ASSESSMENT REPORT

on the

GEOLOGY AND ROCK GEOCHEMISTRY

OF THE SALAL MINERAL CLAIMS

SALAL 6 (9 Units) SALAL 9 (20 Units) SALAL 10 (20 Units) SALAL 11 (6 Units)
SALAL 12 (16 Units) SALAL 13 (9 Units)

Owned By

B.P. Minerals Limited

UTAH MINES LTD.

Operated By

UTAH MINES LTD.

Report By

J. R. Deighton

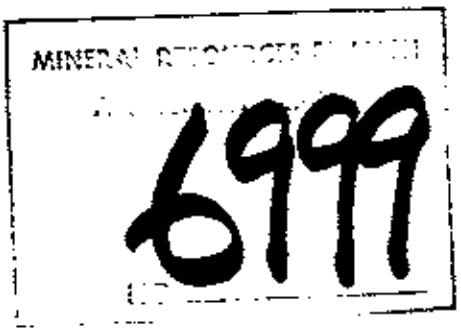
SALAL CREEK AREA

LILLOOET MINING DIVISION, B. C.

Located 69 Kilometers NW of Pemberton

(123° 16' Long. 50° 48' Lat.)

Vancouver, B.C. November 22, 1978.



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SUMMARY

Geological mapping and geochemical rock sampling was carried out over the northern portion of the Salal Creek Pluton (50 sq. kilometres) from June to October of 1978. Completion and presentation of the data in this report was done during the winter months of 1978 - 79.

The Salal Creek Pluton is a complex co-magmatic intrusion of Tertiary age that has been passively intruded into the regionally metamorphosed Coast Range Complex. The rocks of the pluton form a continuous differentiating series with a modal composition of a quartz monzonite.

Rock geochemistry, geological mapping and structural interretation of the northern portion of the Salal Pluton has outlined areas in which further work is warranted.

INTRODUCTION

General Statement

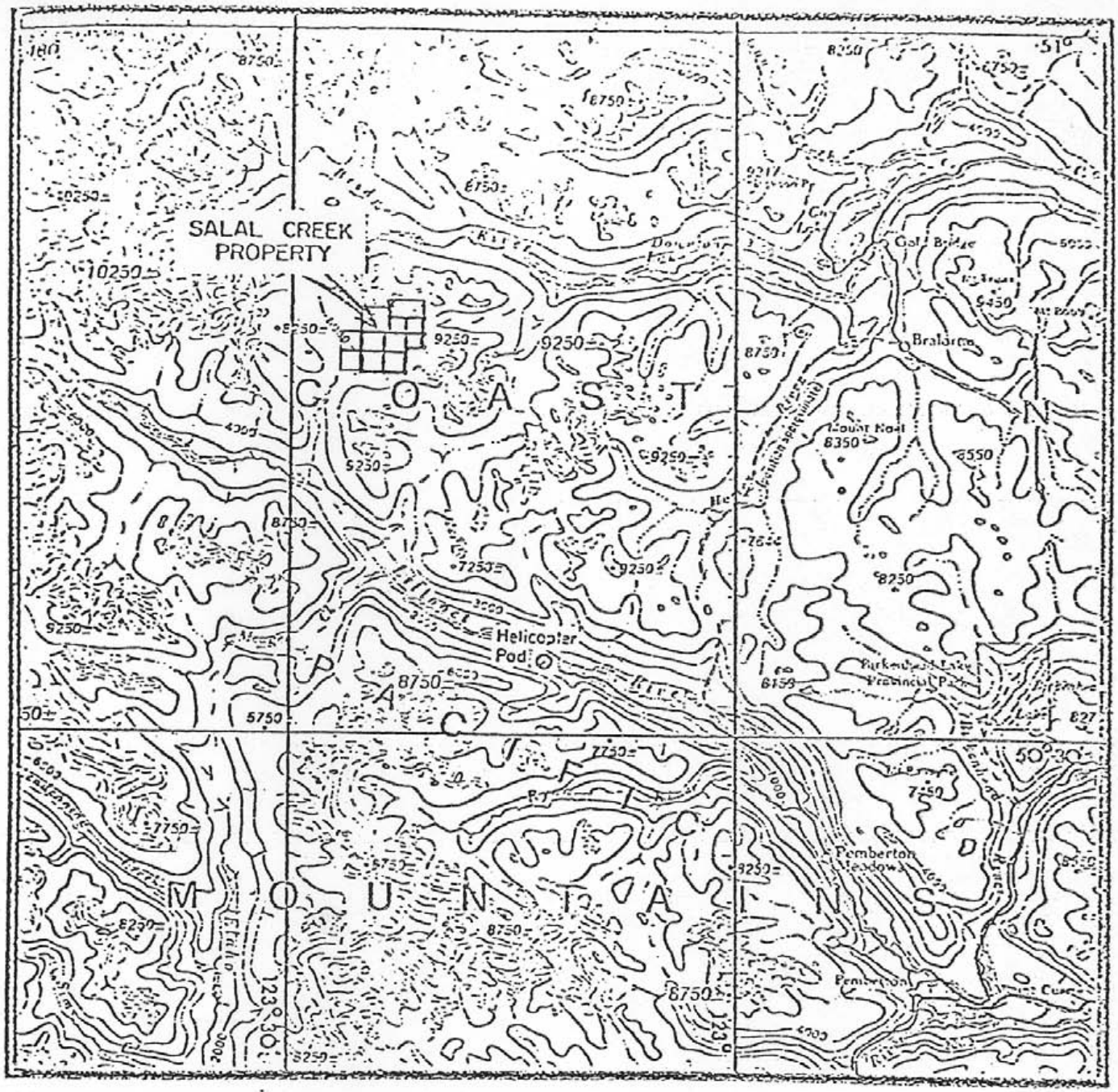
The 1978 field season, from June 26 to September 18th, was spent in mapping the northern half of the Salal Creek pluton, (50 sq. km.). The purpose of the project was to better define the geology and mineralization of the pluton. It was designed to complete the mapping program started in 1977 and to pick a drill target that would have a reasonable chance of finding a molybdenum ore body at depth.

Rock geochemical analyses and geological mapping were done in the northern portion of the pluton to define a possible drill target. Results of this work are presented in this report and on the accompanying maps.

Location and Access

The Salal Creek Molybdenum Property is located approximately 170 kilometres north of Vancouver at the headwaters of Salal Creek, a tributary of the Lillooet River, (Figure 1). It lies within typically rugged terrain of the Coast Mountains at $50^{\circ}48'$ latitude and $123^{\circ}16'$ longitude.

Access to the property is via road or rail as far as Pemberton, then via a gravelled logging road that extends northwards up the Lillooet River on the northeast side to Pebble Creek. Helicopter transport is necessary from this point to the property, a distance of approximately 15 kilometres.



SCALE
1 inch = 8 miles
1 : 500,000

LOCATION MAP

Figure 1

Support and Supplies

Helicopter support for the operation of the program was obtained from the Okanagan Helicopter base at Alta Lake, approximately 120 kilometres to the south of the property.

Supplies were obtained in Vancouver and shipped via truck to Alta Lake, or were purchased locally at Alta Lake and flown into the property every seven to fourteen days.

Topography, Climate, Glaciation and History

For information on topography, climate, glaciation and history, the reader is referred to the 1976 Final Report (Salal Creek Molybdenum Property--1975 Drilling Report--and the 1977 Final Report Salal Creek Molybdenum Property--1976 Drilling Report) both reports by D.K. Mustard and R.H. Wong of B.P. Minerals Ltd., Vancouver, B.C.

Land Status

On August 1, 1978, the B.P. - Utah Joint Venture abandoned and restaked the Salal 5 mineral claim and recorded it as Salal 13 to include a fraction that was not held in the claim block. The following table provides a breakdown of the claims currently head by the joint venture, and their expiry dates:

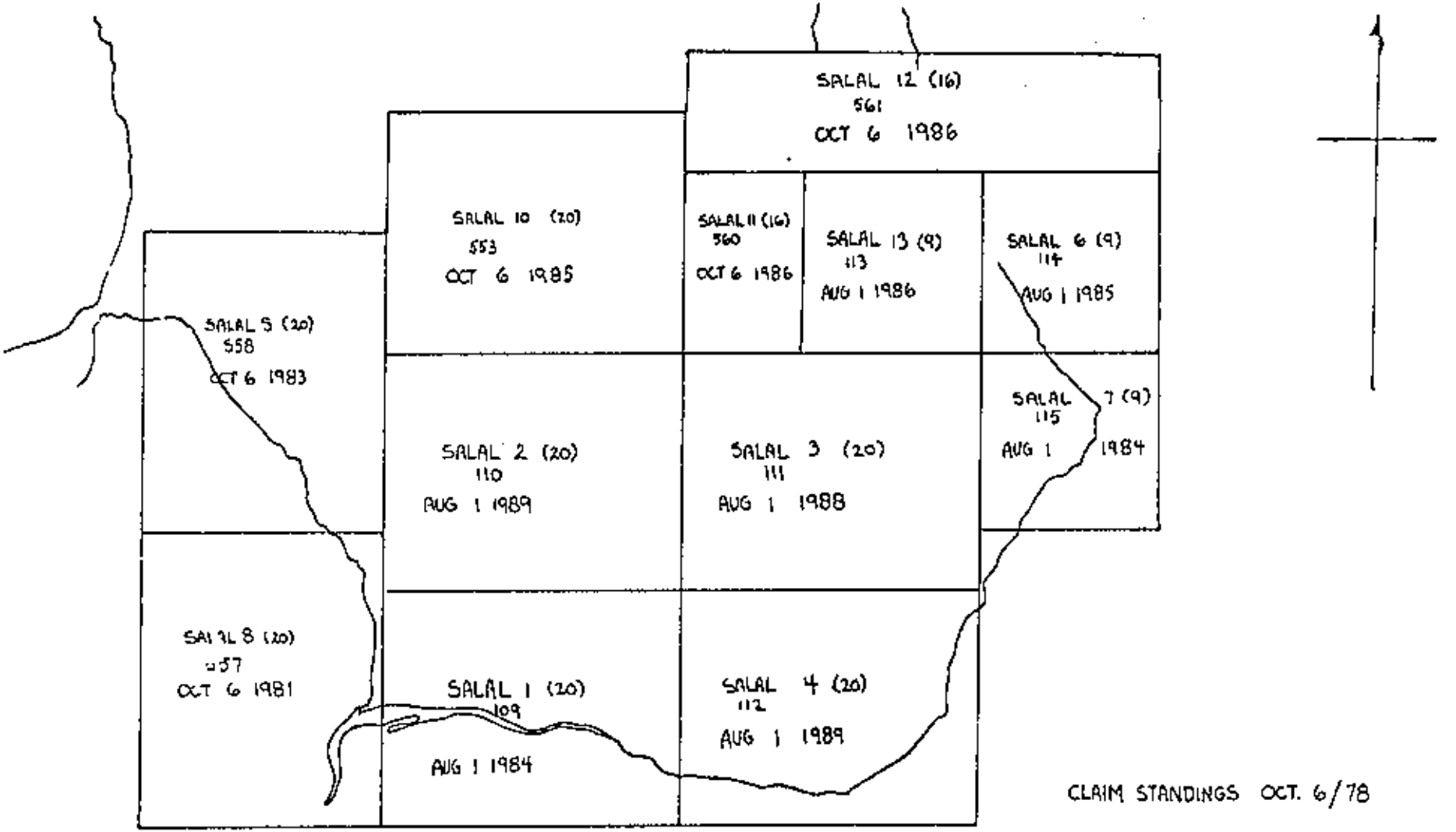
Claim Name	Units	Record No.	Valid To	Claim Holder
Salal 1	20	109	August 1, 1984	B.P. Minerals
Salal 2	20	110	August 1, 1989	"
Salal 3	20	111	August 1, 1988	"
Salal 4	20	112	August 1, 1989	"
Salal 13	9	648	August 1, 1986	"
Salal 6	9	114	August 1, 1985	"
Salal 7	9	115	August 1, 1984	"
Salal 8	20	557	October 6, 1981	Utah Mines Ltd.
Salal 9	20	558	October 6, 1983	"
Salal 10	20	559	October 6, 1985	"
Salal 11	6	560	October 6, 1986	"
Salal 12	16	561	October 6, 1986	"
	189	Total number of units held.		

Mapping Control

The base map control for the geological mapping program on the northern portion of the Salal Creek Pluton was a 1:5000 scale orthophoto with 20 metre scribed contours prepared by Pacific Surveys Ltd. of Vancouver, B.C.

Personnel

The mapping, sampling and completion of the data presented in this report was done with able assistance of B. Bowen, D. Crowe, J. Deighton, T. Elliott, G. Rayner (Geologists) and D. Butler, J. Howe, B. Lawrence, M. Murphy (Assistants).



CLAIM STANDINGS OCT. 6/78

CLAIM NAME SALAL 9 (20) NO. OF UNITS IN CLAIM

RECORD NO. 558

EXPIRY DATE OCT 6 1978

FIGURE 2

SALAL CREEK CLAIMS
92 J 14W

LILLOOET MINING DIVISION

Drafting on the maps presented was done by C. Donders and T. Drews, J. Howe.

Camp

The camp facilities used during the mapping program consisted of one 14 x 16 cook-office tent and two or three 10 x 12 tents for accomodation. The camp was kept very simple with a minimal amount of equipment because, seven camp locations were used during the mapping of the rugged terrain in the project area. Moves between camps were made by helicopter.

GEOLOGY

Regional Geology

For information regarding the regional geology of the area surrounding the Salal Creek Pluton the reader is referred to previously published material and company reports particularly "The Geology of the Salal Creek Pluton, Southwestern British Columbia, Canada" by Dr. G.C. Stephens, a thesis presented at Lehigh University, 1972.

GEOLOGY OF THE SALAL CREEK STOCK - SOUTHERN PORTION

General Statement

The northern portion of the Salal Creek Pluton was mapped during the summer of 1978 on a scale of 1:5000. Attention was particularly paid to structures, mineralization, alteration

and their relationships to one another and to the rocks in which they occur. G.C. Stephens rock classification of the Salal Plutonic rocks was followed wherever possible and is the basis of this work.

STRATIGRAPHY AND FIELD RELATIONS

Field characteristics of the various lithologies within the map area and their mutual age relations are discussed below. Photographic data and petrologic interpretations were presented in G.C. Stephens, Ph.D. thesis on "The Geology of the Salal Creek Pluton ..." and will not be discussed further. Rock names used in the following discussion are field names and not formal stratigraphic units.

Coast Range Complex

Near the Salal Creek Pluton, the Coast Range Complex is composed of well foliated hornblend quartz diorites or migmatites and massive biotite quartz diorites to diorites. No contact metamorphism is evident within the Coast Range Complex adjacent to the Salal Creek Pluton.

Quartz feldspar porphyry dykes, and pre and post metamorphic basalt dykes are present within the Coast Range Complex. The pre-metamorphic basalt dykes have a well developed foliation. The post-metamorphic basalt dykes are associated with the post-Pliocene Garibaldi Group volcanics of which the basaltic to rhyolitic flows at Salal are thought to be a part.

The contact between the Coast Range rocks and the Salal Creek Pluton is generally sharp and discordant. The younger plutonic rocks sharply truncate the foliation of the Coast Range rocks, and dykes and apophyses of granitic material extend for a short distance (10 - 30 metres) into the country rock.

The Salal Creek Pluton

The Salal Creek Pluton has been divided, on the basis of field characteristics, into these lithologic units.

- Coarse Grained Quartz Monzonite
- Medium Grained Quartz Monzonite
- Fine Grained Quartz Monzonite
- Crowded Porphyritic Fine Grained Quartz Monzonite

These four units form the majority of rocks found within the Salal Pluton. Other phases are recognized as belonging to the Salal Plutonic series. These are the quartz to quartz feldspar porphyry phase, the quartz feldspar biotite porphyry granite phase and probably the felsite to rhyolite phase. These latter four phases occur mainly as dykes or small bodies, and are mainly limited to the western portion of the Salal Creek Pluton.

The Salal Pluton appears to have been passively intruded into the Coast Range Complex.

Coarse Grained Quartz Monzonite Phase

The coarse grained phase of the Salal Creek Pluton occurs essentially at the outer margins of the Stock, but also

occurs in small bodies that probably represent skin fragments within the finer grained phases. Contacts with the Coast Range rocks are sharp and (in part) discordant with the foliation in the Coast Range complex. No chilled margin exists within the coarse grained phase. Mafics in the coarse grained phase are mainly biotite, but occasionally hornblende is found locally. The biotite content generally decreases inwards in the coarse grained phase of the Salal Pluton.

Many rounded xenoliths are found within the coarse grained phase, which seems to be more prevalent in some areas, mainly in the Big Creek and Lost Creek areas in the southern portion and the areas to the north and west of Red Mountain in the northern portion. These xenoliths are believed to be exfoliation blocks of Coast Range Complex, that have been partially incorporated into the Salal Pluton. Several larger blocks or xenoliths in the Big Creek area have pegmatitic margins and the inner material appears to be layered.

Medium Grained Quartz Monzonite Phase

The medium grained phase occurs discontinuously between the coarse and fine grained phases or in small plugs or dykes within the other two phases. Its contact relationships with both these phases can be either sharp or totally gradational; thus in many cases the contact location between them is arbitrary.

The medium grained phase, in some instances (usually near the margins), has a somewhat porphyritic appearance and may best be described as a porphyritic fine grained quartz monzonite.

The medium grained phase contains approximately 2% biotite which is the only mafic mineral present. An occasional mafic rich xenolith may also be present in this phase in the Lost Creek area.

Fine Grained Quartz Monzonite Phase

The fine grained phase of the Salal Creek Pluton occurs in the core, to southwestern portion of the pluton.

