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Geo-Science Data Index

Date _____

FINAL REPORT-GRANDVIEW AREA-N.W.T.

for
SUN OIL COMPANY by

CATALINA EXPLORATION & DEVELOPMENT

GEOPHYSICAL REPORT ON A SEISMIC SURVEY

OF THE GRANDVIEW AREA, N.W.T.

The two enclosed maps were the result of a seismic survey of the Grandview N.W.T. area. The survey was carried out between the months of February to April 1971.

The program consisted of 154 miles of line of four fold dynamite data. The R.O.C. Grandview Hills well was used as the base of the surveying control and all positions and elevations throughout the survey were referred to this well location as surveyed by Western Geophysical Co. in 1961.

The identification of the Middle Devonian horizon is being made on the basis of the velocity and depth data provided by this well. The data were adjusted to a 900 foot above sea level datum plane using a correction velocity of 10,000 ft./sec.

Preston Chaney Jr.

P.E. Chaney, Jr.
August 4, 1971

PEC:mmc

Enclosures

Approved:

J.W. Maxwell
Arctic District
Geophysical Supervisor



*Abstracted for
Geo-Science Data Index
Date*

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for
SUN OIL COMPANY
by
CATALINA EXPLORATION & DEVELOPMENT LTD.

1. ABSTRACT

A seismic survey was conducted in the Grandview Hills Area of the Northwest Territories, for Sun Oil Company. The prospect consisted of 154.3 miles of line shot for four fold common depth point stack. All data was recorded in digital binary gain format.

2. FIELD PROCEDURES

Location: See figures I and II

Shooting Dates: February 7, 1971 to April 5, 1971

License No.: 1681

a) SURVEYING

Surveying was accomplished with a Wild T-16 Theodolite. Group positions and shot points were chained and elevations were determined for all stations and shot points. Notes were worked in the field to determine ties and then sent to Sun Oil, in Calgary, where they were computerized using Sun's survey programs. Survey control was obtained from R.O.C. et al Grandview Hills Well located on the north end of Line "D". Star shots were taken at various points in the Prospect to determine true North including one at the well site. The survey was tied within itself and all loops closed within the normal allowable error.

b) SHOOTING

Single holes, 50' deep were loaded with 5 pounds of powder. Detonation was performed remotely by radio.

c) RECORDING

All data was recorded in digital format using Texas Instrument DFS III. Format was 21 track and 1" tape. A 2-ms sample rate was used to record 5 second records. Recording filters were 12 c.p.s. low cut with a 36 db slope and a 124 c.p.s. high cut.

Uphole and time break were recorded remotely by radio.

d) SPREAD DIAGRAM

All data was shot for four fold common depth point stack using a group interval of 150 feet and a shot point interval of 450 feet. Shot points were on the stations. Each group consisted of 8 Mark L-10 14 c.p.s. geophones spaced at 18 feet apart. (See figure IV). The cable consisted of sixteen sections of 56 conductor cable with 6 take-outs per section spaced at 155 feet.

e) TERRAIN

The east half of the Project was generally very hilly with elevations ranging from 550 feet to 1,500 feet above sea level. Numerous short steep hills made it very difficult to negotiate some of the lines in this area with wheeled vehicles. The west half of the Project was generally flat and movement along lines easy. The Project was covered with numerous lakes ranging up to 3 miles long by 1½ miles wide. Tree cover was generally light with some heavier stands of spruce along the creeks.

f) SUPPLY AND CREW
SUPPORT FACILITIES

The crew was moved in by barge from Norman Wells via the Mackenzie River. All fuel and explosives were barged from Hay River and stockpiled with the camp and equipment on the west bank of the river opposite "Little Chicago". The geographical co-ordinates of camp-site and stockpile are 67° 08' N. Lat. and 130° 17' W. Long. (approximately). The barging in of equipment and supplies was carried out in September, and two men were sent in to set up and watch camp. The stockpile consisted of 33,733 gallons of gasoline

