

REPORT ON A SEISMIC SURVEY

of

THE NORTH PETITOT RIVER PROJECT

NORTHWEST TERRITORIES PERMIT NUMBERS:

1136, 1137, 2301, 2713, 1151, 1152, 1153

Location of Southeast Corner of Project
122° 00' Longitude 60° 00' Latitude

for

Canada Southern Petroleum Limited
by

Heiland Exploration Canada Limited
from

January 1, 1959 to March 31, 1959

Submitted by

E. N. Wright, Party Chief.

on

July 6, 1959

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Submitted in support of application for
credit, see affidavit made by Canada
Southern Petroleum Limited.



Abstracted for
Geo-Science Data Index
Date _____

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Material in Attached Pocket

1 only, Time Map of a Near Top of Devonian Horizon
1 only, Time Map of a In the Devonian Horizon
1 only, Time Map of a Slave Point Horizon
1 only, Isochron between the Near Top of Devonian and Slave Point Horizon
1 only, Surface Topography Map
1 only, Shot Point Location Map
1 only, List of Shot Hole Drill Logs
3 only, Monthly Statistical Reports Showing Data on Time Expended.

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A SEISMIC REPORT

INTRODUCTION

The following is the final report of a reflection seismograph survey on Permits 1136, 1137, 2301, 2713, 1151, 1152, 1153 in the Northwest Territories for Canada Southern Petroleum Limited. This survey was conducted by Heiland Exploration Canada Limited from January 1st, 1959 through March 31st, 1959. One surface elevation map, one shot point map, three sub-surface time maps and one isochron map are submitted with this report.

LOCATION OF WORK

The area under report is located in the Northwest Territories adjacent to the border of British Columbia. Geographically, the area under report is located between $121^{\circ} 30'$ and $122^{\circ} 45'$ longitude and between $60^{\circ} 00'$ and $60^{\circ} 20'$ latitude. The field crew was quartered in a trailer camp situated on the shore of a small lake about seven miles north of the border at approximately $122^{\circ} 30'$, while the office staff was in Calgary, Alberta.

TOPOGRAPHY

The surface topography over the greater portion of the Project shows very little relief. The greatest amount of elevation change was adjacent to the Petitot and Muskeg rivers. The maximum elevation change in the area surveyed was 550 feet.

A large portion of the area consists of small lakes and muskeg. A list of shot points and their drill logs is submitted with this report.

DISCUSSION OF RESULTS

The three sub-surface time maps that have been submitted with this report are labelled 'Near Top of Devonian', 'In the Devonian' and 'Slave Point'.

It should be pointed out that the identification of these horizons is conjectural, since very little information is available on the geological section in this area. The isochron map is for the interval between 'Near Top of Devonian' and 'Slave Point'. The reflections representing the 'Near Top of Devonian' and 'Slave Point' horizons are generally persistent and reliable, excepting at the west side of the Project in Permit 1136, where the record quality is poor. The reflection representing the horizon 'In the Devonian' disappears in the western half of the Project in Permits 1136 and 1137. An effort was made to map an event thought to be a Mississippian reflection, however, this map was not presented since this reflection could only be followed on the northern most line in Permits 1151, 1152, 1153 and 1154, on the diagonal line south to shot point 565 and on the extreme west end of lines 2 and 3. Where present this reflection shows approximately the same relief as the other horizons.

Since no geological or velocity information was available close to the permit area the maps are presented in time.

Record quality in the area under report is generally fair to good although many poor and unusable records were obtained on the western edge of the Project in Permit 1136.

An outstanding high feature is shown on all horizons centered 8 miles north of the British Columbia, Northwest Territories border at approximately $122^{\circ} 15'$ longitude in Permits 3201 and 2713. Two faults are shown on all horizons, one cutting the southwest flank and the other the northeast flank of the structure. Between these faults this feature shows a minimum closure of 200 milliseconds to the south and west and 80 milliseconds of closure to the north and east.

The isochron agrees generally with the structural maps, showing considerable thinning over the apex of the structure and thickening of section to the north, south and west. It is, however, more complex than the structural maps. This is possibly due to minor faulting which does not appear clearly on the record sections.

On the Slave Point horizon two other faults are shown, one between shot points 564 and 565 with the down-thrown side to the southwest and the other between shot points 574 and 576 with the down-thrown side to the northeast. This latter fault is also shown cutting the 'In the Devonian' horizon.

Only these faults are shown in this report. From a study of the records, others are thought to exist in the area. These could possibly be mapped if more detailed work was done in the permit area.

Estimating the velocity of the Devonian section at 18,000 feet per second the minimum closure on this structure to the fault on the eastern flank would be approximately 720 feet.

Respectfully submitted,

HEILAND EXPLORATION CANADA LIMITED


E. N. Wright,
Party Chief.

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APPENDIX

EQUIPMENT AND RECORDING TECHNIQUE

Southwestern Industrial Electronics Company (S.I.E.) truck mounted equipment was used to obtain the seismograms. The amplifiers are Model GA-7H with a PMR-7 magnetic tape.

Two Mayhew 1000 model truck mounted drills were used to drill the shot holes. The remainder of the equipment was regular truck mounted equipment.

Continuous sub-surface control was obtained by using a split spread with an effective distance of 1320-110-0-110-1320 feet. Three seismometers per group (Electro-Tech Model EVS-2 27 cycle) spaced at 55 foot intervals were used with this spread distance. In addition to the split spread shot on each hole for continuous profiling, a record was also obtained by shooting a hole one quarter or one half a mile offset from one end of the spread for refraction information.

All records were shot with no mix and a filter setting of 1-32-out. Amplified playbacks were made using the regular S.I.E. 20% bi-directional mix and a filter setting of 1-out-72. The gain control was set at 100% whenever field operating conditions permitted. The average depth of shot was 40 feet using an average charge of one half a pound on the split spreads and 5 pounds of 60% hi-velocity gelatin on the refraction shots.

SURVEYING

The survey was conducted with a Wild T1 Theodolite. Horizontal and vertical control was carried from government monuments numbers 40 and 66 located on the boundary between the Northwest Territories and British Columbia

and Bench Mark 2705, Latitude $60^{\circ} 00' 50.8''$ North, Longitude $122^{\circ} 00' 36.14''$ West. Star shots were taken at both ends of the eight lines shot.

COMPUTING PROCEDURE

Shot and detectors were reduced to the base of the low velocity weathered zone by application of an average of three velocities obtained from either side of the shot point and the refraction profile shot across each shot point. The thickness of this low velocity zone was obtained by using an unique adaption of the intercept method. This method was suggested by Mr. J. A. Legge, Jr., consulting geophysicist, supervising on behalf of Canada Southern Petroleum Limited. Correction to a datum plane of 1,400 feet was completed by employing an elevation correction velocity of 12,000 feet per second.

DATA ON TIME EXPENDED

The crew worked 80 days on the Project, 7 days were required to move in and out and 2 days during the period were statutory holidays. The crew consisted of 3 office personnel stationed in Calgary, 13 men in the field and 3 camp employees.

SUPERVISION

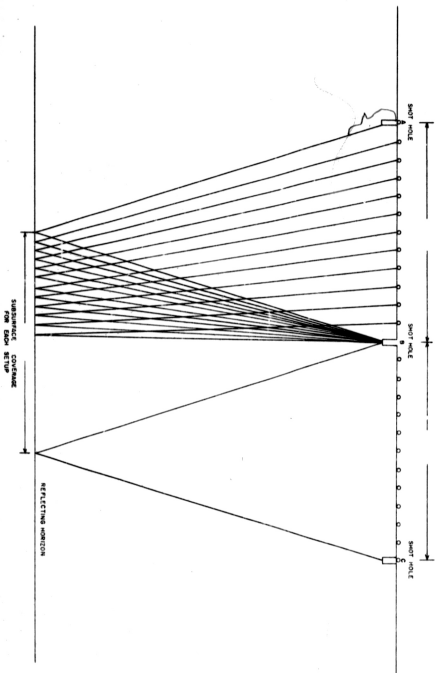
Mr. J. A. Legge, Jr., a geophysical consultant with offices in Calgary, Alberta, was supervisor on behalf of Canada Southern Petroleum Limited. Mr. Ira C. Mayfield, Jr., was the supervisor on behalf of Heiland Exploration Canada Limited. Both supervisors, as well as the Party Chief, made several visits to the site of operations and were in constant touch with the progress of the work through daily reports sent to Heiland's Calgary office and weekly and monthly reports sent to Canada Southern Petroleum Limited and to Mr. Legge's office.

Record sections were prepared by Canadian Magnetic Reduction Limited and will be submitted with the records, survey notes, field tapes, transfer tapes, etc.

LOCATION PLAT
NORTH PETITOT RIVER PROJECT
PERMIT NUMBERS
1136, 1137, 2301, 2713, 1151, 1152, 1153
NORTHWEST TERRITORIES, CANADA

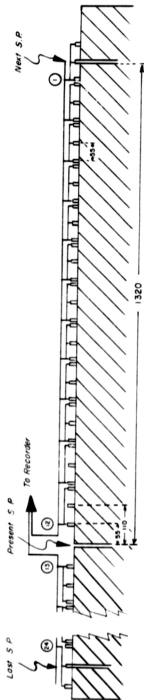


 AREA SHOT



4-INCH, FOR DETECTOR GROUP
FOR DETAILS OF GROUP SEE
CHAPTER ON DETECTOR SPREAD.

DETECTOR SPREAD
USED IN
NORTH PETITOT RIVER PROJECT



STANDARD SPREAD

NOTE: S.S. GEOPHONE ON TRACE 12 & 13
NOT USED DUE TO HOLE NOISE

CANADA
PROVINCE OF ALBERTA

TO WIT:

- 10 -

In the matter of a report on a seismic survey of Permit Numbers 1136, 1137, 2301, 2713, 1151, 1152, 1153, Northwest Territories by Heiland Exploration Canada Limited.

I, Ira C. Mayfield, Jr., B Sc., registered Professional Engineer in good standing in the Province of Alberta and Licensed Professional Engineer in good standing in the Province of British Columbia, DO HEREBY MAKE OATH AND SAY:

1. I am employed by Heiland Exploration Canada Limited in the position of President.
2. That the report and maps accompanying this declaration, namely: A report on a seismic survey of Permit Numbers 1136, 1137, 2301, 2713, 1151, 1152, 1153, for Canada Southern Petroleum Limited.

by

E. N. Wright
of

Heiland Exploration Canada Limited

represents the results of work done for Canada Southern Petroleum Limited on Permit Numbers 1136, 1137, 2301, 2713, 1151, 1152, 1153, from January 1st, 1959 to March 31st, 1959.

