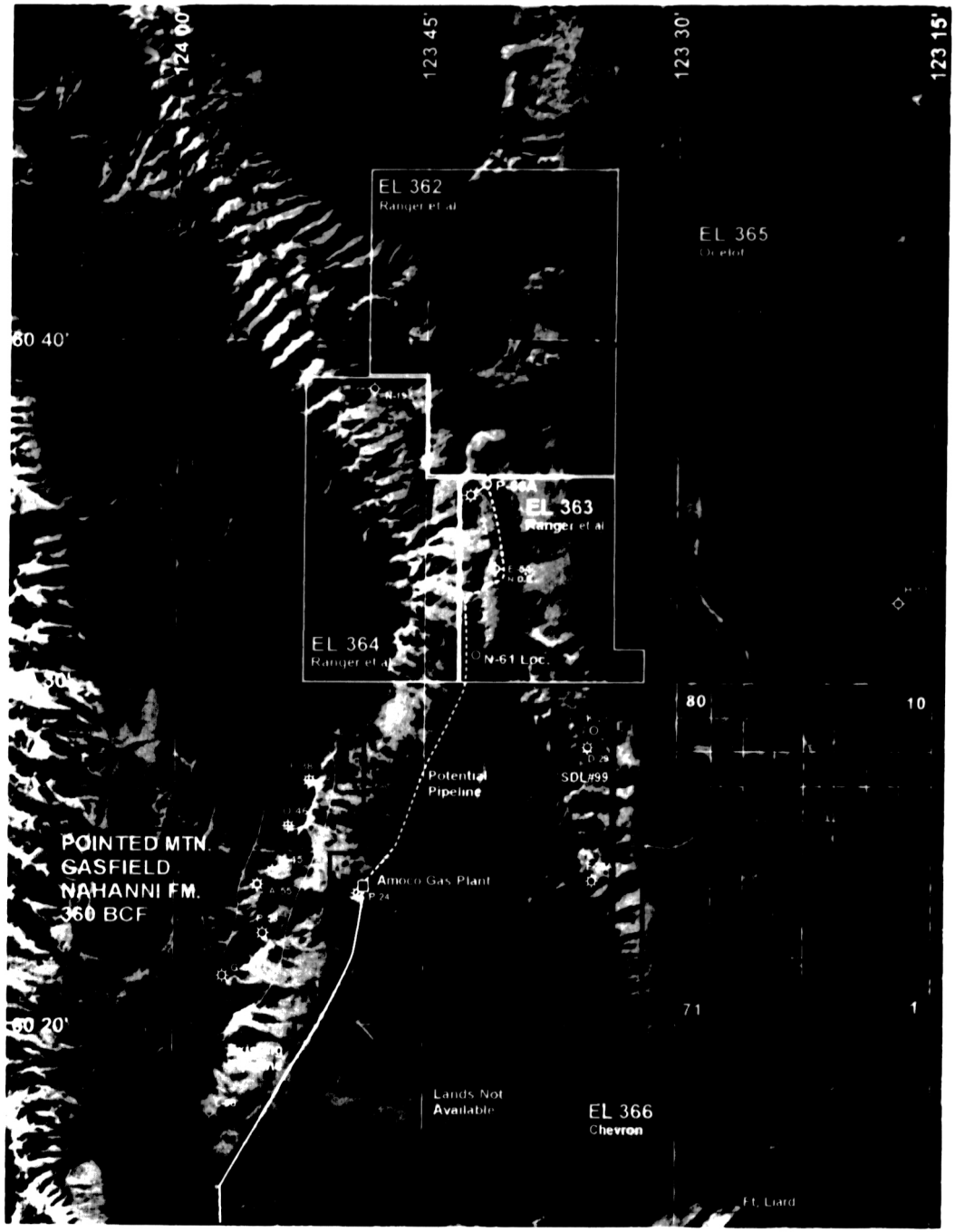
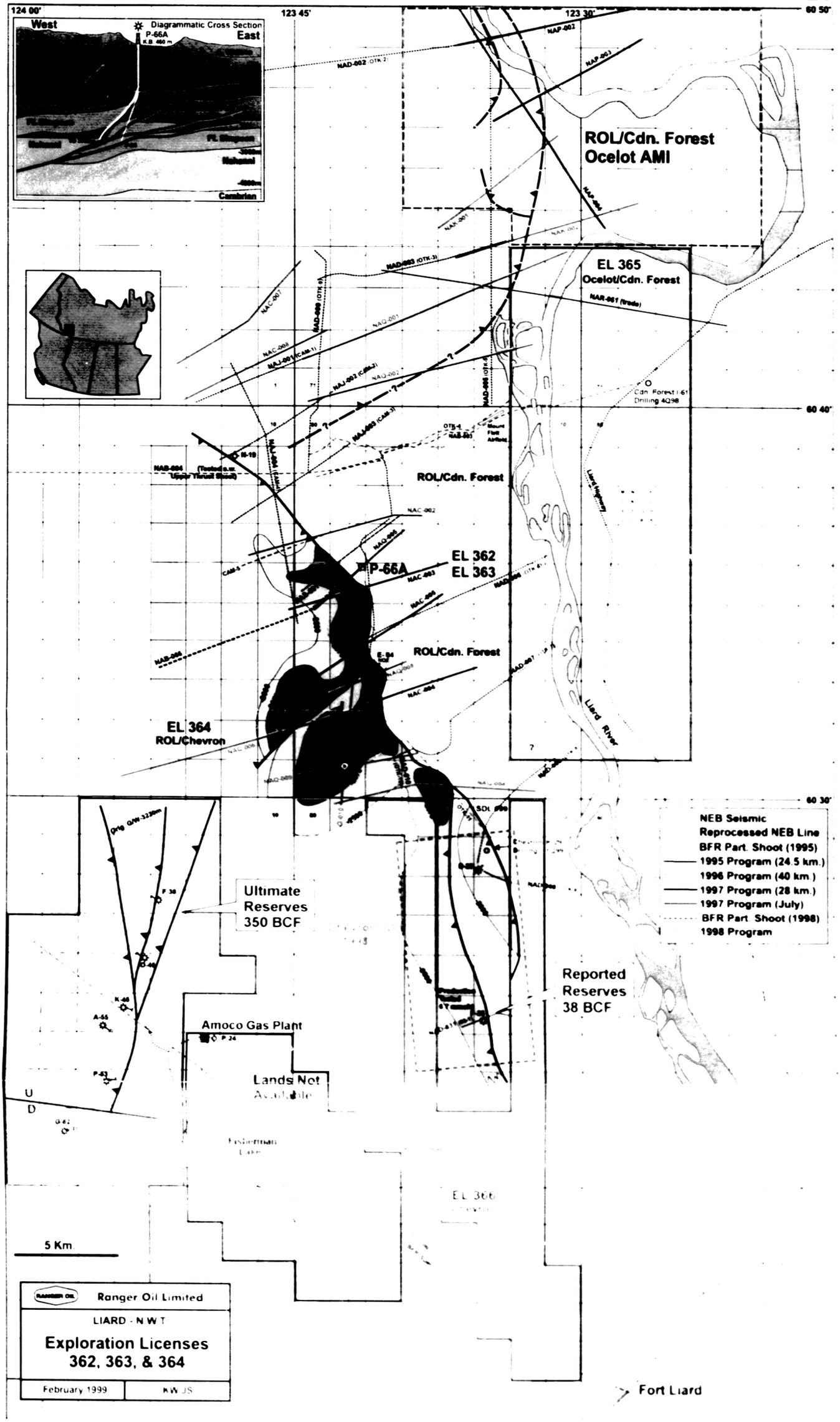
124 30'
124 15'
124 00'
123 45'
123 30'
123 15'
60 50'
60 40'
60 30'
60 20'
60 10'
60 00'
E.L.362
E.L.363
E.L.364
E.L.366
POINTED MTN.
MGIP 360 BCF
KOTANEELEE
MGIP 177 BCF
BEAVER RIVER
MGIP 146 BCF
Liard River
Ft. Liard
Liard
Highway
Yukon
N.W.T.
British Columbia
25 Kilometers
Existing Gas Field
Existing Pipeline
Ranger Lands
Lands Owned Prior to Nov/94
Others Lands Post Nov/94
Ranger Oil Limited
Liard Area, N.W.T
Index Map
February 1996


