

THE CALIFORNIA STANDARD COMPANY

CALGARY, ALBERTA

REPORT ON THE 1953 CALIFORNIA STANDARD FIELD PARTY

in the

GREAT SLAVE LAKE AREA, N.W.T.

by

W.J. KOOP

for

E.E. PELZER,

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The California Standard Company

Calgary, Alberta

Report on the 1953 California Standard Field Party in the -

Great Slave Lake Area, N.W.T.

by W.J. Koop

for E.E. Pelzer, District Exploration Supervisor

Summary

This report is submitted in accordance with Section 30 of the Territorial Oil and Gas Regulations.

The 1953 Great Slave Lake field party was assigned to continue the work done by Mr. A.E. Kliske during the previous summer. W.J. Koop, assisted by J.P. Leeson, traversed parts of the Horn, Redknife and Bouvier Rivers, and examining Middle Devonian cores at the Pine Point mining camp operated by the Consolidated Mining and Smelting Company.

Middle Devonian stratigraphy was studied in the Pine Point diamond cores, a sequence, from bottom to top, was as follows:

1. Precambrian granite - in two holes, G1 and G4
2. Red Beds - red dolomitic mudstone, red micro-crystalline dolomite and gypsum, coarse clastic at base - 200', varies.
3. Anhydrite - banded brown and blue grey, part dolomitic, basal 20 feet consist of brecciated gypsum in a shale matrix - 290'.
4. Limestone - dark brown grey, cryptocrystalline, crinoids and brachiopods throughout, bituminous, basal 26 feet is granular and dolomitic - 97'
5. Dolomite - dark grey to medium brown, fine crystalline, crinoids and brachiopods - 92'.
6. Dolomite - pale to medium brown, medium to fine crystalline, granular, occasional corals, brachiopods and crinoids - 380'.
7. Dolomite - mottled pale grey, buff and brown, medium to coarse crystalline, part banded, some very pale medium clastic limestone (calcarenite) - 240'.
8. Limestone - medium to dark greyish brown, micro-crystalline, frequently fossil fragmental with coral, stromatoporoid and brachiopod fragments, variably dolomitized, Amco shale marker

(11' green shale) occurs 40 feet above the base of this unit - 220'

Unit number 3 is correlated with the Chinchaga (1) formation of the subsurface to the south, number 4 with the Pine Point formation, numbers 5,6 and 7 with the Presquile formation and number 8 with the Slave Point Formation. The shale and overlying limestone outcrops along the Horn River are correlated with the Pine Point limestone on the basis of fossil evidence.

Upper Devonian strata were examined on the Bouvier and Redknife Rivers and on Kakisa Lake. Section descriptions of the limestone forming the escarpment south of the upper Mackenzie River are included in this report.

Rocks of Mississippian age are exposed along an escarpment west of Bovie Lake. Fossiliferous, argillaceous and cherty limestone, dipping gently to the west, form the resistant strata exposed here.

Introduction

Field Program

The area of investigation is indicated on the accompanying Index Map. A 16-foot canoe furnished transportation on all river and lake traverses. The California Standard float-plane (Beaver G.Q.G.) carried the party into the various areas to be traversed.

One month was spent at Pine Point examining diamond cores obtained during the CM and S evaluation of the lead-zinc possibilities south of Great Slave Lake. Special permission was granted to us by Consolidated for this study.

Stratigraphy

The following table of formations lists the stratigraphic units exposed in the Great Slave Lake area:

<u>Age</u>	<u>Formations</u>	<u>Thickness</u>
Cretaceous		not examined
- Unconformity -		
Upper Devonian	Kakisa River limestone	?
	Hay River formation	650'+
	Frobisher formation	925'+

1. Law, J., "Geology of Northwestern Alberta and Adjacent Areas", Bulletin - American Association of Petroleum Geologists, Volume 39, No. 10 (October, 1955) pp. 1927-1975

<u>Age</u>	<u>Formations</u>	<u>Thickness</u>
Middle Devonian	Slave Point formation Presquile formation Pine Point formation	220' 712' 100' to 600'
Devonian	Anhydrite (Chinchaga formation)	290'
	- Unconformity -	
Ordovician	Red Beds (map be Devonian) Basal Sandstone-shale	200'+ 130'+

Pre - Devonian

The basal Red Beds underlying the Middle Devonian sequence at Pine Point (and in the subsurface to the south) may represent a basal transgressive phase. The age of this unit may range from Ordovician to Devonian. The previous report on the 1952 field work has presented all the data available to us, which is applicable to the pre-Devonian sequence in the Great Slave Lake area.

Middle Devonian

Approximately 1200 diamond drill holes have been drilled on the CM and S concessions at Pine Point. Most of the holes penetrate a relatively small interval, with only two holes G-1 and G-4 going down to the Precambrian.

A composite section of the strata penetrated by core holes at Pine Point is as follows:

Top:

Slave Point

0 - 24'	<u>Limestone</u> - stromatoporoidal, buff, finely granular, stromatoporeids constitute 20 to 60 percent of the entire rock, rare chert nodules.
24 - 125'	<u>Limestone</u> - part argillaceous and dolomitic, pale to medium greyish brown, microcrystalline to crypto-crystalline, interbedded fine textured and medium to coarse fragmental limestone.

125 - 170' Limestone - variably dolomitized, dark to medium greyish brown, micro to cryptocrystalline, well bedded, mainly fine textured with some coarse fragmental beds containing brachiopod and coral debris.

Amco Shale - (equivalent to Watt Mountain formation?)

170 - 181' Shale - calcareous and or dolomitic, grading to argillaceous limestone and dolomite, dark greenish grey, often get a thin *Atrypa coquina* zone at the base.

181 - 220' (base somewhat irregular)

Limestone and Dolomite - interbedded, argillaceous, medium to light brownish grey, microcrystalline to chalky, large coral and stromatoporoid fragments immediately below Amco shale, thin green clay shale beds containing abundant Charophyta oogonia near base.

Presquile Formation

Upper coarse Dolomite member

220 - 460' Dolomite - pale grey, buff and brown mottled, medium to coarse crystalline, part banded, some thin tubular corals or algae (*Amphipora*?). Upper part sometimes contains some very pale calcarenite extreme recrystallization and dolomitization tends to obscure primary sedimentary features in this interval.

460 - 840' Dolomite - granular, pale to medium brown, medium to fine crystalline becoming finer downward, occasional corals, brachiopods and crinoids.

840 - 932' Dolomite - dark grey becoming medium brown downward, fine crystalline, upper fifteen feet dark blue grey coarse fragmental shaly dolomite, greenish grey shale marker at 845'. Atrypas and crinoids common near base, bituminous partings.

Pine Point Limestone

932 - 1013' Limestone - dark brown to black cryptocrystalline, crinoid columnals and curved brachiopod fragments scattered throughout, bituminous partings.

1013 - 1029' Dolomite - medium to pale brown, fine crystalline, thin bedded.

Evaporite (Chinchaga formation)

1020 - 1320' Anhydrite - irregularly banded in shades of brown and blue-grey, microcrystalline, some bands are dolomitic and partially brecciated, shaly bands

throughout, basal twenty feet consists of brecciated gypsum in a shale matrix.

Red Beds

- 1320 - 1509 Red Beds - red dolomitic mudstone, red microcrystalline dolomite and gypsum, becoming silty and coarsely clastic near the base.
- 1509' Precambrian quartzite

The details observed in the diamond cores at Pine point indicate that there has been considerable post - depositional faulting, with a roughly anticlinal structure paralleling the mineralized trend. Reef characteristics are suggested by the coarse nature of the dolomite and the facies changes to a more evaporitic sequence in the subsurface of northern Alberta. (see paper by J. Law for regional interpretation).

Upper Devonian

Upper Devonian sections were measured south of Kakisa Lake and along the Redknife and Bouvier Rivers, N.W.T. Plate 22 shows the lithology of the three measured sections and the tentative correlations with adjacent sections which have been measured by California Standard geologists (see previous report on 1952 field work).

The following is a detailed description of the three measured sections:

Composite Section - south shore, Kakisa Lake

Measuring from the top of the section down to lake level.

Top of Section

Thickness, Feet

- A. Limestone, non-argillaceous, pale pinkish grey inter-banded with coarse crystalline white, microcrystalline with coarse secondary replacement, massive to blocky medium bedded, some beds coquinoïd. Hypothyridina, Athyris, Leiorhynchus, some brachiopods have vugular interior lines with coarse calcite, very hard, stylolitic, banding suggests possible algal activity, this cliff-forming limestone is probably a biostrome, very pure banded carbonate, mostly tight 13.0

Submarine Unconformity

- B. Limestone, argillaceous and sandy, pale greenish to brownish grey, microcrystalline to silty textured, fossil fragmental (especially crinoids) beds, thin

- bedded, some small scale cross-bedding, tight,
slightly dolomitized and silty near top7.0
- C. Limestone, biohermal, approximately seventy-five percent is coral remains with irregular infilling and interlensed shaly and sandy limestone, microcrystalline with considerable coarse calcite recrystallization, large colonial corals in random somewhat disturbed attitudes, tubular (1/4 inches diameter) corals abundant, horn corals, abundant fossil fragmental beds, becoming shaly upward, tight. This bioherm dies out laterally and adjacent sections consist mainly of arenaceous clastic limestone5.0
- D. Limestone - sandy (to forty percent), interlensed with occasional sandstone and shale bands, pale brownish to greenish grey, microcrystalline, some finely clastic granular textured, thin bedded to laminated, occasional corals and brachiopods, tight16.0
- E. Limestone, part argillaceous and sandy interbeds, pale brownish grey, microcrystalline, fine fragmental with rounded and subrounded limestone pellets, medium to some thin bedded, fossil fragments, trace pyrite, tight3.0
Unexposed20.0
- F. Sandstone, very calcareous, contains fragmental sandy limestone interbeds, fine grained quartz sandstone, very tightly cemented, medium to heavy bedded, pale brownish grey to greenish grey when argillaceous, tight12.0
- G. Sandstone, very calcareous, argillaceous, pale greenish grey, fine grained, well sorted, some coral beds, gastropods, *Atrypa* with fossils constituting to eighty percent of the rock in part, thin to medium regular bedded, tight10.0
Unexposed20.0
- H. Limestone - argillaceous, and sandy in part, pale to medium brownish grey, microcrystalline, micro to fine fragmental with occasional rounded pellets to 4 mm. across, abundant shaly and silty pale greyish green partings, medium to thin bedded, abundant *Atrypas*, some fossil fragmental coralline beds, trace pyrite, tight10.0
Unexposed, some sandy limestone blocks50.0
- I. Limestone - argillaceous, pale greyish brown (somewhat greenish) microcrystalline, interbedded fine textured and medium to coarse fossil fragmental, medium bedded, greenish shaly partings, tight11.0
Unexposed30.0

