FINAL REPORT

RAM Claim Group

104H/12W

R.J. Goldie - Nov. 1974

Texasgulf memo

Date	29 November 1974		
To	J.M. Newell	Location	Vancouver
From	G.R. Peatfield	Location	Vancouver
Subject	RE: RAM GROUP - 104H/12W		

Attached is a copy of Goldie's report on his work on the RAM Group of claims, south of Eddontenajon. Ray has done a nice job of mapping the ground, and I have no quarrel with his conclusion that the claim group,as presently held,is not likely to host an economic molybdenum deposit. He recommends that some further investigations should be undertaken on the felsite body to the northwest of the claims, and I concur.

My recommendations for work in this area would be as follows:

1. Expand our claim coverage slightly to the southwest to cover Mo. mineralization observed by Goldie.
2. File this year's work for assessment credit.
3. Expand the geochemical and geological coverage to the felsite body to the northwest of the claims.

G.R. Peatfield

GRP:ll

Attach.

REPORT ON GEOLOGICAL AND GEOCHEMICAL WORK

RAM CLAIM GROUP

LIARD MINING DIVISION

57° 38'N, 129° 59' W

Report by: R.J. GOLDIE

Under the supervision of J.M. Newell, P. Eng.

TEXASGULF INC.

Work done between Aug. 16 and 28, 1974

Sept. 1974

RAM Claim Group

Recommendation

The felsite intrusion to the northwest of the claim group warrants further examination as a molybdenum prospect. However, no indications were found of the presence of economic mineralization within the Group, and no further work is recommended.

<u>TABLE OF CONTENTS</u>

LIST OF FIGURES ACCOMPANYING THIS REPORT

SUMMARY

The RAM Claims are underlain by a conformable sequence of sediments and volcanics. Three or more mafic volcanic units and interbedded sediments have been intruded by a subvolcanic intrusive complex from which felsic volcanics were erupted. These volcanics are, in turn, overlain by more sediments.

Although small bodies of massive pyrite occupy a horizon within a mafic volcanic unit, the only sulphides observed within the felsic volcanics are minor pyrite and a few specks of molybdenite. No evidence was found of exhalative activity during emplacement of the felsic volcanics. However, zinc and copper anomalies in the black shales adjacent to volcanic rocks may be the result of leaching of minor quantities of zinc and copper sulphides from the volcanics, and their precipitation in subjacent and superjacent mud.

Anomalous concentrations of molybdenum in stream sediments and soils derived from the volcanic and sedimentary rocks may indicate that the subvolcanic intrusive complex is rich in that element.

INTRODUCTION

General

The interest of Texasgulf was attracted by the presence of stain zones in the valley of what is here termed "Turquoise Creek".[1] The RAM claims were staked on July 25, 1974.

Location

The centre of the group is located at approximately 57^{o} 38'N, 129^{o}, 59'W on Turquoise Creek, a tributary of Todagin Creek, east of Kinaskan Lake, B.C.

Access was by helicopter, and by foot from the Stewart-Cassiar highway.

Vegetation

The property is located on and above tree-line.

GEOLOGY

Lithology

Six lithologic units were recognized: SM, CB, B, AX, AT, and F.

SM: sandstones and mudstones.

CB: conglomerates and breccias with less than 50% felsic volcanic clasts.

B: amygdaloidal porphyritic mafic volcanics.

AX: breccias which contain more than 50% felsic volcanic clasts.

AT: massive and banded felsic tuffs.

F: aphanitic to very fine-grained intrusive felsite.

1. The names "Turquoise Creek", "Sandwich Creek" and "Camp Creek", as used in this report, are informal names with no official standing. See geological map (Fig.1) for locations.

These rock types are described in more detail in APPENDIX 1.

Post-Consolidation History

The sequence is right side up and dips moderately to the south. No tectonic structures were observed in the conglomerates or felsic volcanics. However, mudstones underlying the ridge north of Turquoise Creek are strongly folded (on the scale of tens of m.) indicating anticlockwise rotation (as seen from the east end) due to shearing, whereas the only tectonic structures visible in the mafic volcanics with which they are interbedded are tension fractures (on the scale of m.) perpendicular to bedding.

Veins of quartz and carbonate are common in the sediments.

Stain Zones and Sulphides

The stain zones that initially attracted interest in this area occur on the north side of "Camp Creek" about 500 feet upstream from its intersection with Turquoise Creek, and on the south side of Turquoise Creek about 1,000 feet to 7,000 feet above the same intersection. A more weakly stained area is exposed on the north side of Turquoise Creek about 3,000 feet upstream from the stream intersection. The stain zones are the result of weathering of disseminations and small veins of iron oxides. Although all stained rocks are felsic volcanics, some exposures of felsic breccia (AX) are unstained.

Pyrite is rare in the felsic volcanics, but is locally abundant (up to 25%) in the fine fraction of sediments which are not, however, stained.

In the lower, ellipsoidally weathered mafic volcanic unit of "Sandwich Creek", a horizon parallel to bedding but apparently uncorrelated with any stratigraphic change is marked by veins and lenses (up to a few dm. across) of massive pyrite occupying spaces between ellipsoids. Again, no gossan is present.

Sediments within a few metres of the intrusive felsite are pyrite-veined but unstained. Although the felsite itself is iron-stained within a few tens of metres of the contact (presumably because of disseminated iron oxides) it does not contain pyrite.

A few specks of molybdenite occur in the Camp Creek stain zone.

Geological Interpretation

No unconformities are apparent in the bedded sequence.

Felsite dikes, which criss-cross the north-western portion of the area, but were not mapped because of poor exposure, are considered to be volcanic feeders from the felsite intrusion. The felsic breccia, AX, presumably represents the proximal facies of this vent complex and was probably emplaced by avalanching. The felsic tuff, AT, seems to represent a more distal facies, probably of another vent.

The conformable massive pyrite lenses in the lower mafic volcanic unit of Sandwich Creek are considered to be the result of synvolcanic hydrothermal activity. No evidence of exhalative activity associated with emplacement of the felsic volcanics was observed.

The amydaloidal, pillowed character of the mafic volcanics indicates extrusion under less than 500 m. of water (Jones, 1969).

not [illegible] HDM

– not [illegible] caused by sulphur release & other gases

– see recent papers by Moore et al. 1973, 1974 Contr. to Petrology.

GEOCHEMISTRY

Sampling Technique

~~Silt~~ Soil samples were taken from the B horizon, which was usually at a depth of 20-50 cm. Stream sediment samples were taken from deposits of the last flood. Both types of material were collected in numbered paper envelopes.

Atomic absorption analysis was carried out by Bondar-Clegg Ltd., North Vancouver. The -80 mesh fraction was used, with extraction by hot aqua regia.

Copper

The histogram of copper concentration in soils versus frequency (Fig. 12) has three peaks, at about 25 ppm. between 40 and 60 ppm., and over 60 ppm. The first peak appears to represent a population of soils overlying rocks of units AT, AX, B and some of SM. The second peak corresponds to soils overlying areas where black shales (SM) and volcanic rocks (B and AT) are in contact. The third peak may represent groundwater enrichment (the samples are from near the base of a cliff) superimposed on the second peak.

Most stream sediments have 30-40 ppm. copper (Fig. 13); samples from streams which traverse AT/SM contacts have slightly higher values.

The interpretation adopted here is that black shales (SM) in the vicinity of felsic and mafic volcanics are slightly enriched in copper with respect to the volcanics and to other rocks of the unit SM.

Zinc

The histograms of both soil and stream sediment concentrations versus frequency (Figs. 12 and 13) are bimodal. Most stream sediment samples appear to represent a population with a mean of about 110 ppm.; a single sample with 284 ppm. was classed as anomalous (Fig 6). Soil samples seem to represent a population with a mean of about 85 ppm.; samples with over 200 ppm. were classified as anomalous (Fig. 10).

All anomalous samples correlate spatially with black shale above and below AT in the southeastern corner of the map area. However, there are no anomalous zinc values which correspond to the high copper concentrations in the stream sediments of Camp Creek, or in the soils overlying the B/SM contact zone east of Sandwich Creek.

Molybdenum

Both stream sediment and soil samples appear to represent lognormal populations of molybdenum concentrations (Fig. 12 and 13), with "tails" of anomalous values.