123 45'
123 30'
EL 362
Ranger et al
EL 365
Ocelot
EL 364
Ranger et al
Potential Pipeline
Amoco Gas Plant
POINTED MTN. GASFIELD
MUHANNI FM.
BCF
Lands Not Available
EL 366
Ft. Liard
0 5 10 Km.
February 1999
RANGER et al LANDS-POST NOV 94
OTHERS LANDS-PRE NOV 94
OTHERS LANDS-POST NOV 94
RANGER OIL
LIARD AREA, N.W.T


124 00'
123 45'
123 30'
123 15'
EL 362
Ranger et al
EL 365
Direlof
60 40'
EL 363
Ranger et al
EL 364
Ranger et al
N-61 Loc.
80
10
Potential
Pipeline
SDL#99
POINTED MTN.
GASFIELD
NAHANNI FM.
360 BCF
Amoco Gas Plant
P-74
60 20'
71
1
Lands Not
Available
EL 366
Chevron
Ft. Liard
0 5 10 Km.
February 1999
RANGER et al LANDS-POST NOV/94
OTHERS LANDS-PRE NOV/94
OTHERS LANDS-POST NOV/94
RANGER OIL
LIARD AREA, N.W.T


124 00'
123 45'
123 30'
60 50'
60 40'
60 30'
West
East
Diagrammatic Cross Section
P-66A
K.B. 460 m
Ft. Simpson
Nahanni
Cambrian
ROL/Cdn. Forest
Ocelot AMI
EL 365
Ocelot/Cdn. Forest
Cdn. Forest 1-61
Drilling 4Q98
ROL/Cdn. Forest
P-66A
EL 362
EL 363
ROL/Cdn. Forest
EL 364
ROL/Chevron
Liard River
Ultimate
Reserves
350 BCF
Reported
Reserves
38 BCF
Amoco Gas Plant
Lands Not
Available
EL 366
NEB Seismic
Reprocessed NEB Line
BFR Part. Shoot (1995)
1995 Program (24.5 km.)
1996 Program (40 km.)
1997 Program (28 km.)
1997 Program (July)
BFR Part. Shoot (1998)
1998 Program
5 Km
Ranger Oil Limited
LIARD - N.W.T.
Exploration Licenses
362, 363, & 364
February 1999
KWJS
Fort Liard

III OPERATIONS REPORT FOR LINE NAQ-005
(SHOT IN JUNE 1997)

1. Introduction

NEB authorization #9229-B059-007E on EL 363.

In June 1997 a seismic survey for Ranger Oil Limited was undertaken by Geco-Prakla (Party 1267) in the Fort Liard area of the Northwest Territories. This section covers pertinent operational information from the survey, as required by the Canada Oil and Gas Geophysical Operations Regulations.

The survey consisted of one 2D heli-portable dynamite seismic line of approximately 5.7 kilometres over mountainous topography. The line labelled NAQ-005, appears on the accompanying location map. The purpose of this line was to delineate the Nahanni target underneath the P-66A well which was drilling at the time.

Fort Liard was used as the main staging area and base for all expediting and supplying of fuel, explosives, groceries, supplies and parts.

All data acquired during this survey was processed in Calgary by Kelman Seismic Processing.

2. Statistical Data

1.0 Personnel

Recording Crew Personnel

1	Supervisor
2	Party Managers
1	Observer
1	Cable Repair man
1	Drill Push
1	Shooter
6	in Field Crew
13	Total

Survey Personnel

1	Head Surveyor
2	Surveyors
3	Total

Field Positions

Supplied by Beaver Enterprises Ltd.

Twenty northern residents employed by the above company.