- J. Limestone, shaly, medium greyish green, micro crystalline, thin to medium bedded, abundant pale greenish grey chert, *Atrypa*, *Spirifer*, tight1.0
Unexposed3.0

<u>Total</u>	211.0
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Composite Section, Bouvier River

- | <u>Top of Section</u> | <u>Thickness</u> |
|---|------------------|
| A. <u>Limestone</u> - argillaceous, thin shaly partings, pale brownish grey, microcrystalline, micro granular texture, medium bedded, rare fossils, trace pyrite, tight | 6.0 |
| Unexposed | 3.0? |
| B. <u>Limestone</u> , slightly argillaceous with thin shaly partings on bedding planes, pale brownish grey, microcrystalline, silty texture, medium bedded, some fossil fragmental interbeds, more argillaceous to top, some calcite recrystallization, tight | 10.00 |
| Unexposed | 2.00 |
| C. <u>Limestone</u> - nonargillaceous, pale brownish grey to buff, microcrystalline to cryptocrystalline, regular medium bedded with paper thin shale partings, possibly microfragmental, <i>Spirifers</i> , <i>Atrypa</i> , tight | 6.0 |
| D. <u>Shale</u> - calcareous, medium greyish green, irregularly interbedded with pale microcrystalline limestone, scattered fossil fragments, corals, rare pyrite nodules | 2.0 |
| E. <u>Limestone</u> - slightly argillaceous, pale greyish brown, microcrystalline to cryptocrystalline, possibly microfragmental, medium regular bedded, <i>Atrypa</i> , rare corals, some beds contain abundant crinoid stems, tight | 12.0 |

Shaly Break

- F. Limestone, zone of small bioherms (some extend up into E above), laterally variable with coarse fragmental coralline build-ups and adjacent regular bedded to laminated silty limestone, lensing coarse to medium fragmental beds consisting mainly of recrystallized crinoid stems near base, color throughout is pale greyish

brown, predominantly microcrystalline, maximum bioherm structure is fifteen feet high and shows both drape-effect and down-sinking into underlying beds, base is marked throughout by a minor submarine unconformity (approximately two feet relief) overlain by coarse fragmental limestone containing corals, Atrypa and crinoids, tight throughout.....15.0

Submarine unconformity, similar characteristics to the unconformity in the Redknife River Section.

- G. Limestone, argillaceous partings, pale brownish grey to buff, microcrystalline, probably micro-fragmental, fossil fragmental interbeds, medium bedded, tight20.0?
Unexposed, occasional blocks, as above15.0?
- H. Limestone, nonargillaceous, shale partings, pale brownish grey, microcrystalline, probably micro-fragmental, bedding 1.5 inches thick, occasional coarse fossil fragmental beds, trace pyrite nodules, tight....12.0
- I. Limestone - nonargillaceous, abundantly recrystallized to coarse crystalline, coarse fossil fragmental, pale brownish grey flecked with orange, Atrypa, crinoids, corals, tight3.0
- J. Limestone - nonargillaceous, with greyish green shaly partings, pale brownish grey, microcrystalline, probably microfragmental, some interbeds coarse fossil fragmental, medium to heavy bedded, tight, bottom 10 feet becoming silty and argillaceous26.0
- K. Shale - greyish green, calcareous, some (20%) limestone interbeds, worm burrows, part silty3.0
- L. Limestone - argillaceous, medium grey to slightly greenish, part probably microfragmental, medium bedded, shale partings, worm burrows, tight3.0
Unexposed interval10.0
- M. Interbedded shale and limestone
60% Shale, calcareous, fissile, medium greyish green some silty.
40% Limestone, argillaceous, shaly partings, pale to medium brownish grey, microcrystalline, microfragmental dark nodules and fossil fragments (fish bones, brachiopods, corals) on some bedding planes near base14.0
Unexposed interval4.0
- N. Limestone - argillaceous to silty, medium greyish brown microcrystalline, nodular bedding with shale interbeds, thin to medium bedded, Atrypas and corals on some planes worm burrows, considerable silicification of fossil

fragments, tight	6.0
O. Intertbedded shale, siltstone and fine grained sandstone, some limestone beds. 70% <u>Siltstone</u> , argillaceous, thin bedded to laminated with small scale cross bedding, calcareous, some sandstone, tight. 20% <u>Shale</u> , calcareous, greyish green, fissile, worm trails, some nests of tubular corals, Atrypa, Spirifers, colonial coral heads. 10% <u>Limestone</u> , small interbeds, medium greyish brown to green, microcrystalline, part coarse fossil fragmental, tight	12.0
<u>Total</u>	174.0

Redknife River Composite Section

The entire sequence is shown in a columnar section on Plate 22. The following is a detailed description of the lithology.

<u>Top of Section</u>	<u>Thickness, Feet</u>
A. <u>Limestone</u> , nonargillaceous, pale brownish grey, microcrystalline, usually microfragmental, thin to medium nodular bedded (1 inch) sparsely fossiliferous (Spirifer, Leiorhynchus, crinoid stems, algal overgrowths), scattered outcrops with about 50% of section exposed, becoming argillaceous	40.0
B. <u>Limestone and Sandstone</u> , argillaceous, fine grained, pale brownish grey to greenish, thin bedded to laminated, some small scale cross-bedding, fossil patches on bedding planes (Spirifer, productid type, Leiorhynchus, gastropods). Near base get 1.5 feet coarse fragmental, very algal limestone showing considerable lateral variation, tight, 40% exposed	10.0
C. <u>Limestone</u> - some slightly argillaceous, pale greyish brown (buff) microcrystalline, micro to fine fragmental, upper part contains abundant corals (Prismatophyllum, Synaptophyllum, Ptychophyllum, Mictophyllum) and is lumpy medium bedded, fossil fragmental interbeds, basal one foot is greenish argillaceous and shows a noticeable southeast dip, brachiopods (Schuchertella, Atrypa, Schizophoria). 70% exposed	6.0
Unexposed	4.0

(All lower sections are continuously exposed)

D. Sandstone, very limy with sandy limestone interbeds,

- pale greenish grey to buff, very fine grained,
quartzose, some fossil fragmental beds, medium
nodular bedded, abundant spirifers and productid
types, crinoids, dips to southeast, tight8.0
- E. Shale - calcareous, medium green, plastic0.4
- F. Limestone - sandy, microcrystalline, medium grey,
coarse fossil fragments, algal0.6
Unexposed3.0
- G. Argillaceous Limestone and calcareous shale
interbedded (4 inch beds), greenish3.0
- H. Limestone - variably argillaceous, some sandy,
medium bedded, considerable recrystallization, tight5.0
Unexposed2.0
- I. Limestone, slightly argillaceous and sandy, pale
brownish grey, microcrystalline to chalky, micro-
fragmental with fossil fragments throughout (tubular,
cup and "head" corals, Atrypa, spirifers,
Paracyclas, gastropods) well bedded, corals
randomly oriented, tight1.5
- J. Limestone, nonargillaceous but with shaly partings,
pale brownish grey, microcrystalline, microfragmental,
abundant coral heads (Phillipsastrea) and tubular
corals, generally medium bedded with small scale
compaction structures over coral growths, no actual
biohermal structures, tight6.0
- K. Limestone, resistant bed forming the Redknife
Falls, 50% organic remains, nonargillaceous except
on partings, microcrystalline, pale brownish grey,
medium to thick bedded, varied coral fauna in a
fragmental matrix, coral heads weathering out in
relief, laterally extensive stromatoporoidal growths
form entire beds, some shaly infilling, no actual
biohermal structures, bedding continuous, crinoids
near base9.0
- L. Limestone, argillaceous and possibly silty, light
grey, microcrystalline to fine textured, 40% small
(1/8 to 1/4 inch diameter) tubular corals (Anlopora)
in an argillaceous lime mud, thin to medium bedded, tight ...3.0
- M. Limestone - silty texture, argillaceous, pale greyish
green, tight1.5
- N. Limestone - pale buff grey, microcrystalline to fine
textured, medium fairly regular bedded, sparsely
saattered corals, brachiopods abundant on some planes,
shaly partings, tight32.0

Submarine unconformity - shows current channelling, coral debris above irregular surface, several feet relief.

- O. Resistant Limestone, coarse fragmental, pale brown, containing disc-shaped corals and stromatoporoids, conspicuous pyrite nodules weathering out, tight1.0
- P. Limestone, ribboned with argillaceous partings, interbedded lime mudstone and fine to medium clastic limestone, microcrystalline, conspicuous round white chalk concretions along beds, scattered pyrite nodules, rare corals and stromatoporoids, nodular thin to medium bedded, tight8.0
- Q. Limestone - nonargillaceous but with green shaly partings, microcrystalline to cryptocrystalline, some beds coarse fragmental with predominantly fine fragmental ? limestone, brachiopods (*Atrypa*, *Cyrtospirifer*, *Midirostra*) abundant on some planes, medium nodular bedded, tight6.0
- R. Shale - calcareous, medium greyish green, fissile, occasional corals and brachiopods, marker bed1.0
- S. Limestone, pale brownish grey, microcrystalline, microfragmental?, medium bedded, green shaly partings15.0
- T. Shale - calcareous, fissile, medium greyish green, coral heads1.0
- U. Limestone, pale brownish grey, microcrystalline, microclastic (vaguely fragmental appearance) thin to medium nodular bedded, green shaly bedding, plane infilling (paper thin partings), occasional coarse fragmental fossiliferous (corals, brachiopods) interbeds, tight, becoming slightly more shaly115.0
- TOP HAY RIVER TYPE SHALE (?)
- V. Interbedded calcareous shale and limestone 25% shale, remainder pale buff to greenish limestone, as above, with some extremely fossiliferous beds, fish bones, brachiopods, some sandy beds.....25.0
- W. Shale - calcareous, fissile, medium greyish green, occasional limestone interbeds, as above5.0

Base of exposed section

Total

312.0

Mississippian

A special one week project was carried out at Bovie Lake, N.W.T. In the area west of the lake and for considerable distance north and south, foraminiferal cherty Mississippian limestones form a prominent north trending scarp. In general, the top of the scarp is marked by a resistant chert layer. Exposures are very erratic and appear to be faulted at right angles to the strike of the escarpment. A cherty limestone horizon underlain by foraminiferal pale brown limestone is probably a fairly reliable marker.