3. That I have personally been in close contact with those preparing the above report throughout the time during which the work was undertaken and have personally visited the seismic crew from time to time during the progress of the work.
4. That it was my direct responsibility to ensure that Heiland Exploration Canada Limited did the work in a proper manner.
5. That the report is a true and accurate statement of work done on the above mentioned Permits and that in my opinion the maps represent a competent interpretation of the results by fully qualified geophysicists.

SWORN before me at Calgary in the
Province of Alberta, this

6th day of July A.D. 1959

Donald E. Vetter
A Commissioner for Oaths in and for the
Province of Alberta. My commission
expires 31st., December A.D. 1959.



Ira C. Mayfield, Jr.

NORTH PETITOT RIVER PROJECT

Legend:

c	-	clay
s. s.	-	sand-stone
b	-	boulders
g	-	gravel
s	-	sand
m	-	muskeg

<u>S.P.</u>	<u>Log</u>		<u>S.P.</u>	<u>Log</u>	
1	0-100	c and b	37	0-40	sandy c
2	0-100	c and b	38	0-40	c and b
3	0-60	c and b	39	0-40	c and b
4	0-60	c and b	40	0-40	c and b
5	0-60	c and b	41	0-40	c and b
6	0-40	c and b	42	0-40	c and b
7	0-15	m, 15-40 c and b	43	0-8	m, 8-40 c and b
8	0-40	c, b, and g	44	0-10	m, 10-40 c and b
9	0-40	c and b	45	0-40	c and b
10	0-40	c and b	46	0-40	c and b
11	0-40	c and b	47	0-40	c and b
12	0-40	c and b	48	0-40	c and b
12	0-40	c and b	49	0-40	c and b
13	0-40	c and b	50	0-40	c and b
14	0-40	c and b	51	0-40	c and b
15	0-40	c and b	52	0-40	c and b
16	0-40	c and b	53	0-40	c and b
17	0-40	c and b	54	0-40	c and b
18	0-6	m, 6-40 c and b	55	0-40	c and b
19	0-40	c and b	56	0-40	c and b
20	0-15	c and g, 14-40 c and b	57	0-40	c and b
21	0-40	c and b	58	0-40	c and b
22	0-40	c and b	59	0-40	c and b
23	0-40	c and b	60	0-40	c and b
24	0-40	c and b	61	0-40	c and b
25	0-40	c and b	62	0-40	c and b
26	0-9	m, 9-20 s, 20-40 c	63	0-40	c and b
27	0-40	c and b	64	0-40	c and b
28	0-40	c and b	65	0-40	c and b
29	0-40	c and b	66	0-40	c and b
30	0-40	c and b	67	0-40	c and b
31	0-40	c and b	68	0-40	c and b
32	0-40	c and b	69	0-40	c and b
33	0-40	c and b	72	0-40	c and b
34	0-40	sandy c	73	0-40	c and b
35	0-40	sandy c and b	74	0-40	c and b
36	0-40	sandy c and b	75	0-40	c and b

NORTH PETITOT RIVER PROJECT (continued)

<u>S. P.</u>	<u>Log</u>	<u>S. P.</u>	<u>Log</u>
76	0-40 c and b	122	0-40 c and b
77	0-40 c and b	123	0-40 c and b
78	0-40 c and b	124	0-40 c and b
79	0-40 c and b	125	0-40 c and b
80	0-40 c and b	126	0-40 c and b
81	0-40 c and b	127	0-40 c and b
82	0-40 c and b	128	0-40 c and b
83	0-40 c and b	129	0-40 c and b
84	0-40 c and b	130	0-40 c and b
85	0-40 c and b	131	0-40 c and b
86	0-40 c and b	132	0-10 m, 10-40 c and b
87	0-40 c and b	133	0-40 c and b
88	0-40 c and b	134	0-40 c and b
89	0-40 c and b	135	0-40 c and b
90	0-40 c and b	136	0-40 c and b
91	0-40 c and b	137	0-40 c and b
92	0-40 c and b	138	0-40 c and b
93	0-40 c and b	139	0-40 c and b
94	0-40 c and b	140	0-40 c and b
95	0-40 c and b	141	0-40 c and b
96	0-40 c and b	142	0-40 c and b
97	0-40 c and b	143	0-40 c and b
98	0-40 c and b	144	0-40 c and b
99	0-40 c and b	145	0-40 c and b
100	0-40 c and b	146	0-40 c and b
101	0-40 c and b	145A	0-15, m, 15-40 c and b
102	0-40 c and b	147	0-40 c and b
103	0-40 c and b	148	0-40 c and b
104	0-40 c and b	149	0-40 c and b
105	0-40 c and b	150	0-40 c and b
106	0-40 c and b	151	0-40 c and b
107	0-40 c and b	152	0-40 c and b
108	0-40 c and b	153	0-40 c and b
109	0-8 c, 8-12 g, 12-40 c	154	0-40 c and b
110	0-40 c and b	155	0-40 c and b
111	0-40 c and b	156	0-40 c and b
112	0-40 c and b	157	0-40 c and b
113	0-40 c and b	158	0-40 c and b
114	0-10 m, 10-20 s, 20-40 c	159	0-40 c and b
115	0-40 c and b	160	0-40 c and b
116	0-8 m, 8-40 c and b	161	0-40 c and b
117	0-40 c and b	162	0-40 c and b
118	0-40 c and b	163	0-40 c and b
119	0-40 c and b	164	0-40 c and b
120	0-40 c and b	165	0-40 c and b
121	0-20 m, 20-40 c	166	0-40 c and b

NORTH PETITOT RIVER PROJECT (continued)

<u>S.P.</u>	<u>Log</u>	<u>S.P.</u>	<u>Log</u>
167	0-40 c and b	213	0-20 m, 20-40 c and b
168	0-40 c and b	214	0-40 c and b
169	0-40 c and b	215	0-20 m, 20-40 sandy c
170	0-40 c and b	216	0-25 m, 25-40 sandy c
171	0-40 c and b	217	0-15 m, 15-40 sandy c
172	0-40 c and b	218	0-20 m, 20-30 sandy c,
173	0-10 m and s.s., 10-40 c		30-40 c and b
174	0-40 c and b	219	0-40 c and b
175	0-40 c and b	220	0-40 c and b
176	0-10 m, 10-40 c and b	221	0-10 m, 10-40 c and b
177	0-40 c and b	222	0-40 c and b
178	0-40 c and b	223	0-40 c and b
179	0-10 m, 10-40 c and b	224	0-40 c and b
180	0-40 c and b	225	0-40 c and b
181	0-40 c and b	226	0-40 c and b
182	0-40 c and b	227	0-40 c and b
183	0-10 m, 10-40 sandy c	228	0-40 c and b
184	0-10 m, 10-40 c and b	229	0-40 c and b
185	0-40 c and b	230	0-40 c and b
186	0-40 c and b	231	0-40 c and b
187	0-10 m, 10-40 c and b	232	0-40 c and b
188	1-40 c and b	233	0-40 c and b
189	0-10 m, 10-40 c and b	234	0-40 c and b
190	0-40 c and b	235	0-40 c and b
191	0-10 m, 10-40 c and b	236	0-8 c, 8-20 c and g, 20-40 c
192	0-40 c and b	237	0-40 c and b
193	0-40 c and b	238	0-10 c, 10-20 c and g, 20-40
194	0-40 c and b		c and b
195	0-20 m, 20-40 sandy c	239	0-40 c and b
196	0-40 c and b	240	0-40 c and b
197	0-10 m, 10-40 c and b	243	0-40 c and b
198	0-10 m, 10-40 sandy c	244	0-40 c and b
199	0-40 c and b	245	0-40 c and b
200	0-40 c and b	246	0-40 c and b
201	0-15 m, 15-40 c and b	247	0-40 c and b
202	0-10 m, 10-40 sandy c	248	0-40 c and b
203	0-10 m, 10-40 sandy c	249	0-40 c and b
204	0-40 c and b	250	0-40 c and b
205	0-40 c and b	251	0-40 c and b
206	0-40 c and b	252	0-40 c and b
207	0-20 m, 20-40 sandy c	253	0-40 c and b
208	0-15 m, 15-40 sandy c	254	0-40 c and b
209	0-20 m, 20-40 sandy c	255	0-40 c and b
210	0-10 m, 10-40 c	256	0-40 c and b
211	0-20 m, 20-40 c and b	257	0-40 c and b
212	0-5 m, 5-40 c and b	258	0-40 c and b
		259	0-40 c and b

NORTH PETITOT RIVER PROJECT (continued)

<u>S.P.</u>	<u>Log</u>	<u>S.P.</u>	<u>Log</u>
260	0-40 c and b	306	0-40 c and b
261	0-25 m, 25-40 sandy c	307	0-40 c and b
262	0-20 m, 20-40 sandy c	308	0-40 c and b
263	0-25 m, 25-40 sandy c	309	0-40 c and b
264	0-25 m, 25-40 sandy c	310	0-40 c and b
265	0-25 m, 25-40 sandy c	311	0-40 c and b
266	0-25 m, 25-40 sandy c	311A	0-40 c and b
267	0-15 m, 15-40 c	312	0-40 c and b
268	0-10 m, 10-40 c and b	313	0-40 c and b
269	0-5 m, 5-40 c and b	314	0-40 c and b
270	0-40 c and b	315	0-40 c and b
270A	0-40 c and b	316	0-40 c and b
271	0-5 m, 5-15 c, 15-35 g, 35-40c	317	0-40 c and b
272	0-40 c and b	318	0-40 c and b
273	0-15 m, 15-40 c and b	319	0-20 g, 20-40 c
274	0-40 c and b	320	0-20 c and g, 20-40 c
275	0-10 m, 10-40 c and b	321	0-40 c and b
276	0-15 m, 15-40 c and b	322	0-40 c and b
277	0-10 m, 10-40 c and b	323	0-40 c and b
278	0-10 m, 10-40 c	324	0-20 c and b, 20-40 sandy clay
279	0-10 m, 10-40 c and b		
280	0-40 c and b	325	0-40 c and b
281	0-40 c and b	326	0-40 c and b
282	0-40 c and b	327	0-40 c and b
283	0-40 c and b	328	0-40 c and b
284	0-40 c and b	329	0-40 c and b
285	0-40 c and b	330	0-40 c and b
286	0-40 c and b	331	0-35 g, 35-40 c
287	0-40 c and b	332	0-10 c and g, 10-40 c and b
288	0-40 c and b	333	0-10 c and g, 10-40 c and b
289	0-40 c and b	334	0-40 c and b
290	0-40 c and b	335	0-40 c and b
291	0-40 c and b	336	0-40 c and b
292	0-40 c and b	337	0-40 c and b
293	0-40 c and b	338	0-40 c and b
294	0-40 c and b	339	0-40 c and b
295	0-5 m, 5-40 c and b	340	0-40 c and b
296	0-40 c and b	341	0-40 c and b
297	0-40 c and b	342	0-40 c and b
298	0-40 c and b	343	0-40 c and b
299	0-10 m, 10-40 c and b	344	0-40 c and b
300	0-10 m, 10-40 c and b	345	0-40 c and b
301	0-40 c and b	346	0-40 c and b
302	0-40 c and b	347	0-40 c and b
303	0-40 c and b	348	0-40 c and b
304	0-40 c and b	349	0-40 c and b
305	0-25 c and b, 25-40 g	350	0-40 c and b