The composition of the fine grained phase is less variable than the coarse grained phase. Biotite is the only mafic mineral present and is found in minor amounts (less than 1%) or it may be completely absent. Gradational and sharp contacts exist between the fine grained phase with all the other phases of the intrusion, but especially with the medium and the quartz feldspar porphyry phases. Contacts between these latter phases are thus somewhat arbitrary in some cases.

Crowded Porphyritic Fine Grained Quartz Monzonite Phase

The crowded porphyritic fine grained quartz monzonite phase of the Salal Plutonic Complex occurs in the north-western portion of the Salal Pluton, between the coarse grained quartz monzonite phase and the fine grained quartz monzonite phase.

The phase is probably an intermediate phase between the fine grained and the coarse grained quartz monzonite phases. It is thus very similar to the medium grained quartz monzonite in that it occupies the same position within the Salal Pluton.

The rock is very similar in composition to the coarse and medium grained quartz monzonite phases. The major differences being the crowded porphyritic fine has 70 - 80% of the grain size from 3 - 8mm forming phenocrysts floating in a 1mm groundmass of the same composition. While the medium grained phase has a grain size of 3 - 4mm and the coarse grained phase has a grain size of 2 - 8mm.

Quartz Feldspar and Quartz Porphyries

The quartz feldspar porphyry and quartz porphyry phases are gradational phases of each other. In the quartz porphyry phase, the feldspar phenocrysts are very subdued in size and content and are seldom noticeable in hand specimen, while the quartz phenocrysts are quite large. In the quartz-feldspar porphyry phase, both the quartz and feldspar phenocrysts are of the same size: the feldspar phenocrysts content may vary slightly. Essentially both phases are one and the same and are gradational into one other. These phases occur in pods, plugs and lenses which are generally gradational into the fine grained quartz monzonite phase and as dykes which cross-cut all other granitic phases.

The quartz porphyry phase and the quartz feldspar porphyry phase are best exposed in the West Fork of Salal Creek. Gradational contacts between quartz-feldspar porphyry and fine grained quartz monzonite are best seen on the west side of the West Fork of Salal Creek. Here, the contact between the two phases is very hard to detect and their relationship would indicate that the quartz feldspar porphyry is actually

a further differentiation phase of the Salal Plutonic Complex. The quartz-feldspar porphyry and quartz porphyry phases on the east side of the West Fork of Salal Creek have sharp contacts with the fine grained quartz monzonite. Dykes or lenses of these phases may exceed 100 metres in width.

The quartz-feldspar porphyry has a light blue to light grey aphanitic groundmass containing euhedral to subhedral phenocrysts of quartz and feldspar. The quartz porphyry phase tends to have a light blue-grey, to buff, aphanitic groundmass, containing euhedral to subhedral phenocrysts of quartz and minute crystals of feldspar that are not readily apparent in freshly broken rock. Minor amounts of biotite may be present locally in some of these varieties.

Alteration of feldspars in most of the dykes and bodies is apparent on the east side of Salal Creek West Fork. This alteration takes the form of apple green sericite and/or buff kaolin-sericite.

Rhyolite to Felsite Dykes

Rhyolitic and felsitic dykes are found within the fine grained phase of the Salal Pluton. The dykes are narrow (10 - 20cm) in all areas, except around No. 1, 2 and 3 Creeks. Here the dykes reach 10 metres in width. Many contain glass or obsidian within or on the edges of the dykes. Flow banding or layering is common throughout the dykes which indicates a high level of emplacement.

The rhyolitic to felsitic dykes are buff to purple-grey in color and are aphanitic to fine granular rocks showing flow banding; they are composed of obsidian and feldspar-silica.

Pegmatites

Small (1 - 2m) irregularly shaped masses of simple quartz-alkali feldspar pegmatite are present within the Salal Creek Pluton. These pegmatite pods contain no "exotic" minerals and are found in the coarse, medium and fine-grained phases of the pluton. They are not common, and do not constitute an important phase of the pluton. They are more common in the area around No. 1 and 2 Creeks than in other portions of the stock so far investigated.

Silicic Dykes

Two varieties of silicic dykes are found within the mapped area. These are white aplite and blue-grey aplite dykes.

The white aplite dykes are mainly found in the coarse and medium grained phases of the Salal Pluton and in the rocks of the Coast Range Complex near their contact with the pluton. These white aplite dykes are believed to be related to the fine grained pulse of the cooling magma, as only in a very few instances are white aplite dykes found cutting the fine grained quartz monzonite phase.

The blue-grey aplite dykes are found in all phases of the Salal Pluton. The blue-grey dykes are believed to be related

to the quartz-feldspar porphyry phase of the Salal Plutonic Complex. No cases of blue-grey cutting quartz feldspar porphyry dykes or plugs were seen, although blue-grey dykes were noted to be very close to some quartz feldspar dykes. The blue-grey dykes are seen cutting white aplite-fine grained dykes and thus they are later than the white aplite-fine grained dykes.

Both these dykes range in width from 5mm to 1 metre; rarely are dykes found wider than this.

Glacial Sediments

A sequence, up to 20 metres thick, of poorly sorted glacial sediments or stream gravels is exposed beneath the volcanic flows on Logan Ridge and on the slopes opposite Tongue Glacier. These sediments contain boulders of quartz monzonite in a sandy to gravely matrix of Salal Plutonic rocks and volcanic material. The sediments are generally poorly sorted and virtually non-cemented. Their possible source is probably very local.

Volcanics

At Salal Creek, volcanics believed to be of the Garibaldi Group occur at several localities. They vary in composition from olivine basalt to rhyolite. These volcanics, within the map area, can seldom be correlated from one locality to another.

Unlike other volcanic areas, large laterally continuous flow sheets are absent. The volcanics at Salal Creek are not a single dissected flow group, but rather appear to represent separate and distinct volcanic centers. The presence of the thick sequence of dacite to rhyolitic flows on the western edge of the pluton and the olivine and basalt flows in other areas (for example, Windy Pass), indicate that these likely originated from separate sources.

The flows were extruded upon a rugged, pre-volcanic topography. Evidence for this comes from the irregular contact between the rocks of the Salal Pluton and the flows. Flow structures and basal contacts of the flows can vary from being almost horizontal to steep (40 - 60°).

The post-metamorphic basalt dykes which are common throughout the entire map area are undoubtedly related to the Garibaldi Group, both temporally and spatially. They vary in width from 0.5 to 30 metres and sometimes typically contain columnar joints which are perpendicular to the walls of the dyke or have chilled margins.

Undifferentiated Valley-fill

Major areas of undifferentiated alluvium and glacial till are shown on the geologic map as undifferentiated valley-fill. In general this material is very heterogeneous with respect to both size and composition. Because of the abundance of this material in the major stream valleys, bedrock outcrops are largely non-existent and when present, are small and poorly exposed.

PETROGRAPHY

Rock Classification

From previous work on the property, it was seen that modal compositional differences in the rocks of the Salal Pluton do not lend themselves to the establishment of a field classification system, because an accurate determination of the relative percentages of plagioclase and potassium feldspars cannot be made in most cases. It was thus decided to base the rock names on average grain size of the rocks, following G. Stephen's rock classification.

Intermediate or transitional rock types are a problem in any classification system, and are a particular problem at Salal. This problem arises because the Salal Plutonic rocks originated from the same primary magma and thus the composition of the rocks are very similar. Variations from one rock type or phase to another can occur within a single outcrop, and no distinct or sharp contact can be seen. A boundary line has been drawn, but it is often arbitrarily placed.

Rocks of the Salal Creek Pluton

The rocks of the Salal Creek Pluton can be divided into four main intrusive phases and six phases of dykes or small masses. These four main phases are very similar in composition and are believed to be derived from the same

magma. The petrology of many of the intrusives has been discussed fully in Dr. G.C. Stephens Thesis "The Geology of the Salal Creek Pluton, Southwestern British Columbia, Canada", so it will not be repeated here. A short field description of the various phases was included in last years report "1977 Final Report on the Geology of the Southern Portion of the Salal Creek Pluton" and will not be repeated here. A short field description of the porphyritic coarse grained phase is given below as it is a new phase found in this years mapping. Field relationships between the various rock units will be discussed in another section of the report.

Crowded Porphyritic Fine Grained Quartz Monzonite

The crowded porphyritic fine grained phase has a composition of biotite quartz monzonite with the following average composition:

Quartz	30%
Alkali Feldspar	20%
Plagioclase	40%
Biotite	10%

Minor magnetite is also present.

The crowded porphyritic fine grained quartz monzonite has the same composition as the coarse grained quartz monzonite phase and

indeed may be a closely related phase. The porphyritic phase has phenocrysts of quartz, feldspars and biotite from 2 - 8mm floating in a fine grained groundmass of crystals 1 - 2mm of the same general composition.

STRUCTURE

Radial and Ring Dyking

Continuation of the possible radial and ring dyking system found last year centered on No. 1 and No. 2 Creeks was mapped in the adjacent northern area within the Salal Pluton. Here the ring dyke of quartz feldspar porphyry has been seen in several outcrops from No. 3A Creek swinging north and eastwards across the head of Salal Glacier.

The feldspars in the dykes forming the above patterns usually are slightly altered to sericite and/or kaolin and may or may not contain minor amounts of fine disseminated pyrite as cubes.

Quartz feldspar dykes are virtually unknown in the extreme northern and eastern portions of the Salal Pluton although several large dykes were seen at the contact of the pluton and the coast range diorite on the west side of the creek draining Salal Glacier and in two creeks draining Final Glacier and Red Mountain Glacier near the Bridge River. The latter two dykes had some feldspars altered to apple green sericite.

Several dykes in the radial and ring dyke system were traced out by following felsenmeer and were thus extended in their lateral extent. The area of the "plug" in No. 1 Creek mapped last year was remapped and shows that the "plug" is a dyke that vortexes at that point. This dyke at the vortex contains 1 - 5% disseminated pyrite and patchy apple green sericite that is after feldspars but may also be partly vesicular in nature. The dyke further away from the vortex contains less pyrite and less alteration.

One other dyke of quartz feldspar porphyry contains vesicular apple green sericite or sericite after feldspar. This one outcrop dyke is located in a tributary of No. 2 Creek on the east. The pyrite cubes in this outcrop are up to ½cm in size and are in most cases is surrounded by apple green sericite that has the appearance of having formed in vugs.

Brecciation

Two types of Breccias occur within the Salal Creek Pluton; Tectonic Breccias and Passive (stoping) Breccias. Passive or stoping Breccias are caused by the emplacement of a molten mass into another rock. The process involves the partial encroachment or absorption of the intruded rock by the intruding rock. This type of Breccia is seen on the ridge between Final and Red Mountain Glaciers. Here the coarse grained quartz monzonite phase has been intruded by the fine grained quartz monzonite phase and has caused large blocks of the coarse grained phase to become isolated. A "pebble dyke"(?) type of brecciation of the coarse grained phase by the fine grained

phase was also noted in a few float boulders on this ridge.

Another area of passive stoping breccia is seen in Windy Pass, the area between Red Mountain and the basaltic flows to the west. In this area one fine grained phase of the quartz monzonite has invaded a cooled portion of fine grained quartz monzonite along joint planes and has isolated blocks. There appears to be no distinct difference compositionally or visually between the two fine grained quartz monzonite phases and the invaded block of quartz monzonite have moved only a matter of a centimetre or so.

Both the above two examples along with the two areas mentioned in last years report are examples of very passive brecciation.

Tectonic Breccias within the Salal Pluton are of many varieties. The typical fault breccia showing gouged rock made up of the enclosing host rock is one example. These fault gouge zones are usually quite tight and mineralization in this type of breccia is by replacement and usually heals the zone. Sericite-Pyrite alteration is prominent in many of these fault zones, and quartz-pyrite-molybdenite veins may occupy the central portion of some sericite-pyrite zones.

A quartz vein breccia similar to that found last year in the southern portion of the pluton is found in the pass between two small peaks at the head of Salal Glacier. This breccia may be a continuation of the breccia found last year at the head of No. 1 Creek. The breccia consists of tiny quartz veins crisscrossing through a fine grained

quartz monzonite. It strikes almost due north and much of it is covered by glacial debris. No sulphide mineralization was seen in the breccia and the fine grained quartz monzonite is only slightly altered. Cavities or holes are found within the breccia are lined with tiny quartz crystals. Geochemically, the breccia is slightly above background for many of the elements assayed.

A rhyolite breccia plug or dyke swelling consisting of fragments of volcanic glass and the occasional piece of Salal Plutonic rock in a light brown aphanitic rhyolitic groundmass is found at the right angled corner of No. 3A Creek. In the breccia the obsidian (volcanic glass) fragments make up 60 - 70% of the rock while the matrix makes up 30 - 40% of the rock. Salal Plutonic fragments are only occasionally found and would make up less than 1% of the rock. The breccia is probably 5 - 10m wide and up to 40m long. The eastern end of the breccia is in contact with a light grey-brown rhyolitic mass that pinches out towards the east.

Other minor brecciation occurs around the edges of some of the Basaltic to Felsitic plugs and dykes in the Salal Creek Complex. These breccia zones are quite narrow and consist of small fragments of fine grained quartz monzonite floating in an aphanitic and sometimes obsidian-like matrix. Their widths range from 10cm to 1 - 2 metres.

Smaller breccia zones may have been overlooked in the mapping, but at the present state of mapping, more breccia zones are found in the West Fork of Salal Creek, particularly in the No. 1 & 2 Creek area, than in any other area.

Stacked Quartz Veins

Stacked quartz veins from hairline to 1cm in width occur in zones from 1 - 30m in width in the cirque area between No. 1 and No. 2 Creeks. They are particularly prominent in the No. 2 Creek area. In some places these quartz vein zones cross forming a stockwork or crude boxwork of veins. In places up to 40 - 50 veins occur across a 1 metre width. None of the quartz veins in any of the zones contained visible sulphide mineralization although many of the veins in places had manganese stain on them. Geochemically these zones were anomalous in many of the elements assayed for.

Alteration Zones

Several zones from 1-5m in width or patches of alteration-mineralization were found in the area of No. 1, 2 and 3 Creeks. These zones or patches were characterized by heavy manganese staining, hematite and may also contain sphalerite, galena, pyrite, chalcopyrite and molybdenite. The rock appears to be fresh in many cases or only slightly altered to sericite/kaolin. On weathering of the oxides and sulphides, the rock has a sponge-like appearance. The zones or patches do not appear to be related to any structure although in a few cases they occupy shatter zones.

ALTERATION AND MINERALIZATION

Hydrothermal Alteration

No large areas of strong hydrothermal alteration exist within the northern portion of the Salal Creek Pluton. Several pendents of coarse grained quartz monzonite with the fine

grained quartz monzonite at the head of No. 1, 2 and 3 Creeks are slightly altered. In these pendents the biotites have been altered to chlorite and patchy seritization - kaolination of the feldspars has also occured. Several places within these pendents, particularly near their margins, pinking of some of the feldspars has occured. This pinking may be due to an influx of manganese but, it is not believed to be alteration due to an increase in potassium.

Small, patchy areas of strong to moderate hydrothermal alteration occur in the area below the elbow of No. 3A Creek which are a continuation of the patchy zones from the southern portion mapping carried out last year. They form lenticular lenses of strong sericitization and silicification of the fine grained phase of quartz monzonite. Individual zones are not more than 10m wide by 20 - 25 metres in length. Pyrite is also quite prominent in some of these zones. The zones of alteration usually occur on or near junctions of two or more altered and mineralized shears or faults.

Sericite alteration similar to the above, but without the silicification and pyritization was also found in a large fault zone at the western toe of Salal Glacier.

The quartz feldspar porphyry and quartz porphyry dykes and plug (?) in the area of No. 1, 2 and 3 Creeks and those at the head of Salal Glacier contain weak hydrothermal alteration. The alteration is contained within the dykes and does not penetrate into the enclosing host rock (fine grained phase). In this alteration feldspar phenocrysts have been partially or wholly altered to sericite and/or sericite-muscovite. Some of the alteration may partially be the result of weathering.

Apple green sericite alteration with cubic pyrite in the alteration patches is restricted to a vortexing dyke in No. 1 Creek and a small dyke in an easterly tributary of No. 2 Creek. Here the sericite (apple green) may be either alteration of feldspars or be partially a result of alteration filling vuggs within the porphyry. Cubic pyrite up to 1/2cm in size occupys the center of some of these open vuggs and/or altered feldspars. The alteration and pyrite decrease laterally outwards from the vortexing area (plug?) of the dyke in No. 1 Creek.

Dykes or plugs with similar features to the above described rocks are found at the Henderson Mine in Colorado.

Two dykes of quartz feldspar porphyry in creeks draining into the Bridge River from Final Glacier and Red Mountain Glacier outside the immediate map area, contain sericitic alteration of the feldspars. These two dykes are contained in coarse grained quartz monzonite which has not itself been altered.

Hydrothermal Vein Alteration

Hydrothermal vein alteration is quite prevalent throughout the map area. Alteration of this type has widths of from 1mm to 2 - 3 metres. These zones of alteration contain sericite - pyrite - (quartz) with veins or zones of quartz, pyrite, molybdenite, hematite, magnetite or combinations of the same. This alteration is either associated with individual veins, stacked on combination veins or found by itself within structures. The veins or mineralized - alter-

ation zones in many cases are structurally controlled by a possible cone sheeting or by faults that are inward dipping around the central portion of the Salal stock.