The sequence exposed is as follows:

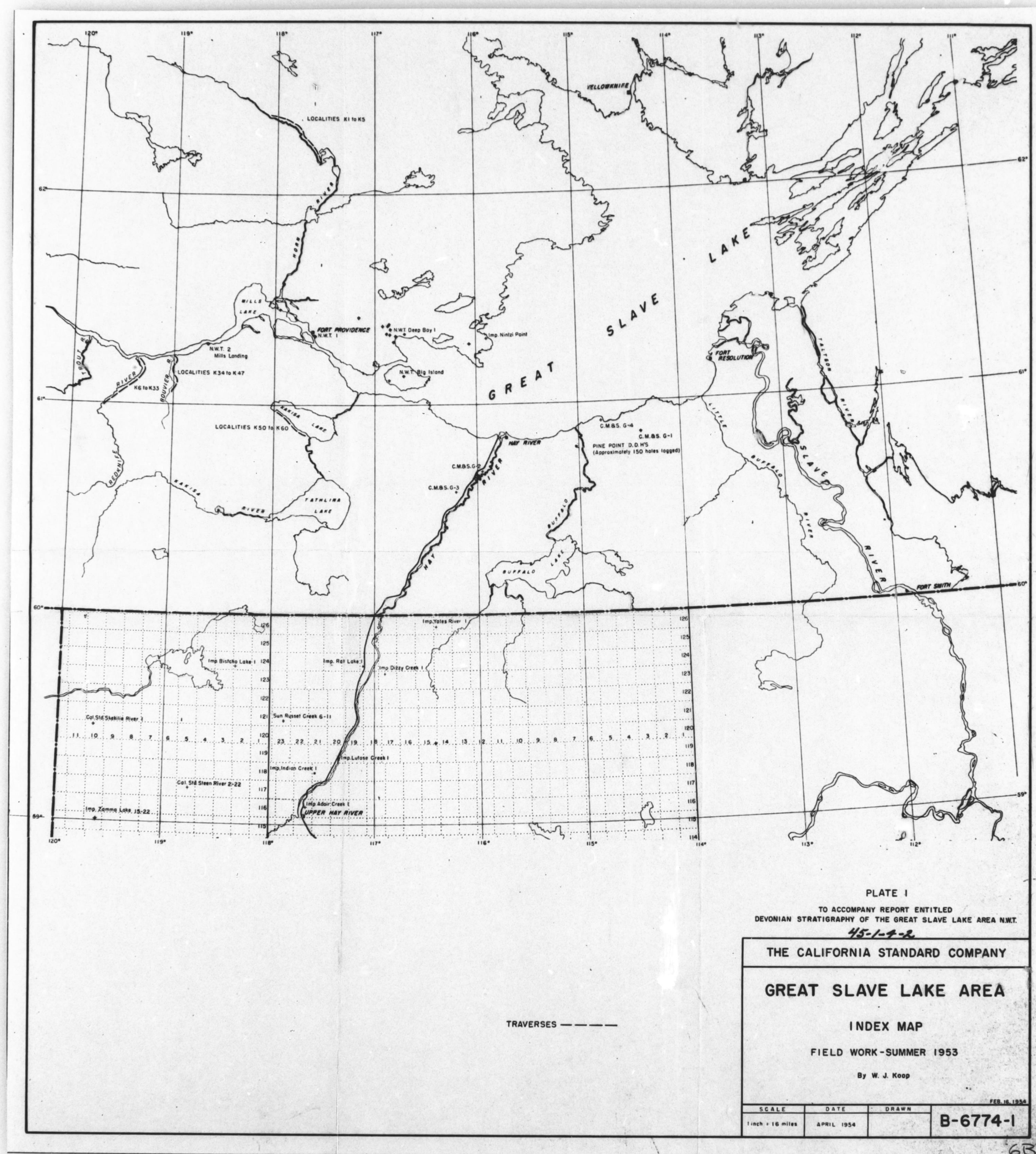
Base not exposed (measuring up)

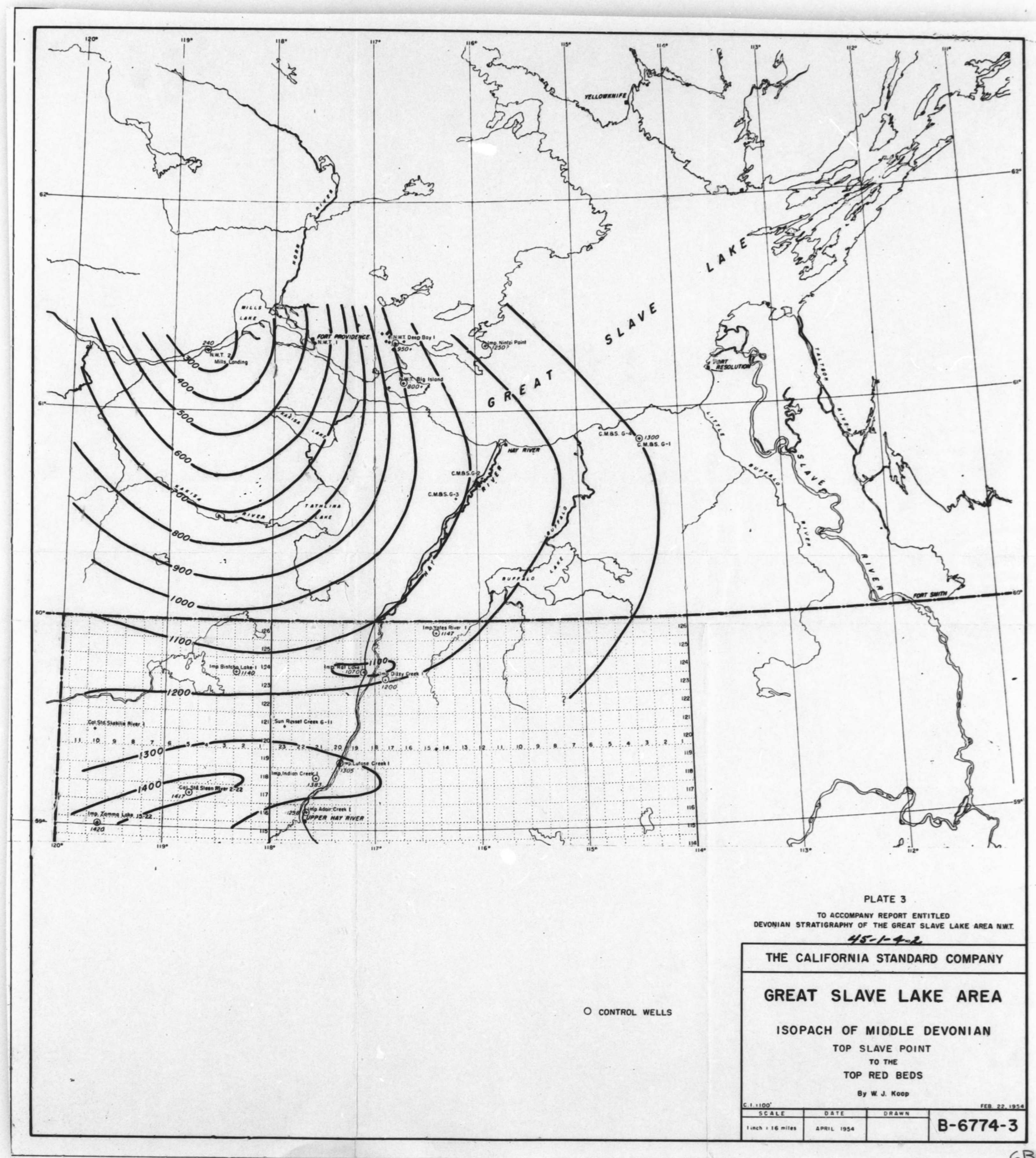
- A. 185' Limestone - cherty layers and nodules, argillaceous, bituminous, medium to mostly dark grey and brownish grey, crinoids, foraminifera and fossil fragments (medium to coarse) occasionally abundant, scattered solitary and colonial corals, brachiopods, pelecypods and trilobites (Proetus), tight.
- B. 25' Limestone - nonargillaceous, pale greyish brown, medium to coarse fossil fragmental, considerably recrystallized, abundant foraminifera and bryozoa, mainly thick-bedded with some small scale cross-bedding, 2' dark thin-bedded microcrystalline limestone near the middle of this section.
- C. 6' Chert Marker - dark grey, containing lenses of dark grey microcrystalline limestone, forms the top of the escarpment extending fairly continuously to the north.
- D. 15' Limestone - medium to dark brownish grey, fine textured, limestone with white recrystallized crinoid columnals scattered throughout, slightly argillaceous and bituminous, tight.
- E. 120' (Lower part poorly exposed)
Limestone - pale to medium greyish brown, microcrystalline with approximately 75% recrystallized to coarse, medium to coarse fossil fragmental, abundant crinoids and foraminifera, occasional brachiopods, fractured (055°/vertical) otherwise tight.

Total 351 feet.