Total Personnel

13	Recording Crew Personnel
3	Survey Personnel
20	Field Positions
36	Total Personnel

2.0 Equipment

Recording Equipment

1 Heli-portable INPUT/OUTPUT SYSTEM TWO digital telemetry system, comprising:

85	MRX's with solar batteries
125	Spare battery modules
1	Battery Management System
4	ALX's (Advance Line Taps)
2	LIM's (Line Input Module)
1	SCM (System Control Module)
1	SIM (System Interface Module)
1	CSM (Correlator Stacker Module)
1	SCSI (3480 Cartridge Drive)
1	OCM (Operator Control Module)
4	HHT's (Hand Held Terminals)
1	Printer

700 Strings of GS20AX 10 Hz geophones (9 phones/string spaced over 15m)

115 Tescorp RSC interconnect cables (6 takeouts @ 42m or 84m)

1 Pelton Advance II ESG

Vehicles - Recording Crew

1 Air conditioned recording cabin mounted on a F700 4x4. Separate diesel driven 17kVA generator supplying power for air conditioning and instrumentation.

4 Line Units - F350 4x4

1 Transport Unit - F700 4x4 (or equivalent)

2 Support Units - F250 4x4

1 Mechanic Unit - F250 4x4

1 Party Manager Unit - F250 4x4

1 Battery Charging Unit

1	Cable/Geophone Repair Trailer
2	Personnel Carriers

Survey Equipment

The survey was done using conventional methods, theodolites and EDM (electric distance measures). No vehicles were used.

Drilling Equipment

Mountain Air Drilling - Six heli-portable air hammer drills

Communication/Office Equipment

8	VHF hand held radio transceivers
16	VHF mobile radio transceivers fitted to vehicles
1	Facsimile machine
1	Photocopier
1	Portable computer
2	IBM Compatible P.C.'s for administration and cost control

Camp

1	43 man camp consisting of sleeping accommodations, offices, kitchens, dining and recreation facilities, heated workshops, first aid station, washroom facilities and generators. The camp was located at the Hire North Yard, north and east of Fort Liard.

3.0 Significant Dates

June 22	Drilling commenced.
July 2	Recording commenced.
July 6	Recording completed.

4.0 Production Statistics

Profiles Shot	74
Days Worked	9
Kms Recorded	5.7
Weather Days	0
Total Days	14
Total Hours	93

3. Field Procedures

1.0 Conditions

Weather in the Fort Liard area during the survey was good.

2.0 Topography

The terrain of the area was low lying wetlands progressing into mountainous regions crossing the Franklin Mountains of the Liard Range.

3.0 Survey

The survey was done by conventional methods, using theodolite, EDM and chainage.

4.0 Camp

One camp was in operation for this survey and was located at the Hire North Yard, north and east of the town of Fort Liard.

5.0 Data Acquisition

5.1 Energy source parameters

No. of Groups Active	400
Group Spacing	15
Phones/Group	9/15/m
No. of Holes	1
Hole Spacing	90 m
Hole Depth	20 m
Charge Size	20 kg tamped, double capped

5.2 Recording system parameters

Instrument Type	INPUT/OUTPUT SYSTEM TWO digital telemetry system
Filters Low Cut	3/12
Filters High Cut	75/135
Record Length	8 sec
Notch Filters	out - 207hz
Pre Amp Gain	36 dB
Sample Rate	2 ms

5.3 Spread Parameters

No. of Traces	400
Source Interval	90 m
C.D.P. Size	7.5 m
Group Interval	15 m
Geophones/Group	9
Geophone type	OYO 20 DX, 10Hz
Fold	33

5.4 Spread Configuration

TRACES: 1-200-x-201-400 TRACE 1 N.E.
2992.5-22.5-x-22.5-2992.5 m

4. Data Processing Parameters

1.0 Seismic Data Processing Sequence

The data acquired was processed by Kelman Seismic Processing. The following sequence was applied:

Demultiplex:

Process sample rate:	2.0 ms
Process record length:	8.0 sec

Amplitude Recovery:

Exponential gain curve	K[T]PWR[N][EXP[AT]] K=1 A=0 N=2

Trace editing

Phase compensation

Type:	Instrument and geophone

FK Filter

Transparent:	For calculation of deconvolution operators only

Deconvolution

Type:	Surface consistent spiking
Operator Length:	80 ms
Prewhitening:	1%
Design gate:	800 - 2000 ms at 22m offset 1200 - 2200 ms at 2992m offset
Offset range:	1730 - 2900 m

Partial Spectral Balancing:

Frequency	10 - 100 Hz

Equalization:

Design gate	Same window as decon.