Mineralization

Molybdenite mineralization is of two major types in the mapped area: 1) vein and shear fillings - associated with quartz sericite and/or pyrite, 2) molybdenite joint and vein fillings with no associated gangue minerals. Most of the molybdenite mineralization is of the first type. The larger molybdenite veins exhibit a layered structure. They consist of alternating 1mm - 2mm quartz and molybdenite layers. Pyrite may be either central or exterior to the quartz molybdenite. In the former, it is considered to be replacement by subsequent mineralizing events. Exterior pyrite mineralization is usually associated with sericite alteration in an envelope around the quartz vein.

Molybdenite occuring as joint or fracture coatings is less abundant than the vein-type mineralization. The molybdenite-filled joints are not common and were seen only at Red Mountain Ridge and Logan Ridge.

Disseminated molybdenite was seen in a small fine grained cupula on Glacier Island and in a 16 - 20 metre wide medium grained quartz monzonite at the north end of the northerly ridge off Red Mountain.

Other ore minerals present within the map area are chalcopyrite, sphalerite, galena, specular hematite, pyrite, magnetite, malachite, and azurite.

Primary and secondary copper mineralization is rare at Salal Creek. Chalcopyrite and malachite were seen in a fault controlled vein at the Bridge River easterly from the mouth of the creek draining Red Mountain Glacier and Plug Glacier. Chalcopyrite, malachite, sphalerite along with galena and pyrite was seen in a 2m wide silicified zone at the contact between the Salal Pluton and the Coast Range quartz diorite north of Mud Lake.

Malachite stained fractures were found in felsenmeer boulder on the peak south of the large volcanic mass (flows) north of No. 3 Creek.

Zones of sphalerite, galena hematite, pyrite chalcopyrite and molybdenite with strong manganese staining, sometimes associated with dry alteration (kaolinite, sericite and other clay minerals) within the fine grained phase have been recognized in several localities. Most of these showings are associated with slight shearing or faulting and many occur adjacent to a quartz or quartz feldspar porphyry intrusive. Silver and minor gold is associated with these zones, as seen from the geochemical assays of this material.

No zonation patterns are readily apparent by visual examination of the map area although geochemical data indicates that zonation may be possible on a geochemical scale from whole rock analysis.

In general the observed mineralization at Salal Creek follows pre-prepared (fault or shear) zones, either a cone sheet type of fracture system or a fault system along the major drainage

patterns. The mineralization therefore is quite sheet-like in narrow restricted zones in the cone sheet fracture set, and forms narrow, almost vertical, zones in the creek bottom faults. Mineralization fades rapidly away from the creeks so that the ridges between creeks are essentially barren of mineralization or alteration.

Although no visible sulphide minerals are seen in the stacked quartz veins, quartz stockwork or boxwork areas or quartz vein breccia areas, at the heads of No. 1, 2 and 3 Creeks, it is thought that this veining may express the presence of a mineralized body at depth. Rock geochemical analysis of these areas shows that many of the samples are higher than background in molybdenum fluorine, and tungsten.

GEOCHEMISTRY

Five hundred and seventy-eight (578) rock samples were collected and cut in half during 1977. One half of the sample was kept as reference and stored while the other half was submitted for analysis for total zinc, tungsten, molybdenum and fluorine. Fourteen (14) samples were additionally assayed for the following: gold, silver, lead, copper, and uranium. Chemex Labs Ltd., 212 Brooksbank Avenue, North Vancouver, V7J 2C1, did the sample preparation and analysis.

Samples were taken from all rock types encountered on the property. The majority of the samples were collected from rock that lacked any mineralization or alteration. Some samples were collected of mineralized veins and from alteration zones,

but these samples were noted and their influence on the data presented was considered.

Two maps showing the sample number, location, rock type and geochemical results were prepared and are presented in the pocket of this report. Anomalous and threshold values have been coloured in various shades to distinguish the values and the areas of interest. Larger areas of threshold and anomalous values have been outlined by a shaded line of the anomalous colour.

Histograms and cumulative frequency plots were prepared from the analytical results for each of the major rock types and also for the total accumulation of all data regardless of rock type. The histograms and cumulative frequency plots are presented at the back of this section of the report, (Figures 3 - 10).

Histograms and cumulative frequency plots were also prepared combining results from this years (1978) and last years (1977) on individual rock types and for the total accumulation regardless of rock type (Figures 11 - 18).

The individual plots for the various elements for each phase of the intrusion show several interesting elemental characteristics. Some of the individual plots in the cumulative probability plots are not too helpful because of the difficulty in finding good breaks at the threshold and anomalous values.

TABLE II

ROCK GEOCHEMICAL VALUES

	Monzonite Fine Grained			Monzonite Medium Grained			Monzonite Coarse Grained			Porphyry Quartz Feldspar			Cumulative			Used	
			1977-78			1977-78			1977-78			1977-78			1977-78		
No	1977	1978		1977	1978		1977	1978		1977	1978		1977	1978		1977	1978
Threshold	10-11	4-18	4-17	8	7-8	4-8	8-12	4-8	4-12	8	5-12	4-8	5-10	5-13	4-8	8	8
Anomalous	27-30	8-28	10-28	13	12-13	12-13	22	7-18	7-18	19	12-28	12-13	19-30	12-23	12-27	27	18
Zn																	
Threshold	70-110	25-70	25-30	50	30-40	35-40	30-50	43-110	40-90	30-50	25-32	30	45-70	45-150	40	46	40
Anomalous	130	70-300	50-70	70-80	50-90	50	70-80	100	100-130	45-70	70-90	50-80	110-130	110	110	110	110
F																	
Threshold	110-130	125-165	70-140	125-165	225-300	175-230	125-160	180-300	180-330	125-180	125-330	150-270	80-104	190	200-220	140	190
Anomalous	80-500	260-525	270-325	330	230-350	325-330	160-520	380-500	425-470	80-230	200-370	325-370	150-230	410	420-500	300	350
W																	
Threshold	5-6	3-9	3-5	5	3-5	3-7	5	2-4	3-5	5	3-5	3-5	6-7	3-5	3-9	6	4
Anomalous	9-17	5-17	5-15	7-15	5-7	5-11	7-11	5	5-7	7	5-7	5-7	9-16	5-15	5-11	16	10

The normalized frequency distribution plots show that zinc and fluorine have different background and thus anomalous values in the coarse and medium grained phases than those of the fine and quartz feldspar porphyry phases. The zinc background value is 45ppm (in the coarse phase), while 40ppm for the medium phase and decreases to 20 - 25ppm for the fine and quartz feldspar porphyry phases. It might be said that the zinc content of the pluton decreases in descending order towards the younger phases of the pluton.

The fluorine content of the Salal Creek plutonic rocks generally follows the same decreasing order from coarse to quartz feldspar porphyry. The background value for fluorine in the coarse grained phase is 350ppm, in the medium grained phase is 225ppm, in the fine grained phase is 140ppm, and is 140ppm in the quartz feldspar porphyry phase.

The fluorine plot of the medium grained quartz monzonite phase in the normalized frequency distribution plot shows a secondary frequency high at 275ppm. This high is probably caused by a misidentification of specimens that probably should have been labeled coarse grained phase or due to the fact that the medium grained phase is very closely related to the coarse grained phase.

The tungsten plot of the coarse grained phase of results samples collected in 1978 shows that 98% of the samples contained only 4ppm or less of tungsten, and thus no values for background and anomalous could be seen.

The highest tungsten value >800ppm W was taken from a sericite pyrite chalcopyrite vein breccia in the lowest part of No. 1 Creek. The second highest value 250ppm W came from a shear breccia in No. 3A Creek. Several samples anomalous in tungsten are associated with quartz veining (stacked quartz veins, and quartz breccia areas) in the cirque area of No. 1 and No. 2 Creeks and the drainages of No. 1, 2 and No. 3 Creeks.

There are two anomalous areas of molybdenum in rocks on the northern portion of the Salal Creek Pluton. One is the continuation of coincidently high fluorine tungsten, zinc and molybdenum found in No. 2 Creek last year. The second broad scantilly documented molybdenum anomaly occurs between Logan Ridge and Red Mountian, and covers the cirque area of Windy and Plug Glaciers. This anomaly is tenuous as much of the area is covered by glacial debris and/or glaciers and thus contains very few outcrops (thus samples). It appears to be associated with the contact area between the coarse grained and the fine grained quartz monzonite phases. A general fluorine anomaly; that may not be as strong or continuous because of the higher background and anomalous values in the coarse grained phase, and scattered zinc anomalies are also associated with this anomaly. No tungsten values are associated with this anomaly.

Practically the whole of the coarse grained quartz monzonite phase in the northern portion of the Salal Creek Pluton is anomalous in fluorine. This is a reflection of the higher background values of fluorine in this phase and the anomaly

should not be regarded as a significant feature in determining drill targets.

Other scattered one and two sample anomalous values occur throughout the pluton and in particular around Glacier Island and Red Mountain. These individual small anomalies are not believed to be as significant as the other larger many sample anomalies.

Fourteen samples of heavy manganese stained rock, some of which contained hairline to 2mm barren white quartz veins were assayed for copper, zinc, lead, molybdenum, fluorine, uranium, gold and silver. All the samples came from the areas on No. 1, 2 and 3 Creeks or the cirque areas at the heads of these creeks. The highest values from these zones which sometimes contained hematite (as specularite) galena and sphalerite are as follows; Au 10ppb, Ag 3.2ppm, Cu 2550ppm, Mo 57ppm, Pb 3650ppm, Zn $>$ 4000ppm, U 4ppm, F $>$ 4000ppm, W $>$ 100ppm. Some of the higher values may come from manganese scavaging but this is probably close to the original mineral content of these narrow manganese altered zones. All the samples are located in the area of No. 1, 2 and 3 Creeks or their cirques.

Figure 3

SALAL CREEK ROCK SAMPLES (1978)

NORMALIZED FREQUENCY DISTRIBUTION

ZINC

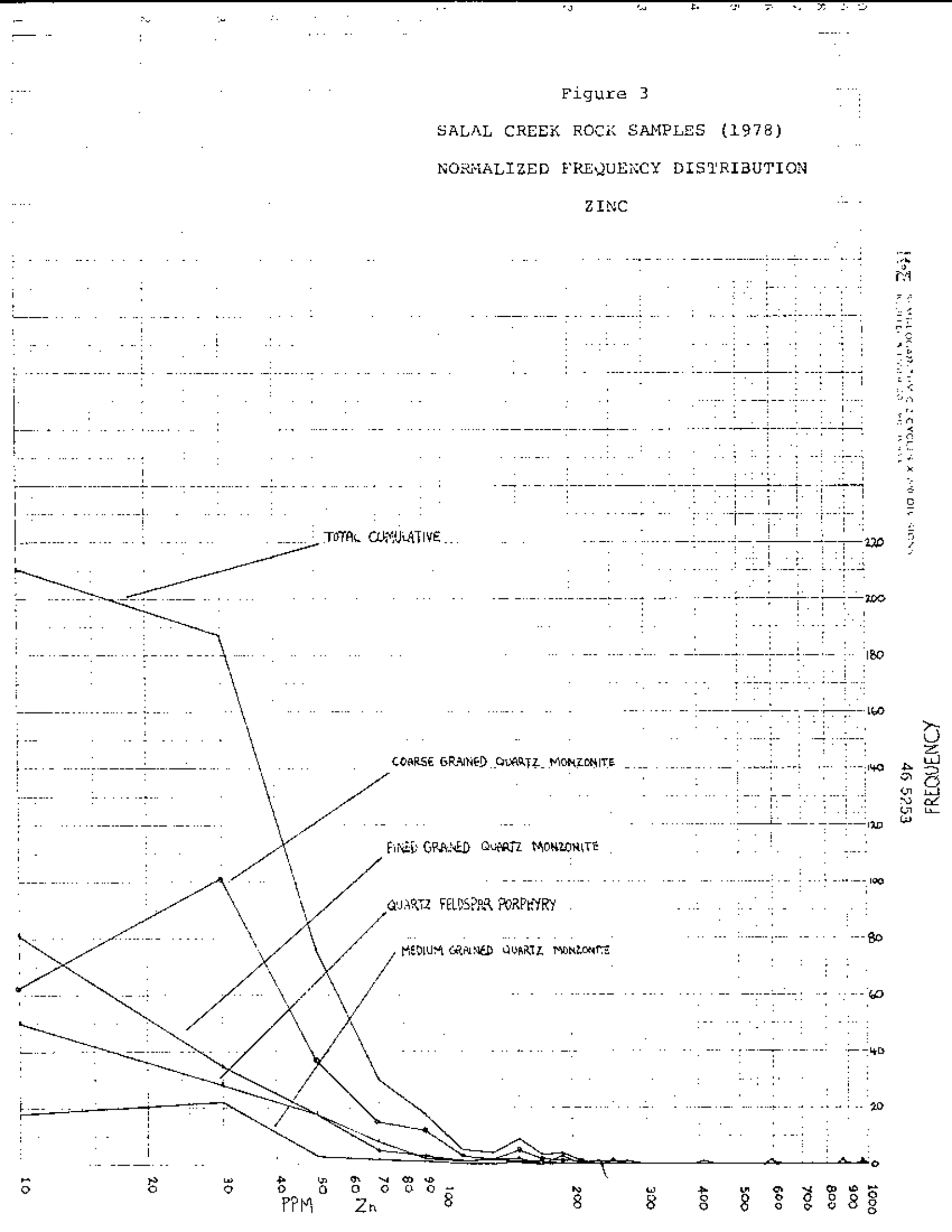


Figure 4

SALAL CREEK ROCK SAMPLES (1978)

NORMALIZED FREQUENCY DISTRIBUTION

FLUORINE

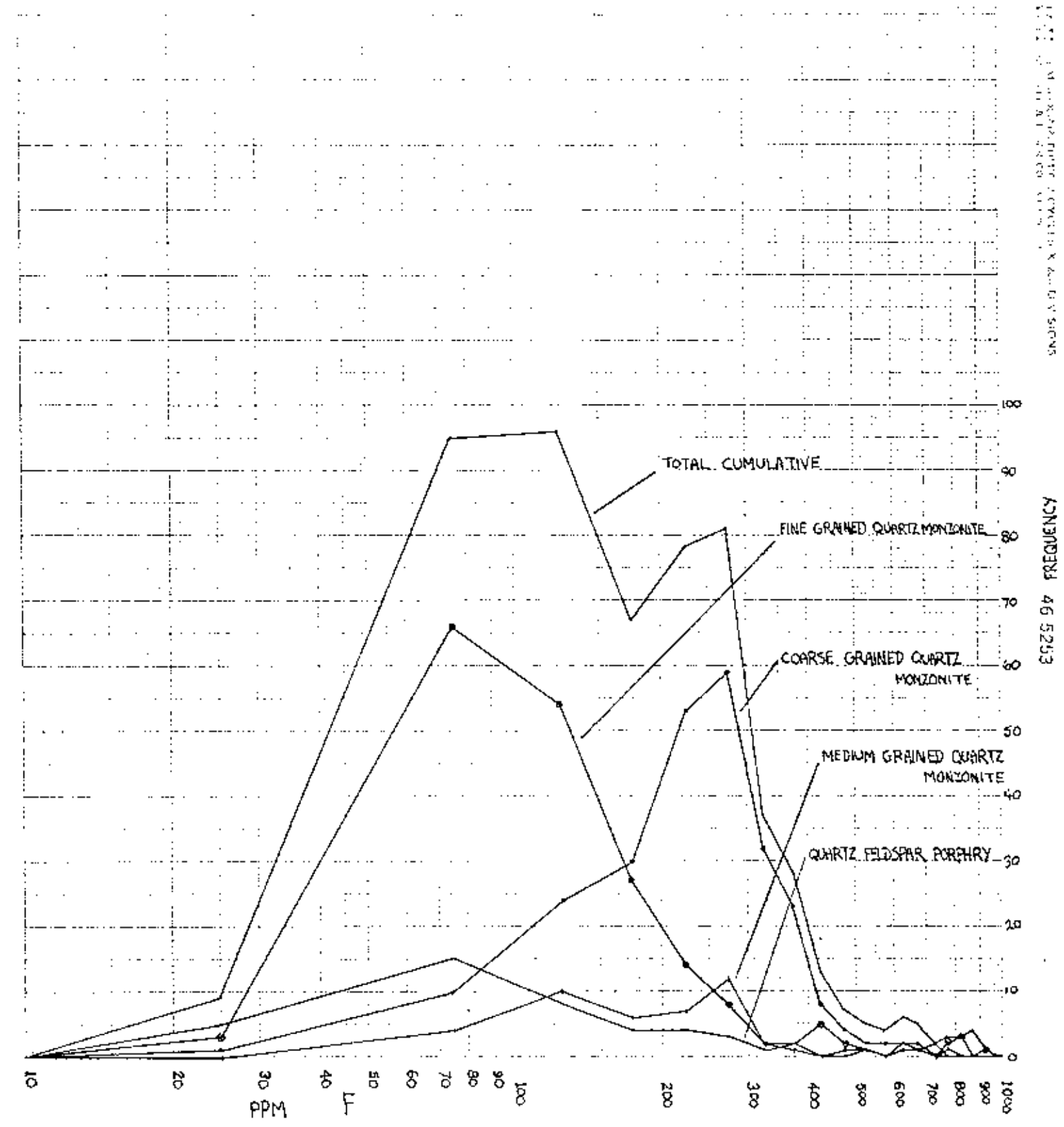


Figure 5

SALAL CREEK ROCK SAMPLES (1978)