Discussion

The copper anomalies may reflect derivation of some of the shales from a relatively copper-rich source. An exogenous origin for the zinc anomalies as well is, however, unlikely: zinc anomalies are localized whereas shales of unit SM are continuous across the mapped area.

An alternative explanation of the observed copper and zinc patterns around the felsic volcanics is that copper and zinc-bearing sulphides in the volcanics were leached. Secondary dispersion, possibly by a mechanism similar to that described by Govett and Whitehead (Ec. Geol 69, 551; 1974) resulted in the precipitation of zinc and copper in the subjacent mud, and of Cu, alone, in the superjacent mud. The absence of zinc anomalies in Camp and Sandwich Creeks may reflect the initial distribution of zinc sulphides in the volcanics.

Although a few interesting molybdenum values were recorded, the geology of the claim group is unfavourable for the presence of economic concentrations of molybdenum. However,the felsite intrusion which is presumed to be the source of the volcanics is an attractive exploration target.

APPENDIX 1: DETAILED DESCRIPTIONS OF ROCK TYPES

SM: SANDSTONES AND MUDSTONES

These rocks are bedded on the scale of mm. to m. The mudstones are usually carbonaceous and are fossiliferous; the sandstones are light to dark grey, and green-grey. Most of the recognizable fragments are felsic, less commonly mafic volcanics; and sometimes quartz. Conglomeratic and breccia layers, in large part intra-formational, are up to a few m. thick, and are common.

CB: CONGLOMERATES AND BRECCIAS

The rocks of this unit contain 30 - 90% fragments larger than 2mm; less than 50% of all recognizable fragments are felsic volcanics. The clasts are angular to subangular, rarely rounded, and are usually pebbles or smaller; rarely boulders. Black mudstone and grey to green-grey or brown sandstones constitute the bulk of recognizable clasts; felsic, intermediate and mafic volcanics are also common. The matrices are sandstones and white to dark grey mudstones.

These rocks are interbedded with, and grade into, felsic volcanic breccia (AX).

B: MAFIC, FELSPAR PORPHYRITIC, AMYGDALOIDAL VOLCANICS

This unit includes massive flows, ellipsoidally jointed flows, flow breccias and minor pillow lavas. These lithologies intergrade.

Lenses of banded felsic to mafic tuff, and of black mudstone, are rarely interbedded with the flows.

A: FELSIC VOLCANICS

All rocks containing 50% or more fragments recognizable as felsite are included in this unit. No felsite flows were identified. Two subunits were recognized: breccia (AX: 50% - 100% of the rock is composed of fragments larger than 2 mm.) and tuff (AT: less than 30% of the rock is composed of fragments larger than 2 mm.).

AX, felsic volcanic breccias, are composed of angular to subrounded fragments (usually of the order of cm., rarely dm. in diameter) of white to blue-green massive and banded felsite. This felsite is non-pumiceous, usually aphanitic, but rarely contains feldspar or quartz phenocrysts. A few fragments of mafic volcanics and of sediments may be present. The matrix is usually composed of mud to sand-sized felsite fragements.

Coarse, crude bedding (on the scale of m.) and minor interbedded sediments are common.

AT, felsic tuffs, are white to grey aphanitic to conglomeratic sandy rocks. Apparently massive tuffs, banded tuffs and minor black mudstone lenses are interbedded. Banding is defined by changes in grain size, and colour, is on the scale of mm. - cm., and is locally contorted.

APPENDIX 2: WORK DONE

Aug. 16, 1974:	Camp set up:	2 man days
Aug. 17-24:	Field work:	14 man days
Aug. 28:	Field work	1/2 man day

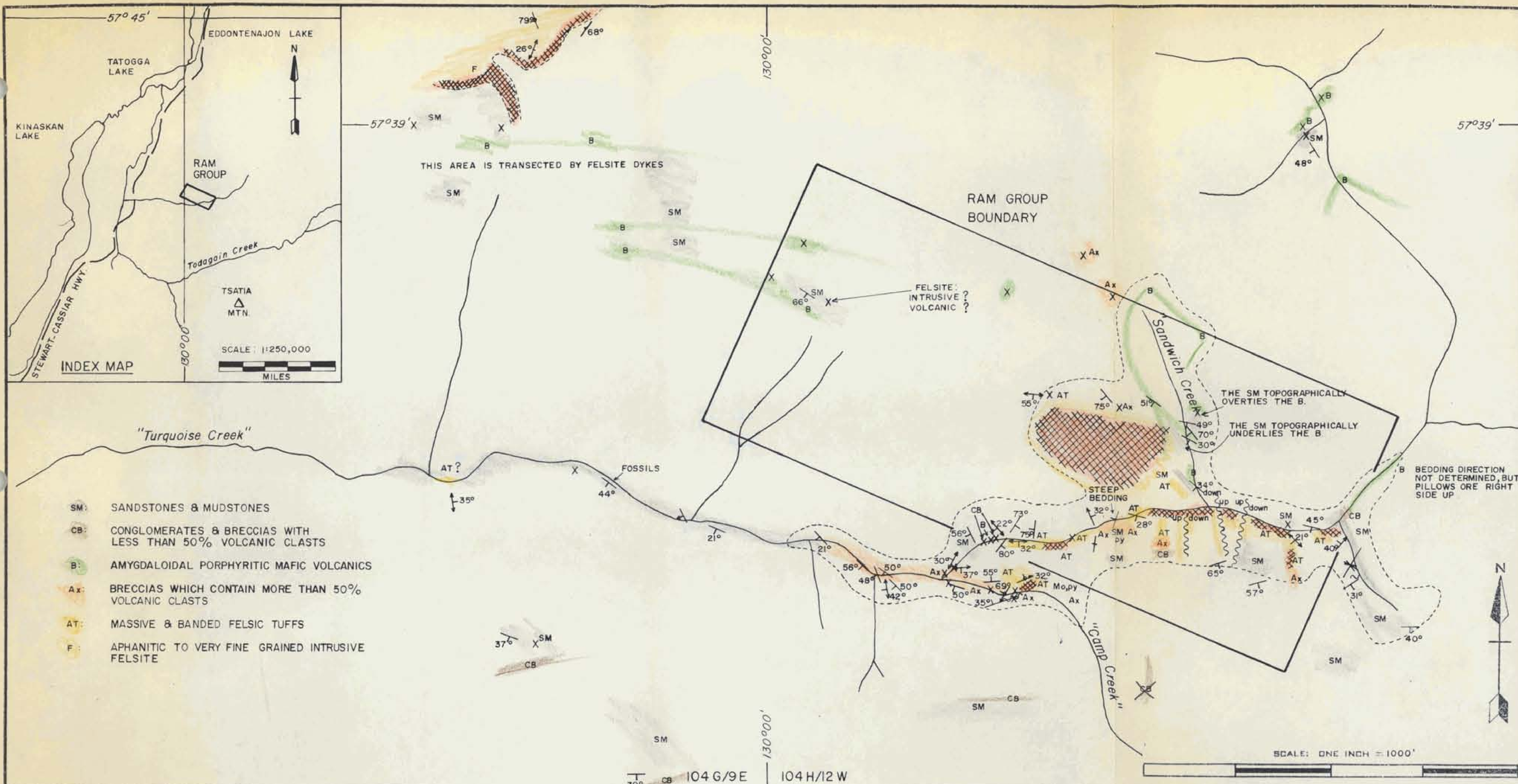
R.J. GOLDIE

B.Sc. Victoria University, Wellington, New Zealand (1969)

M.Sc. McGill University, Montreal, P.Q. (1972)

Under the supervision of

J.M. NEWELL, P. ENG.