Statics (Refraction)

Method	GLI
Frequency spacing	Every shot
Datum elevation	500 m
Weathering velocity	762 m/sec
Replacement Velocity	4000 m/sec

Sort:
To common depth point

Velocity Analysis:

Type:	Constant percentage moveout

Statics (Residual): First Pass

Type:	Automatic surface consistent
Correlation Window:	600 - 3000 ms
Maximum Shift:	+/- 32 ms
Correlations per trace	15
Number of iterations	2

Velocity Analysis:

Type:	Constant percentage moveout

Statics (Residual): Second Pass

Type:	Automatic surface consistent
Correlation Window:	400 - 3000 ms
Maximum shift:	+/- 16 ms
Correlations per trace	15
Number of iterations	2

Pre-Stk Mig. Vel. Analysis:

Type	Constant percentage moveout

Mute Pattern:

Distance	400 550 3992 6000 m
Time	-400 300 600 1400 ms

Equalization:

Design window	500 ms AGC

Full Pre-Stack Time Migration:

Type	Kirchoff summation

Datum referenced, to plotted weathering replaced surface, separately at shot and receiver

Stack:

Spike Suppression	3:1 threshold
Fold	33

Filter:

Frequency	8/12 - 45/55 Hz

Equalization:
Design window 600 ms AGC

Display Parameters

Film Display: Horizontal: 53.3 Traces/Inch 400m/Inch
Vertical: 5 Inches/second – approx 400m/Inch

IV OPERATIONS REPORT FOR LINES NAQ-001, 2, 4, 6, 8, 9, 10
(SHOT IN MAY-JULY 1998)

1. Introduction

NEB authorisation #9229-B059-009E on EL 362, 363, 364.

In May 1998 a seismic survey for Ranger Oil Limited was undertaken by Geco-Prakla (Party 1267) in the Fort Liard area of the Northwest Territories. This section covers pertinent operational information from the survey, as required by the Canada Oil and Gas Geophysical Operations Regulations.

The survey consisted of seven heli-portable dynamite seismic lines totalling approximately 68.94 kilometres. The program was located north of the town of Fort Liard, on the west side of the Liard River. The lines, labelled NAQ-001, 2, 4, 6, 8, 9, 10, appear on the accompanying location map.

The topography was some wetlands but mainly mountainous with cliffs of up to 100m. All operations were supported by helicopter including the slashing, survey, drilling and recording.

The main staging areas were km 91 & km 68 on the McKenzie Highway north of Fort Liard.

Food, fuel and supplies came generally from Fort Liard and Fort Nelson.

All data acquired during this survey was processed in Calgary by Kelman Seismic Processing.

2. Statistical Data

1.0 Personnel

Recording Crew Personnel

1	Supervisor
2	Party Managers
1	Drill Push
2	Field Administrators
1	Instrument Technician
2	Observers
2	Shooters
1	Cable Repair man
13	in Field
25	Total

Survey Personnel

Survey was conducted by GEOMAT-X Surveys Ltd
with a total of 6 Personnel

6 Total in Survey Crew

Line Clearing

Supplied by Beaver Enterprises Ltd.

2	Supervisors
18	Handcutters

Handcutting was done with power saws and helicopter support.

Twenty northern residents were employed.

Drilling

Mountain Air Drilling - Six heli-portable air hammer drills.

Total Personnel

25	Recording Crew
6	Survey
20	Line Clearing
14	Drilling
65	Total Personnel

2.0 Equipment

Recording Equipment

1 Heli-portable INPUT/OUTPUT SYSTEM TWO digital telemetry system, comprising:

110	MRX's with solar batteries
165	Spare battery modules
2	Battery Management Systems
3	ALX's (Advance Line Taps)
1	LIM (Line Input Module)
1	SCM (System Control Module)
1	SIM (System Interface Module)
1	CSM (correlator/Stacker Module)
1	OCM (Operator Control Module)
2	HHT's (Hand Held Terminals)
2	SCSI (3480 Cartridge Drives)
1	Printer

700 Strings of GS20AX 10 Hz geophones (9 phones/string)

115 Tescorp RSC interconnect cables (6 takeouts @ 42m or 84m)

1 Pelton Advance II ESG

Vehicles - Recording Crew

1 Heli Portable Recording Unit with Separate diesel driven 17 kVA generator supplying power for air conditioning and instrumentation.