NORMALIZED FREQUENCY DISTRIBUTION

MOLYBDENUM

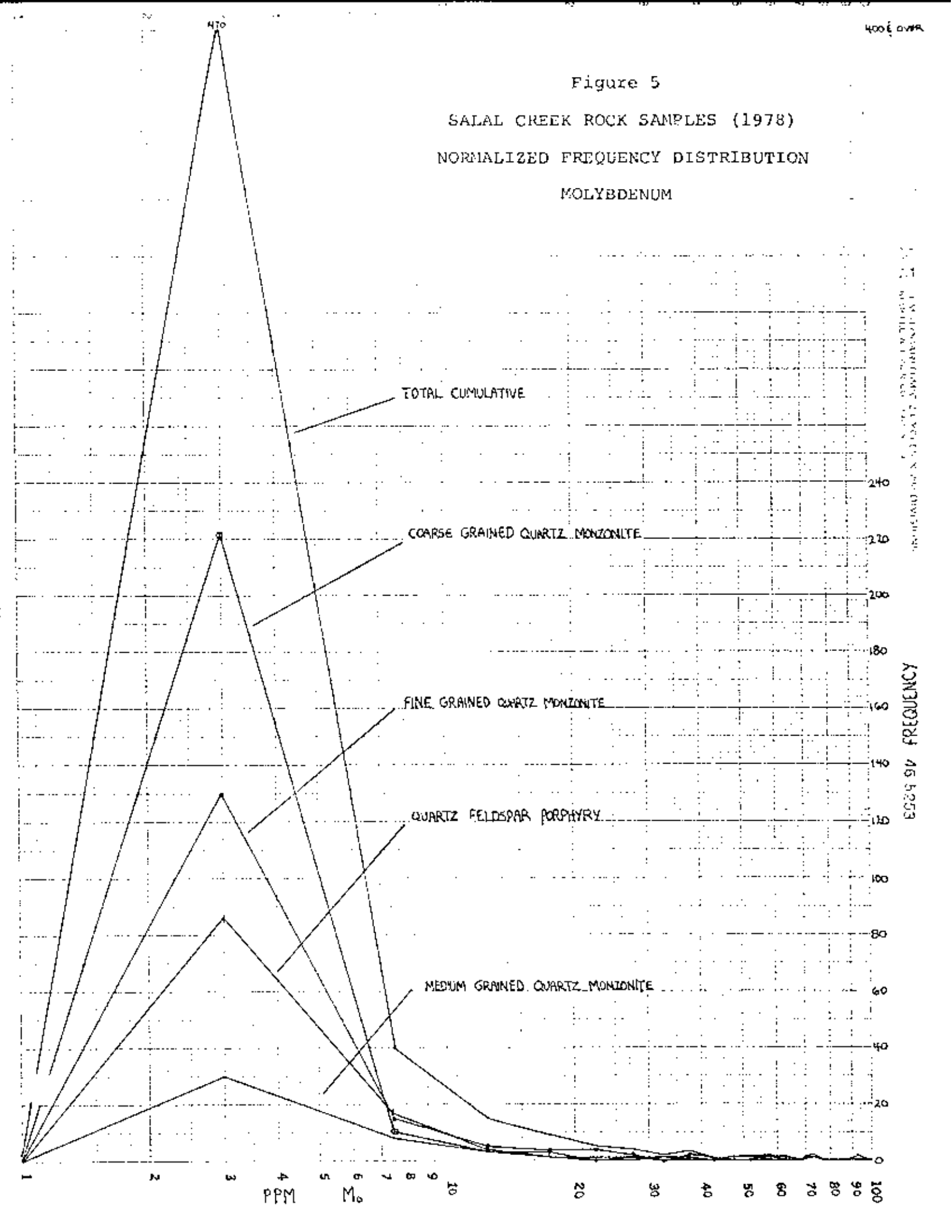
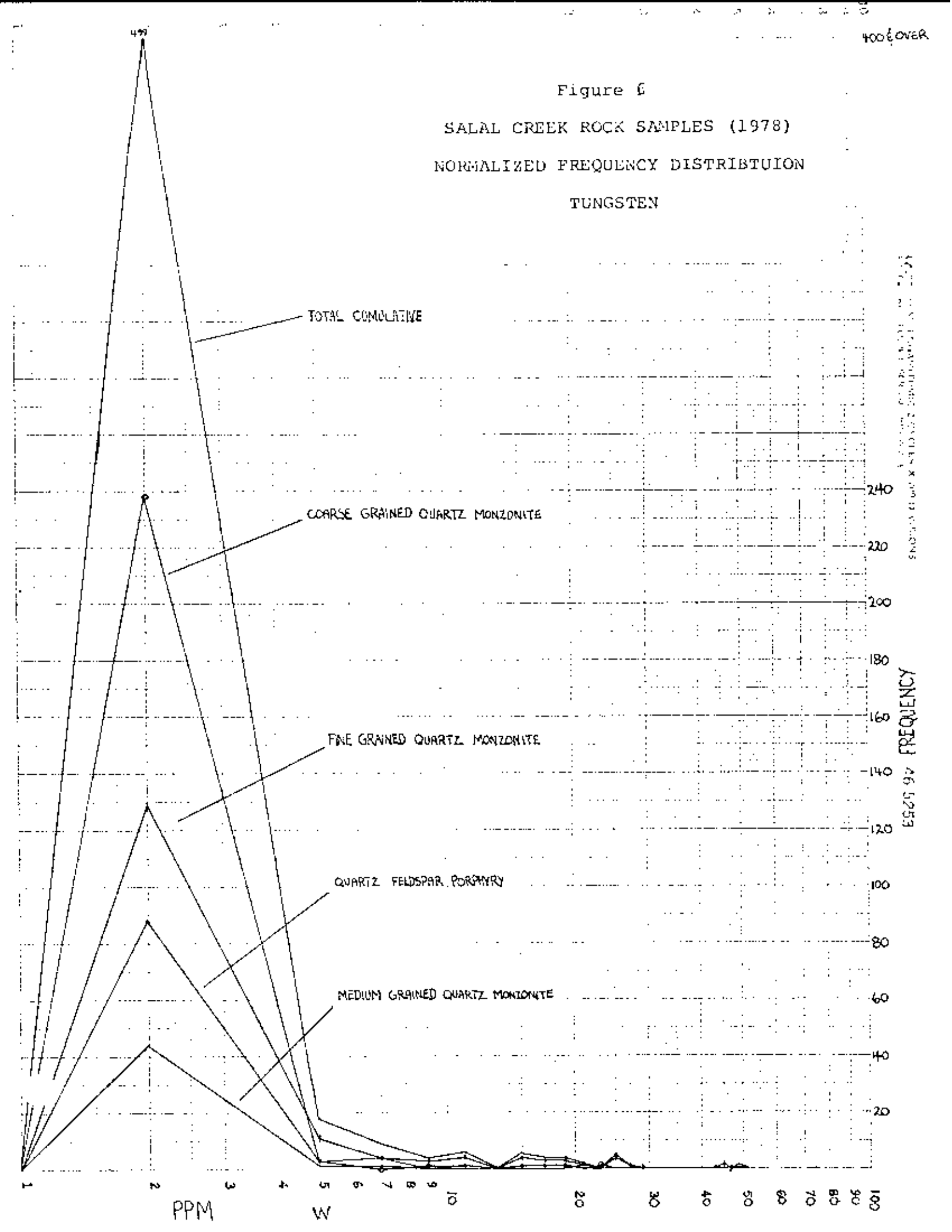


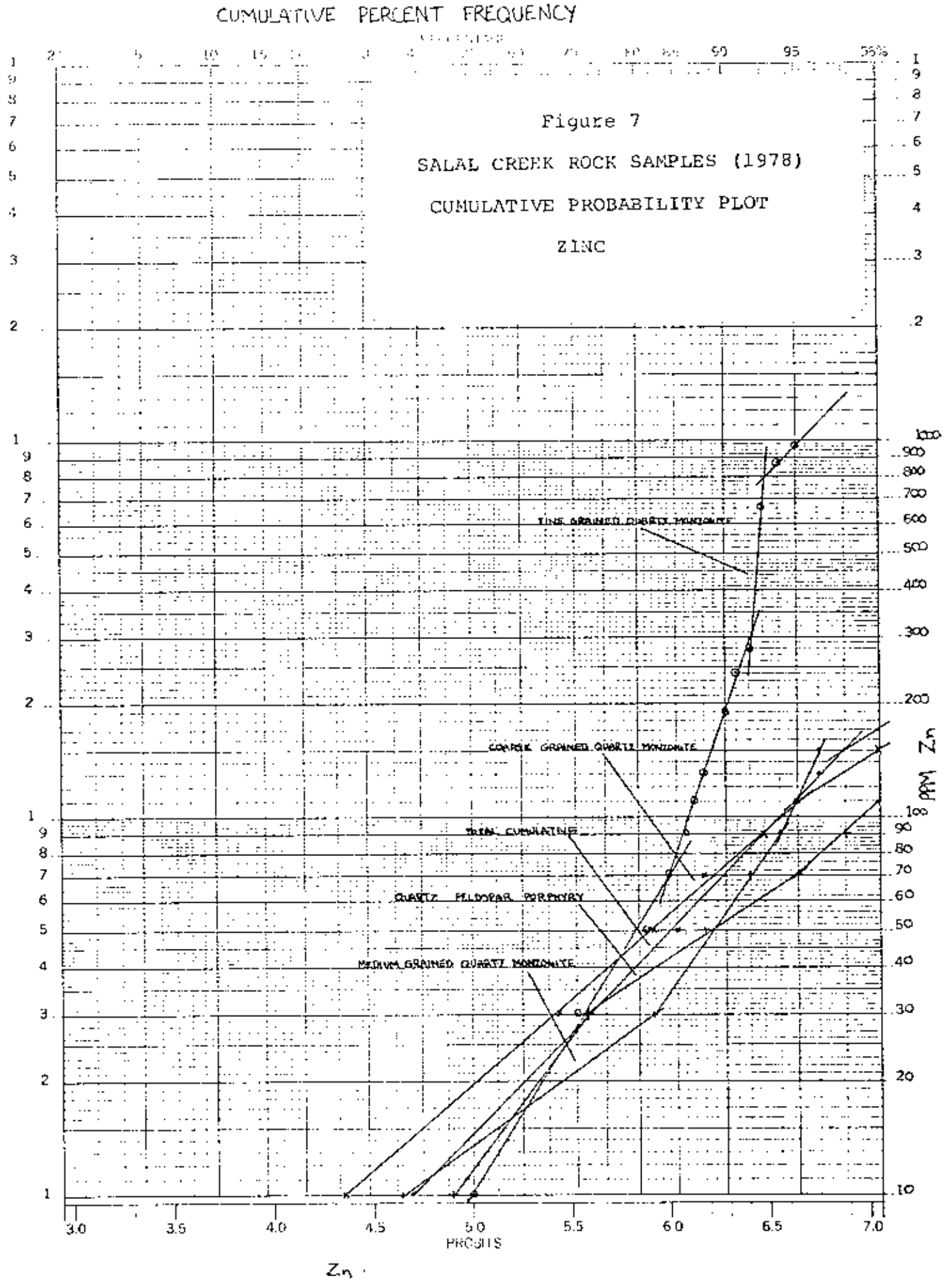
Figure 6

SALAL CREEK ROCK SAMPLES (1978)

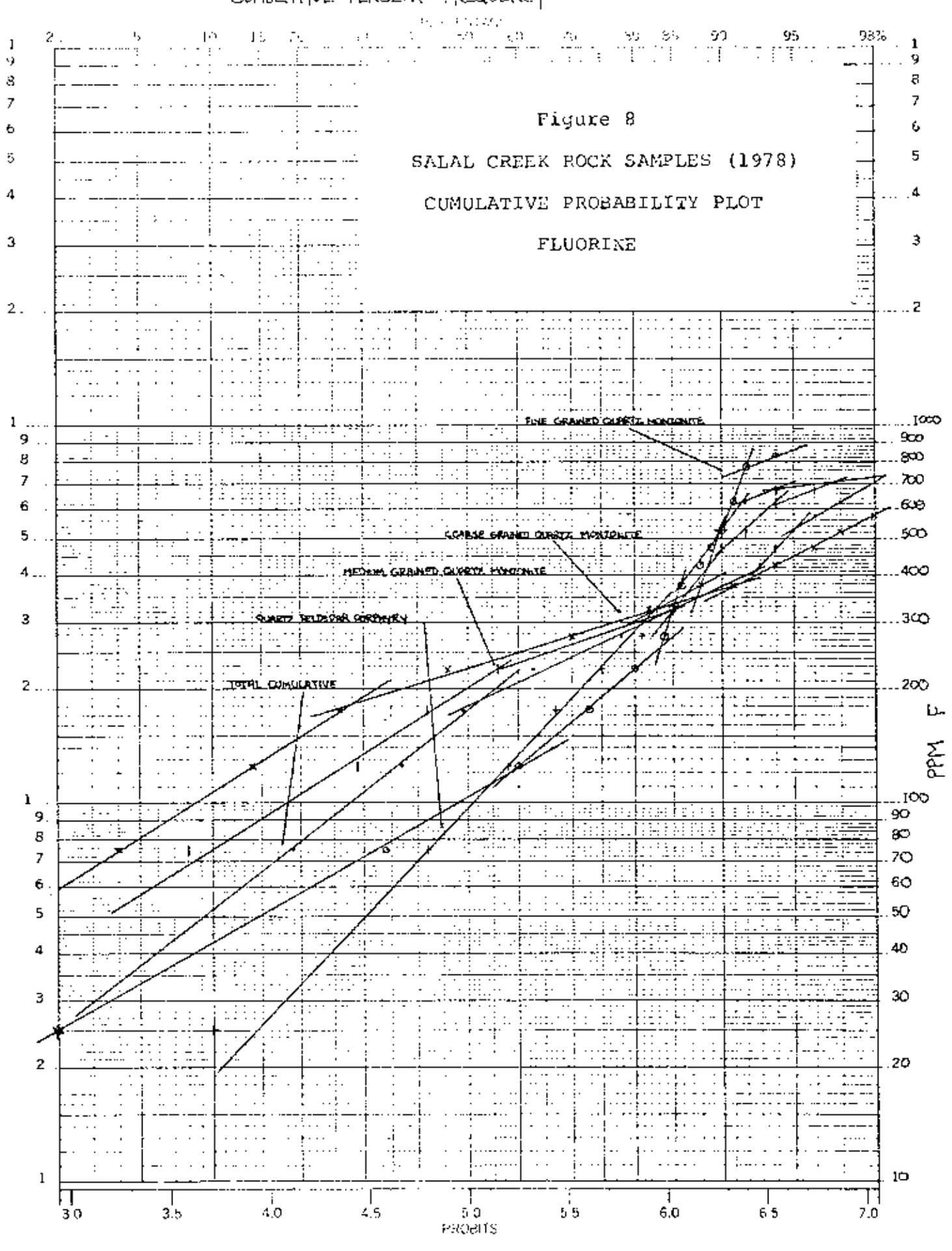
NORMALIZED FREQUENCY DISTRIBTUION

TUNGSTEN



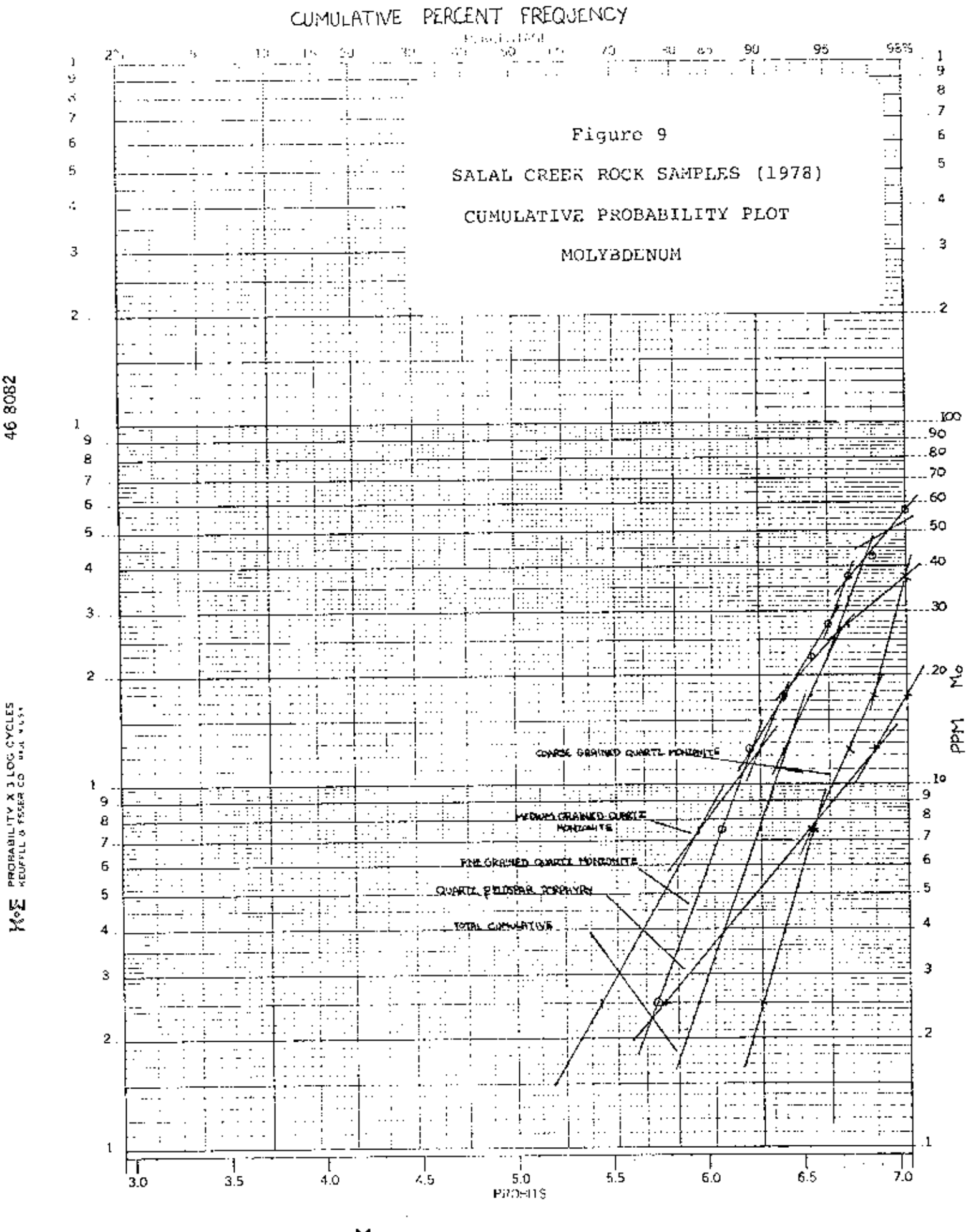

CUMULATIVE PERCENT FREQUENCY
Figure 7
SALAL CREEK ROCK SAMPLES (1978)
CUMULATIVE PROBABILITY PLOT
ZINC
FINE GRAINED QUARTZ MONZONITE
COARSE GRAINED QUARTZ MONZONITE
THIN CUMULATIVE
QUARTZ FELDSPAR PORPHYRY
MEDIUM GRAINED QUARTZ MONZONITE
PROBITS
Zn
PPM Zn
PROBABILITY X 3 LOG CYCLES
KEUFFEL & ESSER CO