LEGEND

GEOLOGICAL SYMBOLS:

- GEOLOGICAL CONTACT
- BEDDING: INCLINED, VERTICAL
- BEDDING, PARALLEL TO FRACTURE CLEAVAGE: INCLINED, VERTICAL
- INTRUSIVE CONTACT: INCLINED
- ORANGE-STAINED ZONE
- Mo, py — MOLYBDENITE, PYRITE
- FAULT: OBSERVED "IN SITU", OBSERVED FROM THE FAR SIDE OF THE VALLEY

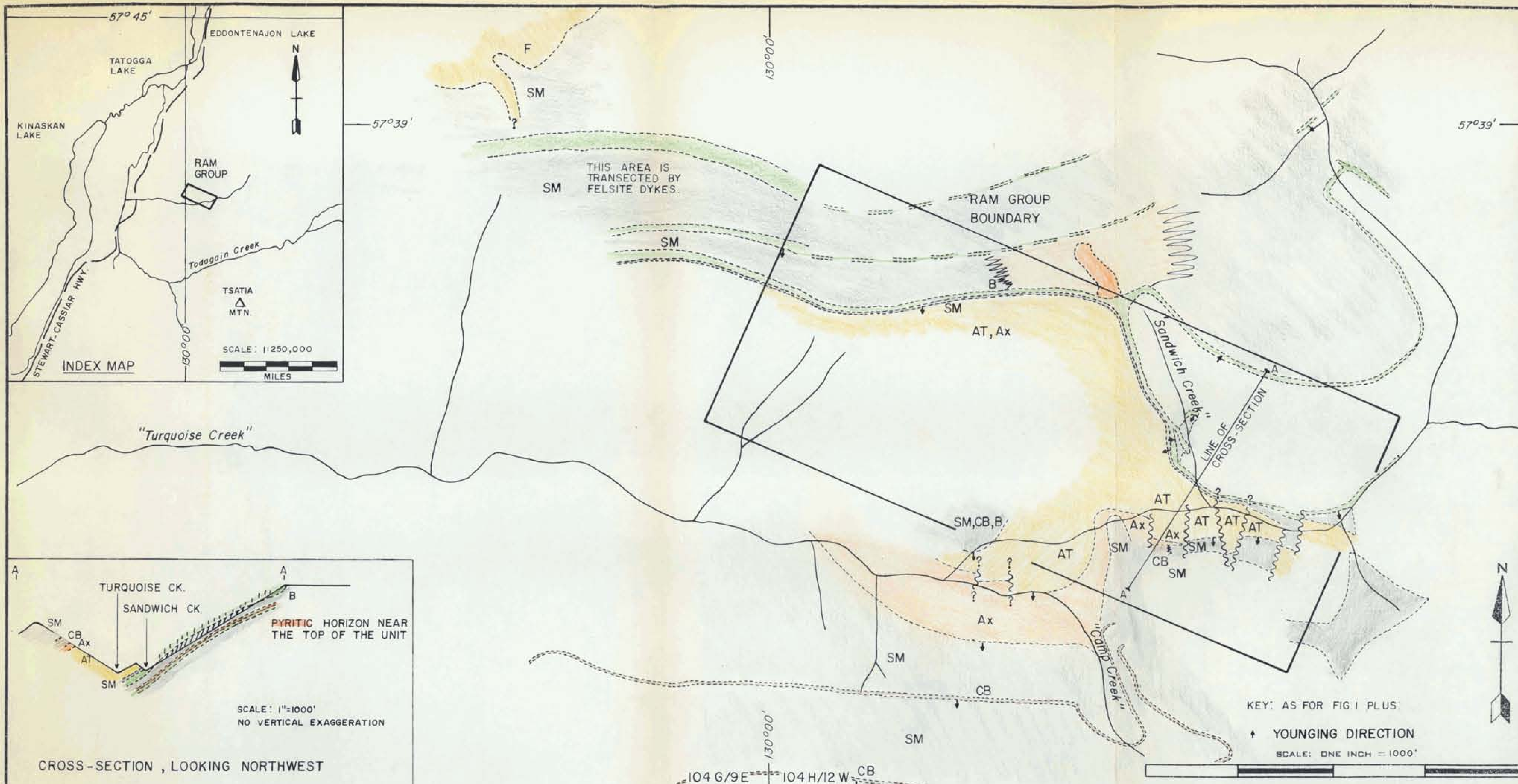
TOPOGRAPHIC BASE: ENLARGEMENT OF 1:50,000 TOPOGRAPHIC MAPS 104 G9 AND 104 H12

TEXAS GULF, INC.

FIG. I

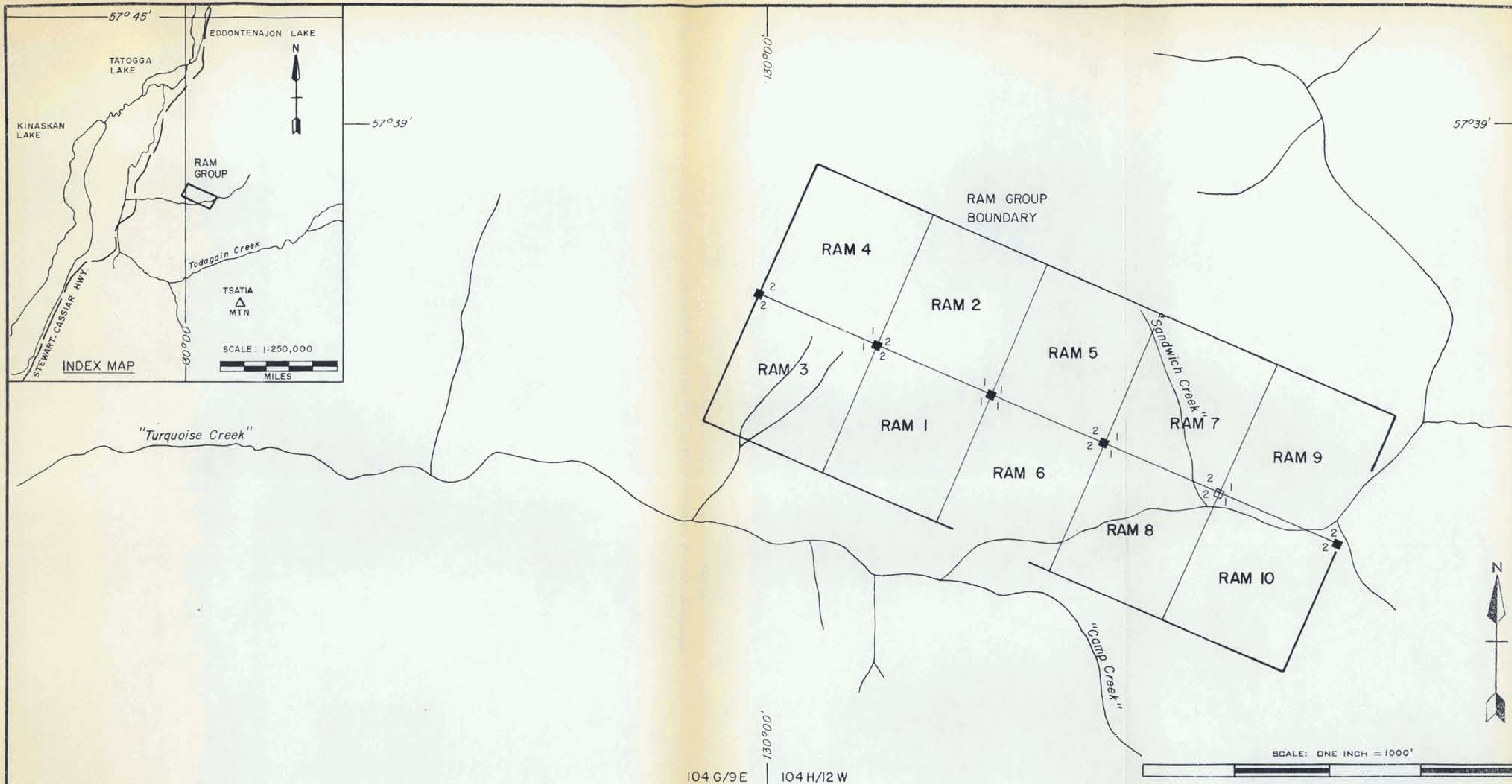
RAM CLAIMS - ISKUT V., B.C.
OBSERVED GEOLOGY