and 33,785 gallons of diesel fuel which was stored in rubber pillow tanks, supplied by Sun Oil. Dynamite and caps were put in by Ace Explosives which consisted of 15,000 pounds of Hi-Velocity 60% 2½ lb. dynamite, 960-60 foot caps, 3000-50 foot caps plus all accessories. The expediting was looked after by Catalina out of Norman Wells for the first half of the Project, then by Hanvold Expediting in Inuvik until the conclusion of the job. Aircraft for the first half of the Project was supplied to Catalina by Liberty Airways. The equipment was one Astee aircraft on wheels only and was stationed in Norman Wells. This aircraft did not prove to be very satisfactory and would not recommend its use for this area or type of operation again. For the remainder of the operation, Northward Aviation was used on a casual basis out of Inuvik. The majority of Northward's flights were made with a single Otter on skis. Cessna 180, Beaver and Twin Otter were also used depending on the size of load required. Five Airstrips were constructed during the job. The first being an Ice Strip on the river at stockpile site, the second a Bush Strip and the last three were Ice Strips on lakes. Fuel was hauled from the stockpile at river to fuel sloops on crew by a 1,500 gallon tank truck on wheels. The average haul was approximately 32 miles one way. This method of fuel supply proved to be quite satisfactory.

3. EQUIPMENT

The basic crew consisted of the equipment listed below:

- a) Party Managers Vehicle:
3/4 ton pick-up and ski-doo.

- b) Surveyors Vehicles:
3/4 ton 4x4 crew cab
J-5 Bombardier
- c) Recording Crew Vehicles:
1 3/4 ton 4x4 crew cab
1 S-300 Forescout
2 S Model Bombardier
- d) Mechanics Vehicle:
1 ton flat deck c/w gin poles and water truck
for camp water supply.
- e) Drill Units:
1 Failing Holemaster (air) on tandem truck
1 Mayhew 1000 (air) on single axle truck
1 Mayhew 1000 (air) on S-180 Nodwell tracked vehicle
1 Failing CFD-1 (air) on S-110 Nodwell tracked vehicle
1 3/4 ton 4x4 crew cab
1 3/4 ton pick-up (two-wheel drive)
1 3 ton shop truck - parts van
- f) Camp - 42 man - wheeled (3 axel)
3 - 12 man sleepers
1 - office sleeper (4 man)
1 - wash trailer sleeper (2 man)
1 - kitchen-diner
1 - storage unit on skids (heated)
1 - shop - power plant unit - on skids
2 - fuel sloops on skids - each with one 500 gallon propane tank and four, 500 gallon fuel storage tanks.
- g) Cats:
The cats were contracted from G.D. Beattie Construction Ltd., of Dawson Creek, British Columbia and consisted of four D-7 Cats c/w camp and a 3/4 ton 4x4 service truck. Three cats were equipped with winches and one with ripper.

4. CATALINA BANKRUPTCY

On March 4, 1971 Catalina Exploration & Development Ltd., went into voluntary bankruptcy and all of it's operations were stopped. Sun Oil was notified, and on March 5, 1971 negotiations were begun to determine how Sun Oil could complete their project with the least amount of time and expense. Without going into detail, it was agreed that Sun Oil would take over the complete crew and pay the Trustees of the bankrupt Catalina an hourly rate for their equipment based on recording hours. Personnel were retained and paid by Sun as well as the sub-contracted parties e.g., cats, drills and catering. At the time of bankruptcy, approximately 25 miles of line had been shot and the recording crew was out on time off, due to the lack of holes. The drill crew was shut down on March 5, 1971 because of the bankruptcy and returned to work again on March 6, 1971. The recording crew commenced work again on March 10, 1971 as the drilling conditions had improved and they were substantially ahead of the recording crew. All drilling on the project was completed on March 29, 1971 and recording completed April 5, 1971.

RECORDING STATISTICS

<u>MONTH</u>	<u>NUMBER OF RECORDING DAYS</u>	<u>MILES SHOT</u>
February	11	28.37
March	21	99.53
April	<u>5</u>	<u>32.30</u>
TOTALS	37	154.20 (subsurface) 159.37 (surface)

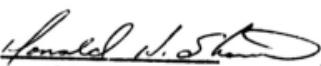
Average mileage per day - Subsurface 4.17
- Surface 4.31

KEY PERSONNEL

The following list of people were in charge of the survey -

Donald H. Strand	Operations Manager - Catalina
Can Watt	Operations Manager - Catalina
George Mowatt	Supervisor - Survey Geophysical
H.D. Chaney	Supervisor - Sun Oil
P. Voth	Party Manager
Paul Gibson	" "
Ron Johnson	Operator
L. Cedergren	Surveyor
R. McIntosh	"
R. Smith	"