1 Part Manager Unit - F250 4x4

2 Line Units - F350 4x4

1 Transport Unit - F700 4x4 (or equivalent)

2 Support Units - F250 4x4

1 Mechanic Unit - F250 4x4

2 Personnel Carriers

1 Battery Charging Unit

1 Cable/Geophone Repair Trailer

Survey Equipment

The survey was done using conventional methods, theodolites and EDM (electric distance measures). No vehicles were used.

The survey crew had 39 shifts with four shifts lost due to weather.

Drilling Equipment

Mountain Air Drilling

6 Heli-portable air hammer drills

Communication/Office Equipment

17 VHF hand held radio transceivers

16 VHF mobile radio transceivers fitted to vehicles

1 Facsimile machine

1 Photocopier

1 Portable computer

2 IBM Compatible P.C.'s for automated OB logs, administration and cost control

Camp

1 43 man camp consisting of sleeping accommodations, offices, kitchens, dining and recreation facilities, heated workshops, first aid station, washroom facilities and generators.

3.0 Significant Dates

May 11	Party Manager arrives at Fort Liard
May 14	Slashing commenced
June 6	Drilling commenced.
June 18	Recording commenced.
July 11	Recording completed.

4.0 Production Statistics

	Fort Liard
Profiles Shot	747
Days Worked	15
Kms Recorded	68.94
Weather Days	6
Total Days	20

3. Field Procedures

1.0 Conditions

Weather in the Fort Liard area during the survey was good except for 6 days of rain. In all, 10 shifts were lost due to rainy conditions.

2.0 Topography

The terrain of the area was low lying wetlands progressing into mountainous regions crossing the Franklin Mountains of the Liard Range.

3.0 Survey

The survey was done by conventional methods, using theodolite, EDM and chainage.

4.0 Camp

One camp was in operation for this survey and was located at the Hire North yard north and east of the town of Fort Liard.

5.0 Data Acquisition

5.1 Energy source parameters

No. of Groups Active	600
Group Spacing	15
Phones/Group	9 over 15m
No. Source Points	718
No. of Holes	1
Hole Spacing	90 m
Hole Depth	20 m
Charge Size	20 kg/tamped, double capped

5.2 Recording system parameters

Instrument Type	INPUT/OUTPUT SYSTEM TWO digital telemetry system	
	Filters Low Cut Hz/Db	3/12
	Filters High Cut Hz/Db	75/12
	Record Length	8 sec
	Notch Filters	out
	Pre Amp Gain	36 dB
	Sample Rate	2 ms

5.3 Spread Parameters

No. of Traces	600
Source Interval	90 m
C.D.P. Size	7.5 m
Group Interval	15 m
Geophone/Group	9
Type	OYO 20 DX, 10Hz
Fold	50

5.4 Spread Configuration

TRACES: 1-300-x-301-600 TRACE 1 N.E.
4500-15-x-15-4500m

4. Data Processing

1.0 Seismic Data Processing Sequence

The data acquired was processed by Kelman Seismic Processing.
To all seven lines in the survey, the following sequence was applied:

Demultiplex:
Process sample rate: 2.0 ms
Process record length: 4.0 sec

Amplitude Recovery:
Exponential gain curve K[T]PWR[N]|EXP[AT]] K=1 A=0 N=2

Trace editing

Phase compensation
Type: Instrument and geophone

FK Filter
Transparent: For calculation of deconvolution operators only

Deconvolution
Type: Surface consistent spiking
Operator Length: 80 ms
Prewhitening: 1%
Design gate: 600 - 3000 ms @ 7m offset
1500 - 3000 ms @ 3992m offset
Offset range: 700 - 3000 m

Spectral Balancing:
Frequency 10 - 100 Hz

Equalization:
Design gate Same window as decon.