WORK BY	DRAWN BY	DATE
R.G., W.G.	K.M.G.	NOVEMBER, 1974



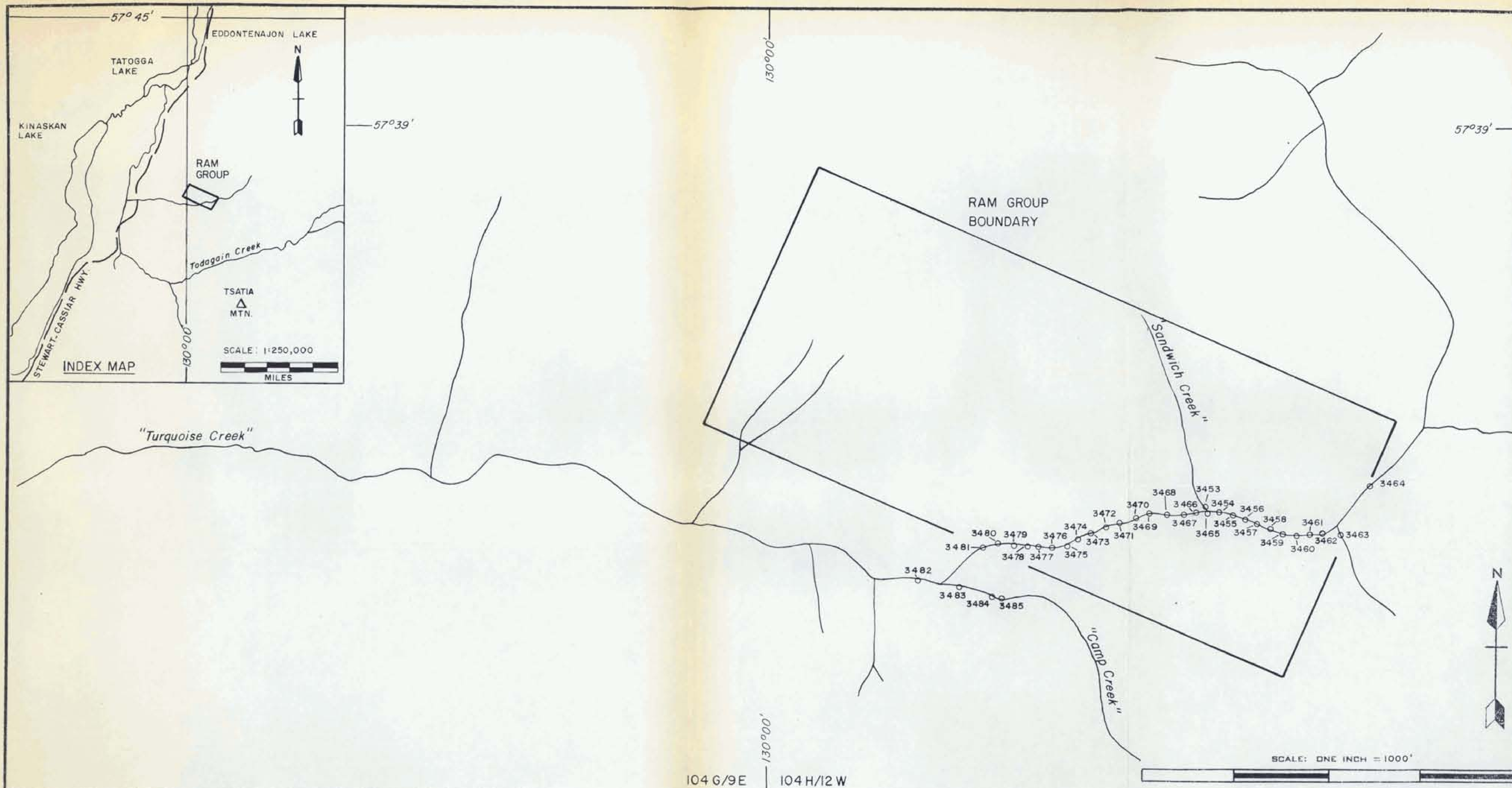
LEGEND

TEXAS GULF, INC.		
FIG. 2		
RAM CLAIMS - ISKUT V., B.C.		
INTERPRETED GEOLOGY		
WORK BY	DRAWN BY	DATE
R.G., W.G.	K.M.G.	NOVEMBER, 1974



LEGEND

TEXAS GULF, INC.		
FIG. 3 RAM CLAIMS - CLAIM MAP		
WORK BY	DRAWN BY	DATE
R.G., W.G	K.M.G	NOVEMBER, 1974



LEGEND

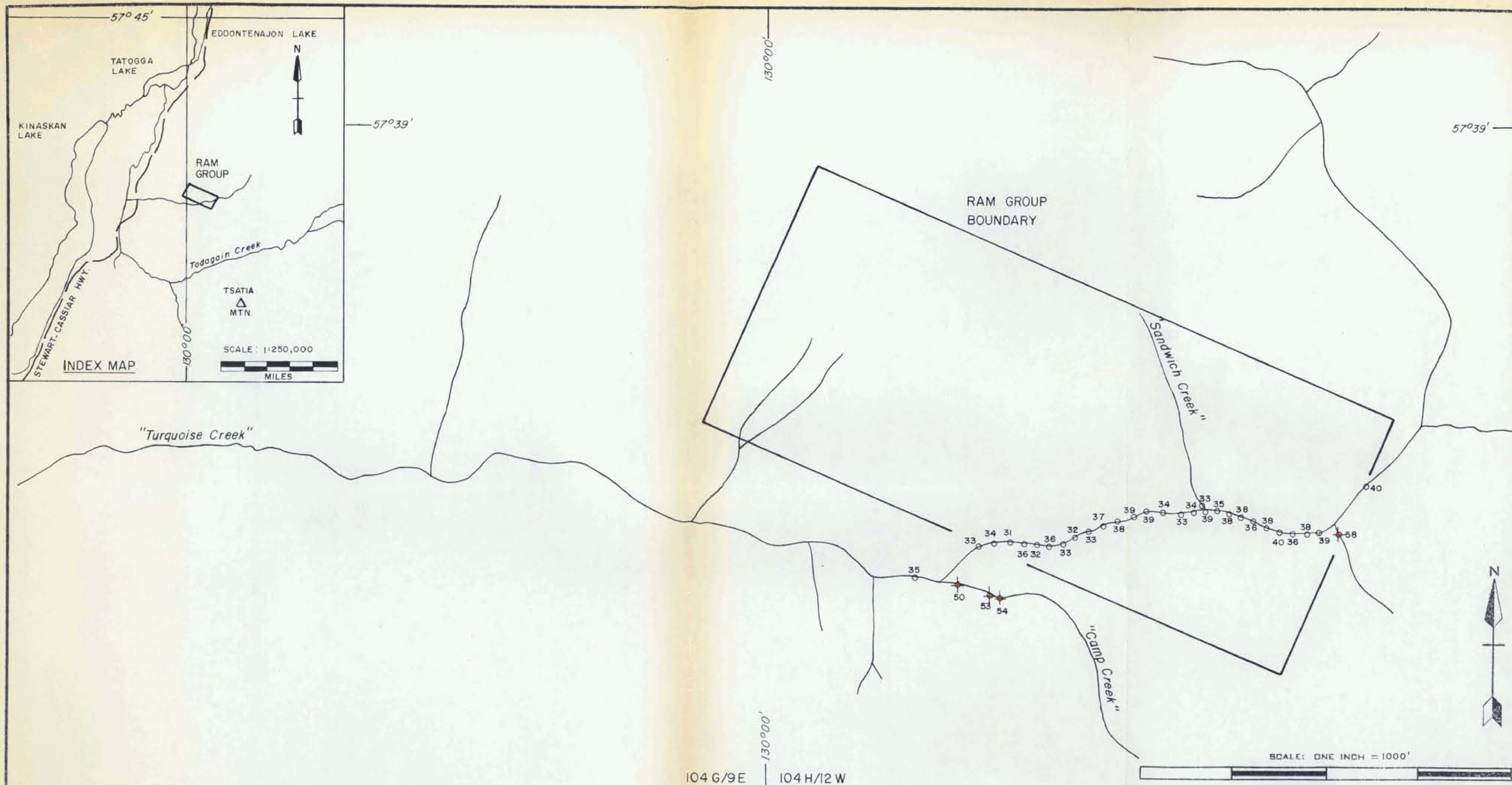
TEXAS GULF, INC.