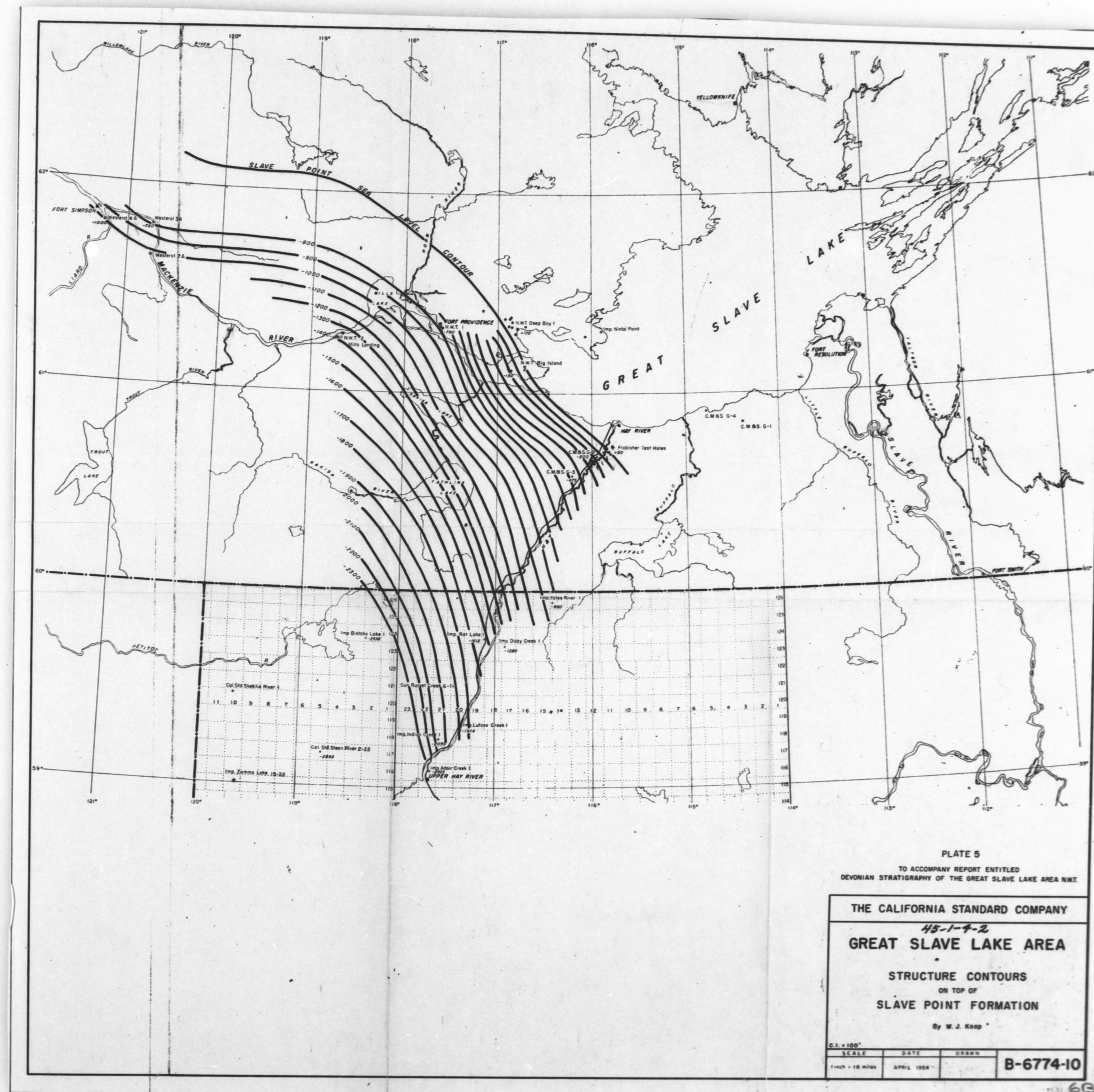
Conclusion

This report has presented the results of the California Standard 1953 field party in the Great Slave Lake Area. Middle and Upper Devonian rocks were examined in order to complete our knowledge of these units as they are exposed in the subject area. An isolated Mississippian outcrop was examined at Bovie Lake.



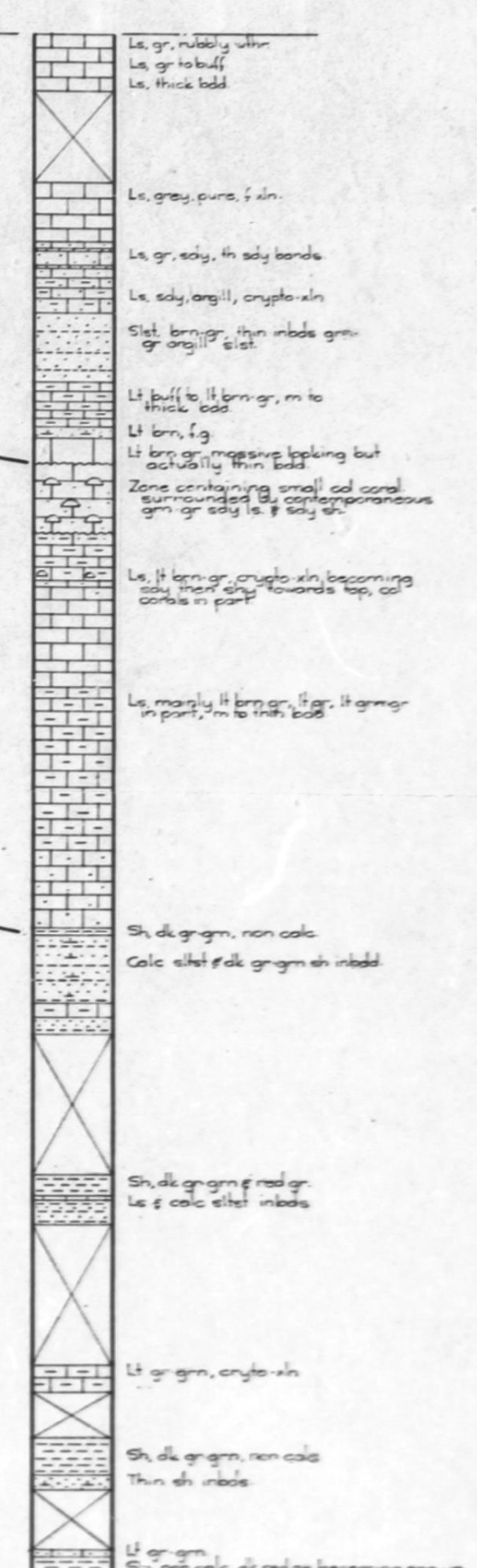


30x



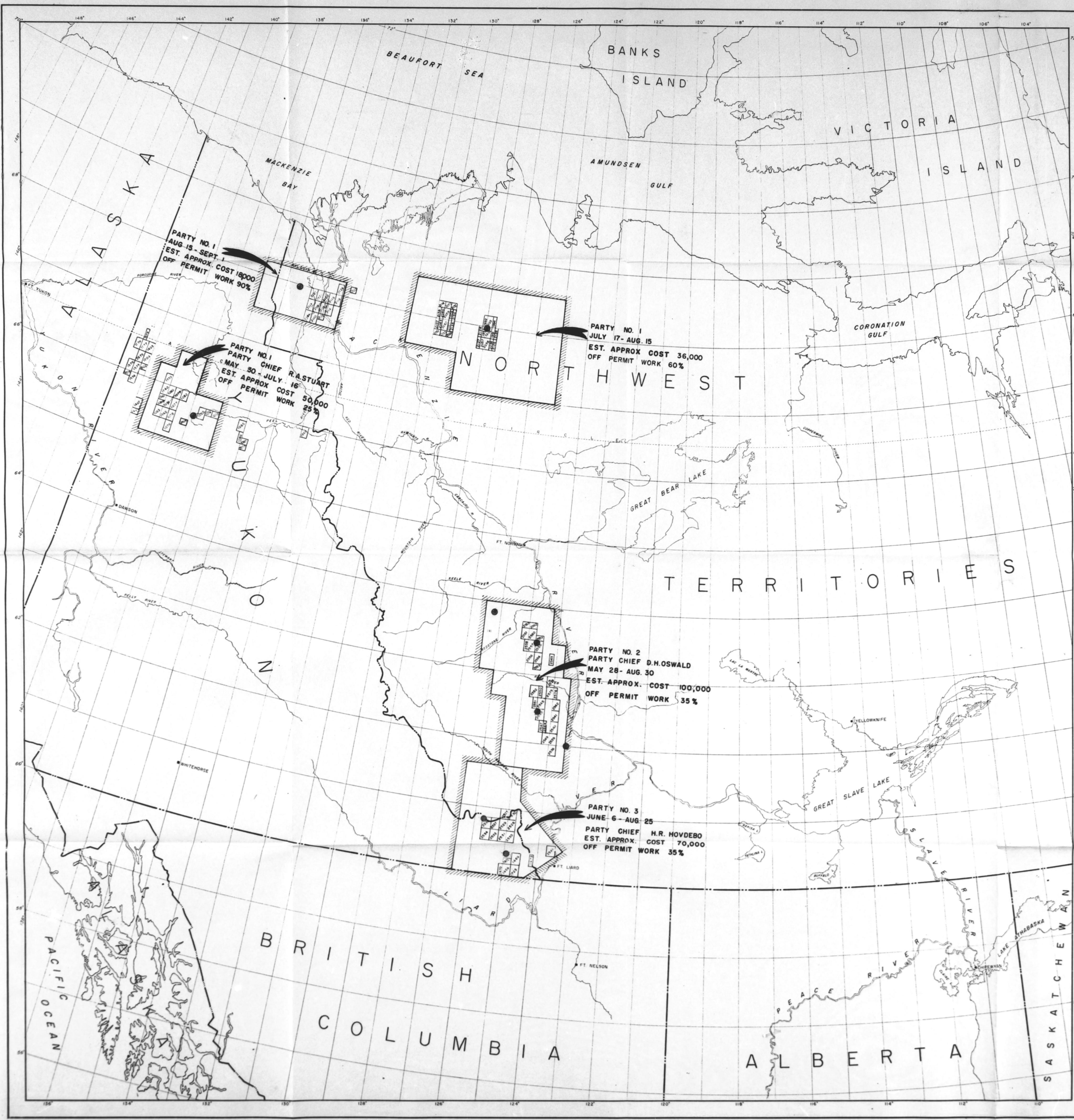
TROUT RIVER
COMPOSITE SECTION
A. E. KILSKE

BASE OF HYPOTHYRIDINE ZONE (?)



0-00-000 FINE, MEDIUM & COARSE FRAGMENTAL
" MICRO - CRYSTALLINE
U.S.I. REFERENCE TO THIN SECTIONS, SEE TEXT
A. S. etc. REFERENCE TO COMPOSITE SECTIONS, SEE TEXT
SEE PLATE I FOR LOCATION OF MEASURED SECTIONS