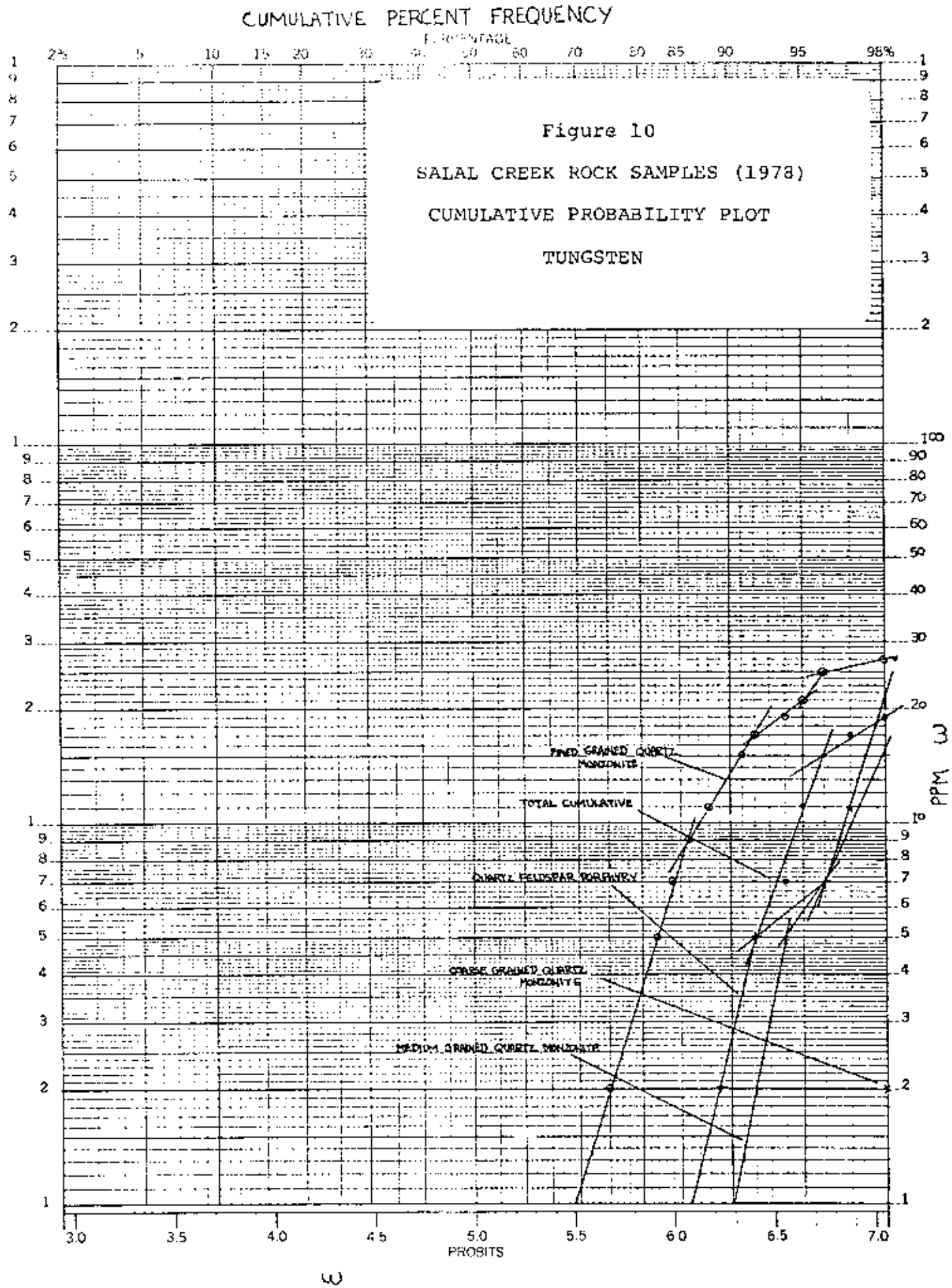
46 8082



46 8082

KEUFFEL & ESSER CO. PROBABILITY X 3 LOG CYCLES


CUMULATIVE PERCENT FREQUENCY
Figure 9
SALAL CREEK ROCK SAMPLES (1978)
CUMULATIVE PROBABILITY PLOT
MOLYBDENUM
COARSE GRAINED QUARTZ MONZONITE
MEDIUM GRAINED QUARTZ MONZONITE
FINE GRAINED QUARTZ MONZONITE
QUARTZ FELDSPAR PORPHYRY
TOTAL CUMULATIVE
PERCENTS
Mo
PPM
Mo
PROBABILITY X 3 LOG CYCLES
KEUFFEL & ESSER CO.
46 8082



46 8082

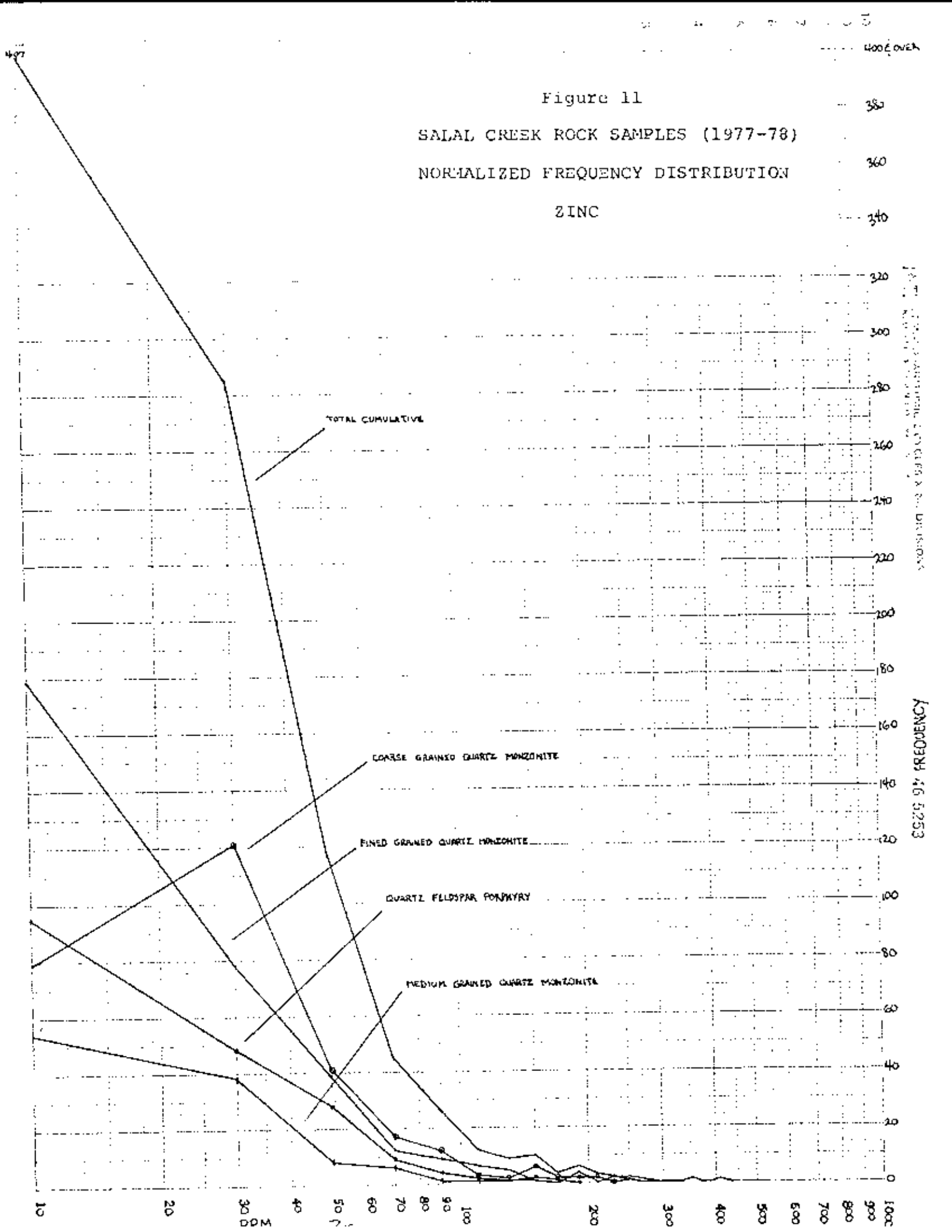
KE PROBABILITY X 3 LOG CYCLES
KEUFFEL & ESSER CO

Figure 11

SALAL CREEK ROCK SAMPLES (1977-78)

NORMALIZED FREQUENCY DISTRIBUTION

ZINC



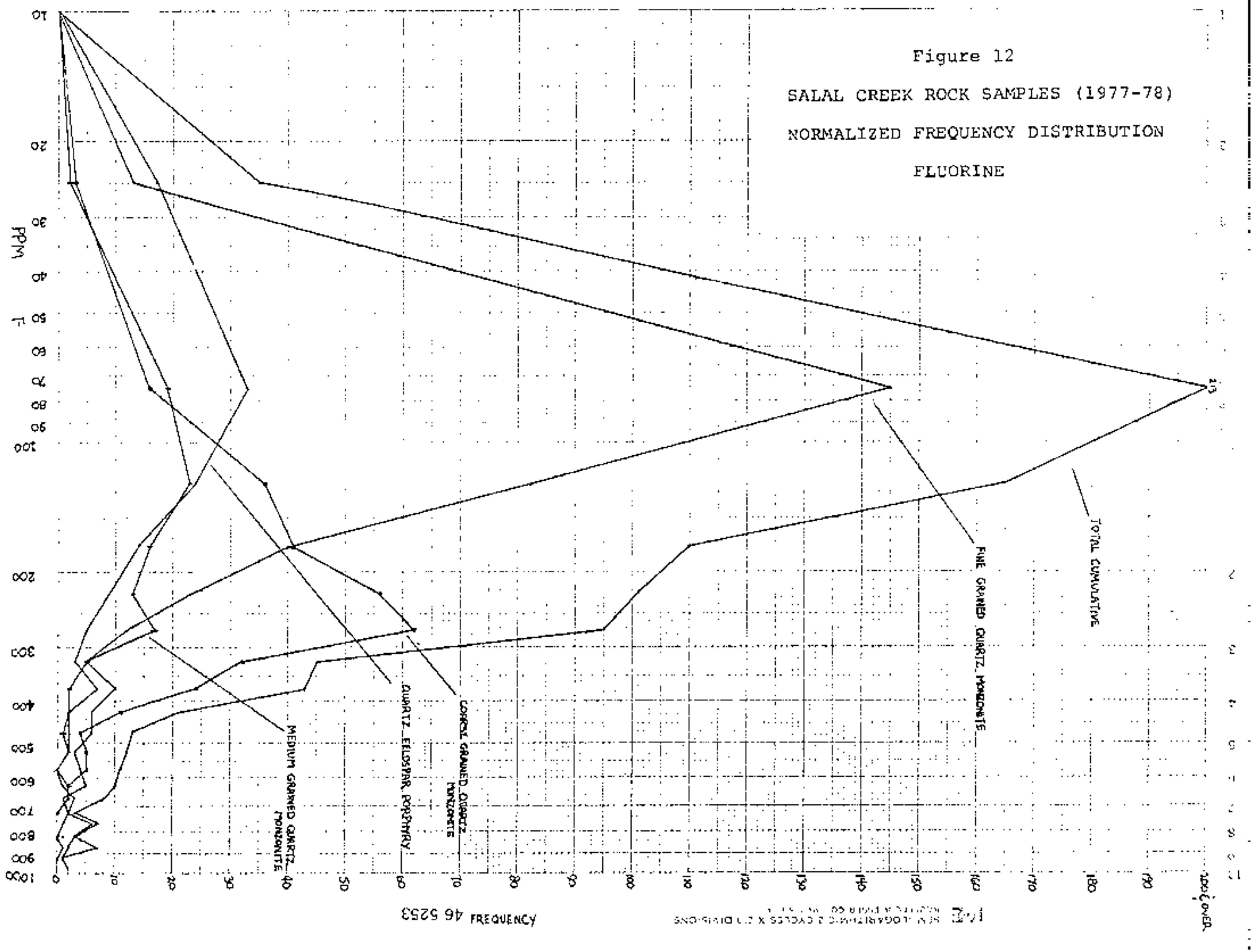


Figure 12

SALAL CREEK ROCK SAMPLES (1977-78)

NORMALIZED FREQUENCY DISTRIBUTION

FLUORINE

Figure 13

SALAL CREEK ROCK SAMPLES (1977-78)

NORMALIZED FREQUENCY DISTRIBUTION

MOLYBDENUM

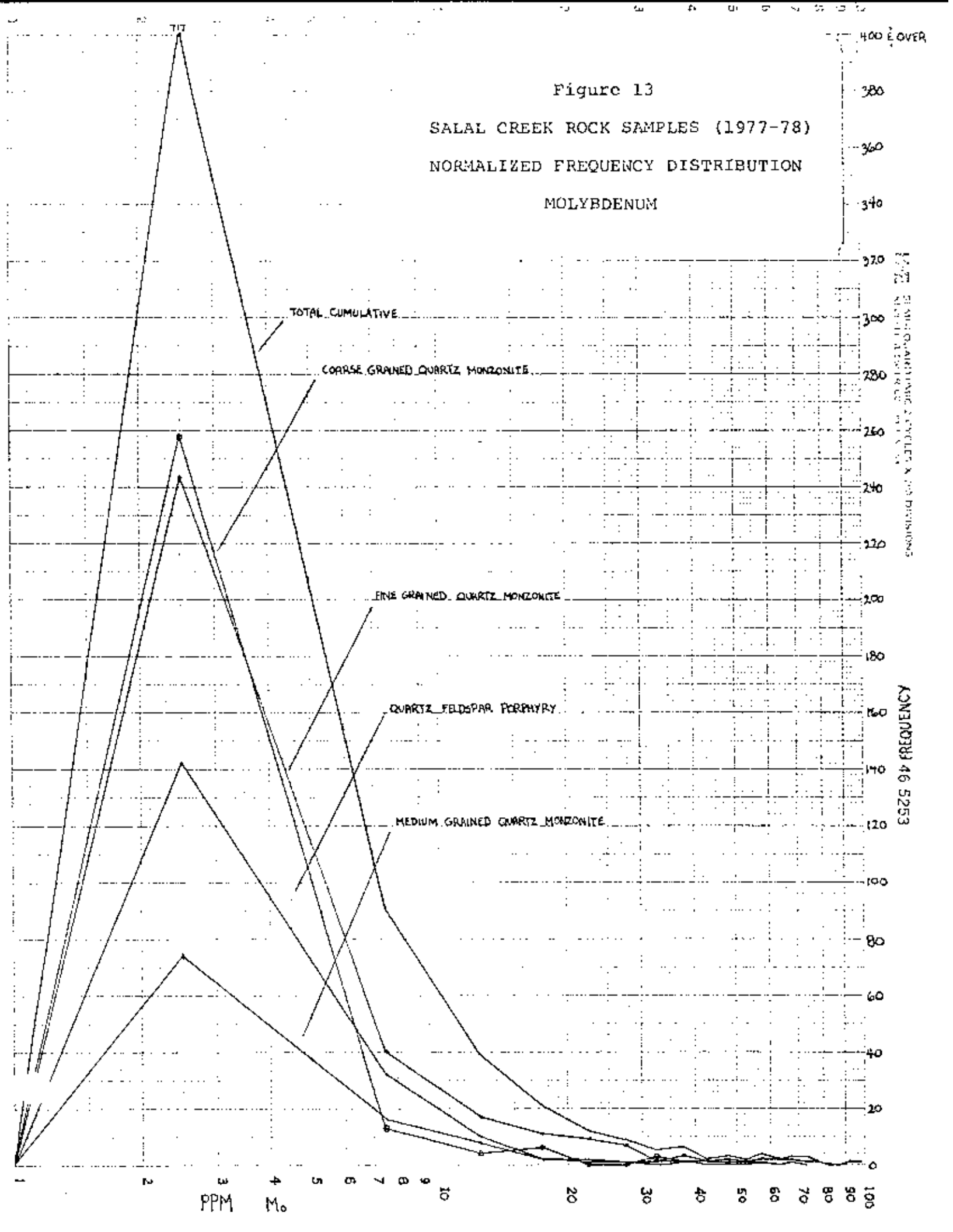
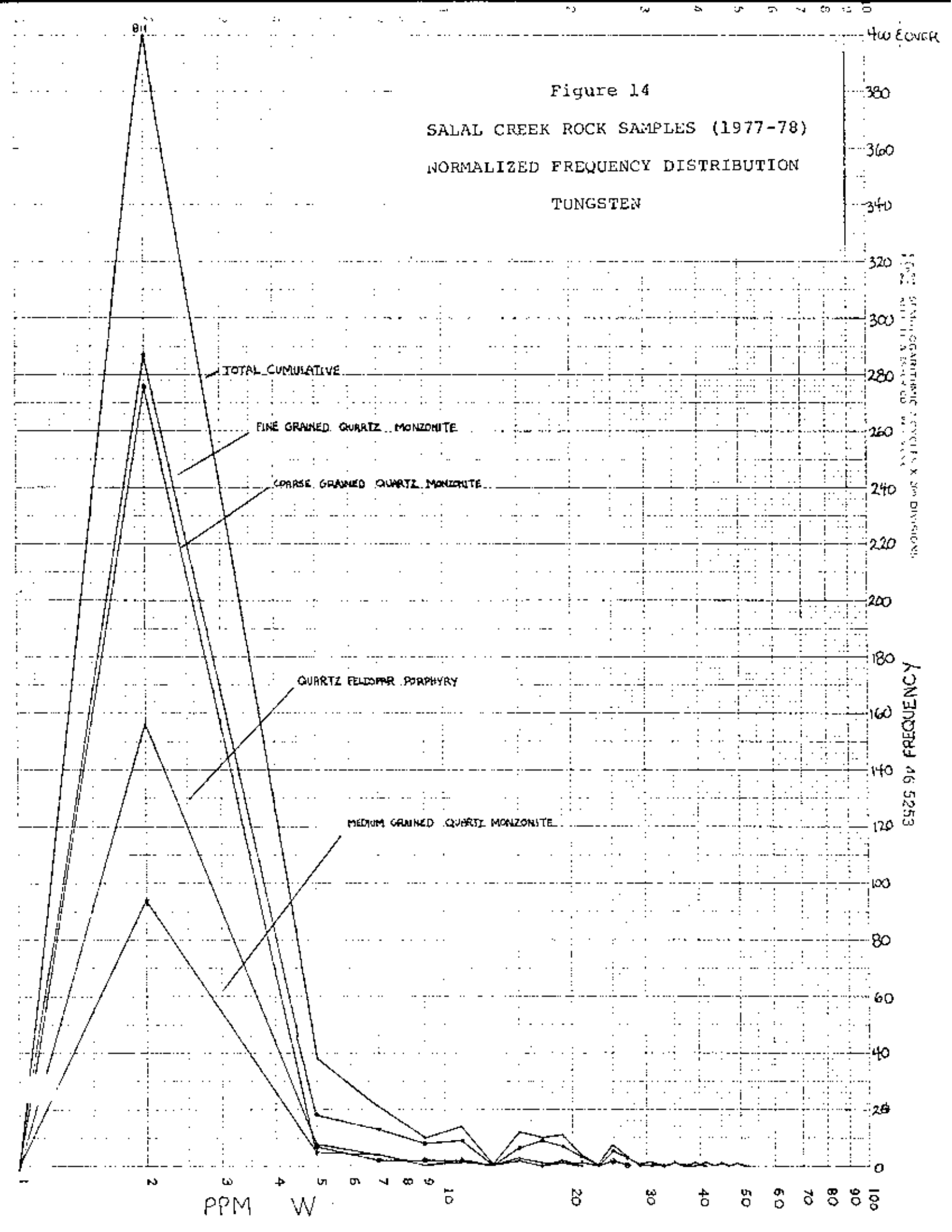