NORTH PETITOT RIVER PROJECT (continued)

<u>S.P.</u>	<u>Log</u>	<u>S.P.</u>	<u>Log</u>
351	0-40 c and b	400	0-40 c and b
352	0-40 c and b	401	0-40 c and b
353	0-40 c and b	402	0-40 c and b
354	0-40 c and b	403	0-40 c and b
355	0-40 c and b	404	0-40 c and b
356	0-40 c and b	405	0-40 c and b
357	0-40 c and b	406	0-40 c and b
358	0-40 c and b	407	0-40 c and b
359	0-40 c and b	408	0-40 c and b
360	0-40 c and b	409	0-40 c and b
361	0-40 c and b	410	0-40 c and b
362	0-40 c and b	411	0-40 c and b
363	0-40 c and b	412	0-5 c, 5-20 g, 20-40 c and b
364	0-40 c and b	413	0-40 c and b
365	0-40 c and b	414	0-40 c and b
366	0-40 c and b	415	0-40 c and b
367	0-40 c and b	416	0-40 c and b
368	0-10 m, 10-40 c and b	417	0-40 c and b
369	0-40 c and b	418	0-40 c and b
370	0-40 c and b	419	0-30 c and b
371	0-40 c and b	420	0-40 c and b
372	0-40 c and b	421	0-40 c and b
373	0-40 c and b	422	0-5 c and b, 5-25 g, 25-40 c
374	0-40 c and b	423	0-40 c and b
375	0-40 c and b	424	0-15 m, 14-40 c and b
376	0-18 c, 18-35 g, 35-40 c	425	0-15 m, 15-25 sandy c, 35-40 c and b
377	0-12 g, 12-40 c	426	0-15 m, 15-25 sandy c, 25-40 c and b
378	0-40 c and g	427	0-15 c and b, 15-40 sandy c
379	0-20 c and g, 20-40 c and b	428	0-15 m, 15-25 sandy c, 25-40 c and b
380	0-40 c and b	429	0-10 m, 10-40 sandy c
381	0-20 c and g, 20-40 c and b	430	0-10 m, 10-20 sandy c, 20-40 c and b
382	0-40 c and b	431	0-10 m, 15-25 sandy c, 25-40 c and b
383	0-40 c and b	432	0-10 m, 10-40 c and b
384	0-40 c and b	433	0-10 m, 10-40 c and b
385	0-40 c and g	434	0-10 m, 10-40 c and b
386	0-20 c and b, 20-40 c	435	0-10 m, 10-40 c and b
387	0-30 c and b, 30-40 c	436	0-10 m, 10-40 c and b
388	0-30 c and b, 30-40 c	437	0-10 m, 10-40 c and b
389	0-40 c and b	438	0-10 m, 10-40 c and b
390	0-40 c and b	439	0-10 m, 10-40 c and b
391	0-40 c and b	440	0-10 m, 10-40 c and b
392	0-40 c and b	441	0-10 m, 10-40 c and b
393	0-40 c and b		
394	0-40 c and b		
395	0-40 c and b		
396	0-40 c and b		
397	0-40 c and b		
398	0-40 c and b		
399	0-40 c and b		

NORTH PETITOT RIVER PROJECT (continued)

<u>S.P.</u>	<u>Log</u>	<u>S.P.</u>	<u>Log</u>
442	0-10 m, 10-40 c and b	490	0-15 m, 15-40 sandy c
445	0-40 c and b	491	0-25 m, 25-40 sandy c
446	0-40 c and b	492	0-10 m, 10-40 sandy c
447	0-40 c and b	493	0-10 m, 10-40 sandy c
448	0-28 c and b, 28-35 g, 35-40 c	494	0-10 m, 10-25 sandy c, 25-40 c and b
449	0-40 c, b and g	495	0-40 c and b
450	0-40 c and b	496	0-40 c and b
451	0-40 c and b	496A	0-40 c and b
452	0-40 c and b	497	0-40 c and b
453	0-40 c and b	498	0-40 c and b
454	0-20 c and g, 20-40 c	499	0-10 m, 10-40 c and b
455	0-20 c and g, 20-40 c	500	0-10 m, 10-40 c and b
456	0-40 c and b	501	0-40 c and b
457	0-40 c and b	502	0-40 c and b
458	0-40 c and b	503	0-40 c and b
459	0-40 c and b	504	0-40 c and b
460	0-40 c and b	505	0-40 c and b
461	0-40 c and b	506	0-40 c and b
462	0-10 c and b, 10-30 g, 30-40 c	507	0-10 m, 10-20 sandy c, 20-40 c and b
463	0-40 c and b	508	0-10 m, 10-30 sandy c, 30-40 c and b
464	0-40 c and b	509	0-5 m, 5-15 sandy c, 15-40 c and b
465	0-40 c and b	510	0-40 c and b
466	0-8 m, 8-40 c and b	511	0-40 c and b
467	0-10 m, 10-40 c and b	512	0-40 c and b
468	0-15 c and g, 15-40 c and b	513	0-40 c and b
469	0-40 c and b	514	0-10 m, 10-40 c and b
470	0-15 c and g, 15-40 c and b	515	0-40 c and b
471	0-40 c and b	516	0-40 c and b
472	0-40 c and b	517	0-10 m, 10-40 c and b
473	0-40 c and b	518	0-40 c and b
474	0-25 c and b, 25-40 s and g	519	0-40 c and b
475	0-40 c and g	520	0-40 c and b
476	0-40 c and b	521	0-40 c and b
477	0-40 c and b	522	0-40 c and b
478	0-40 c and b	523	0-15 c and b, 15-30 s and g, 30-40 c
479	0-40 c and b	524	0-40 c and b
480	0-40 c and b	525	0-40 c and b
481	0-25 c and b, 25-40 s and g	526	0-40 c and b
482	0-40 c and b	527	0-40 c and b
483	0-40 c and b	530	0-40 c and b
484	0-40 c and b	531	0-40 c and b
485	0-40 c and b	532	0-40 c and b
486	0-40 c and b	533	0-10 m, 10-40 c and b
487	0-40 c and b		
488	0-40 c and b		
489	0-25 m, 25-40 sandy c		

NORTH PETITOT RIVER PROJECT (continued)

<u>S.P.</u>	<u>Log</u>	<u>S.P.</u>	<u>Log</u>
534	0-10 m, 10-40 c and b	581	0-40 c and b
535	0-40 c and b	582	0-40 c and b
536	0-40 c and b	583	0-40 c and b
537	0-40 c and b	584	0-40 c and b
	0-40 c and b	585	0-40 c and b
539	0-40 c and b	586	0-40 c and b
540	0-40 c and b	587	0-10 c, 10-20 s and g, 20-40 c and b
541	0-40 c and b	588	0-40 c and b
542	0-40 c and b	589	0-40 c and b
543	0-40 c and b	590	0-40 c and b
544	0-40 c and b	591	0-40 c and b
545	0-40 c and b	592	0-40 c and b
546	0-40 c and b	593	0-40 c and b
547	0-40 c and b	594	0-40 c and b
548	0-40 c and b	595	0-40 c and b
549	0-30 c and b, 30-38 g, 38-40 c	596	0-40 c and b
550	0-40 c and b	597	0-40 c and b
551	0-40 c and b	598	0-40 c and b
552	0-40 c and b	599	0-40 c and b
553	0-40 c and b	600	0-8 g, 8-40 c and b
554	0-40 c and b	601	0-10 m, 10-20 sandy c, 20-40 c and b
555	0-40 c and b	602	0-10 m, 10-15 sandy c, 15-40 c and b
556	0-40 c and b	603	0-10 m, 10-40 c and b
557	0-40 c and b	604	0-15 m, 15-40 c and b
558	0-40 c and b	605	0-15 m, 15-40 c and b
559	0-40 c and b	606	0-10 m, 10-30 sandy c, 30-40 c and b
560	0-40 c and b	607	0-10 m, 10-20 sandy c, 20-40 c and b
561	0-40 c and b	608	0-10 m, 10-40 c and b
562	0-40 c and b	609	0-15 m, 15-40 sandy c
563	0-40 c and b	610	0-10 m, 10-40 c and b
564	0-40 c and b	611	0-5 m, 5-40 c and b
565	0-40 c and b	612	0-10 m, 10-40 c and b
566	0-40 c and b	613	0-5 m, 15-40 c and b
567	0-40 c and b	614	0-10 m, 10-20 sandy c, 20-40 c and b
568	0-40 c and b	615	0-15 m, 15-40 c and b
569	0-40 c and b	616	0-10 m, 10-25 sandy c, 25-40 c and b
570	0-40 c and b	617	0-10 m, 10-40 c and b
571	0-40 c and b	618	0-40 c and b
572	0-40 c and b	619	0-10 m, 10-40 c and b
573	0-40 c and b	620	0-40 c and b
574	0-40 c and b		
575	0-40 c and b		
576	0-40 c and b		
577	0-40 c and b		
578	0-40 c and b		
579	0-40 c and b		
580	0-40 c and b		

NORTH PETITOT RIVER PROJECT (continued)

S.P. Log

621	0-10 m, 10-40 c and b
622	0-40 c and b
623	0-40 c and b

NORTH PETITOT RIVER PROJECT (continued)

<u>Shot Point</u>	<u>Field Tape</u>	<u>Transfer Tape</u>	<u>Shot Point</u>	<u>Field Tape</u>	<u>Transfer Tape</u>
33	72386	314644	53	72909	385875
	72392			72915	
34	72389	314643	54	72911	385876
	72398			72918	
35	72391	314642	55	72914	385877
	72400			72920	
36	72397	314641	56	72917	385878
	72393			72924	
	72853		57	72919	385879
37	72399	314640		72926	
	72855		58	72921	385880
38	72852	385863		72928	
	72857		59	72925	385881
39	72854	385862		72931	
	72859		60	72927	385882
40	72856	385861		72933	
	72862		61	72929	385883
41	72858	385860		72935	
	72865			72938	
	72866		62	72932	385884
42	72860	385859		72937	
	72868			72941	
43	72379	385865	63	72934	385885
	72890			72940	
44	72887	385866		72945	
	72886		64	72936	385886
	72893			72943	
45	72889	385867		72948	
	72896		65	72939	385887
	72899			72950	
46	72892	385868	66	72942	385888
	72898			129402	
47	72894	385869	67	72947	385889
	72901		68	72949	385890
48	72897	385870	69	129401	385891
	72903		72	72863	385858
49	72900	385871		72872	
	72906		73	72867	385857
50	72902	385872		72874	
	72908		74	72869	385856
51	72904	385873		72870	
	72910			72876	
52	72907	385874	75	72873	385855
	72912		76	72875	385854
	72913			72880	