F-7458



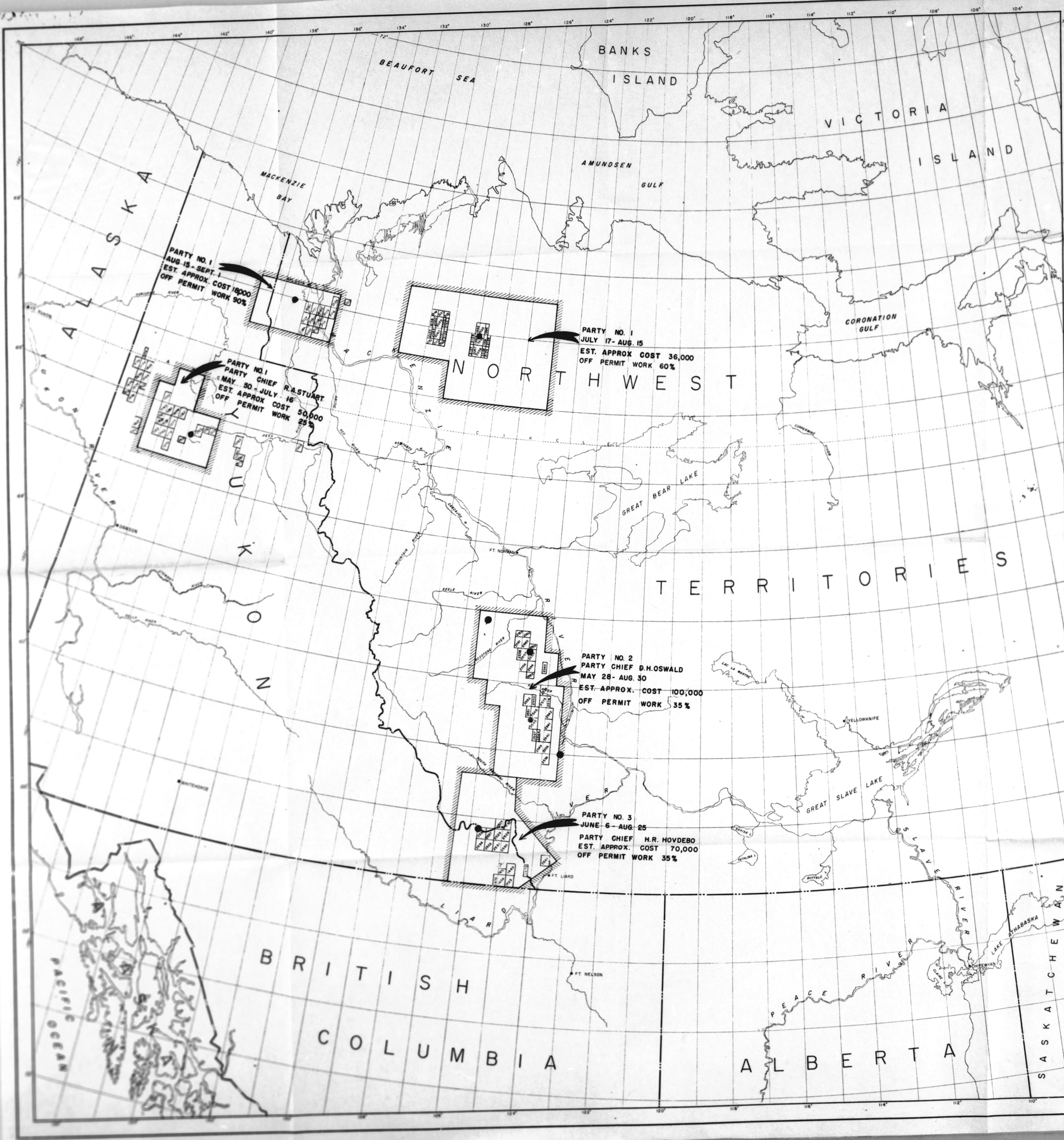
LEGEND
APPROX. AREA OF FIELD PARTY OPERATION
● MAIN BASE CAMPS

45-1-2-2			
THE CALIFORNIA STANDARD COMPANY			
YUKON - NORTHWEST TERRITORIES			
PROPOSED GEOLOGICAL FIELD PARTY OPERATIONS 1959			
SCALE	DATE	DRAWN	F-8258-E2
1 inch = 35 miles	Nov. 18/58		

Covering letter of 25 May 59



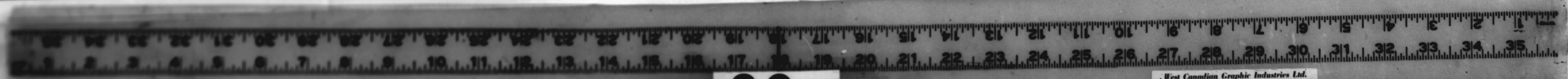
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LEGEND

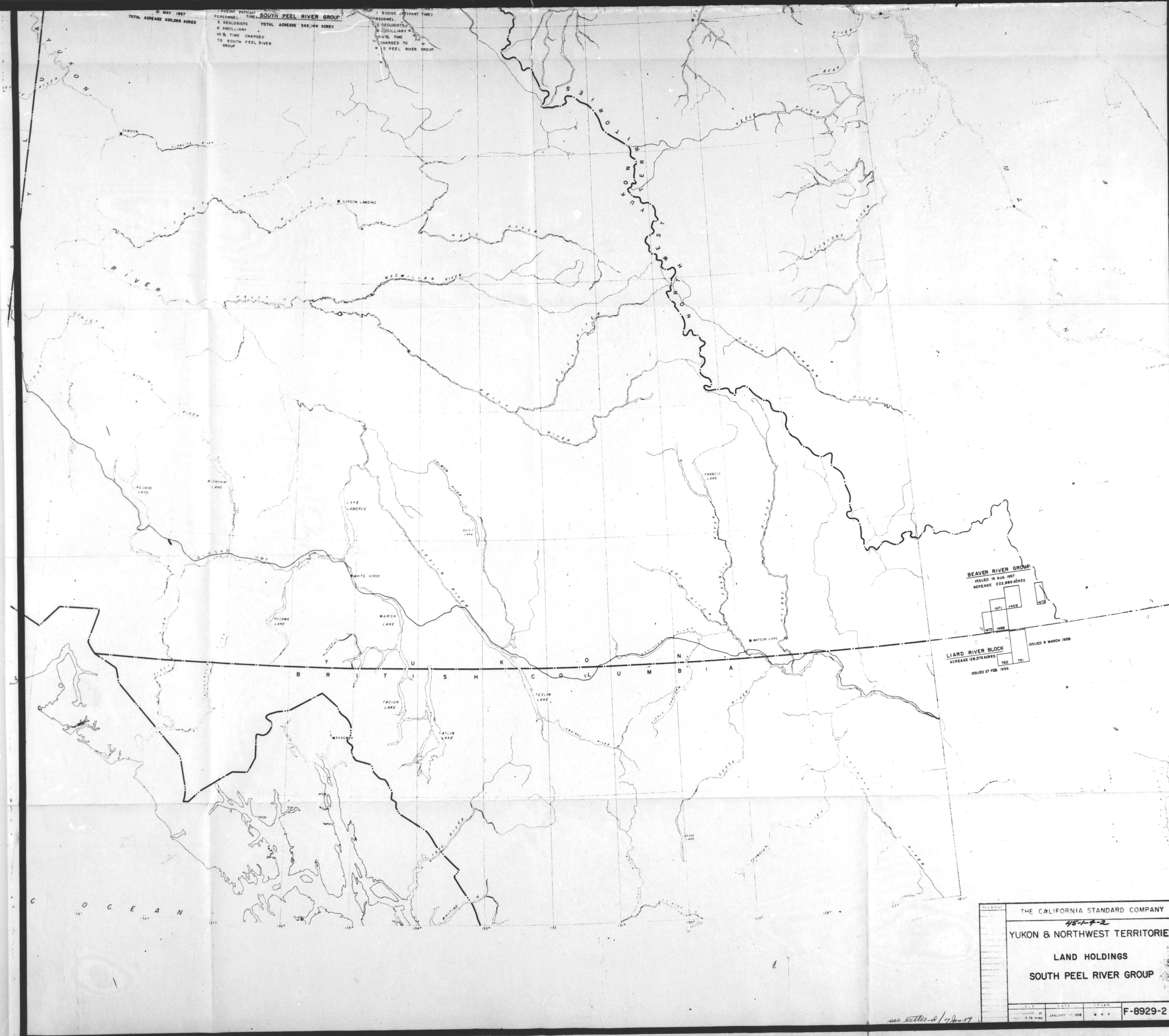
- APPROX. AREA OF FIELD PARTY OPERATION.
- MAIN BASE CAMPS.

THE CALIFORNIA STANDARD COMPANY			
15-1-4-2			
YUKON - NORTHWEST TERRITORIES			
PROPOSED GEOLOGICAL FIELD PARTY OPERATIONS 1959			
SCALE	DATE	DRAWN	F-8258-E2
1 inch = 35 miles	Nov 16/56		



30x

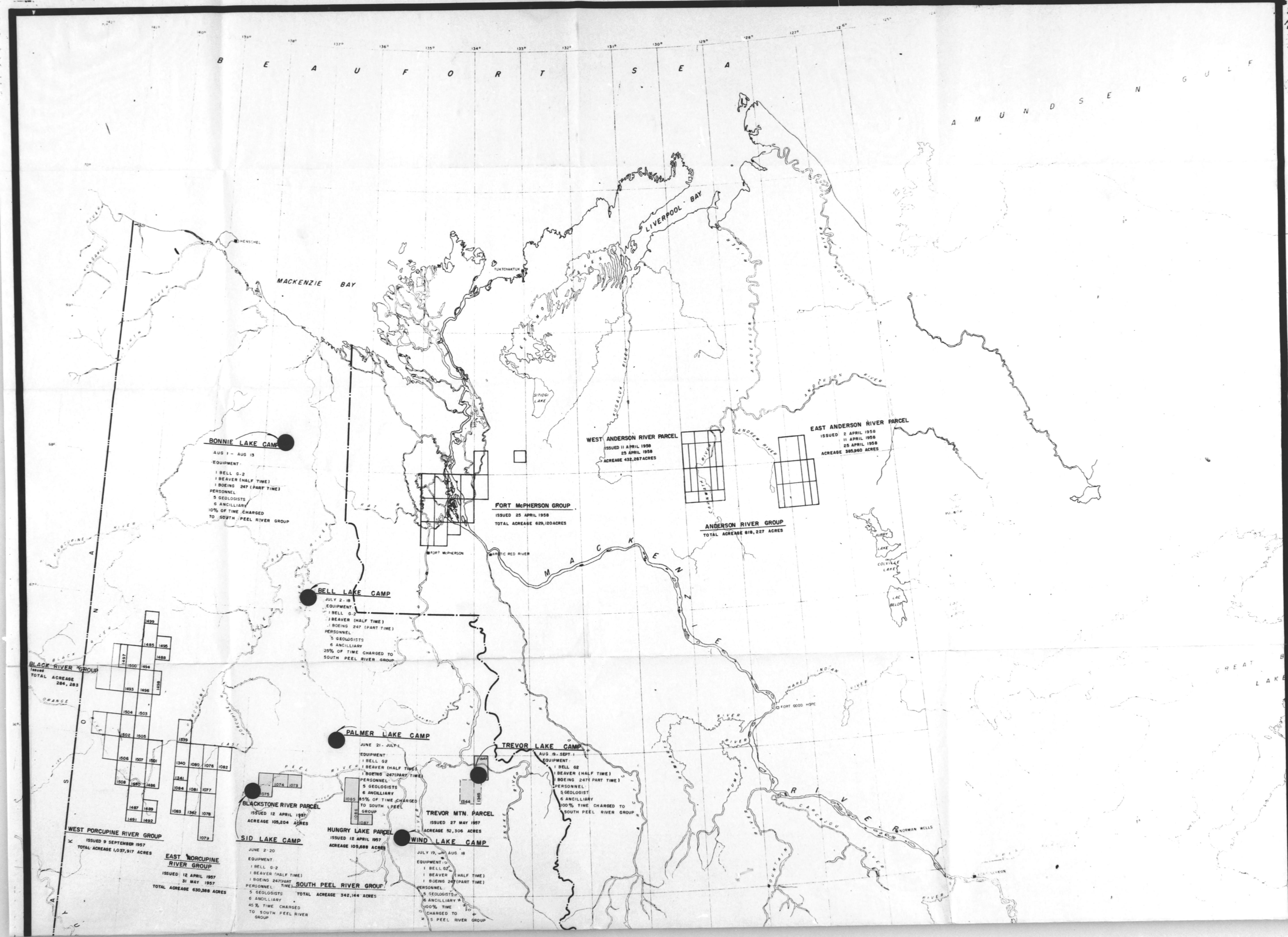
West Canadian Graphic Industries Ltd.