FIG. 4

RAM CLAIMS - STREAM SEDIMENT GEOCHEMISTRY

SAMPLE LOCATIONS

WORK BY	DRAWN BY	DATE
R.G , W.G	K.M.G.	NOVEMBER, 1974



LEGEND

+ ANOMALOUS

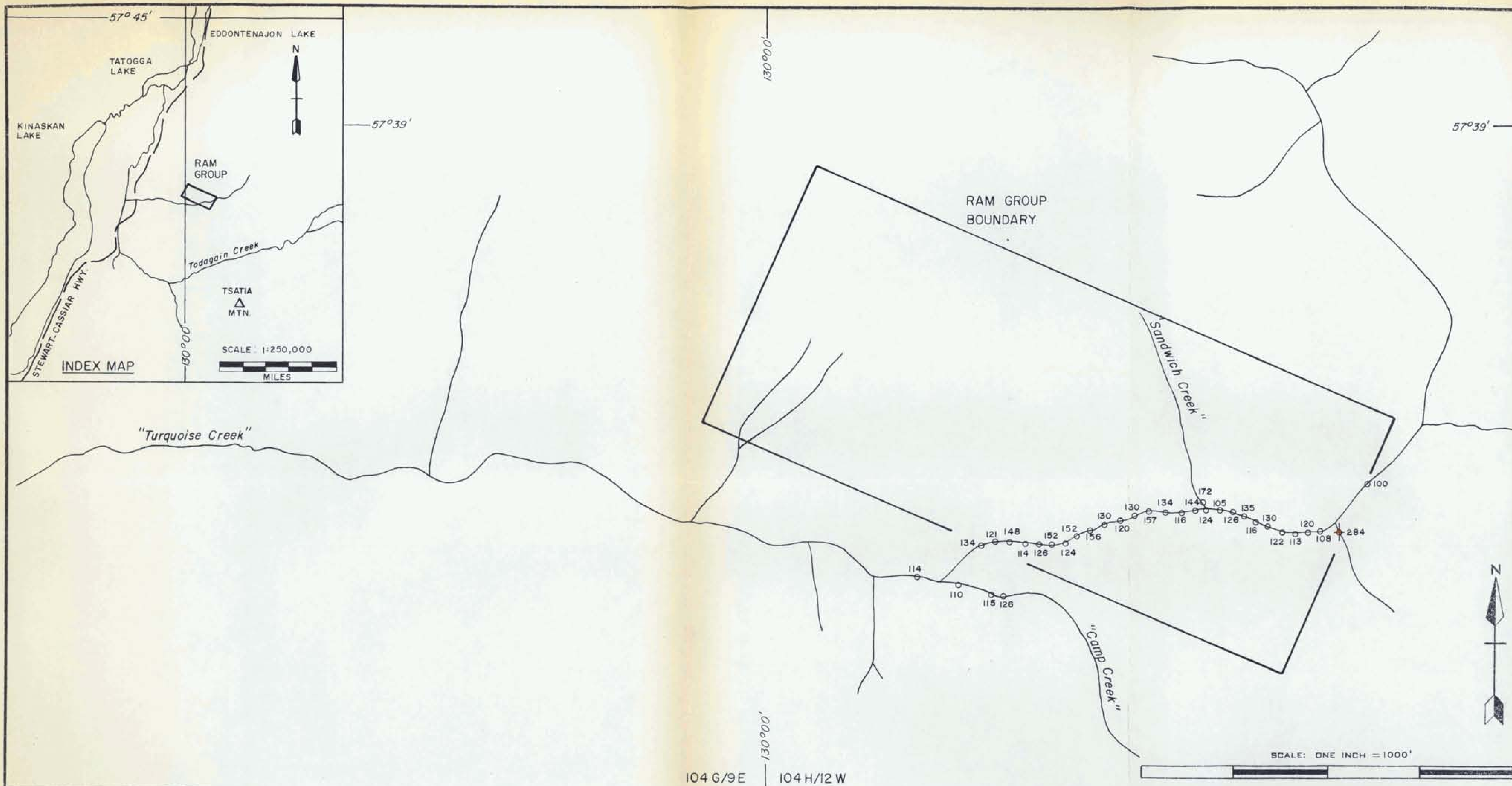
TEXAS GULF, INC.

FIG. 5

RAM CLAIMS - STREAM SEDIMENT GEOCHEMISTRY

Cu CONCENTRATIONS (ppm)

WORK BY	DRAWN BY	DATE
R.G. , W.G	K.M.G.	NOVEMBER, 1974



LEGEND

✦ ANOMALOUS

TEXAS GULF, INC.

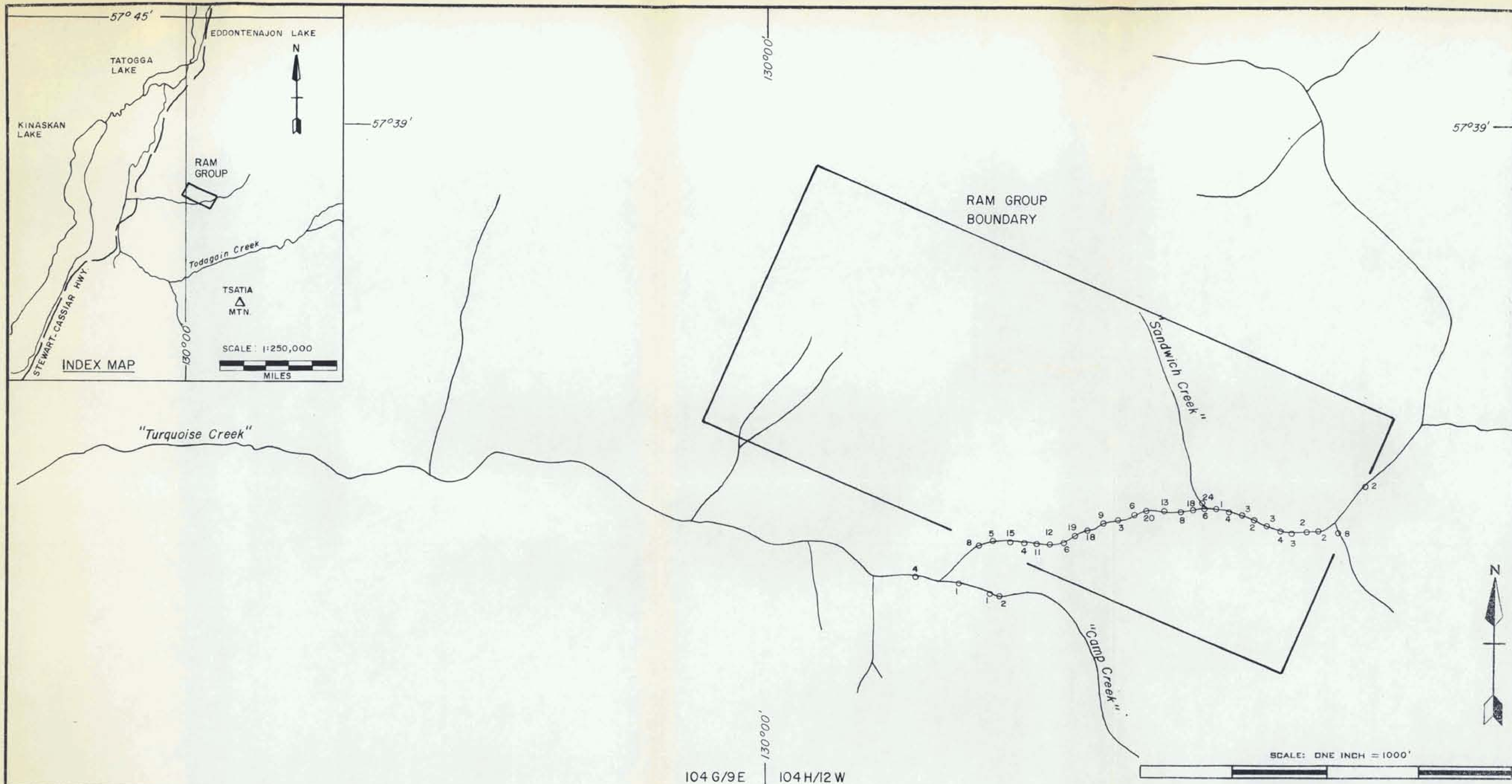
FIG. 6

RAM CLAIMS - STREAM SEDIMENTS GEOCHEMISTRY

ZINC CONCENTRATIONS (ppm)

WORK BY	DRAWN BY	DATE
R.G., W.G.	K.M.G.	NOVEMBER, 1974

BC/L - 3803 B - T.G.T.