NORTH PETITOT RIVER PROJECT (continued)

<u>Shot Point</u>	<u>Field Tape</u>	<u>Transfer Tape</u>	<u>Shot Point</u>	<u>Field Tape</u>	<u>Transfer Tape</u>
77	72877	385853	97	129430	410791
	72883			129429	
78	72882	385852		129435	
	72885		98	129426	410792
79	72884	not sectioned		129433	
	396808		99	129424	410793
	396811			129431	
80	129719	410774	100	129422	410794
	129720			129428	
	129724		101	129420	410795
81	129715	410775		129425	
	129722		102	129417	410796
82	129712	410776		129423	
	129717		103	129415	410797
	129718			129421	
83	129710	410777	104	129410	410798
	129716			129418	
84	129708	410778	105	129408	410799
	129713			129416	
85	129706	410779		129405	
	129711		106	129406	410800
86	129704	410780		129414	
	129709		107	129404	425651
87	129702	410781		129409	425651
	129707			129407	
88	129450	410782	108	129721	410773
	129705			129726	
89	129448	410783	109	129723	410772
	129403			129728	
90	129446	410784	110	129725	410771
	129701			129731	
91	129444	410785	111	129727	410770
	129449		112	129730	410769
92	129442	410786		129729	
	129447		113	129732	410768
93	129438	410787		129737	
	129439		114	129734	410767
	129445			129739	
94	129436	410788	115	129736	410766
	129443			129733	
95	129434	410789		129741	
	129440			129742	
96	129432	410790	116	129738	412372
	129437			129735	
				129746	

NORTH PETITOT RIVER PROJECT (continued)

<u>Shot Point</u>	<u>Field Tape</u>	<u>Transfer Tape</u>	<u>Shot Point</u>	<u>Field Tape</u>	<u>Transfer Tape</u>
117	129740	412371	138	129787	385900
	129748			129794	
118	129745	412370	139	129790	385899
	129743			129796	
	129750		140	129793	385898
119	129747	412369		129798	
	129752		141	129795	385897
120	129749	412368		129800	
	129754		142	129797	385896
121	129751	412367		129802	
	129756		143	129799	385895
122	129753	412366		129804	
	129758		144	129801	385894
123	129755	412365		129806	
	129760		145	129803	385893
124	129757	412364		129807	
	129762		146	129805	385892
125	129759	412363		399529	
	129764		146A	399035	410476
126	129761	412362		399041	
	129766		147	399527	425450
127	129763	412361		399531	
	129768		148	391711	412299
128	129765	412360		391710	
	129770			391717	
129	129767	412359	149	391708	412300
	129772			391715	
130	129769	412358	150	391706	410451
	129774			391712	
131	129771	412357	151	391704	410452
	129776			391709	
132	129773	412356	152	391702	412090
	129778			391707	
133	129775	412355	153	129849	412091
	129781			391705	
134	129777	412354	154	129847	412092
	129784			391703	
135	129780	412353	155	129845	412093
	129779			129850	
	129786			391701	
136	129783	412352	156	129843	412094
	129782			129848	
	129788		157	129841	412095
136	129785	412351		129846	
	129791				

NORTH PETITOT RIVER PROJECT (continued)

<u>Shot Point</u>	<u>Field Tape</u>	<u>Transfer Tape</u>	<u>Shot Point</u>	<u>Field Tape</u>	<u>Transfer Tape</u>
158	129839	412096	179	391725	
	129844			391731	
159	129837	412097	180	391727	
	129842			391733	
160	129835	412098	181	391730	
	129840			391735	
161	129833	412099	182	391732	385809
	129838			391738	
162	129831	412100	183	391734	385808
	129836			391740	
163	129829	412150	184	391737	385807
	129834			391743	
164	396806	412068	185	391739	385806
	129827			391745	
	129832		186	391742	385805
165	129825	412069		391741	
	129830			391747	
166	129823	412070	187	391744	385804
	129828			391749	
167	129821	412071	188	391746	385803
	129826			391751	
168	129819	412072	189	391748	385802
	129824			391753	
169	129817	412073	190	391750	385801
	129822			391755	
170	129814	412074	191	391752	412400
	129820			391757	
171	129812	412075	192	391754	412399
	129815			391760	
	129818		193	391756	385820
172	129810	412076		391762	
	129813		194	391758	385819
	129816			391764	
	129809		195	391761	385818
173	129808	412077		391766	
	129811		196	391763	385817
174	391714			391769	
	391719		197	391765	385816
175	391716			391771	
	391722		198	391767	385815
176	391718			391768	
	391724			391773	
177	391720		199	391770	385814
	391721			391775	
	391726		200	391772	385813
178	391723			391777	
	391728				

NORTH PETITOT RIVER PROJECT (continued)

<u>Shot Point</u>	<u>Field Tape</u>	<u>Transfer Tape</u>	<u>Shot Point</u>	<u>Field Tape</u>	<u>Transfer Tape</u>
201	391774	385812	222	396823	412391
	391779			396823	
202	391776	385811	223	396825	412390
	391781			396830	
203	391778	385810	224	396827	412389
	391783			396833	
204	391780	385831	225	396829	412388
	391787			396836	
205	391782	385830		396837	
	391790		226	396832	412387
206	391786	385829		396839	
	391793		227	396835	412386
207	391789	385828		396841	
	391794		228	396838	412385
208	391791	385827		396844	
	391797		229	396840	412384
209	391792	385826		396846	
	391799		230	396843	412383
210	391795	385825		396848	
	391901		231	396845	412382
211	391798	385824		396851	
	396803		232	396847	412381
212	391800	385823		396853	
	396805		233	396850	412380
213	396802	385822		396856	
	381168		234	396852	412379
214	396804	385821		396857	
		396804	235	396854	412378
	381170			396855	
215	396807	412398		396861	
	396813		236	396859	412377
216	396809	412397		396863	
	396815		237	396860	412376
217	396812	412396		396865	
	396815		238	396862	412375
218	396814	412395		396867	
	396820		239	396864	412374
219	396817	412394	240	396866	412373
	396822		243	399528	425449
220	396818	412393		399533	
	396824		244	399530	425448
221	396821	412392		399535	
	396826		245	399532	425447
				399537	

NORTH PETITOT RIVER PROJECT (continued)

<u>Shot Point</u>	<u>Field Tape</u>	<u>Transfer Tape</u>	<u>Shot Point</u>	<u>Field Tape</u>	<u>Transfer Tape</u>
246	399534	425446	268	399014	410499
	399539			399020	
247	399536	425445	269	399017	410500
	399543			399016	
248	399538	425444		399022	
	399545		270	399019	425401
249	399542	425443		399024	
	399549			399091	
250	399544	425442	270A	399082	425517
	380304			399084	
251	399548	425441		381488	
	380306			381486	
252	380303	425440	271	399021	425402
	380308			399026	
253	380305	425439	272	399023	425403
	380310			399028	
254	380307	425388	273	399025	425404
	380312			399030	
255	380309	425437	274	399027	425405
	380314			399034	
256	380311	425436	275	399029	425406
	380316			399036	
257	380313	425435		399039	
	380318		276	399033	410475
258	380315	425434		399038	
	380320		277	399037	410477
259	380317	425433		399043	
	380322		278	399040	410478
260	380319	425432		399045	
	380325		279	399042	410479
261	399003			399047	
262	399005			399050	
263	399002	410494	280	399044	410480
	399008			399049	
264	399004	410495		399056	
	399006		281	399046	410481
	399011			399054	
265	399007	410496		399060	
	399007		282	399048	410482
	399013			399051	
266	399010	410497		399059	
	399015			399062	
267	399012	410498	283	399055	410464
	399018			399053	
				399061	
				399065	

NORTH PETITOT RIVER PROJECT (continued)

<u>Shot Point</u>	<u>Field Tape</u>	<u>Transfer Tape</u>	<u>Shot Point</u>	<u>Field Tape</u>	<u>Transfer Tape</u>
284	399057	410465	301		
	399058		(con't)	397078	
	399067			396870	
284A	334442	425850		396875	
	334443			397087	
	398851		302	396869	425425
285	399063	410466		397074	
	399069			396877	
286	399064	410467		396878	
	399072			396881	
287	399066	410468		397084	
	399074		303	396874	425426
288	399070	410469		396872	
	399068			396873	
	399076			396871	
289	399071	410470		397072	
	399079			396883	
290	399063	410471	304	397070	425427
	399081			397080	
291	399075	410472		396876	
	399077			396886	
292	399078	410473		397083	
293	399080	410474	305	396879	425428
294	381487	425515		396880	
	399083			397075	
	381493			396889	
295	381485	425516	306	396882	385843
	399087			397076	
	381490			397073	
296	399088	425518		396891	
	381484		307	396884	385844
	399085			397071	
	399085			396893	
	399093		308	396888	385845
	399094			396895	
297	399089	425519	309	396890	385846
	399097			396897	
298	399092	425520	310	396892	395847
	399099			396899	
299	399096	425521	311	396894	385848
	399095			396901	
	334401		311A	381237	425652
300	399098	425522	312	396896	385849
	334403			396903	
301	397077	425424	313	396898	385850
				396905	

NORTH PETITOT RIVER PROJECT (continued)

<u>Shot Point</u>	<u>Field Tape</u>	<u>Transfer Tape</u>	<u>Shot Point</u>	<u>Field Tape</u>	<u>Transfer Tape</u>
314	396900	412101	334	396952	412121
	396907			396959	
315	396902	412102	335	396954	412122
	396909			396951	
316	396904	412103	336	396956	412123
	396911			396963	
317	396906	385832	337	396958	412124
	396917			396965	
318	396908	385833	338	396960	412125
	396919			396967	
	396920		339	396962	412104
319	396943	385834		396969	
	396910		340	396964	412105
	396922			396972	
320	396916	385835	341	396966	412106
	396915			396974	
	396924		342	396968	412107
321	396918	385836		396976	
	396926			396977	
322	396921	385837	343	396970	412108
	396928			396971	
323	396923	385838		396978	
	396930		344	396973	412109
324	396925	385839		396985	
	396932		345	397007	412110
325	396927	385840		396975	
	396936			396987	
326	396929	385841	346	396980	412111
	396939			396979	
327	396931	385842		396990	
	396942		347	396984	412112
328	396935	412115		396993	
	396946		348	396986	412113
329	396938	412116		396995	
	396937		349	396989	412114
	396949			396997	
330	396941	412117	350	396991	412078
	396940			396999	
	396951		351	396994	412079
331	396945	412118		397001	
	396953		352	396996	412080
332	396947	412119		397004	
	396948		353	396998	412081
	396955			397006	
333	396950	412120			
	396957				