Statics (Refraction)
Method GLI
Frequency spacing Every shot
Datum elevation 500 m
Weathering velocity 762 m/sec
Replacement Velocity 4000 m/sec

Sort:
To equal common depth point interval

Velocity Analysis:

Type:	Constant percentage moveout

Statics (Residual): First Pass

Type:	Automatic surface consistent
Correlation Window:	400 - 3200 ms
Maximum Shift:	+/- 32 ms
Correlations per trace	15
Number of iterations	2

Velocity Analysis:

Type:	Constant percentage moveout

Statics (Residual): Second Pass

Type:	Automatic surface consistent
Correlation Window:	700 - 2500 ms
Maximum shift:	+/- 16 ms
Correlations per trace	15
Number of iterations	2

Pre-Stk Mig. Vel. Analysis:

Type	Constant percentage moveout

Mute Pattern:

Distance	100 310 2000 4960 m
Time	-270 413 1000 2031 ms

Equalization:

Design window	500 ms AGC

Full Pre-Stack Time Migration:

Type	Kirchoff summation

Datum referenced, to plotted weathering replaced surface, separately at shot and receiver

Stack:

Spike Suppression	3:1 threshold
Fold	50

Filter:

Frequency	10/15 - 60/70 Hz

Equalization:
Design window 600 ms AGC

Display Parameters

Film Display: Horizontal: 53.3 Traces/Inch 400m/Inch
Vertical: 5 Inches/second approx 400m/Inch

V TECHNICAL DISCUSSION and INTERPRETATION

1. Data Quality

The key parameters that led to improved data quality in the heli-portable surveys were (in order of priority):

IN ACQUISITION

- high fold/short group interval >50 FOLD, 15m GI
- deep charges - 20kg @ 20m (double tamped holes)
- marsh phones - pushed by pole through the moss
- a I/O digital telemetry system - 24 bit recording

IN PROCESSING

- careful analysis of migration panels to maximize the quality of the pre-stack time migration
- careful muting
- careful velocity work on the depth migration

The character of the Nahanni formation, i.e., one narrow trough followed by a wide doublet trough could be recognised throughout the area on the newer data.

2. Reflection Identification

Previous to the drilling of the Ranger P-66A well, the reflection identification was based on 4 poor well ties:

E-54: did not reach the Nahanni target and only a partial poor quality sonic is available

D-29: is missing most of the sonic log and the velocities below 2500m look unreliable

F-25/25A: together they provide a fair tie to the reflections on line NAD-831 but the well is near the end of the line so the migration is not as good as most of the area

N-19: no sonic log is available for this well but using approximate velocities the tie to the Nahanni on line NAB-004 at 580m is fair.

The P-66A well synthetic provides confirmation that we had the correct Nahanni reflection picked and mapped.

3. Velocity Control

Velocity control in the area is poor, since the velocities of the four seismic tie wells were unreliable, the following six other wells with better sonics were used for velocity control:

b-21-K/94-0-14
c-51-B/94-0-14
MURPHY NETLA M-31
AMOCO E. FLETT H-13
ARROWHEAD N-02
IMPERIAL NETLA C-07

(see the Ranger Oil report on Fort Liard dated OCTOBER 1996)

The P-66A well provides the best velocity control for the Besa River Shale section while the following sonics were used for general control on the other intervals:

4. Interpretation

The Liard Plateau is an area where pre-Laramide normal faulting is overprinted with several vintages of Laramide thrusting.

The character of the Nahanni can be seen to be recognizable on most of the lines where it is a clear peak-trough-peak followed by a wide doublet trough. The top trough has been picked as the Nahanni.

The character of the Nahanni Carbonate unit below this is a dull zone of 300-400m followed by a distinctive zone of 3-5 strong, ringing reflectors indicating the Pre-Devonian or Cambrian section.

The Basement or Pre-Cambrian section is largely devoid of reflections except for strong discontinuous burst of high amplitudes believed to be injected sills. The Pre-Cambrian structure can be seen to dip regionally to the west in this area and is occasionally cut by old normal faults.