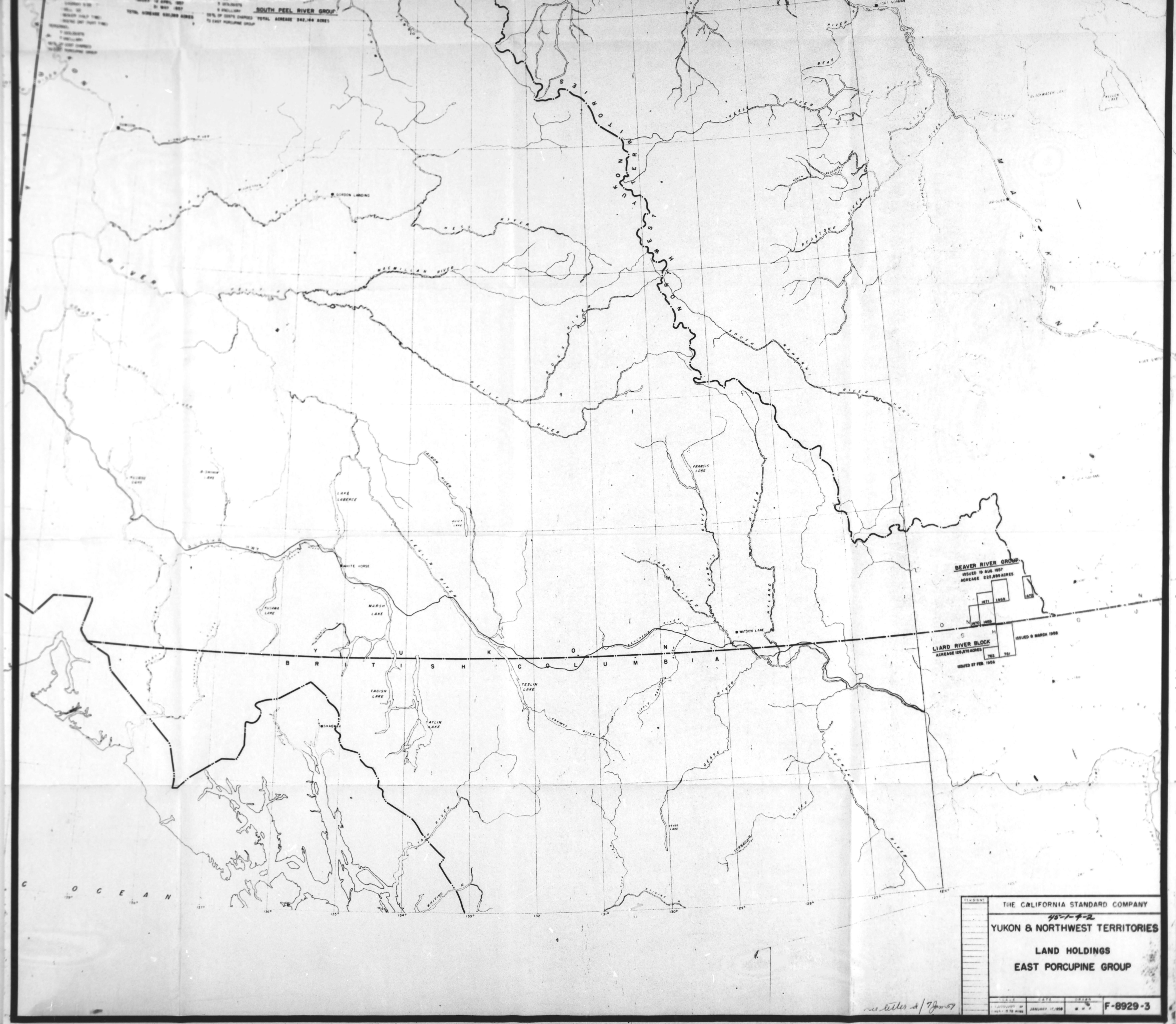


THE CALIFORNIA STANDARD COMPANY
45-1-2
YUKON & NORTHWEST TERRITORIES
LAND HOLDINGS
SOUTH PEEL RIVER GROUP

FILE	DATE	PLAN
100-1-1-1	JANUARY 11, 1956	W. H. K.