NORTH PETITOT RIVER PROJECT (continued)

<u>Shot Point</u>	<u>Field Tape</u>	<u>Transfer Tape</u>	<u>Shot Point</u>	<u>Field Tape</u>	<u>Transfer Tape</u>
354	397000	412082	376	397049	412141
	397009			397058	
355	397003	412083	377	397051	412142
	397011			397060	
356	397005	412084	378	397053	412143
	397014			397054	
357	397008	412085		397062	
	397017		379	397056	412144
358	397010	412086		397064	
	397019		380	397059	412145
359	397013	412087		397067	
	397021		381	397061	412146
360	397016	412088		397069	
	397023		382	397063	412147
361	397018	412126	383	397066	412148
	397025		384	397068	412149
362	397020	412127	385	397081	425423
	397027			397089	
363	397022	412128		397092	
	397029		386	397085	425422
364	397024	412129		397091	
	397031			397095	
365	397026	412130	387	397086	425421
	397033			397094	
366	397028	412131		397099	
	397035		388	397088	425420
367	397030	412132		397098	
	397037			398452	
368	397032	412133	389	397090	425419
	397039			398451	
369	397034	412134		398456	
	397041		390	397093	425418
370	397036	412135		398453	
	397043			398458	
371	397038	412136	391	397097	425417
	397044			397096	
372	397040	412137		398460	
	397048		392	397100	425416
373	397042	412138		398462	
	397050		393	398454	425415
374	397045	412139		398464	
	397052		394	398457	425414
375	397047	412140		398466	
	397055		395	398459	425413
				398468	

NORTH PETITOT RIVER PROJECT (continued)

<u>Shot Point</u>	<u>Field Tape</u>	<u>Transfer Tape</u>	<u>Shot Point</u>	<u>Field Tape</u>	<u>Transfer Tape</u>
396	398461	425412	417	399510	410459
	398471			399519	
397	398463	425411	418	399512	410458
	397473			399521	
398	398465	425410	419	399514	410457
	398476			399525	
399	398467	425409	420	399516	410456
	398478		421	399518	410455
400	398469	425408	422	399522	410454
	398470			399520	
	398481		423	399523	410453
401	398472	425407		399524	
	398484		424	399100	425523
402	398475	410493		334405	
	398486		425	334402	425524
	398489			334407	
403	398477	410492	426	334404	425525
	398488			334410	
404	398479	410491	427	334406	425526
	398491			334412	
405	398482	410490	428	334408	425527
	398494			334414	
406	398485	410489	429	334411	425528
	398496			334416	
407	398487	410488	430	334413	425529
	398498			334418	
408	398490	410487	431	334415	425530
	398500			334420	
409	398493	410486	432	334417	425531
	399502			334422	
410	398495	410485	433	334419	425532
	399504			334424	
	399509		434	334421	425533
411	398497	410484		334426	
	399506		435	334423	425534
412	398499	410483		334429	
	399508		436	334425	425535
413	399501	410463		334432	
	399511		437	334427	425536
414	399503	410462		334430	
	399513			334434	
415	399505	410461	438	334431	425537
	399515			334437	
416	399507	410460	439	334433	425538
	399517			334439	

NORTH PETITOT RIVER PROJECT (continued)

<u>Shot Point</u>	<u>Field Tape</u>	<u>Transfer Tape</u>	<u>Shot Point</u>	<u>Field Tape</u>	<u>Transfer Tape</u>
440	334435	425539	465	398887	425470
	334441			398889	
441	334438	425540		398896	
442	334440	425541	466	398890	425471
443	334444			398892	
444	334445			398898	
	334447		467	498893	425472
445	334449			398900	
446	334446	425451	468	398895	425473
	398853			380301	
447	334448	425452			
	398855		469	398897	425474
448	334450	425453		380302	
	398857		470	398899	425475
449	398852	425454	471	380323	425431
	398859			380321	
450	398854	425455		380327	
	398861		472	380324	425430
451	398856	425456		380329	
	398863		473	380326	425429
452	398858	425457		380331	
	398867			380334	
453	398860	425458	474	380328	410765
	398869			380333	
454	398862	425459		380337	
	398871		475	380330	410764
455	398864	425460		380336	
	398873			380340	
456	398868	425461	476	380442	401763
	398875			380339	
457	398870	425462	477	380335	410762
	398877			380342	
458	398872	425463		380347	
	398879		478	380338	410761
459	398874	425464		380346	
	398881		479	380341	410760
460	398876	425465		380349	
	398883		480	380345	410759
461	398878	425466		381151	
	398885		481	380348	410758
462	398880	425467		381153	
	398888		482	380350	410757
463	398882	425468		381155	
	398891		483	381152	410756
464	398884	425469		381158	
	398894			381161	

NORTH PETITOT RIVER PROJECT (continued)

<u>Shot Point</u>	<u>Field Tape</u>	<u>Transfer Tape</u>	<u>Shot Point</u>	<u>Field Tape</u>	<u>Transfer Tape</u>
484	381154	410755	506	382353	425831
	381160			381244	
485	381156	410754	507	381241	425830
	381163			381246	
486	381159	410753	508	381243	425829
	381166			381248	
487	381162	410752	509	381245	425828
	381165			381250	
488	381164	410751	510	381247	425827
489	381167	425848		381452	
	381172		511	381249	425826
490	381169	425847		381454	
	381174		512	381451	425825
491	381171	425846		381456	
	381176		513	381453	425824
492	381173	425845		381458	
	381178		514	381455	425823
493	381175	425844		381460	
	381180		515	381457	425822
494	381177	425843		381462	
	381181		516	381459	425821
495	381179	425842		381464	
	381184		517	381461	425820
496	381182	425841		381466	
	381186		518	381463	425819
495A	382355	425808		381468	
	382361		519	381465	425818
497	381183	425840		381470	
	381188		520	381467	425817
498	381185	425839		381472	
	381190		521	381469	425816
499	381187	425838		381474	
	381194		522	381471	425815
500	381189	425837		381476	
	381196		523	381473	425814
501	381191	425836		381478	
	381198		524	381475	425813
502	381195	425835		381480	
	381200		525	381477	425812
503	381197	425834		381482	
	382352		526	381479	425811
504	381199	425833		381483	
	382354		527	381481	425810
505	382351	425832	528	382356	
	381242				

NORTH PETITOT RIVER PROJECT (continued)

<u>Shot Point</u>	<u>Field Tape</u>	<u>Transfer Tape</u>	<u>Shot Point</u>	<u>Field Tape</u>	<u>Transfer Tape</u>
529	382357		550	398906	425687
	382359			398911	
530	382358	425807		398913	
	382363		551	398915	
531	382360	425806	552	398910	425686
	382365			398917	
532	382362	425805	553	398914	425685
	382368			398912	
533	382364	425804		398920	
	382370		554	398916	425684
	382374			398922	
534	382366	425803	555	398919	425683
	382372			398924	
	382377		556	398921	425682
535	382369	425802		398926	
	382376		557	398923	425681
	382380			398928	
536	382373	425801	558	398925	425680
	382379			398930	
	382382		559	398927	425679
537	382375	425700		398932	
	382385		560	398929	425678
538	382378	425699		398934	
	382387		561	398931	425677
529	382381	425698		398936	
	382383		562	398933	425676
	382389			398938	
540	382384	425697	563	398935	425675
	382391			398940	
541	382386	425696	564	398937	425674
	382393			398942	
542	382388	425695	565	398939	425673
	382395			398944	
543	382390	425694	566	398941	425672
	382397			398946	
544	382392	425693	567	398943	425671
	382399			398948	
545	382394	425692	568	398945	425670
	398901			398950	
546	382396	425691	569	398947	425669
	398903			381202	
547	382398	425690	570	398949	425668
	398907			381204	
548	382400	425689	571	381201	425667
549	398902	425688		381207	

NORTH PETITOT RIVER PROJECT (continued)