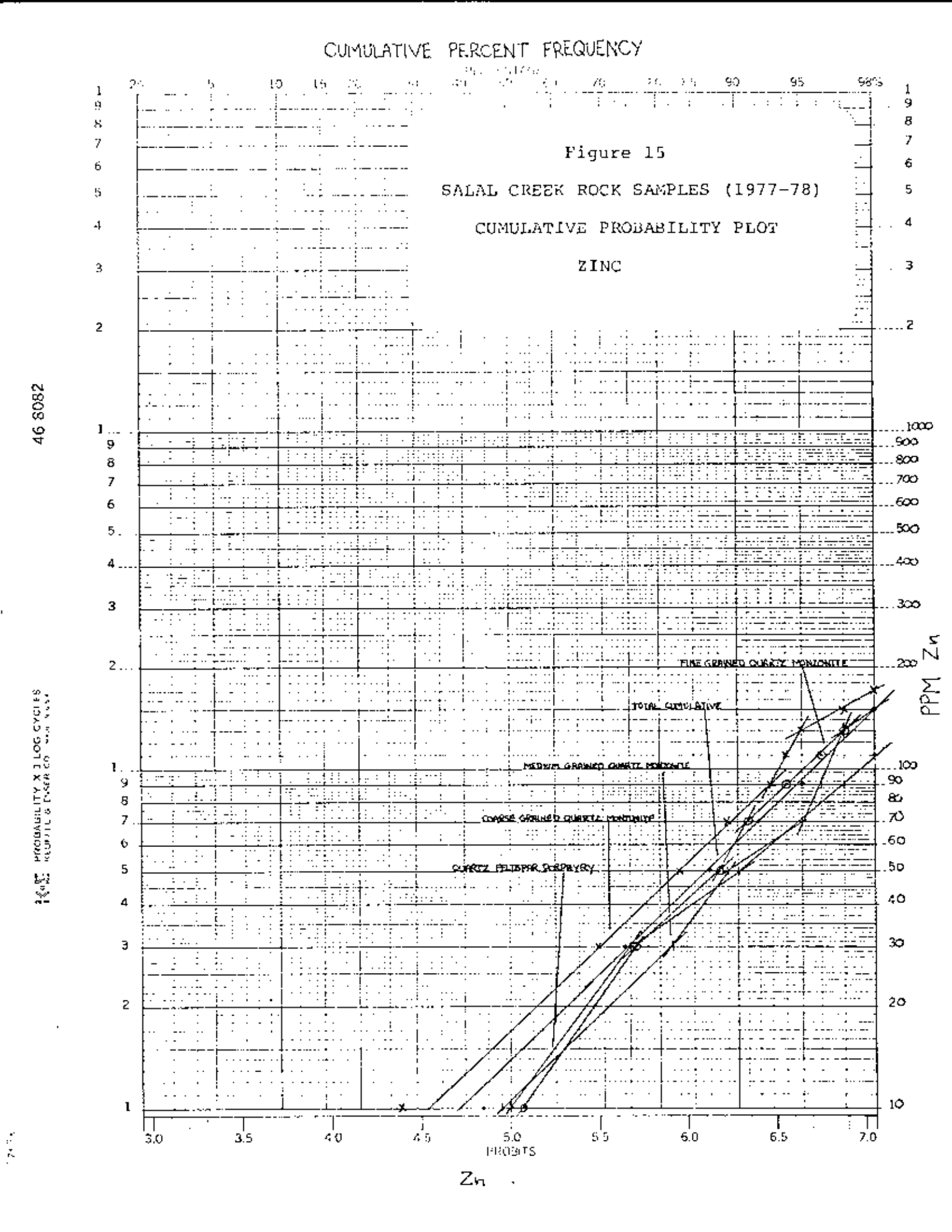
Figure 14

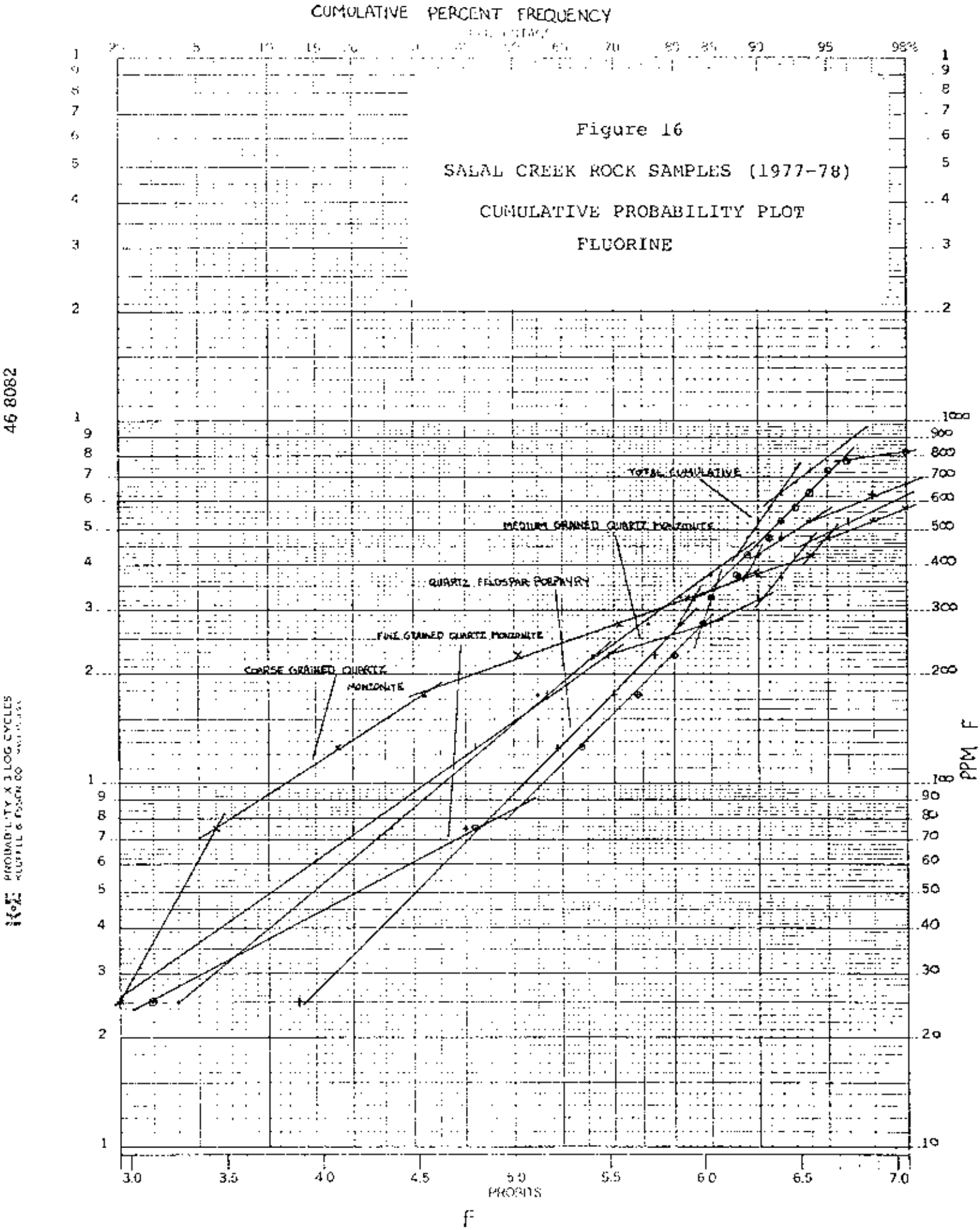
SALAL CREEK ROCK SAMPLES (1977-78)

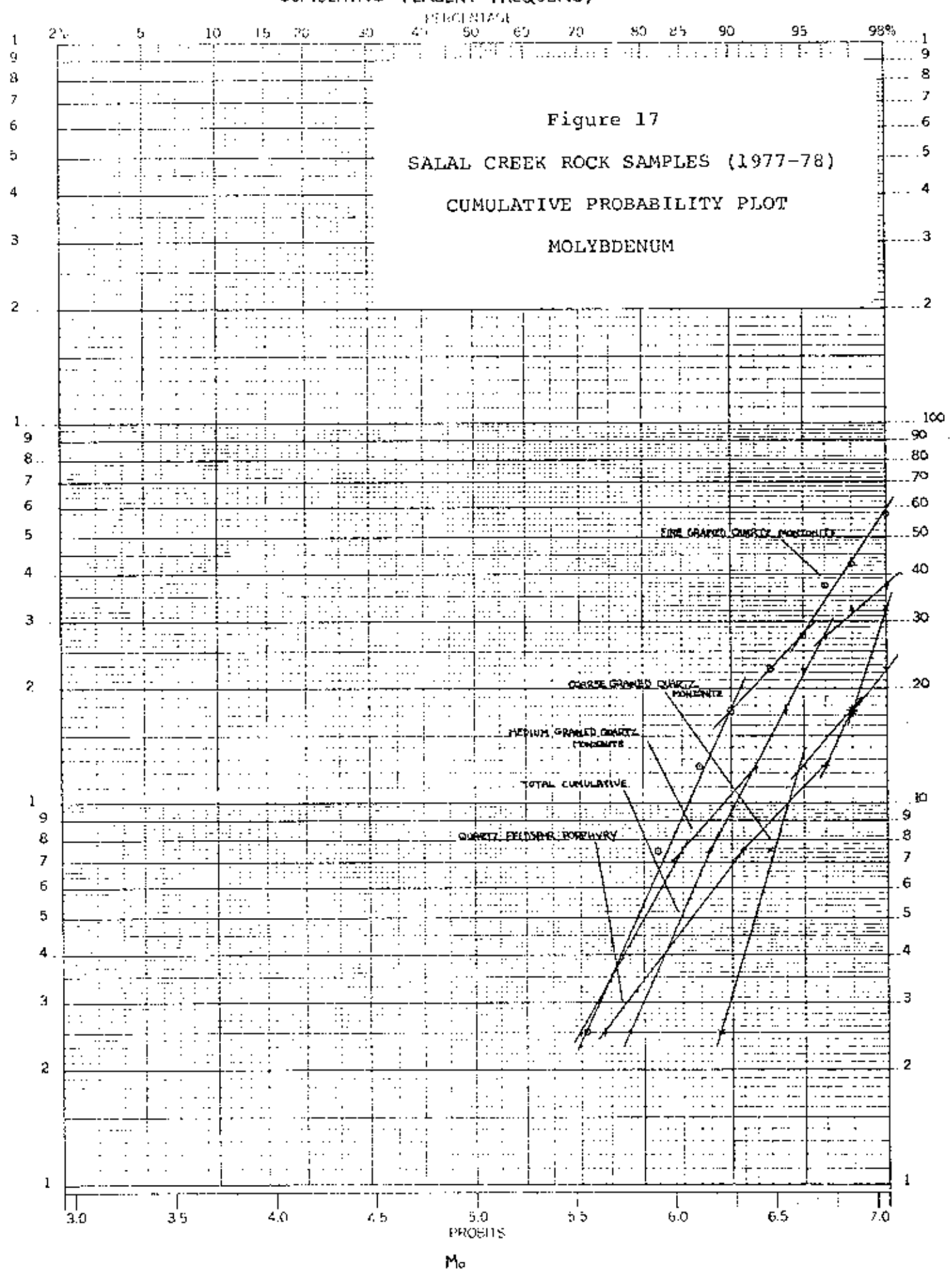
NORMALIZED FREQUENCY DISTRIBUTION

TUNGSTEN



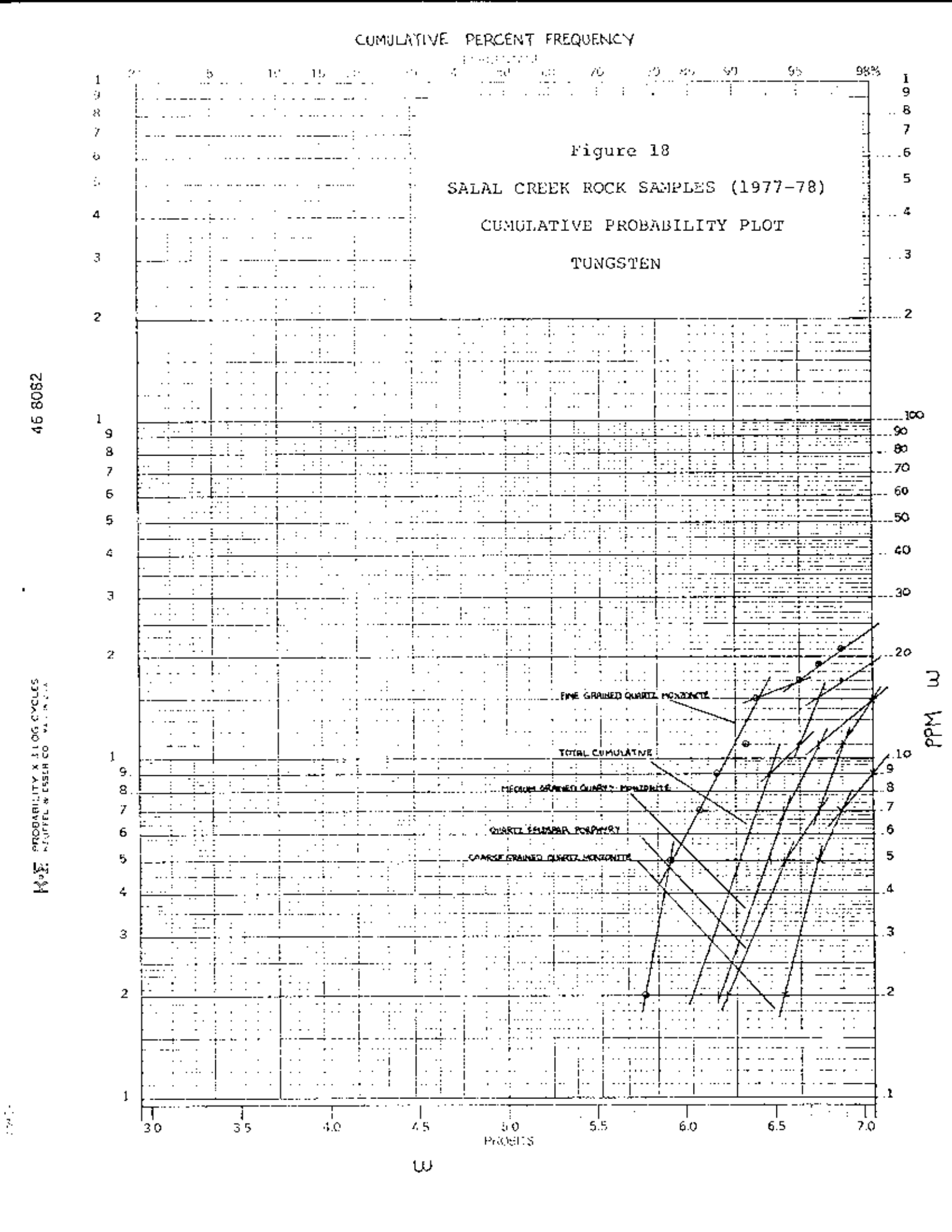

CUMULATIVE PERCENT FREQUENCY
Figure 15
SALAL CREEK ROCK SAMPLES (1977-78)
CUMULATIVE PROBABILITY PLOT
ZINC
FINE GRAINED QUARTZ MONZONITE
TOTAL CUMULATIVE
MEDIUM GRAINED QUARTZ MONZONITE
COARSE GRAINED QUARTZ MONZONITE
QUARTZ FELDSPAR PORPHYRY
PROBITS
PPM Zn
Zn
46 8082