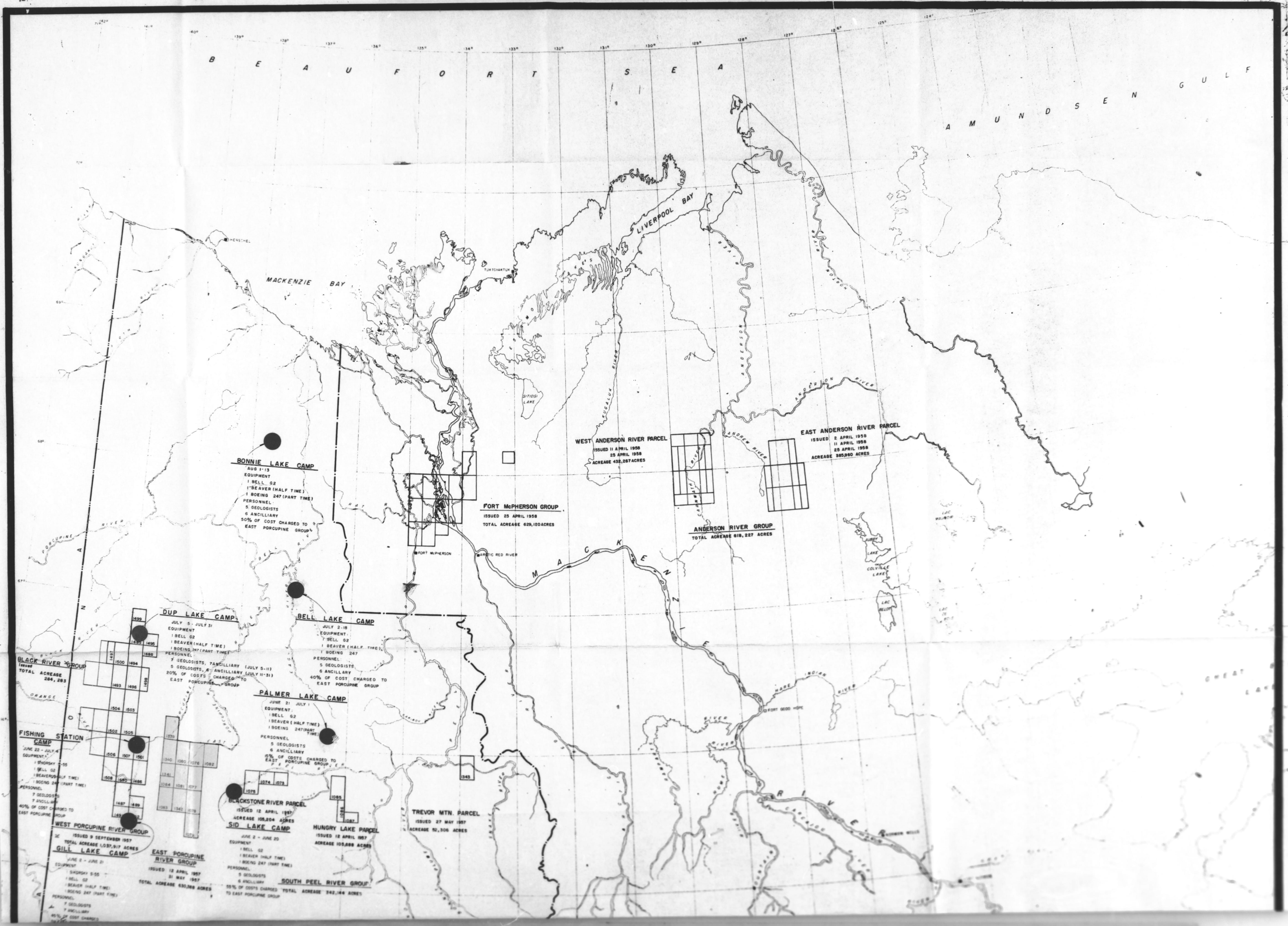
F-8929-2



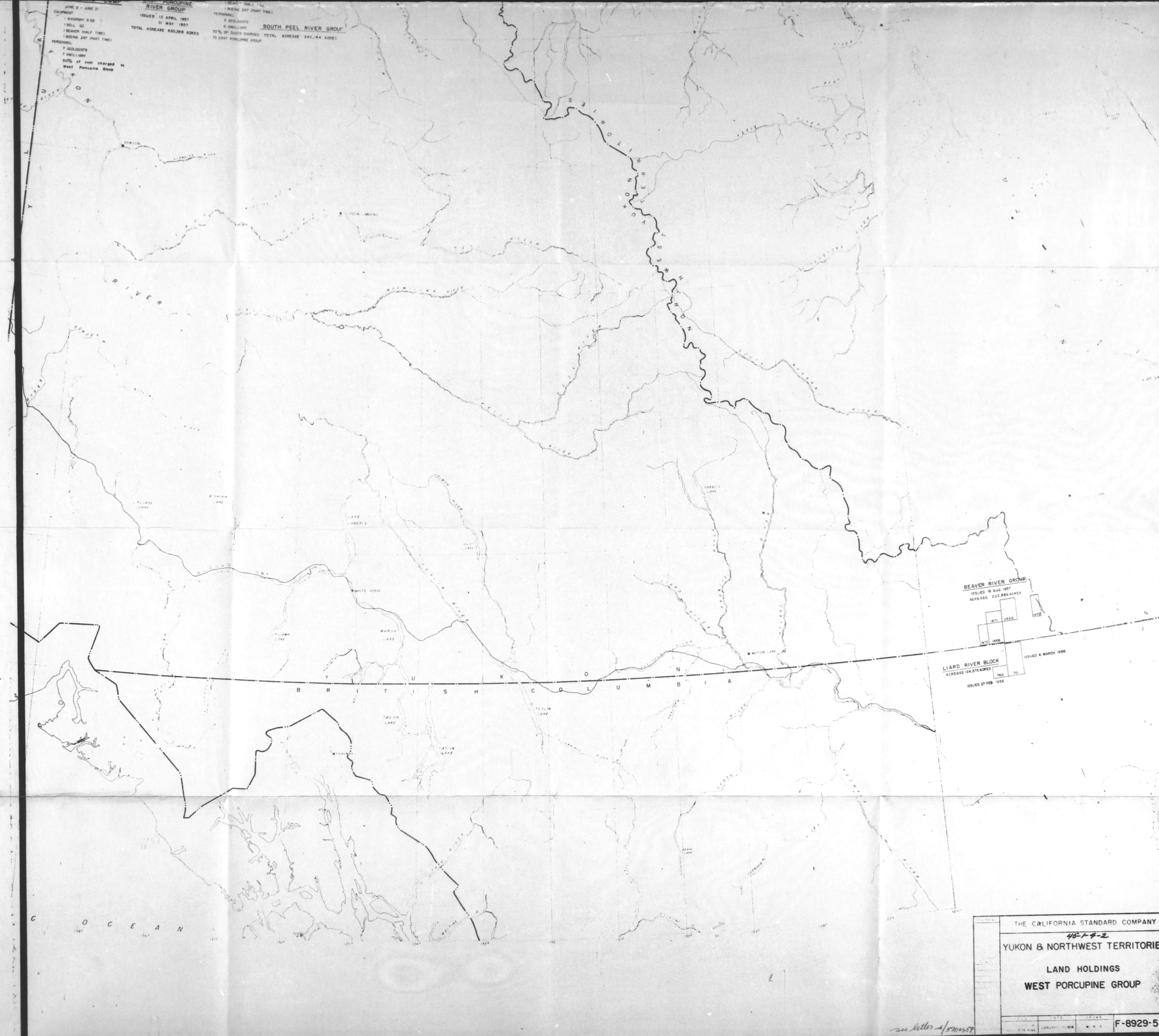


THE CALIFORNIA STANDARD COMPANY
YUKON & NORTHWEST TERRITORIES
LAND HOLDINGS
EAST PORCUPINE GROUP
F-8929-3

EV21 ЛОВУШНЫЕ СЛОП
ГЛАНД. НОДЫНЕС
АВРОМ. В. НОМНАСЛ. ЛЕВНОРИЕС
33-4-4-2
THE CANADIAN GEOPHYSICAL SERVICE



30x



WEST PORCUPINE RIVER GROUP
ISSUED 12 APRIL 1957
31 MAY 1957
TOTAL ACRES 630,288 ACRES
50% OF COST CHARGED TO
WEST PORCUPINE GROUP

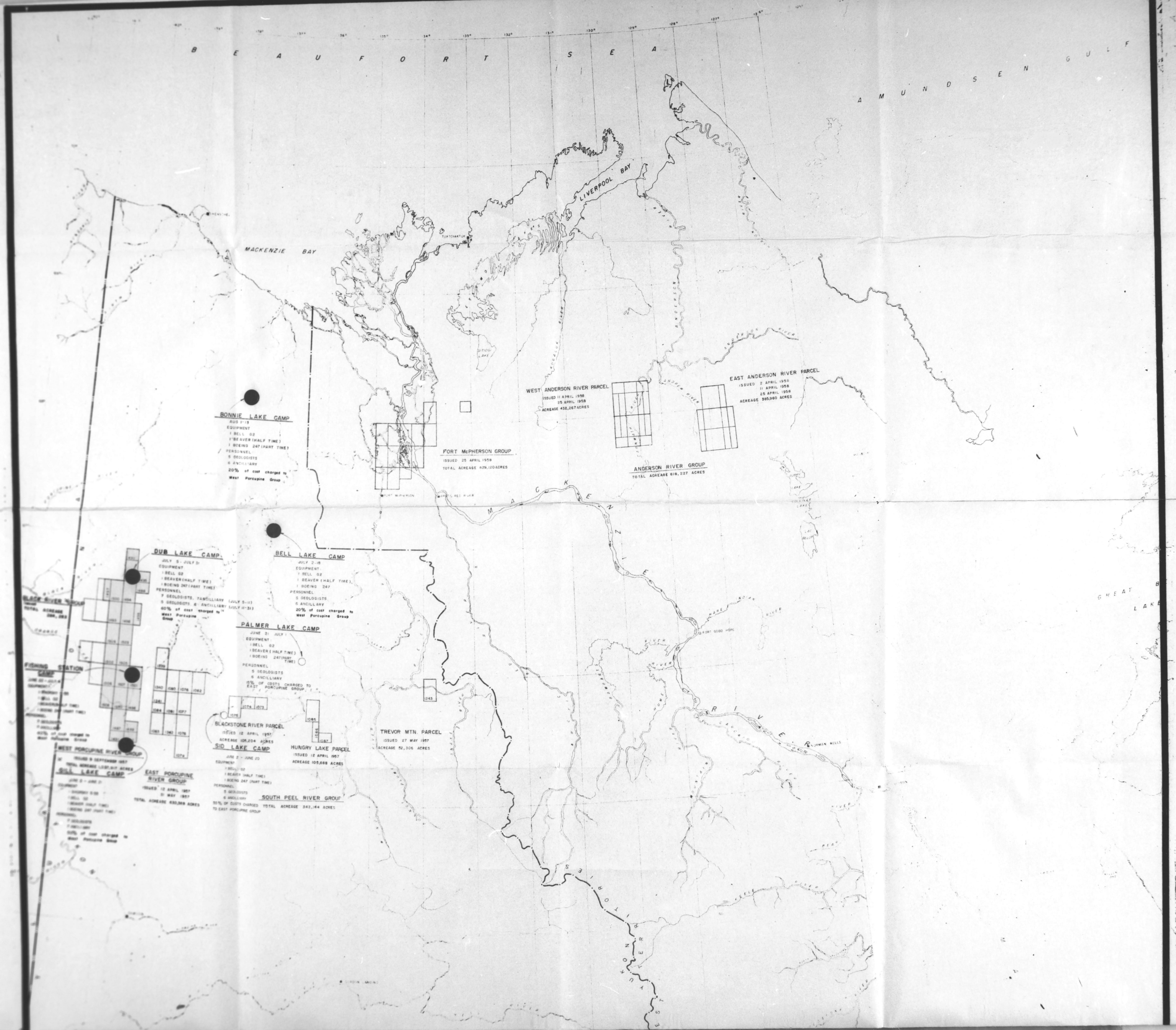
SOUTH PEEL RIVER GROUP
ISSUED 12 APRIL 1957
31 MAY 1957
TOTAL ACRES 342,144 ACRES
50% OF COST CHARGED TO
EAST PORCUPINE GROUP

BEAVER RIVER GROUP
ISSUED 19 AUG 1957
ACRES 225,880 ACRES

LIARD RIVER BLOCK
ACRES 128,275 ACRES
ISSUED 27 FEB 1956

THE CALIFORNIA STANDARD COMPANY
45-1-4-2
YUKON & NORTHWEST TERRITORIES
LAND HOLDINGS
WEST PORCUPINE GROUP

DATE	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100	2101	2102	2103	2104	2105	2106	2107	2108	2109	2110	2111	2112	2113	2114	2115	2116	2117	2118	2119	2120	2121	2122	2123	2124	2125	2126	2127	2128	2129	2130	2131	2132	2133	2134	2135	2136	2137	2138	2139	2140	2141	2142	2143	2144	2145	2146	2147	2148	2149	2150	2151	2152	2153	2154	2155	2156	2157	2158	2159	2160	2161	2162	2163	2164	2165	2166	2167	2168	2169	2170	2171	2172	2173	2174	2175	2176	2177	2178	2179	2180	2181	2182	2183	2184	2185	2186	2187	2188	2189	2190	2191	2192	2193	2194	2195	2196	2197	2198	2199	2200	2201	2202	2203	2204	2205	2206	2207	2208	2209	2210	2211	2212	2213	2214	2215	2216	2217	2218	2219	2220	2221	2222	2223	2224	2225	2226	2227	2228	2229	2230	2231	2232	2233	2234	2235	2236	2237	2238	2239	2240	2241	2242	2243	2244	2245	2246	2247	2248	2249	2250	2251	2252	2253	2254	2255	2256	2257	2258	2259	2260	2261	2262	2263	2264	2265	2266	2267	2268	2269	2270	2271	2272	2273	2274	2275	2276	2277	2278	2279	2280	2281	2282	2283	2284	2285	2286	2287	2288	2289	2290	2291	2292	2293	2294	2295	2296	2297	2298	2299	2300	2301	2302	2303	2304	2305	2306	2307	2308	2309	2310	2311	2312	2313	2314	2315	2316	2317	2318	2319	2320	2321	2322	2323	2324	2325	2326	2327	2328	2329	2330	2331	2332	2333	2334	2335	2336	2337	2338	2339	2340	2341	2342	2343	2344	2345	2346	2347	2348	2349	2350	2351	2352	2353	2354	2355	2356	2357	2358	2359	2360	2361	2362	2363	2364	2365	2366	2367	2368	2369	2370	2371	2372	2373	2374	2375	2376	2377	2378	2379	2380	2381	2382	2383	2384	2385	2386	2387	2388	2389	2390	2391	2392	2393	2394	2395	2396	2397	2398	2399	2400	2401	2402	2403	2404	2405	2406	2407	2408	2409	2410	2411	2412	2413	2414	2415	2416	2417	2418	2419	2420	2421	2422	2423	2424	2425	2426	2427	2428	2429	2430	2431	2432	2433	2434	2435	2436	2437	2438	2439	2440	2441	2442	2443	2444	2445	2446	2447	2448	2449	2450	2451	2452	2453	2454	2455	2456	2457	2458	2459	2460	2461	2462	2463	2464	2465	2466	2467	2468	2469	2470	2471	2472	2473	2474	2475	2476	2477	2478	2479	2480	2481	2482	2483	2484	2485	2486	2487	2488	2489	2490	2491	2492	2493	2494	2495	2496	2497	2498	2499	2500	2501	2502	2503	2504	2505	2506	2507	2508	2509	2510	2511	2512	2513	2514	2515	2516	2517	2518	2519	2520	2521	2522	2523	2524	2525	2526	2527	2528	2529	2530	2531	2532	2533	2534	2535	2536	2537	2538	2539	2540	2541	2542	2543	2544	2545	2546	2547	2548	2549	2550	2551	2552	2553	2554	2555	2556	2557	2558	2559	2560	2561	2562	2563	2564	2565	2566	2567	2568	2569	2570	2571	2572	2573	2574	2575	2576	2577	2578	2579	2580	2581	2582	2583	2584	2585	2586	2587	2588	2589	2590	2591	2592	2593	2594	2595	2596	2597	2598	2599	2600	2601	2602	2603	2604	2605	2606	2607	2608	2609	2610	2611	2612	2613	2614	2615	2616	2617	2618	2619	2620	2621	2622	2623	2624	2625	2626	2627	2628	2629	2630	2631	2632	2633	2634	2635	2636	2637	2638	2639	2640	2641	2642	2643	2644	2645	2646	2647	2648	2649	2650	2651	2652	2653	2654	2655	2656	2657	2658	2659	2660	2661	2662	2663	2664	2665	2666	2667	2668	2669	2670	2671	2672	2673	2674	2675	2676	2677	2678	2679	2680	2681	2682	2683	2684	2685	2686	2687	2688	2689	2690	2691	2692	2693	2694	2695	2696	2697	2698	2699	2700	2701	2702	2703	2704	2705	2706	2707	2708	2709	2710	2711	2712	2713	2714	2715	2716	2717	2718	2719	2720	2721	2722	2723	2724	2725	2726	2727	2728	2729	2730	2731	2732	2733	2734	2735	2736	2737	2738	2739	2740	2741	2742	2743	2744	2745	2746	2747	2748	2749	2750	2751	2752	2753	2754	2755	2756	2757	2758	2759	2760	2761	2762	2763	2764	2765	2766	2767	2768	2769	2770	2771	2772	2773	2774	2775	2776	2777	2778	2779	2780	2781	2782	2783	2784	2785	2786	2787	2788	2789	2790	2791	2792	2793	2794	2795	2796	2797	2798	2799	2800	2801	2802	2803	2804	2805	2806	2807	2808	2809	2810	2811	2812	2813	2814	2815	2816	2817	2818	2819	2820	2821	2822	2823	2824	2825	2826	2827	2828	2829	2830	2831	2832	2833	2834	2835	2836	2837	2838	2839	2840	2841	2842	2843	2844	2845	2846	2847	2848	2849	2850	2851	2852	2853	2854	2855	2856	2857	2858	2859	2860	2861	2862	2863	2864	2865	2866	2867	2868	2869	2870	2871	2872	2873	2874	2875	2876	2877	2878	2879	2880	2881	2882	2883	2884	2885	2886	2887	2888	2889	2890	2891	2892	2893	2894	2895	2896	2897	2898	2899	2900	2901	2902	2903	2904	2905	2906	2907	2908	2909	2910	2911	2912	2913	2914	2915	2916	2917	2918	2919	2920	2921	2922	2923	2924	2925	2926	2927	2928	2929	2930	2931	2932	2933	2934	2935	2936	2937	2938	2939	2940	2941	2942	2943	2944	2945	2946	2947	2948	2949	2950	2951	2952	2953	2954	2955	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BONNIE LAKE CAMP