Submitted by


Donald H. Strand

FIELD OPERATIONS SUMMARY

1 of 2

Company	SUN OIL COMPANY		Party No.	301
Prospect No.	K-202	Area	Grandview	
County	MacKenzie		State	N.W.T.
Date Started	February 12, 1971	Completed	April 5, 1971	Time Spent 57 Days (Net)
Type Survey:	<input checked="" type="checkbox"/> Reflection	<input checked="" type="checkbox"/> Land	Miles of Subsurface Coverage 159.37	
	<input type="checkbox"/> Refraction	<input checked="" type="checkbox"/> Marine	Range of Water Depths	
COSTS:				
Total Cost	\$423,289.72		(Data Gathering Including Permits)	
Average Cost per Mile	\$2,656.00		(Data Gathering Including Permits)	
Total Processing Costs (If Available)				
Permits and Damages	nil		Per Mile/S.P.	
PERSONNEL:				
Field Supervisor	Donald H. Strand		Operator	Ron Johnson
Party Chief	Paul Gibson		Surveyor	Ron Smith
Contractor and Subcontractor	Catalina Exploration, Elgin Drilling & G.D. Bentlie Construction			
Total Personnel (Including Contractor, Local Labor, etc.) 39				
INSTRUMENT:				
Make	Texas Instrument	Series	DFS III	Instrument No. 32
<input checked="" type="checkbox"/> Digital			Sample Rate:	<input checked="" type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 4
<input type="checkbox"/> Analog			No. Channels:	<input checked="" type="checkbox"/> 24 <input type="checkbox"/> 48
Amplifier Type	Binary Gain		Field Filters:	Hi 124 Lo 12
Magnetic Recorder Type	Texas Instrument		No.	
Trac. Format	TEAC-21 track			
Field Stacking Types	400% - 5% 450° spacing			
ENERGY SOURCE:				
Explosive				
Total Holes Shot	1,783		Usual Depth	50'
Average No. Holes/Pattern	1		Size of Pattern Array	1
Type Explosive	Dupont 60%		Average Charge Size	5 lbs.
Vibroseis				
Number Vibrator Units			Usual No. Sweeps/V.P.	
Sweep Frequencies			Vibrator Pattern	
Other Energy Sources - Pertinent Data				
DETECTORS:				
Line Drawing No.	390		Hookup	Series
Average No. Det/Channel	8		Frequency	14 Cps
Type Detector	L-10		String Drawing No.	69703
Usual Detector Array	8 inline			
Group Spacing	150'	Planting	Spike	

SPREADS:

Total Spread Length 3600' Stacking Capability 400 %
 Location S.P. Relative to Spread 0-150-3600'

SURVEYING:

Type Survey (Transit, Plane Table, etc.) Transit
 Elevation Tie Points Well site, line intersections
 Traverse Tie Points Well site, line intersections

Anticipated Accuracy Good Fair Poor
 Remarks Sun surveyor re-ran complete prospect. Well site used for take-off and all lines tied back to well site. Star shots taken for horizontal control.

DRILLING RIGS:

No. 4 Models Failing Holemaster Truck Holes per Day/Avg. 8.74
 Comments Mayhew 1000 Truck
Mayhew 1000 Track
Failing CFD-1 Track (all drilled with air)

SPECIAL TRANSPORTATION (Boats, Buggies, etc.)

Equipment barged up the Mackenzie River and moved to locations by bulldozer. Aircraft used for crew supplies.

UNUSUAL FIELD PROBLEMS (Attach additional page if necessary.)

Catalina Exploration & Development Ltd., filed bankruptcy during operations. Sun Oil took over crew to complete project.

Donald W. Shand

August 6, 1971

Date



Figure 1

AREA

108

SP INSTRUMENT SET UP
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15' <img alt="Diagram of a rectangular room with a 15' side and a 12' side. A vertical line labeled '13' is on the left, and a horizontal line labeled '12' is at the top. A diagonal line labeled '15'' connects the bottom-left corner to the top-right corner." data

Diagram showing the distribution of 8 pairs of phones along a 450' line. The line is divided into 150' segments. Pairs 1 and 2 are at 150' and 300'. Pairs 3 and 4 are at 300' and 450'. Pairs 5 through 8 are at 450' marks.

STANDARD 0-150'-3600' 4 STACK SPREAD
USED BY SUN OIL CO.

TRACE 25 = UPN11F 10FT FROM WOLF-CABLE 2MS. DELAY

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TRACE 25
AND 26

CONFIGURATION FOR TWO UPHOLSES.