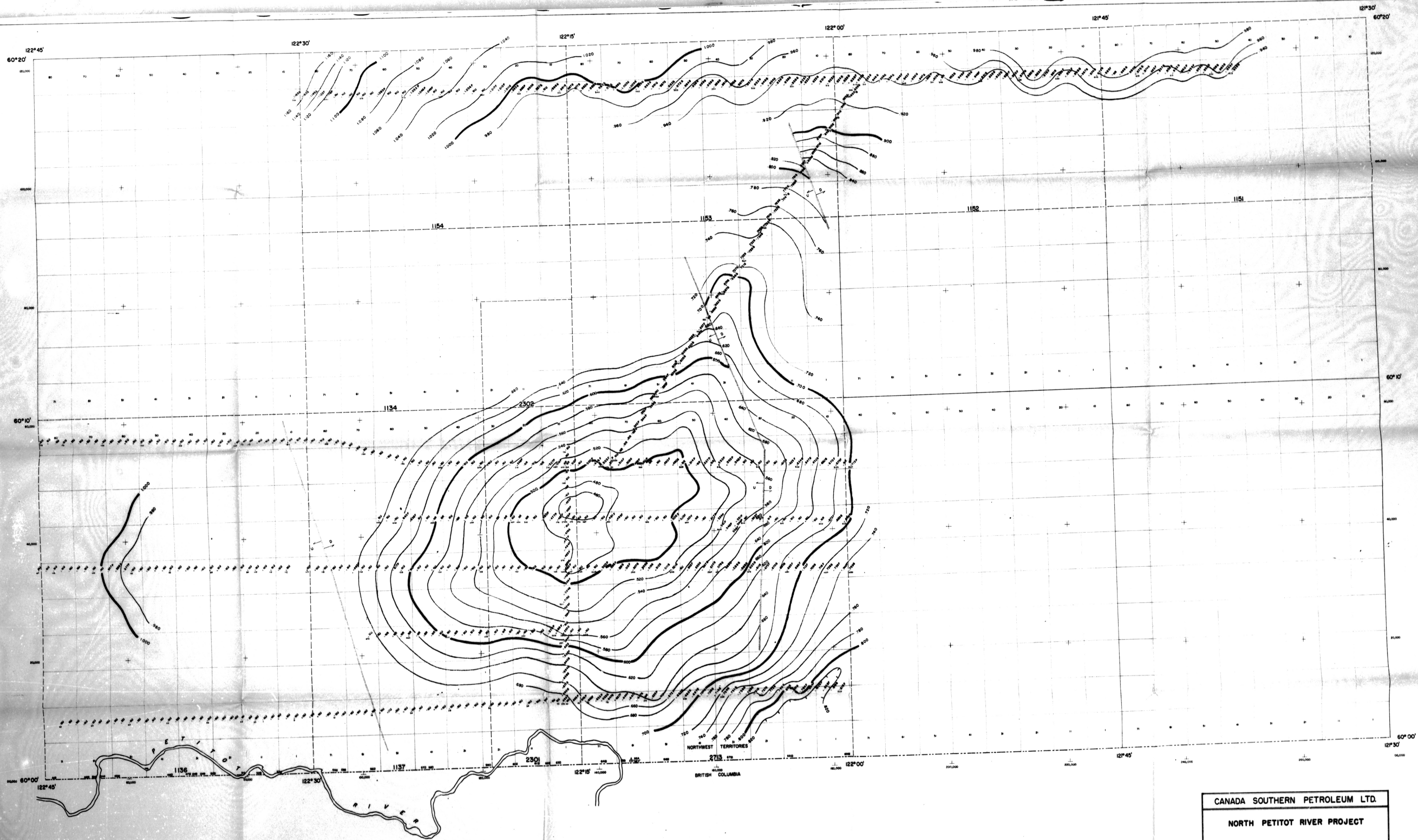
<u>Shot Point</u>	<u>Field Tape</u>	<u>Transfer Tape</u>	<u>Shot Point</u>	<u>Field Tape</u>	<u>Transfer Tape</u>
572	381203	425666	593	381503	425508
	381209			381508	
573	381205	425665	594	381505	425507
	381212			381510	
574	381210	425664	595	381507	425506
	381214			381512	
575	381211	425809	596	381509	425505
	381216			381514	
576	381213	425663	597	381511	425504
	381218			381516	
	381221		598	381513	425503
577	381215	425667		381518	
	381220		599	381515	425502
	381224			381521	
578	381217	425661	600	381517	425501
	381223			381523	
	381226		601	381519	425487
579	381219	425660		381525	
	381228		602	381522	425486
580	381222	425659		381654	
	381230		603	381524	425485
581	381225	425658		381656	
	381232		604	381653	425484
582	381227	425657		381658	
	381234		605	381655	425483
583	381229	425656		381660	
	381236		606	381657	425482
584	381231	425655		381662	
	381238		607	381659	425481
585	381233	425654		381664	
	381239		608	381661	
586	381235	425653		381668	
	381240		609	381663	425479
587	381489	425514		381527	
	381495		610	381665	425478
588	381492	425513		381529	
	381498		611	381526	425477
589	381494	425512		381531	
	381500		612	381528	425476
590	381497	425511		381533	
	381502		613	381530	425498
591	381499	425510		381535	
	381504		614	381532	425497
592	381501	425509		381537	
	381506				

NORTH PETITOT RIVER PROJECT

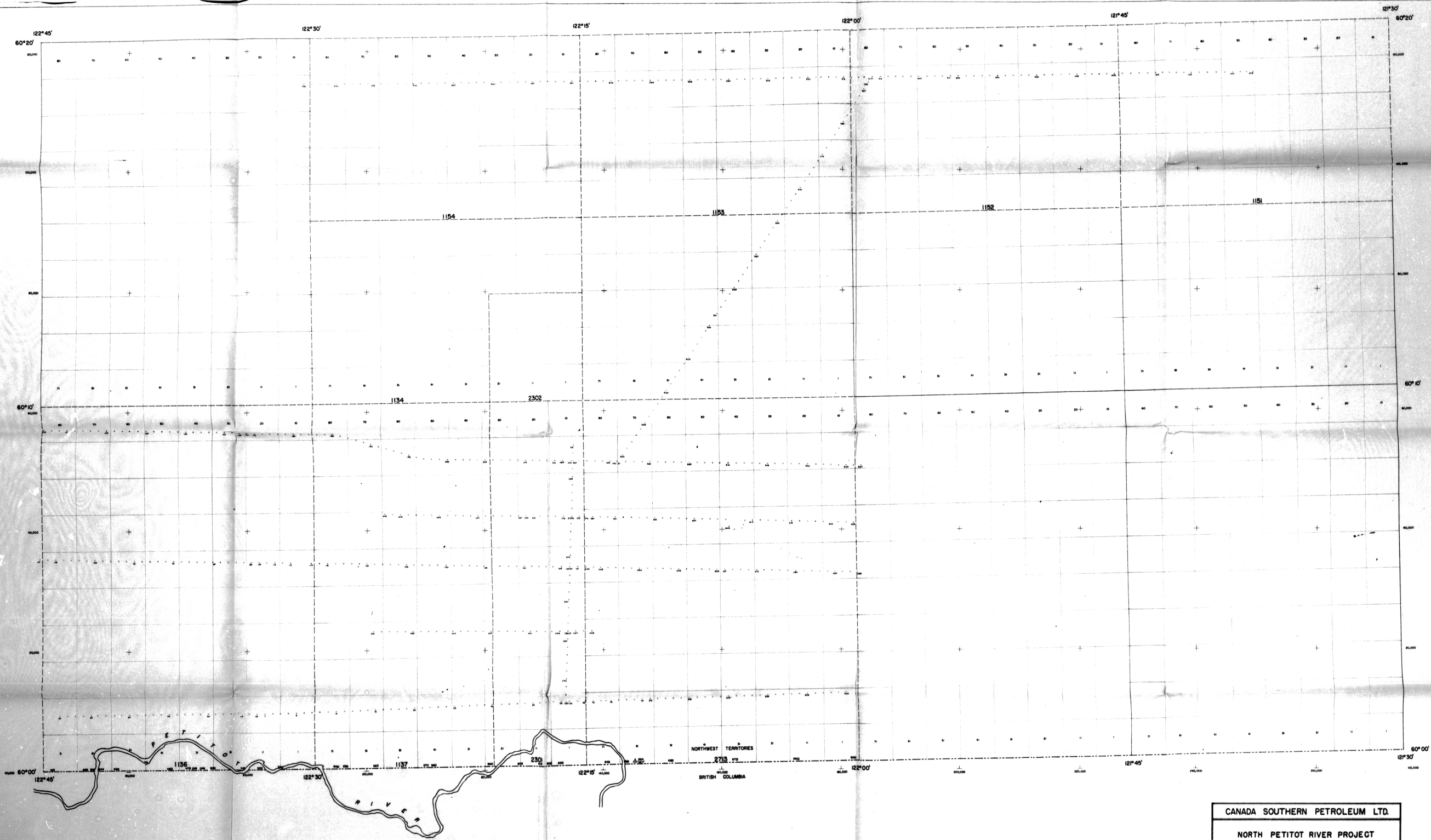
<u>Shot Point</u>	<u>Field Tape</u>	<u>Transfer Tape</u>	<u>Shot Point</u>	<u>Field Tape</u>	<u>Transfer Tape</u>
1	72303	385864	12	72336	314616
	72302			72341	
	72301		13	72344	314639
	72381			72338	
	72888			72343	
2	72199	304626	14	72340	314638
	72197			72348	
	72198		15	72342	314637
	72196			72350	
	72200		16	72347	314636
	72380			72352	
3	72307	304625	17	72349	314635
	72305			72355	
	72306		18	72351	
	72304			72357	
	72308		19	72354	314633
	72309			72359	
	72318		20	72356	314632
4	72310	314624		72361	
	72311		21	72358	314631
	72312			72363	
	72313		22	72360	314630
	72314			72365	
	72317		23	72362	314629
	72320			72367	
5	72315	314623	24	72364	314628
	72316			72369	
	72324		25	72366	314627
6	72319	314622		72371	
	72322		26	72368	385851
7	72321	304621		72373	
	72326		27	72370	304650
	72330			72375	
8	72325	314620	28	72372	314649
	72329			72377	
	72332		29	72374	314648
9	72328	314619		72378	
	72327		30	72376	314647
	72334			72385	
10	72331	314618	31	72382	314646
	72337			72387	
11	72333	314617	32	72383	314645
	72339			72384	
				72390	

NORTH PETITOT RIVER PROJECT (continued)

<u>Shot Point</u>	<u>Field Tape</u>	<u>Transfer Tape</u>
615	381534	425496
	381539	
616	381536	425495
	381541	
617	381538	425494
	381543	
618	381540	425493
	381545	
619	381542	425492
	381547	
620	381544	425491
	381549	
621	381546	425490
	381651	
622	381548	425489
	381652	
623	381550	425488



CANADA SOUTHERN PETROLEUM LTD.
NORTH PETITOT RIVER PROJECT
IN THE DEVONIAN
CONTOUR INTERVAL 200 FEET
DATUM 1400'
DATE JULY 8/1959
E. N. WRIGHT, PARTY CHIEF
J. C. MAYFIELD, SUPERVISOR
SCALE: 1 IN. = 1 MI.
HEILAND EXPLORATION CANADA LIMITED
Compiled by JOHN A. LEGGE & LTD.



CANADA SOUTHERN PETROLEUM LTD.

NORTH PETITOT RIVER PROJECT

SHOT POINT LOCATION MAP

SCALE: 1 IN. = 1 MI.

HEILAND EXPLORATION CANADA LIMITED

Compiled by JOHN A. LEGGE & LTD.