AUG 11-13
EQUIPMENT
1 BELL 52
1 BEAVER (HALF TIME)
1 BOEING 247 (PART TIME)
PERSONNEL
5 GEOLOGISTS
6 AUXILIARY
20% of cost charged to
West Porcupine Group

FORT McPHERSON GROUP

ISSUED 25 APRIL 1958
TOTAL ACREAGE 429,120 ACRES

WEST ANDERSON RIVER PARCEL

ISSUED 11 APRIL 1958
25 APRIL 1958
ACREAGE 432,267 ACRES

EAST ANDERSON RIVER PARCEL

ISSUED 2 APRIL 1958
11 APRIL 1958
25 APRIL 1958
ACREAGE 300,390 ACRES

ANDERSON RIVER GROUP

TOTAL ACREAGE 916,227 ACRES

DUB LAKE CAMP

JULY 8 - JULY 31
EQUIPMENT
1 BELL 52
1 BEAVER (HALF TIME)
1 BOEING 247 (PART TIME)
PERSONNEL
7 GEOLOGISTS, FAMILIARY (JULY 8-11)
5 GEOLOGISTS, 6 AUXILIARY (JULY 11-31)
60% of cost charged to
West Porcupine Group

BELL LAKE CAMP

JULY 2-18
EQUIPMENT
1 BELL 52
1 BEAVER (HALF TIME)
1 BOEING 247
PERSONNEL
5 GEOLOGISTS
6 AUXILIARY
20% of cost charged to
West Porcupine Group

PALMER LAKE CAMP

JUNE 21 - JULY 1
EQUIPMENT
1 BELL 52
1 BEAVER (HALF TIME)
1 BOEING 247 (PART TIME)
PERSONNEL
5 GEOLOGISTS
6 AUXILIARY
50% of costs charged to
East Porcupine Group

BLACKSTONE RIVER PARCEL

ISSUED 12 APRIL 1957
ACREAGE 106,204 ACRES

SID LAKE CAMP

JUNE 2 - JUNE 20
EQUIPMENT
1 BELL 52
1 BEAVER (HALF TIME)
1 BOEING 247 (PART TIME)
PERSONNEL
5 GEOLOGISTS
6 AUXILIARY
50% of costs charged
to East Porcupine Group

HUNGRY LAKE PARCEL

ISSUED 12 APRIL 1957
ACREAGE 105,688 ACRES

TREVOR MTN PARCEL

ISSUED 27 MAY 1957
ACREAGE 52,306 ACRES

BLACK RIVER PARCEL

TOTAL ACREAGE 286,050

FISHING STATION

JUNE 22 - JULY 1
EQUIPMENT
1 BELL 52
1 BEAVER (HALF TIME)
1 BOEING 247 (PART TIME)
PERSONNEL
5 GEOLOGISTS
6 AUXILIARY
50% of cost charged to
West Porcupine Group

WEST PORCUPINE RIVER GROUP

ISSUED 9 SEPTEMBER 1957
TOTAL ACREAGE 1,087,817 ACRES

BELL LAKE CAMP

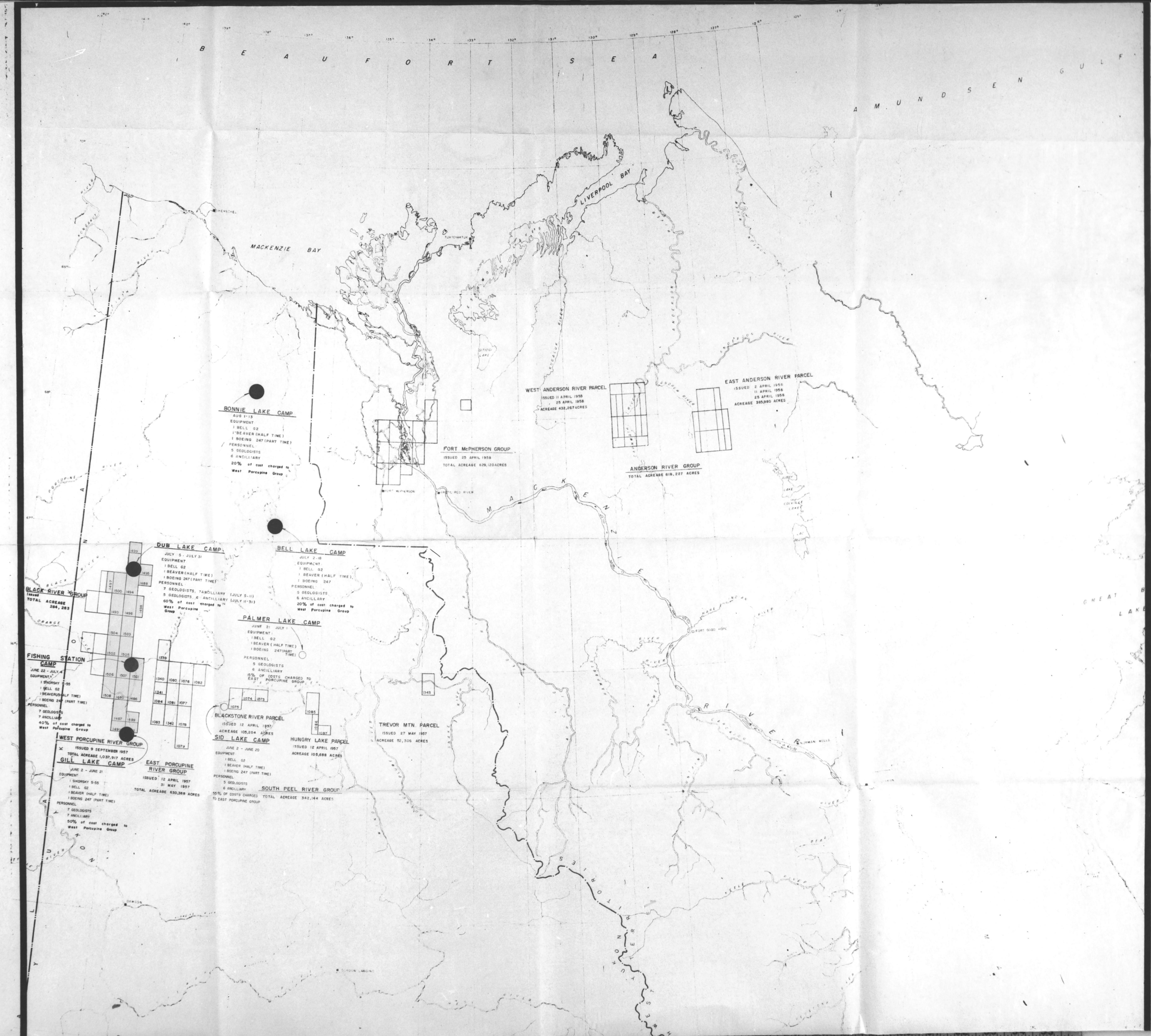
JUNE 2 - JUNE 21
EQUIPMENT
1 BELL 52
1 BEAVER (HALF TIME)
1 BOEING 247 (PART TIME)
PERSONNEL
5 GEOLOGISTS
6 AUXILIARY
50% of cost charged to
West Porcupine Group

EAST PORCUPINE RIVER GROUP

ISSUED 12 APRIL 1957
10 MAY 1957
TOTAL ACREAGE 430,398 ACRES

SOUTH PEEL RIVER GROUP

50% OF COSTS CHARGED
TOTAL ACREAGE 342,144 ACRES
TO EAST PORCUPINE GROUP



KEY TO LOCATION AND AREA

SCALE: 1 INCH = 27 MILES (approx.)

ALL LOCATIONS HERESHOWN ARE ONLY APPROXIMATE.



Prepared by the Surveys and Mapping Branch, Ottawa.

and Gas Permit Areas
and Northwest Territories
Location and Area

AND GAS PERMIT AREAS ND NORTHWEST TERRITORIES LOCATION AND AREA

REVISED TO
E : 1 INCH = 27 MILES (approx.)

IS PROVIDED MERELY AS A GUIDE AND
OWN ARE ONLY APPROXIMATE.

IMPERIAL OIL LEASES AND PROVEN AREA AGREEMENT