CUMULATIVE PERCENT FREQUENCY
Figure 16
SALAL CREEK ROCK SAMPLES (1977-78)
CUMULATIVE PROBABILITY PLOT
FLUORINE
TOTAL CUMULATIVE
MEDIUM GRAINED QUARTZ MONZONITE
QUARTZ FELDSPAR PORPHYRY
FINE GRAINED QUARTZ MONZONITE
COARSE GRAINED QUARTZ MONZONITE
PROBITS
PPM F
f



46 8082

K&E PROBABILITY X 3 LOG CYCLES
KEUFFEL & ESSER CO


CUMULATIVE PERCENT FREQUENCY
Figure 18
SALAL CREEK ROCK SAMPLES (1977-78)
CUMULATIVE PROBABILITY PLOT
TUNGSTEN
FINE GRAINED QUARTZ MONZONITE
TOTAL CUMULATIVE
MEDIUM GRAINED QUARTZ MONZONITE
QUARTZ FELDSPAR PORPHYRY
COARSE GRAINED QUARTZ MONZONITE
PROBITS
PPM W
W
46 8082

CONCLUSIONS

There are four main phases of the Salal Plutonic Complex; the coarse, medium and crowded porphyritic fine and fine grained quartz monzonite.

Five and possibly six later intrusive phases, that are still related to the Salal Plutonic rock are found within the pluton and enclosing Coast Range Complex, as dykes and plugs. These later phases are quartz feldspar porphyry, quartz porphyry, porphyritic biotite granite and rhyolitic and felsic dykes. The acidic blue-grey and white aplitic dykes would make this total six.

The white aplite dykes occur almost exclusively in the coarse and medium grained quartz monzonite. They are probably smaller rapidly cooled dykes of fine grained quartz monzonite.

The blue-grey aplite dykes are probably quartz-feldspar prophyry dykes that have cooled rapidly and have not allowed quartz or feldspar phenocrysts to develop.

The Salal Plutonic Complex of Tertiary Age intrudes the Coast Range Complex which is composed of foliated and non-foliated granodiorite to diorite of Cretaceous and Older Age.

The Salal Plutonic Complex is a co-magmatic intrusion in which all rock types are derived from a cooling magma that became progressively more acidic, i.e. coarse to medium to fine to quartz feldspar porphyry. Although some sharp contacts between phases do exist, they are infrequent.

The heat source or cooling center of the magma moved from the northeastern portion of the pluton to the southwestern portion of the pluton.

Basaltic to rhyolitic dykes, plugs and flows cut the Salal Pluton and/or unconformably overlie the pluton and Coast Range Complex rocks.

The recent volcanic flows within the map area appear to be separate volcanic events and do not form wide continuous sheets over the whole area. The flows also appear to become more acidic from the northeastern to southwestern regions of the map area.

Widely scattered mineralized or altered veins or zones exist within all major phases of the Salal Plutonic Complex. These zones are restricted in size and usually occupy zones of shattering or faulting.

Whole rock geochemistry has outlined two anomalous zones within the map area in fluorine, molybdenum, zinc and tungsten.

Hydrothermal alteration of two types occurs within the Salal Pluton;

a) pervasive,

b) vein type.

The pervasive alteration type occurs as a large, almost crescent shaped zone at the contact of the fine and medium-coarse grained phases of the Salal Plutonic Complex. This alteration is weak chloritization of biotite with small local

areas of kaolinization and sericitization related to faulting or shearing. The vein zone alteration is confined to narrow zones within structures or on the flanks of veins and consists of sericite-pyrite and minor silicification and kaolinization. Numerous small lenticular zones of pervasive sericitization and silicification are found in the No. 2 and No. 3 Creek drainages.

Breccias occur on the property and can be considered to be of two types;

a) passive, or stoping,

b) tectonic.

The stoping breccias occur in the area west of Red Mountain in the area of Windy Pass where fine grained quartz monzonite has been brecciated passively by stoping of another phase of fine grained quartz monzonite along joint planes. Tectonic breccias occur usually as narrow skins around the edges of volcanic plugs or dykes of basaltic to felsic composition. The largest breccia of this type occurs in the right angled corner of No. 3A Creek. Quartz vein breccias found at the head of No. 2 Creek is another type of tectonic brecciation found on the property.

RECOMMENDATIONS

1. Drilling of the No. 1, 2 and 3 Creeks area anomalies.

2. More rock geochemical sampling of the anomalous area between Red Mountain and Logan Ridge might be considered to better define this anomaly.

Nov 22/78
Date

J.B. Deighton
Senior Geologist

Appendix I

CHEMEX LABS LTD.

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE 985 0626
AREA CODE 604
TELEX 043 52597

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 44289

TO: Utah Mines Ltd.
1600 - 1050 W. Pender
Vancouver, B.C.

INVOICE NO. 26729

RECEIVED July 17-78

ANALYSED July 25/78

ATTN: J. R. Deighton SALAL CREEK ROCKS

SAMPLE NO. :			PPM Mo	PPM Zn	PPM W	PPM F
C	J-78-1		1	38	2	200
Vol		2 Basalt	1	70	2	280
MtoC		3	2	26	2	275
C		4	3	30	2	310
C		6	2	50	2	420
Basalt		7	2	94	2	300
Basalt		8	1	98	2	295
C		9	6	32	2	260
C		10 Alt Chl	2	58	2	230
C		11	1	26	2	310
C		12	3	106	2	400
C		13	2	68	4	250
C		14	1	50	2	270
C		15	1	32	2	275
C		16	5	92	2	280
C		17	1	160	2	255
C		18	2	28	2	290
C		19	1	168	2	195
C		20	1	84	2	245
C	J-78-21		2	18	2	315
C	T	500	1	26	4	330
C		503	2	30	2	280
C		504	2	80	4	475
C		505	1	34	2	290
C		506	3	40	2	265
C		507	2	32	2	310
C		510	2	44	2	280
C		511	1	70	2	250
C		513	5	30	2	210
C		515	2	60	2	250
C		516	2	148	2	250
C	T	517	5	42	2	210

CTA MEMBER CANADIAN TESTING ASSOCIATION

CERTIFIED BY: [signature]

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE 985-0648
AREA CODE 604
TELEX 043-52597

CHEMEX LABS LTD.

••ANALYTICAL CHEMISTS ••GEOCHEMISTS •• REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 45708

TO: John R. Deighton
3250 W. 33rd Ave.,
Vancouver, B.C.

SAGAC

ROCKS

INVOICE NO. 28145

RECEIVED September 7, 1978

ANALYSED September 19, 1978

ATTN: UTAH MINES LTD.

SAMPLE NO. :	PPM Mo	PPM Zn	PPM W	PPM F	
C J78 - 144	1	16	2	115	
F 145 Alt-Chl	1	10	2	90	
F 146	1	2	2	135	
F 147	2	2	2	140	
PF 148	3	38	2	100	
PF 148A Qtz Vein	4	92	2	100	
F 149 Qtz Br work	1	200	2	100	
150	2	2	2	85	
151	1	10	2	140	
F 152	1	58	2	110	
P 153	4	82	2	125	Note: Tungsten values below detection limit of 4 ppm are reported as 2 ppm.
F 153A	1	54	2	85	
F 154	1	22	2	120	
PF 155	2	8	2	150	
PF 156	1	12	2	120	
P 157	2	20	2	300	
PF 158	1	18	2	175	
F 159	1	22	2	125	
F 160	5	18	2	150	
PF 161	1	15	2	140	
F to PF 162 Mx	1	24	2	70	
F to PF 163	3	26	2	120	
F 164	1	22	2	95	
F to PF 165	3	58	2	250	
C 166	4	10	2	285	
PF 167	1	8	2	175	
F 168	1	30	2	100	
F 169	2	12	2	175	
F 170	1	8	2	90	
PF 171	2	12	2	95	
P J78 - 171A	1	10	2	70	
PC R78 - 68	5	38	2	175	
PC 69	1	14	6	440	
P 69-1	1	14	8	60	
PC 70	5	62	2	230	
C 71	1	8	2	235	
PC 72	1	58	2	135	
PF 73	1	22	2	185	
F 74	1	6	2	230	
C R78 - 75	1	20	2	410	
STD.	5	160	2		

CTA MEMBER CANADIAN TESTING ASSOCIATION

CERTIFIED BY: Hart Biddle

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: 985-0648
AREA CODE: 604
TELEX 043-52597

CHEMEX LABS LTD.

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 45709

TO: John R. Deighton
3250 W. 33rd Ave.,
Vancouver, B.C.

SACAC

INVOICE NO. 28145

RECEIVED September 7, 1978

ROCKS

ANALYSED September 19, 1978

ATTN: UTAH MINES LTD.

SAMPLE NO.	PPM Mo	PPM Zn	PPM W	PPM F
Vol. R78 -75A Tuffs	1	148	2	200
PC 76	2	38	2	355
PC to C 77	1	36	2	360
Pf 78	1	46	2	105
And. 78A Flow	1	88	2	375
Pf 79	1	10	2	430
C 80	1	10	2	500
C 81	4	32	2	290
C R78- 82	3	64	2	245
F T - 641	4	56	2	100
F 642A Qtz Vein	1	18	2	90
F 642B Qtz Vein	1	16	2	105
F 643A Qtz Vein	5	34	4	110
F 643B Qtz Vein	5	32	2	105
F 645 Qtz Veins	14	64	6	810
F 645A Qtz Veins	31	84	8	610
F 646 Mn Stain	1	14	2	90
PF 647	1	16	2	155
PF 648	1	6	2	145
C 649	1	10	2	105
P 649A	2	1	2	40
PF 650	1	74	2	460
C 651	1	14	2	235
PF 652	1	10	2	105
C 653	2	18	2	225
C T - 654 Hem.	1	16	2	415
STD.	5	160	2	

Note: Tungsten values below detection limit of 4 ppm are reported as 2 ppm.

CTA MEMBER CANADIAN TESTING ASSOCIATION

CERTIFIED BY: Hank Biesse

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: 985-0648
AREA CODE 604
TELEX 043-52597

CHEMEX LABS LTD.

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 45633

INVOICE NO. 28051

RECEIVED Sept. 5, 1978

ANALYSED Sept. 14, 1978

TO: Utah Mines Ltd.,
1600 - 1050 West Pender Street,
Vancouver, B. C.
V6E 3S7

ATTN: J. Deighton

ROCKS

SALAL

SAMPLE NO.		PPM Mo	PPM Zn	PPM W	PPM F
P	J78 - 133 Slightly Veggy	1	46	2	75
F	133A	1	16	2	185
F	134 Alt Chl	1	6	2	65
P	134A Slightly Veggy	1	18	2	60
C	135 Qtz Vein Breccia	1	10	2	35
F	135A Qtz Vein Breccia	1	12	2	210
F to P.F	136 Qtz Vein (?)	15	66	2	75
P	137 Alt Chl. Sev.	29	8	2	70
F to P.F.	138 Alt Chl	1	54	2	105
F to P.F	139 Mn Alt.	1	14	2	200
P.F	140 Mn Stain	2	8	2	160
F	141	1	10	2	190
C.	142 Alt Chl.	1	16	2	85
F	J78 - 143	2	2	2	65
asalt	R78 - 59	2	22	2	105
Basalt	59B	1	200	2	400
C	60 Alt → Chl	2	56	2	185
Basalt Dyke.	60A	3	108	2	400
C P	61	1	48	2	155
C	62	1	52	2	400
C	63	1	22	2	320
C P	63-1	1	34	2	300
F	64	1	14	2	195
C	64-1	2	62	6	400
C	65	2	30	2	400
C P	65-1	1	26	2	370
P	65A	2	6	4	50
D	66	1	52	2	400
CP	R78 -67	2	14	2	690
C	T - 629	6	86	2	120
M	630	7	12	2	65
C	631	6	18	2	330
P	632	1	18	2	40
P.C.	633	2	18	2	460
F	634	1	22	2	105
C	635	1	12	2	105
C	636	5	12	2	85
F	637	16	10	2	80
F	638	1	16	2	120
P	T - 639	2	62	2	40
	STD.	5	158	2	

CTA MEMBER CANADIAN TESTING ASSOCIATION

CERTIFIED BY: Hank Biddle

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE 985-0366
AREA CODE 604
TELEX 043-52597

CHEMEX LABS LTD.

• ANALYTICAL CHEMISTS •• GEOCHEMISTS •• REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 45634

INVOICE NO. 28051

RECEIVED Sept. 5, 1978

ANALYSED Sept. 14, 1978

TO. Utah Mines Ltd.,
1600 - 1050 West Pender Street,
Vancouver, B. C.
V6E 3S7

ROCKS

ATTN: J. Deighton CC. B.P. Minerals/SALAL

SAMPLE NO. :	PPM Mo	PPM Zn	PPM M	PPM F
F T-640	2	10	2	75
STD.	6	158		

CTA MEMBER CANADIAN TESTING ASSOCIATION

CERTIFIED BY: Hart Biddle

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE 985-0648
AREA CODE 604
TELEX 043-52597

CHEMEX LABS LTD.

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

CERTIFICATE NO 45356

TO. Utah Mines Ltd.,
1600 - 1050 W. Pender
Vancouver, B.C.
V6E 3S7

ROCKS

INVOICE NO. 27822

RECEIVED August 22, 1978

ANALYSED August 31, 1978

ATTN: J.R. Deighton

SAMPLE NO.		PPM Mo	PPM Zn	PPM W	PPM F
F	J78 - 110 Alt - Chl	1	22	2	240
C to PF to M	111	1	14	2	280
F	112	1	16	2	165
F	113	2	80	2	255
F	115	2	58	2	355
F	116	1	36	2	180
M to F	117	1	16	2	215
M to F	118	1	32	2	210
C	119	2	10	2	295
C	120	2	48	2	390
C	121	4	14	2	400
PF	122	1	6	2	110
M	123	3	22	2	300
F	124	1	4	2	110
M	124 A	2	16	2	260
F	125	5	10	2	230
M	126	2	12	2	250
F	127	1	18	2	180
M	128	6	30	2	230
PF to M	130 Alt Chl.	1	40	2	260
PF to M	J78 - 131 Mn Alt	7	54	2	195
C	R78 - 50 Mn Stain	1	40	2	290
M	51	1	14	2	240
M	52	12	12	4	300
PF	53	3	18	2	225
PF	54	4	10	2	275
PF	55	2	160	2	340
PF	55 A	8	150	2	450
PF	55 B	1	22	2	160
C	56	1	166	2	330
C	57 Alt Chl	1	48	2	260
C	57 A	2	26	2	150
C	R78 - 58	1	64	2	105
F	T - 615	2	10	2	95
F	616	1	6	2	70
C	617	1	16	2	180
C	618	1	14	2	140
C	619	1	38	2	105
M	621	1	12	2	115
C	T - 622	11	36	2	140
	STD	5	170	2	

CTA MEMBER CANADIAN TESTING ASSOCIATION

CERTIFIED BY: Hank Biddle

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE 985 0648
AREA CODE 604
TELEX 043-52597

CHEMEX LABS LTD.

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 745357

TO: Utah Mines Ltd.,
1600 - 1050 W. Pender
Vancouver, B.C.
V6E 3S7

INVOICE NO. 27822

ROCKS

RECEIVED August 22, 1978

ANALYSED August 31, 1978

ATTN: J.R. Deighton

SAMPLE NO. :	PPM Mo	PPM Zn	PPM W	PPM F
C T - 623	9	14	2	250
C 624	1	48	2	125
C 625	5	54	2	150
C 626	1	14	2	150
PC 627	15	12	2	145
C T - 628	2	42	2	115
STD	5	160	2	

CTA MEMBER CANADIAN TESTING ASSOCIATION

CERTIFIED BY: Frank Bielle

CHEMEX LABS LTD.

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE 985-0648
AREA CODE 604
TELEX 043-52597

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 45120
INVOICE NO. 27617
RECEIVED Aug. 14/78
ANALYSED Aug. 18/78

TO: Utah Mines Ltd.
1600 - 1050 W. Pender
Vancouver, B.C.