MONTHLY STATISTICAL REPORT

CLIENT: CANADA SOUTHERN PETROLEUM LTD. MONTH: FEBRUARY
PERMIT NO. YEAR: 1959

RECORDING DATA				EQUIPMENT		EXPLOSIVE RECORD			STATISTICS		REMARKS
INSTRUMENTS GA-7H				VEHICLE	UNIT NO. OR COMPANY	DYNAMITE	CAPS	DAYS WORKED	26		
GEOPHONES	E.V.S.	FREQUENCY 27 C.R.S.	NO. PER TRACE 3	THIRTY CHEF CAR						DAYS RECEIVED ON HAND FEB 1, 1959 FEB 3, 1959 FEB 25, 1959 FEB 26, 1959 TOTALS USED ON HAND AT END OF MONTH	
NO. GEOPHONES STATIONS 24 NO. CHANNELS USED 24				RECORDING TRUCK	275						
TOTAL SPREAD LENGTH 1320 STATION INT. 110 GEOPHONE INT. 55'				SHOOTING TRUCK	326						
OBSERVER	W. TRENCHUK	JR. OBSERVER	T. PEACHY	SURVEY TRUCK	315						
				SUPPLY TRUCK							
				DRILL & WATER TRUCK	285, 319						
				DRILL & WATER TRUCK	228, 301						
				DRILL & WATER TRUCK							

HEILAND EXPLORATION CANADA LIMITED

MONTHLY STATISTICAL REPORT

AREA: PETITOT RIVER
HEADQUARTERS:

MUNICIPALITY:
PROVINCE: NORTH-WEST TERRITORIES

PARTY CHIEF: E.N. WRIGHT
PARTY NO. 108

CLIENT: CANADA SOUTHERN PETROLEUM LTD. MONTH: MARCH
PERMIT NO. YEAR: 1959

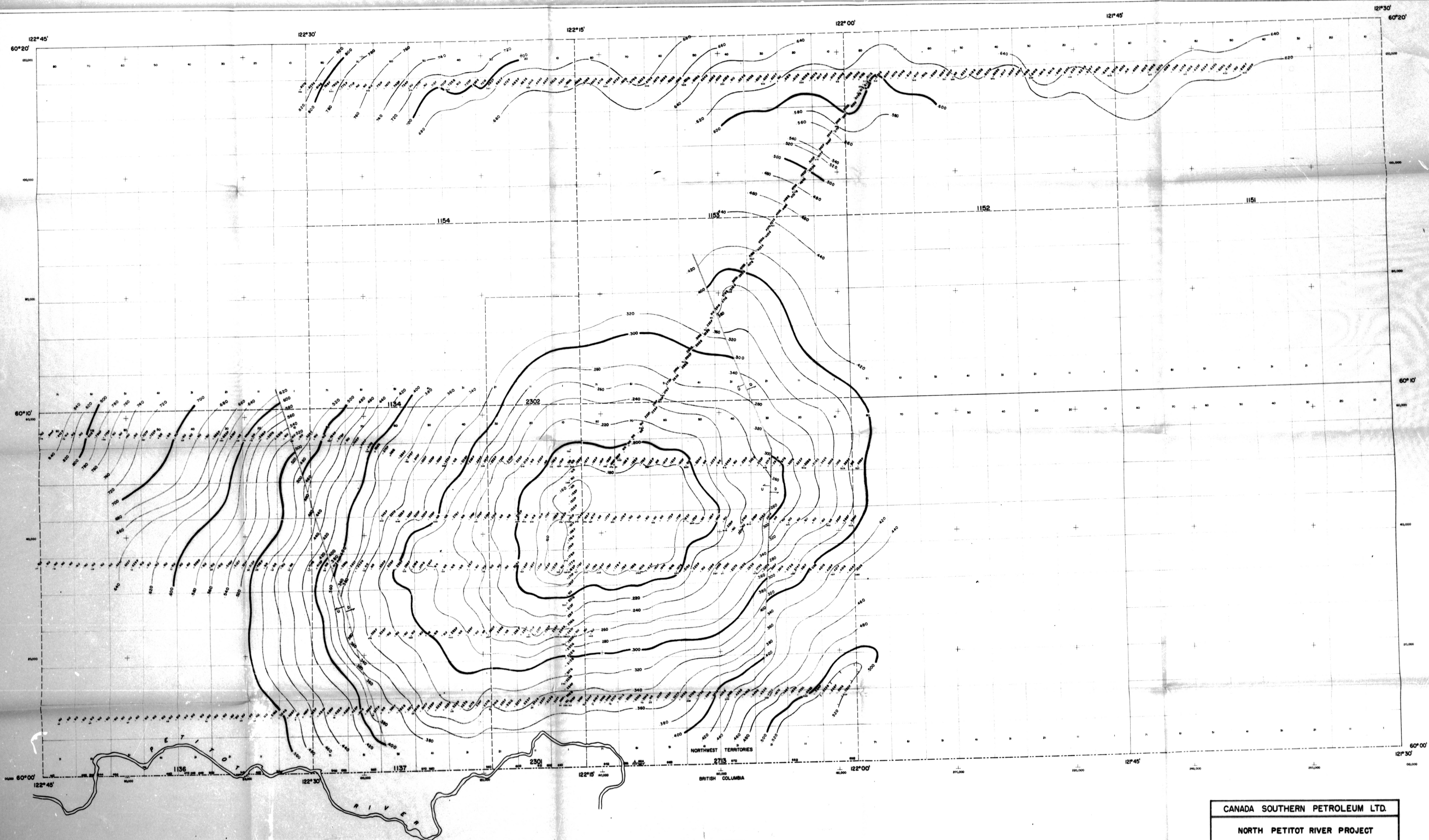
[illegible]

RECORDING DATA		EQUIPMENT		EXPLOSIVE RECORD			STATISTICS		REMARKS	
INSTRUMENTS GA - 7 H		VEHICLE	UNIT NO. OR COMPANY	DATES RECEIVED	DYNAMITE	CAPS	DAYS WORKED	27	S = Split Profile O = Offset end on Profile 60' Caps listed above 100' Caps in recording and explosive section. Field time includes 8 hrs. allowed for Good Friday. Moving time shown as driving time in recording & drilling section	
GEOPHONES E.V.S.	FREQUENCY 27 C.P.S.	RECORDING TRUCK	275		ON HAND	2223 lb.	507-80'	WEATHER DAYS		-
	NO. PER TRACE 3	SHOOTING TRUCK	325				400-60'			
NO. GEOPHONES STATIONS 24	NO. CHANNELS USED 24	SURVEY TRUCK	315					ROAD BAN		-
		SUPPLY TRUCK						BREAKDOWN		-
TOTAL SPREAD LENGTH 1320	STATION INT. 110	DRILL & WATER TRUCK	285 319		TOTALS	2223 lb.	507-80'	MOVING		4
GEOPHONE INT. 55'		DRILL & WATER TRUCK	228 301		USED	1823 lb.	507-80'	PROFILES PER 8 HOUR DAY		19267
OBSERVER W.TRENCHUK	JR. OBSERVER T. PEACHY	DRILL & WATER TRUCK			ON HAND AT END OF DAY	400 lb.	136-60'			
SURVEYOR E.P. HERCHEK		DRILL & WATER TRUCK								

MONTHLY STATISTICAL REPORT

CLIENT: CANADA SOUTHERN PETROLEUM LTD. MONTH: JANUARY
PERMIT NO. YEAR: 1959

RECORDING DATA			EQUIPMENT		EXPLOSIVE RECORD			STATISTICS		REMARKS	
			VEHICLE	UNIT NO. OR COMPANY	DATES RECEIVED	DYNAMITE		CAPS		SPLIT PROFILE E = END-ON PROFILE O = OFFSET END-ON PROFILE 60' CAPS LISTED ABOVE 100' CAPS IN RECORDING SECTION AND EXPLOSIVE SECTION 8 HOURS FOR NEW YEARS DAY ENTERED IN STATISTIC SECTION AS ONE WORKED	
						ON HAND JAN. 1, 1959	2000.000	500 - 80' 100 - 60' 75 - 100'	DAYS WORKED 27		
											WEATHER DAYS
INSTRUMENTS	GA-7H		PERRY CHEV CAR								
GEOPHONES	E.V.S.	FREQUENCY 27 C.P.S. NO. PER TRACE 3	RECORDING TRUCK	275							
			SHOOTING TRUCK	326							
NO. GEOPHONES STATIONS	24	NO. CHANNELS USED 24	SURVEY TRUCK	315							
TOTAL SPREAD LENGTH	1320	STATION INT. 110 GEOPHONE INT. 55'	SUPPLY TRUCK								
OBSERVER	W. TRENCHUK	JR. OBSERVER T. PEACHY	DRILL & WATER TRUCK	285,319	TOTALS	2000.000	500 - 80' 100 - 60' 75 - 100'	MOVING	4		
SURVEYOR	E. P. HERCHEK		DRILL & WATER TRUCK	228,301	USED	753.500	500 - 80' 100 - 60' 75 - 100'	PROFILES PER 8 HOUR DAY	12.579		
			DRILL & WATER TRUCK		ON HAND AT END OF MONTH	1246.500	500 - 80' 100 - 60' 75 - 100'				



CANADA SOUTHERN PETROLEUM LTD.

NORTH PETITOT RIVER PROJECT

NEAR TOP OF DEVONIAN

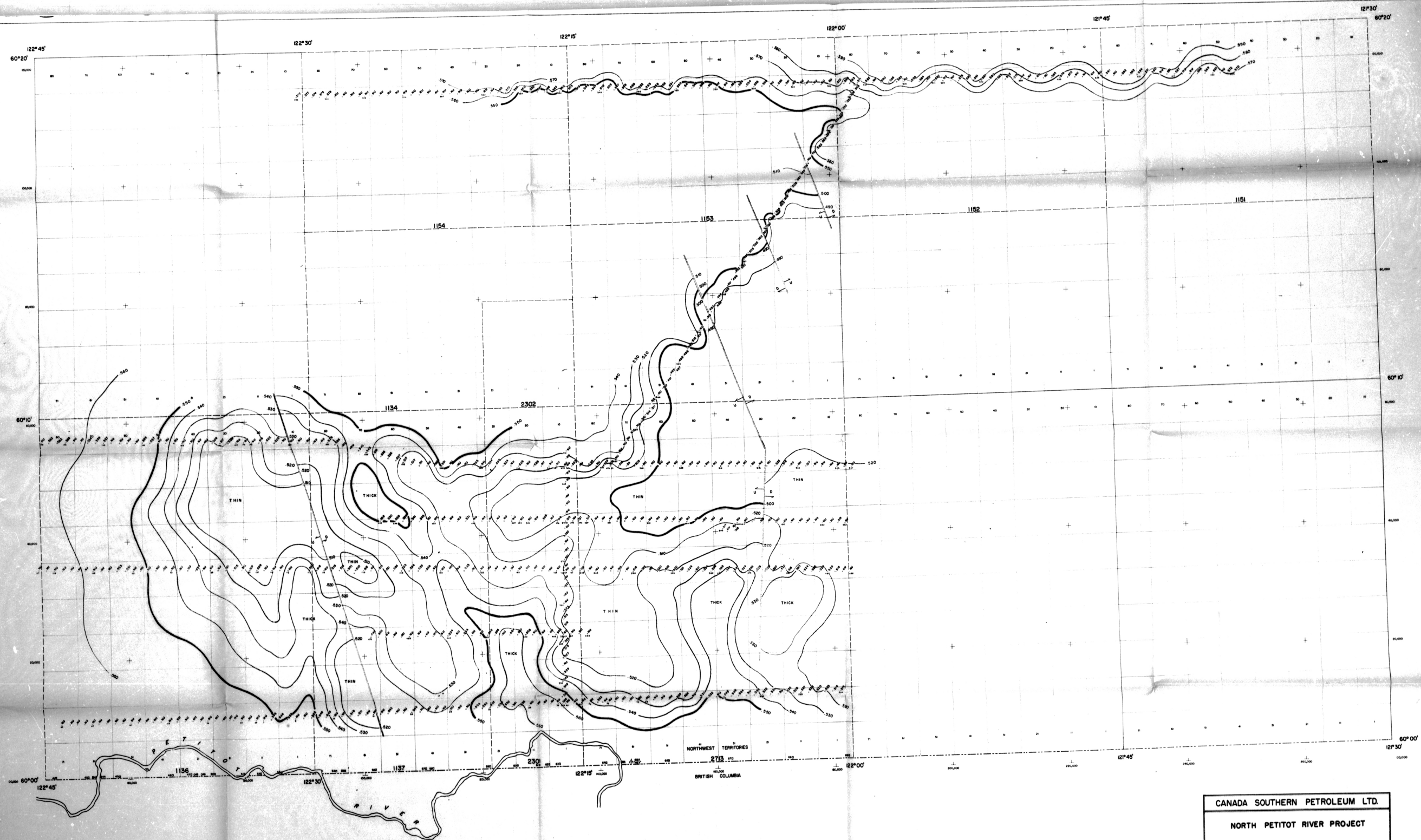
CONTOUR INTERVAL: 20 FEET
 DATUM: 1957
 DATE: JULY 8, 1959

E. N. WRIGHT, PARTY CHIEF
 SEISMIC PARTY NO. 108
 I. C. MAYFIELD, SUPERVISOR

SCALE: 1 IN. = 1 MI.