LEGEND

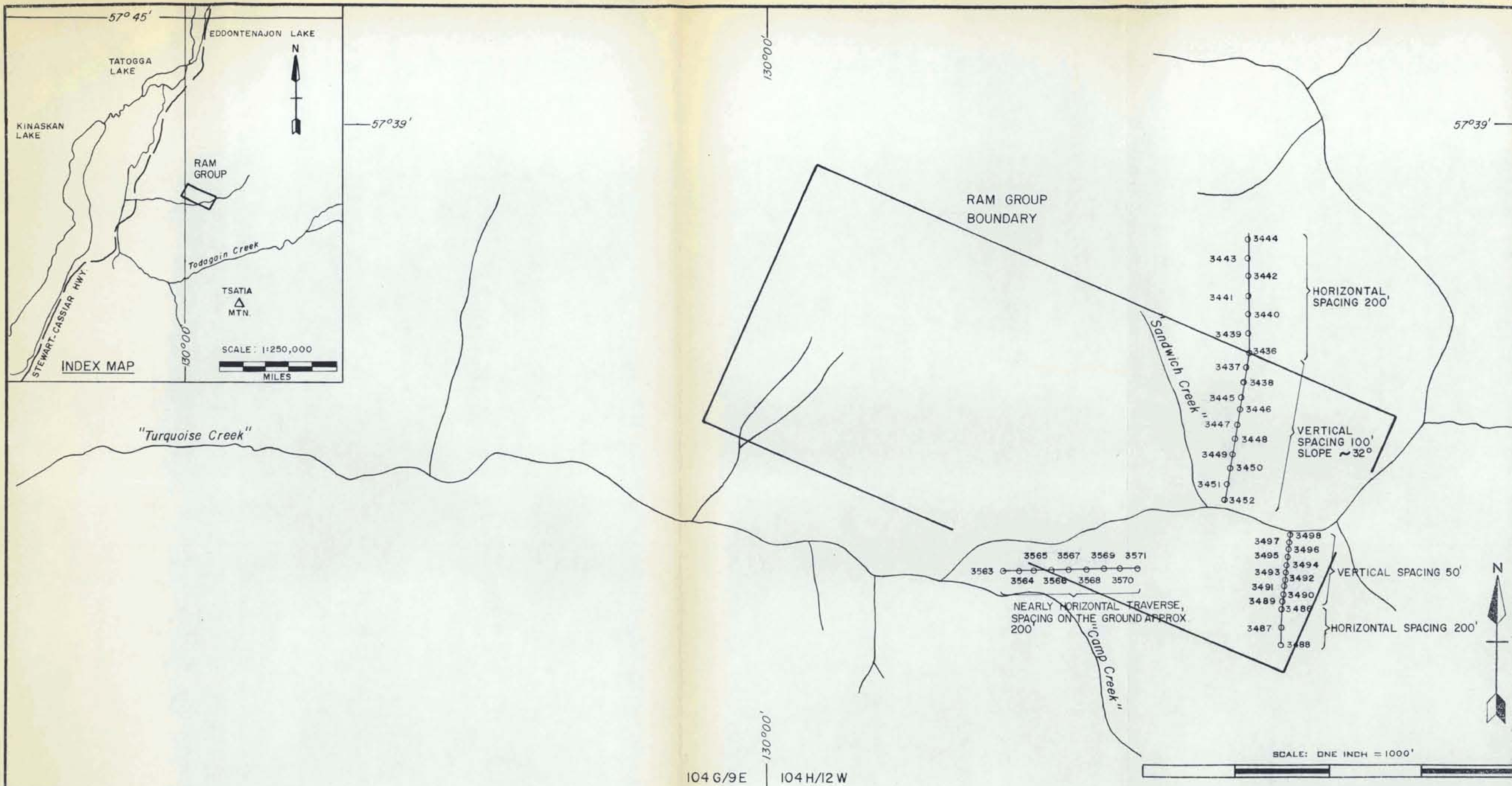
TEXAS GULF, INC.

FIG. 7

RAM CLAIMS - STEAM SEDIMENT GEOCHEMISTRY

MOLYBDENUM CONCENTRATIONS (ppm)

WORK BY	DRAWN BY	DATE
R.G., W.G.	K.M.G.	NOVEMBER, 1974



LEGEND

TEXAS GULF, INC.

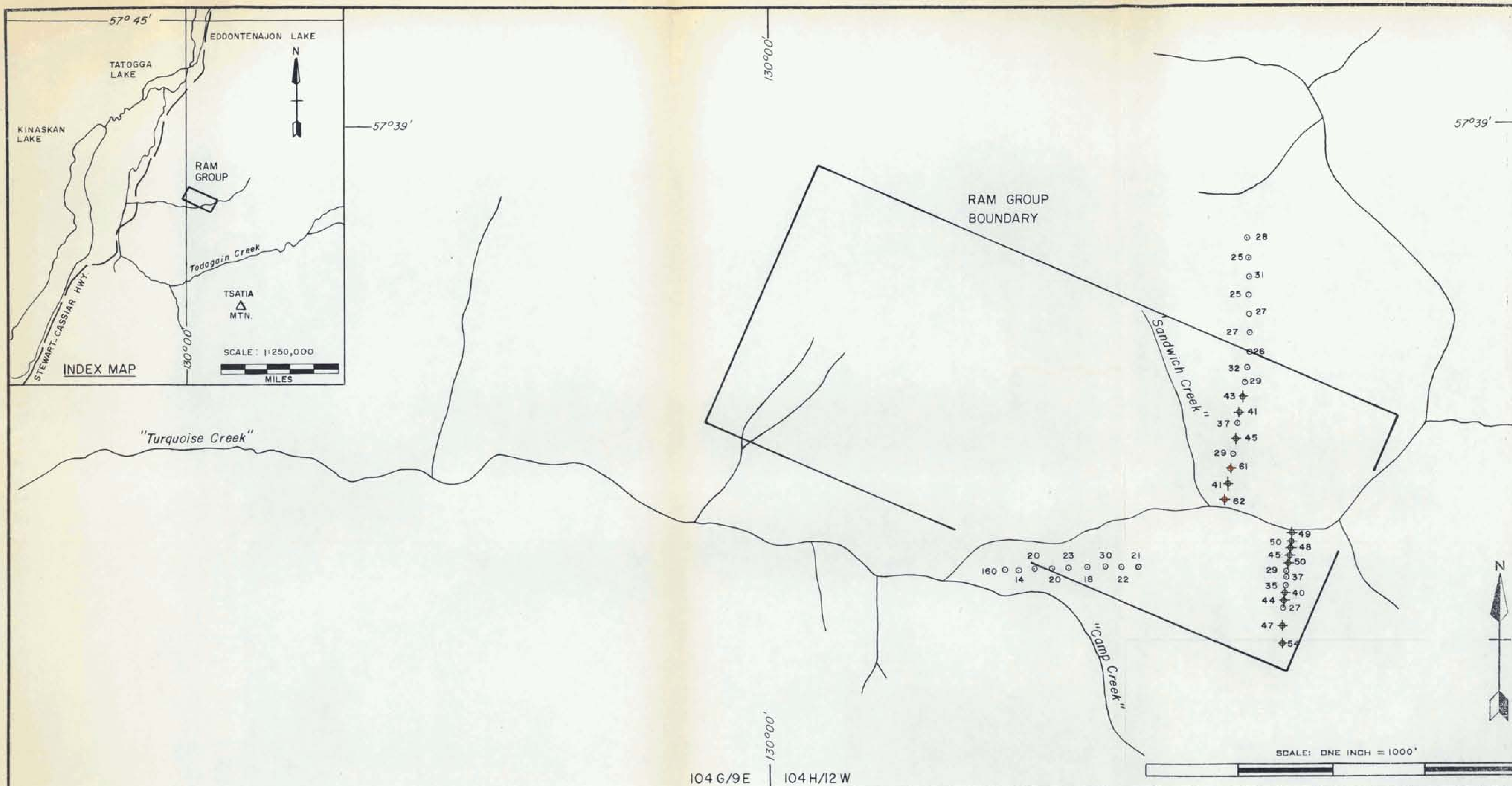
FIG. 8

RAM CLAIMS - SOIL GEOCHEMISTRY

SAMPLE LOCATIONS

WORK BY	DRAWN BY	DATE
R.G., W.G	K.M.G.	NOVEMBER, 1974

BCIL - 3803 B - T.G.