The Besa River section is hard to correlate in areas partly because it is predominently shale and therefore is highly fractured and squeezed, and partly because the lime stringers within the shale that contribute to the reflections probably do not extend for great distances. The Flett section near the surface is a high frequency, ringing zone that correlates quite well with the surface geology.

An important indication of the Nahanni that serves to confirm the interpretation above is the fact that the 6000m/sec carbonate interval velocity can be easily picked out while performing the interactive pre-stack time migration velocity analysis.

The NAQ series of lines were acquired to answer a number of questions arising from the structures mapped with the 1995-96 data (see also report dated OCTOBER 1996 by same author). NAQ-001 and 002 were located across the topographic feature 'Mt Flett' to prove or disprove the existence of a 'trap door' structural feature at the Nahanni level directly underlying Mt Flett. As can be seen on NAQ-001 there is a clear thrust present which cuts the Nahanni at SP 461. This same thrust can be poorly seen on NAQ-002 at SP 689. Unfortunately as mapped this structure is climbing to the North and so does not have any closure on the EL 362.

The NAQ-005 line was acquired to determine the exact edge of the Nahanni carbonate under the drilling well P-66A. After acquiring the data it appeared the leading edge was approximately 1000m SW of the surface location of P-66A. Ranger Oil decided to add a safety margin of 200m and thus attempt to intersect the Nahanni at 1200m to the SW. With excellent drilling control this was accomplished. It appears from test results from P-66A that the wellbore is approximately 200m from the main fault edge so that the seismic data has been migrated quite accurately.

The lines NAQ-4, 6, 8, 9, 10 were all acquired to delineate the best follow up location on the 'Liard Structure' lines NAQ-4, 8 and 9 show the main fault edge clearly while line 10, a strike line, shows a possible splay fault. This splay fault of approximately 200m throw at its maximum, decreasing to a small throw near the main fault, is seen to cut NAQ-010 at aproximately SP 263. Line NAQ-009 shows a relatively high position at SP 365 (N-61 location) which was determined to be the optimum location for a follow up well to the discovery at P-66A. This well will hopefully be spudded early in 1999.

Lines NAB-04X, NAB-066 and NAQ-006 were acquired to give some indication of potential on the EL 364 block. All of the lines show strong west dip at the Nahanni level with the best potential location on the high at SP 413 on line NAQ-066.

Line NAQ-004 shows the possible extension of the structure being drilled by Chevron et al (Ranger Oil has a working interest in this well) at K-29. This feature extends into unit 41 of EL 363.

VI CONCLUSIONS

- The reflection data acquired was considered very good quality considering the rugged topography and near surface alluvial channels.

- Therefore high-fold, (i.e., 50+ fold) is needed in this rugged area to acquire good data.

- The resultant depth structure map on the Nahanni shows a drillable feature which I am calling the 'Liard Structure' and which was tested and found to be gas bearing in the P-66A well. This well spudded at SP 377 on line NAQ-005 and reached TD some 1273m to the SW under SP 471. Note that the wellbore was vertical for some 1000m then deviated at approximately 45° to encounter the Nahanni Carbonate top at -2230m subsea under SP 457.

- Porosity in the Nahanni was not directly mapped but numerous small faults near the crest of the structure should indicate fracturing of the reservoir. This was confirmed by the sonic log, the FMI (Formation Micro Image) and production tests.

- The optimum followup location on the Southern portion of the structure is determined to be N-61 at SP 365 on line NAQ-009.

- There are no drillable closed structures in EL 362.

- The lines acquired across the extremely rugged topography of EL 364 show strong westerly dips with one potential drillable structure at SP 413 on line NAQ-006.

- The K-29 well is testing a structure which appears to extend into unit 41 of El 363.

VII LIST OF ENCLOSURES

1. TIME STRUCTURE MAP - NAHANNI 'LIARD SHEET' 1:50,000
2. DEPTH STRUCTURE MAP - NAHANNI 'LIARD SHEET' 1:50,000
3. SHOT POINT LOCATION MAP 1:50,000
4. SYNTHETIC SEISMOGRAMS