HEILAND EXPLORATION CANADA LIMITED

Compiled by JOHN A. LEGGE & LTD.



CANADA SOUTHERN PETROLEUM LTD.

NORTH PETIOT RIVER PROJECT

ISOCHRON

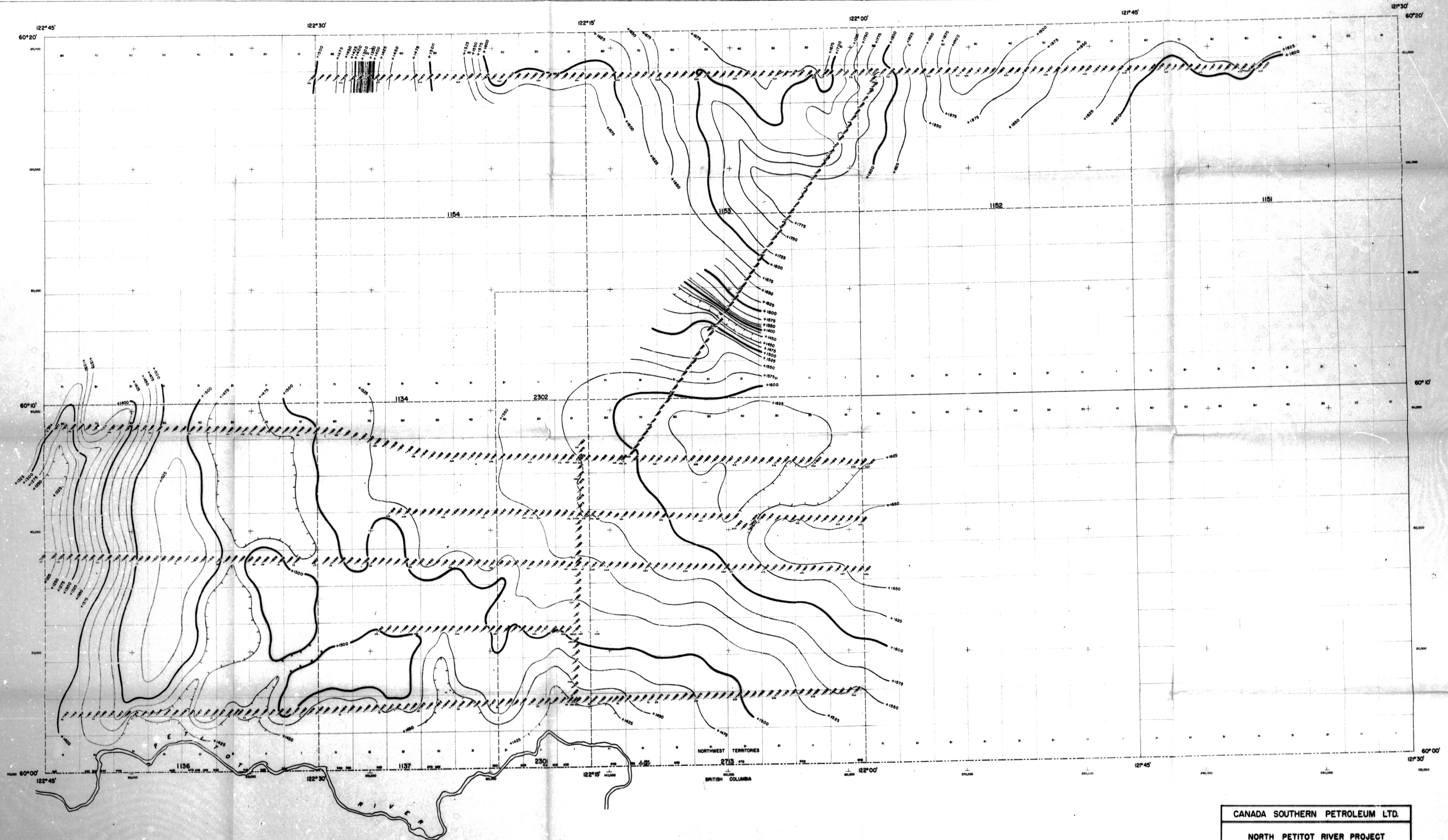
NEAR TOP OF DEVONIAN TO SLAVE POINT

FOURTH INTERVAL 010 SEC
DATE JULY 6, 1959
C. H. WRIGHT, PARTY CHIEF
J. HAYFIELD, SUPERVISOR

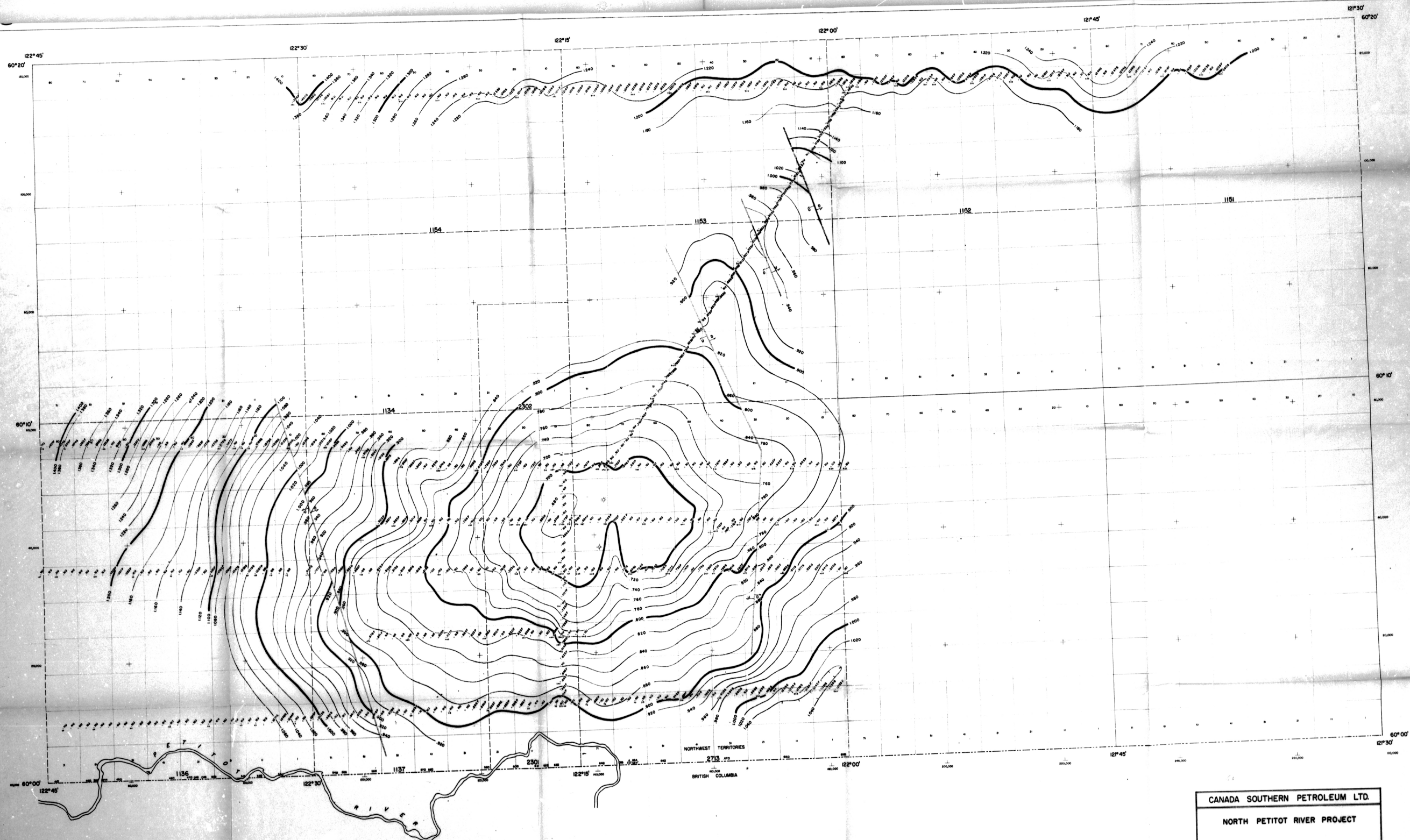
SCALE: 1 IN. = 1 MI.

HEILAND EXPLORATION CANADA LIMITED

Compiled by JOHN A. LEDGE & LTD.



CANADA SOUTHERN PETROLEUM LTD.	
NORTH PETITOT RIVER PROJECT	
SURFACE TOPOGRAPHY	
CONTOUR INTERVAL 25 FT DATUM: SEA LEVEL DATE: JULY 6, 1959	E. S. WRIGHT, PARTY CHIEF J. C. WATFIELD, SUPERVISOR
SCALE: 1 IN. = 1 MI.	
HEILAND EXPLORATION CANADA LIMITED	
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CANADA SOUTHERN PETROLEUM LTD.

NORTH PETITOT RIVER PROJECT

SLAVE POINT

CONTOUR INTERVAL: 20 FEET
DATUM: 1950
DATE: JUL 16, 1959

E. N. WRIGHT, PARTY CHIEF
SEISMIC PARTY NO. 108
I. C. MAYFIELD, SUPERVISOR

SCALE: 1 IN. = 1 MI.

HEILAND EXPLORATION CANADA LIMITED

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