LEGEND

THIRD PEAK ANOMALOUS VALUE

SECOND PEAK ANOMALOUS VALUE

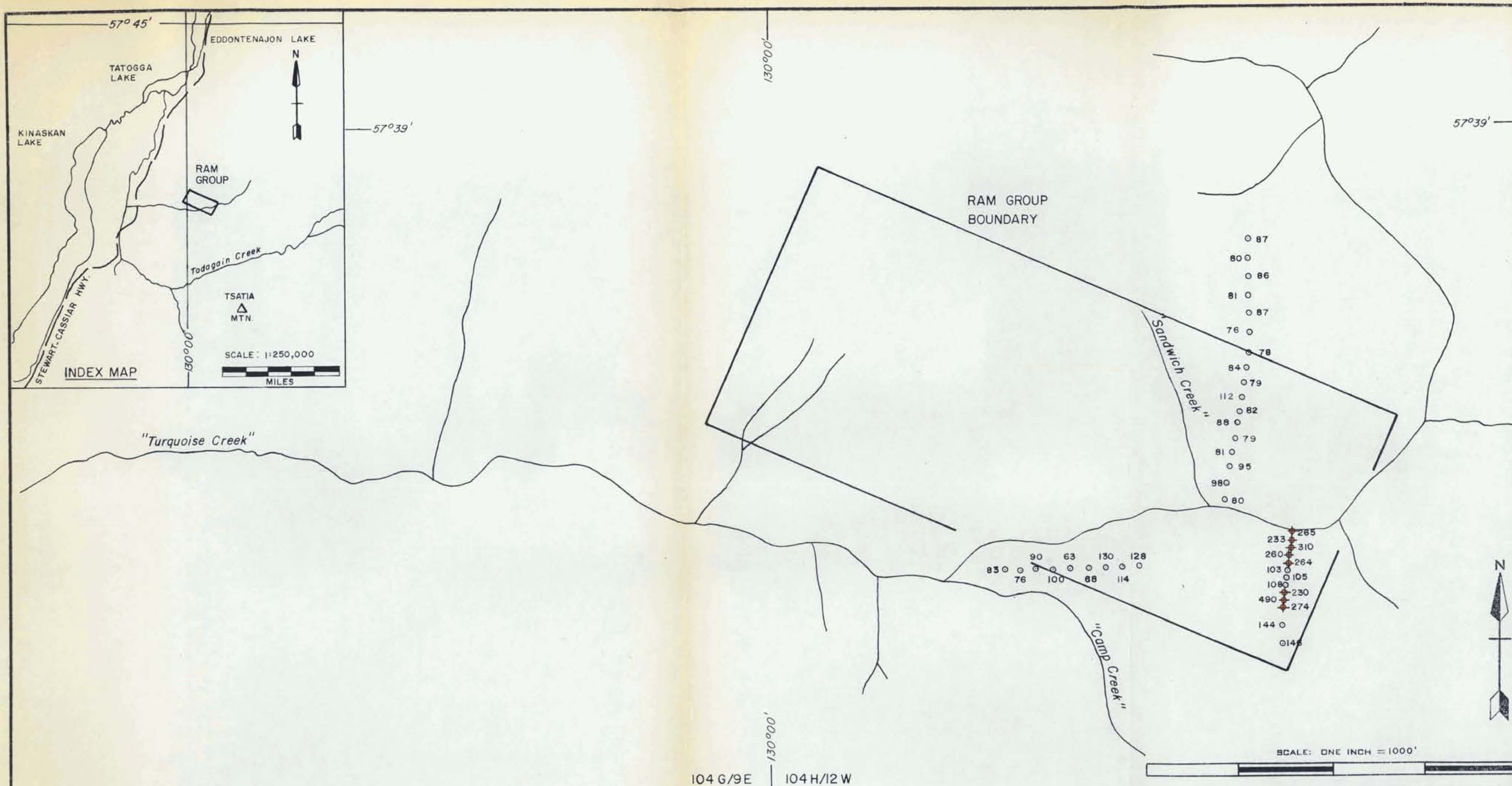
TEXAS GULF, INC.

FIG. 9

RAM CLAIMS - SOIL GEOCHEMISTRY

Cu CONCENTRATIONS (ppm)

WORK BY	DRAWN BY	DATE
R.G., W.G	K.M.G.	NOVEMBER, 1974



LEGEND

✛ ANOMALOUS

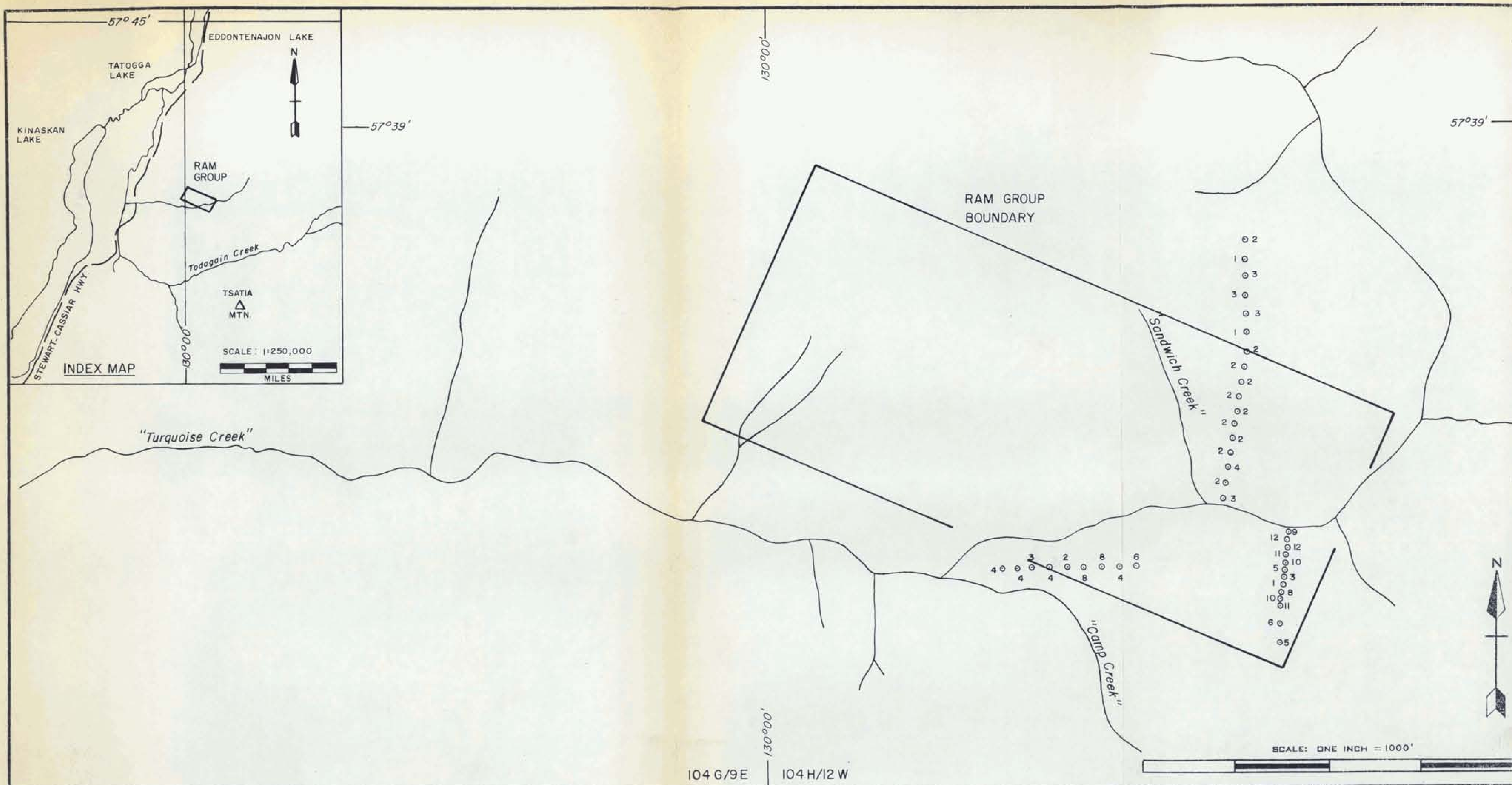
TEXAS GULF, INC.

FIG. 10

RAM CLAIMS - SOIL GEOCHEMISTRY

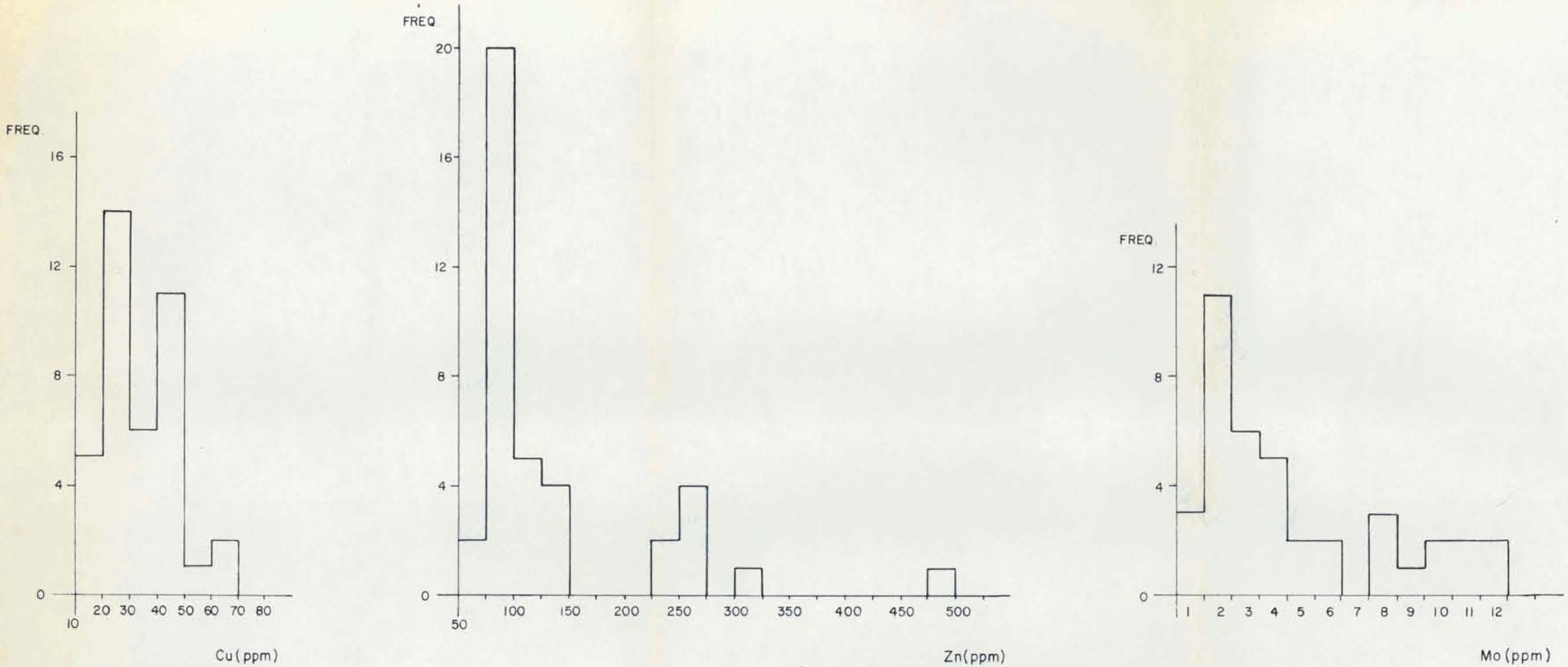
ZINC CONCENTRATIONS (ppm)

WORK BY	DRAWN BY	DATE
R.G., W.G.	K.M.G.	NOVEMBER, 1974



LEGEND

TEXAS GULF, INC.		
FIG. 11 RAM CLAIMS - SOIL GEOCHEMISTRY MOLYBDENUM CONCENTRATIONS (ppm)		
WORK BY	DRAWN BY	DATE
R.G., W.G.	K.M.G.	NOVEMBER, 1974



LEGEND

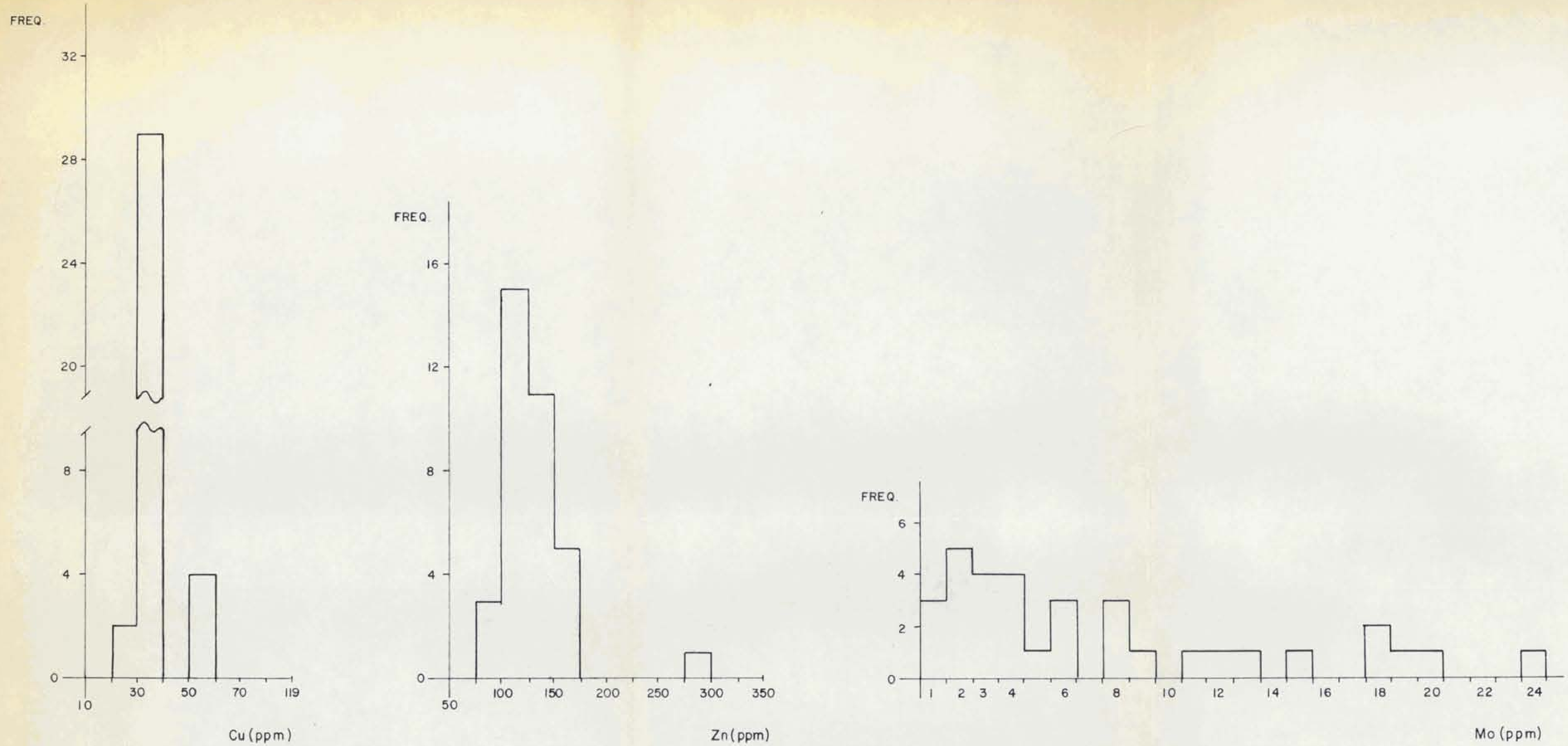
TEXAS GULF, INC.

FIG. 12: METAL CONTENT vs FREQUENCY

SOIL SAMPLES

RAM CLAIMS - 104 H/12 W

WORK BY	DRAWN BY	DATE
R G , W G	K M G	NOVEMBER, 1974



LEGEND

TEXAS GULF, INC.		
FIG. 13 : METAL CONTENT vs FREQUENCY STREAM SEDIMENT SAMPLES RAM CLAIMS - 104 H/12 W		
WORK BY	DRAWN BY	DATE
R.G., W.G.	K.M.G.	NOVEMBER, 1974