ATTN:

Rocks ... SALAC

SAMPLE NO. :		PPM Mo	PPM Zn	PPM F	PPM W
MtoC	R-78-1	2	420	400	4
MtoC	2 Mn	2	50	150	2
MtoC	3 Mn Alt	5	24	170	2
MtoC	5 Alt Felds → Sev	20	32	150	2
MtoC	9 Shatter Zone	1	88	175	4
C	11	5	26	370	2
F	12	3	20	120	2
P.F.	15	3	38	120	2
F	16	1	20	75	2
C	17	2	24	120	2
P.F.	19	2	14	225	2
F	20	2	58	200	2
C	21	2	40	355	2
F	22	1	104	200	2
MtoF	24	2	24	325	2
C	25	1	37	225	2
C to M	26	1	22	295	2
C	27	2	72	270	2
CR·D	28	1	196	370	2
C	29	1	20	255	2
C	31	1	22	185	2
C	32	1	30	200	2
C	33 Alt → Chl	1	134	395	2
C	34	1	30	329	2
C	35	1	22	410	2
C	36 Alt CRT	1	26	320	2
C	37	1	40	310	2
C	37A	2	10	185	6
C	37S	1	26	130	2
C	38	3	18	185	2
C	38A Alt Sev Mo Spy	220	12	3650	4
C	41	1	16	220	2
C	42	1	18	330	2
C	43	1	34	250	2
P	43A	1	62	330	2
D	45	1	52	335	2
D	46	1	52	305	2
	48	1	32	390	2
	R-78-49	1	44	230	2
C	T -590	1	22	225	2
	STD.	5	158		2

Note: Tungsten values below detection limit of 4 ppm reported as 2 ppm.

CTA MEMBER CANADIAN TESTING ASSOCIATION

CERTIFIED BY: Hart Biddle

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: 985-0648
AREA CODE: 604
TELEX 043-52597

CHEMEX LABS LTD.

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 45121

TO: Utah Mines Ltd.
1600 - 1050 W. Pender
Vancouver, B.C.

INVOICE NO. 27617

RECEIVED Aug. 14/78

ANALYSED Aug. 18/78

ATTN: Rocks SALAC

SAMPLE NO. :	PPM Mo	PPM Zn	PPM F	PPM W
C T - 591	1	38	250	2
C 592	1	24	240	2
C 593	2	24	270	2
C 594	1	48	315	2
C 595 Alt Chl	1	20	305	2
C 596	1	78	265	2
C 598 Mo Alt.	1	34	250	2
C 599	2	22	525	2
C 600	1	152	205	2
C 600C Vein	> 250	38	270	2
C 601	1	72	175	2
C 602	2	26	250	2
C 603	1	48	310	2
C 604	1	48	210	2
C 605	1	16	350	2
PF Dyke 606	11	32	220	2
C 607	5	12	215	2
C 608	2	16	295	2
C 609	1	6	275	2
C 610 Mo	1	22	255	2
C 611	1	30	255	2
C 612	1	16	360	2
P 613	1	6	115	2
C T - 614	1	20	290	2

RECEIVED
AUG 1 1978
UTAH MINES LTD.
EXPLORATION DEPT.

Note: Tungsten values below detection limit of 4 ppm reported as 2 ppm.

CTA MEMBER CANADIAN TESTING ASSOCIATION

CERTIFIED BY: Hank Biddle

212 BROOKBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: 985-0643
AREA CODE: 604
TELEX 043 52597

CHEMEX LABS LTD.

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 44911

TO. Utah Mines Ltd.,
1600 - 1050 W. Pender St.,
Vancouver, B.C.
V6E 3S7

INVOICE NO. 27509

RECEIVED Aug. 8/78

ANALYSED Aug. 16/78

ATTN: J.R. Deighton — Rock Geochem

SAMPLE NO.	PPM Molybdenum	PPM Zinc	PPM Tungsten	PPM F
F J78 81	1	14	2	105
M 82	1	16	2	330
F 82A	1	6	2	150
F 83	95	14	2	165
F 84	1	28	2	130
C 85 Alt. Chl.	4	50	12	400
C 86	1	32	2	300
C 87	1	26	2	270
C 88	1	46	2	290
C 89 Alt. Chl	1	24	2	300
C 90	1	36	2	315
C 91	1	22	2	285
92 Alt. Chl.	1	50	2	350
93	1	18	2	350
D 94	1	8	6	365
C 95	1	82	2	325
C 96	1	36	2	250
C 97 Alt Mn Chl	1	245	2	145
C 98 Alt - Chl	1	62	2	240
C 99 Alt - Chl	1	58	2	190
C 100 Alt Chl	1	32	2	170
C 101	1	38	2	200
C J78 102	1	20	2	255
M T 552	29	12	2	175
M 553 Mo	13	24	2	100
M 554 Py	2	28	2	120
C 555	1	60	2	330
C 556	4	44	2	215
C 556A	1	52	2	280
C 557	1	28	2	300
C 558	1	34	2	305
C 559	2	36	2	295
C 560	1	20	2	280
C 561	2	22	2	345
P 561A	1	26	2	170
C 562	1	30	2	300
C 563	2	28	2	230
564	1	6	2	235
567	1	88	2	310
C T 568	1	72	2	330
Std.	5	156	2	

Note: Tungsten values below detection limit of 4 ppm reported as 2 ppm

RECEIVED
AUG 25 1978
UTAH MINES LTD.
EXPLORATION DEPT.

CTA MEMBER CANADIAN TESTING

CERTIFIED BY: Noel Bielle

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: 985-0648
AREA CODE: 604
TELEX 043-52597

CHEMEX LABS LTD.

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 44496

INVOICE NO. 26806

RECEIVED July 24/78

ANALYSED July 28/78

TO: Utah Mines Ltd.
1600 - 1050 W. Pender
Vancouver, B.C.

SALAL

ROCKS

ATTN: J. R. Deighton

SAMPLE NO.	PPM Mo	PPM Zn	PPM W	PPM F
T 502	2	44	2	210
504	3	70	2	250
508	1	28	2	270
518A	1	50	2	110
519	1	20	2	245
520	2	24	2	55
521	1	6	2	250
522	1	24	2	65
523	1	14	2	175
525	2	18	2	200
526	1	18	2	240
527	2	24	2	450
528	1	58	2	250
529	1	22	2	230
530	1	18	2	240
530A	2	40	2	90
531	2	26	2	280
532	2	32	2	200
T 532A	1	14	2	75
J-78-22	1	20	2	175
23	1	14	2	80
23A	1	16	2	215
24	2	42	2	210
25	1	20	2	220
27	1	42	2	130
J-78-524	1	34	2	170

RECEIVED
AUG 23 1978
UTAH MINES LTD.
EXPLORATION DEPT.

Note: Tungsten values below detection limit of 4 ppm reported as 2 ppm.

CTA MEMBER CANADIAN TESTING ASSOCIATION

CERTIFIED BY:

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: 985-0648
AREA CODE: 604
TELEX 043-52597

CHEMEX LABS LTD.

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 44746

INVOICE NO. 27390

RECEIVED August 1/78

ANALYSED August 9/78

TO: Utah Mines Ltd.
1600 - 1050 W. Pender
Vancouver, B.C.

ATTN: J. R. Deighton

SALAL ROCKS

SAMPLE NO. :	PPM Mo	PPM Zn	PPM W	PPM F
C J-78-28	1	52	2	255
MtoC 29	1	22	2	280
C 30	1	118	2	165
C 30A	1	82	2	85
C 31	1	50	2	235
M 32	1	20	2	255
MtoC 33 Alt -> Chl	1	30	2	255
C 34 Alt -Kaol Chl	1	20	2	250
C 35 Alt -Kaol Chl	1	32	2	240
F 36 Pebble Dyke	1	24	2	200
F to M 37	1	14	4	95
C 38	1	18	2	175
C 39	1	46	2	175
C 40	1	26	2	190
C 41	1	22	2	350
F 42	1	8	2	75
F 42A	1	6	2	90
C 43 Alt Chl	14	120	2	480
M 44	5	24	2	700
M 45	14	22	2	420
C 46	2	50	2	250
MtoC 47	6	26	4	285
C 48	1	32	2	300
C 49	49	158	2	300
MtoC 50	32	36	2	510
C 51	38	98	2	395
C 52	19	32	2	345
C 53	2	26	2	260
C 53A	2	18	2	220
F 54	25	32	4	130
F 54A	4	42	2	80
D 55	1	74	2	215
D 56	1	46	2	195
D 57 Silicified Breccia Contact	1	520	12	110
C 58	1	86	2	285
C 59	1	24	2	285
C 60	1	22	2	310
C 61 Alt Chl	2	70	2	250
C 62	1	30	2	160
C J-78-63	2	60	2	220
STD.	5	150	2	

Note: Tungsten values below detection limit of 4 ppm reported as 2ppm

RECEIVED
AUG 23 1978
UTAH MINES LTD.
EXPLORATION DEPT.

CTA MEMBER CANADIAN TESTING ASSOCIATION

CERTIFIED BY:

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: 985-0648
AREA CODE 604
TELEX 043 52597

CHEMEX LABS LTD.

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 44747
INVOICE NO. 27390
RECEIVED August 1/78
ANALYSED August 9/78

TO: Utah Mines Ltd.
1600 – 1050 W. Pender
Vancouver, B.C.

ATTN: J. R. Deighton

SALAL ROCKS

SAMPLE NO. :	PPM Mo	PPM Zn	PPM W	PPM F
C J-78-64 Alt → Chl	2	28	2	165
C 65	1	32	2	210
C 66	1	32	2	215
C 67	2	38	2	275
C 68	1	30	2	310
C 69	2	20	2	390
C 70	17	16	2	150
F 70A	11	10	2	80
F 71	1	16	2	65
F 72	18	14	2	80
F to M 73	6	28	6	165
C 74 Alt → Chl	2	46	2	250
C 76 Mn Stain	1	126	2	390
C 77	132	34	2	375
F 78 Mn Stain	2	14	2	115
M 78A Mn Alt	22	28	2	230
F 79 Mn Alt	1	20	2	75
F J-78-80	1	8	2	110
P T 530	1	52	2	205
C 533	1	68	2	175
C 534	1	28	2	180
M 535	2	72	2	195
F 536A Alt + Min, Ser Py	1	12	2	45
C 537	3	32	2	270
C 538	2	92	2	200
C 539	2	30	2	260
C 540	4	44	2	235
C 541	6	28	2	150
F 542 Alt Chl	5	18	2	85
C 543	2	12	2	115
M 544	7	40	2	130
M 545A	2	20	2	150
M 545B	3	56	2	255
M 547	15	76	2	130
C 548	3	44	2	330
C 549 Hem	5	220	25	790
M 550 Mn Stained	3	20	2	225
M T 551	4	24	2	130
STD.	6	160	2	

Note: Tungsten values below detection limit of 4 ppm reported as 2 ppm.

RECEIVED
AUG 2 3 1978
UTAH MINES LTD.
EXPLORATION DEPT.

MEMBER CANADIAN TESTING ASSOCIATION

CERTIFIED BY:

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE 985-0648
AREA CODE 604
TELEX 043-52597

CHEMEX LABS LTD.

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ASSAY

CERTIFICATE NO. 33986

INVOICE NO. 26795

RECEIVED July 24, 1978

ANALYSED July 31, 1978

TO: Utah Mines Ltd.,
1600 - 1050 W. Pender St.,
Vancouver, B.C.
V6E 3S7

ATTN. J.R. Deighton

SAMPLE NO. :	oz/ton Silver	oz/ton Gold
51305	<0.01	<0.003

RECEIVED
AUG 1 - 1978
UTAH MINES LTD.
EXPLORATION DEPT.

CTA MEMBER CANADIAN TESTING ASSOCIATION

REGISTERED ASSAYER, PROVINCE OF BRITISH COLUMBIA

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE 985 0648
AREA CODE 604
TELEX 043-52597

CHEMEX LABS LTD.

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 45807

INVOICE NO. 28192

RECEIVED Sept.7/78

ANALYSED Sept.22/78

TO: Utah Mines Ltd.,
1600 - 1050 W. Pender,
Vancouver, B.C.
V6E 3S7

ATTN: Mr. J.R. Deighton "Salal"

SAMPLE NO.	PPM Molybdenum	PPM Lead	PPM Zinc	PPM Silver	PPB Gold	PPM Uranium
F 51278	2	3650	2550	2.6	<10	<4.0
F 51279	1	250	590	0.1	<10	<4.0
C 51280	53	75	186	0.4	<10	4.0

RECEIVED
SEP 26 1978
UTAH MINES LTD.
EXPLORATION DEPT.

CTA MEMBER CANADIAN TESTING ASSOCIATION

CERTIFIED BY: Ward Bielle

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE 985 0648
AREA CODE: 604
TELEX 043 52597

CHEMEX LABS LTD.

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 45975

TO: Utah Mines Ltd.,
1600 - 1050 W. Pender St.,
Vancouver, B.C.
V6E 3S7

ROCKS

INVOICE NO. 28396

RECEIVED Sept. 22/78

ATTN: SALAL CR.

ANALYSED Oct. 3/78

SAMPLE NO. :	PPM Cu	PPM Mo	PPM Pb	PPM Zn	PPM Ag	
F 51281 CS78-15	360	1	2200	1900	0.1	
M 51282 CS78-16	58	1	210	175	0.1	Mn Stain
F 51283 CS78-18B	8	1	560	1400	0.1	
F 51284 T-679	16	1	180	875	0.1	Mn Stain
F 51285 T-677	58	1	166	185	0.1	Heavy Mn Stain
F 51286 J78-179	24	3	400	>4000	0.1	
F 51287 J78-183	102	1	630	660	0.1	Mn Stain
F 51288 J78-215	655	57	152	2800	>20	Mn Wad
F 51289 J78-185	2550	3	1300	>4000	>20	Mn Stain
F 51290 J78-204	360	5	64	245	3.2	Silicified Zone
F 51291 BS-18	52	1	710	3850	0.6	Mn Stain
STD.	40	4	10	120	0.1	

	PPM U	PPM F	PPM W	PPB Au
51281	<4.0	>4000	20	<10
51282	<4.0	3700	22	10
51283	<4.0	>4000	8	<10
51284	<4.0	>4000	25	<10
51285	<4.0	1050	15	10
51286	<4.0	>4000	28	<10
51287	<4.0	800	20	<10
51288	<0.5	2950	50	<10
51289	2.0	1250	25	<10
51290	2.0	1450	100	<10
51291	<4.0	440	6	<10
STD.	24		2	

NOTE: Tungsten Values below detection limit of 4 ppm are reported as 2 ppm.
NOTE: Silver values below detection limit of 0.2 ppm are reported as 0.1 ppm.
NOTE: "U" Less than 4 detection limit due to fluorescence quenching caused by high concentration of the interfering metals.

CERTIFIED BY: .....

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: 985-0648
AREA CODE: 604
TELEX 043 52597

CHEMEX LABS LTD.

ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 45976
INVOICE NO. 28395
RECEIVED Sept. 22/78
ANALYSED Oct. 4/78

TO. Utah Mines Ltd.,
1600 - 1050 W. Pender St.,
Vancouver, B.C.
V6E 3S7

ROCKS

ATTN: SALAL CR.

SAMPLE NO. :	PPM Mo	PPM Zn	PPM W	PPM F
F BS 78 1	2	20	2	100
F 2 Qtz Veins	1	150	2	40
F 3	2	25	2	100
F 4	3	15	2	140
5A	2	15	2	165
5B	2	20	2	140
P 6	2	20	2	300
7	4	50	2	840
C 8	8	20	2	210
C 9	2	20	2	370
10	1	15	2	295
C 11	2	40	2	80
C 12	2	15	2	450
D 13	2	35	2	960
F 14 Qtz Vein Breccia	10	20	2	95
F 15 Qtz Veins Stacked	6	65	2	120
P 16	1	60	2	55
F 17	3	120	2	170
F 19 Mn Stain	5	60	2	70
F 20 Mn Stain	4	45	2	85
F 21 Qtz Veins Stacked	2	60	2	95
F 22	8	10	4	200
F BS 78 23	1	2050	2	145
F CS R 1	5	65	2	115
PF 2	2	20	2	115
3A	1	10	2	135
3B	3	10	2	60
C 4	4	10	2	180
C 5	1	25	2	100
F 6	1	40	2	115
F 7	1	20	2	120
F 8	1	20	2	110
F 9	2	40	2	75
F 10	2	30	2	120
F 11	1	20	2	70
F 12	2	15	2	120
13A	250	180	10	1150
13N	250	55	12	530
C 17 Stacked Qtz Veins	13	50	4	75
F CS R 18 Stacked Qtz Veins	25	45	2	200
	5	120	2	

RECEIVED
OCT 11 1978
UTAH MINES LTD.
EXPLORATION DEPT.

CTA MEMBER CANADIAN TESTING ASSOCIATION

CERTIFIED BY: Hart Biddle

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: 985-0648
AREA CODE: 604
TELEX 043-52597

CHEMEX LABS LTD.

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

RECEIVED
OCT 11 1978
UTAH MINES LTD.
EXPLORATION DEPT.

CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 45977
INVOICE NO. 28395
RECEIVED Sept. 22/78
ANALYSED Oct. 5/78

TO: Utah Mines Ltd.
1600 - 1050 W. Pender
vancouver, B.C.

ATTN: J. R. Deighton SALAL CR. Rocks

SAMPLE NO. :		PPM Mo	PPM Zn	PPM W	PPM F
F	CS R 19 Stacked Qtz Veins	43	50	18	100
F	20 Qtz Veins	25	40	12	135
C	CS R 21 Stacked Qtz Veins	15	95	10	570
F	J 78 172 Qtz + Ser Veins, Py	17	55	25	450
M	173	9	6	2	110
P	174 Py	18	6	12	150
P	174A Py	10	8	8	55
PF	176	4	10	2	60
PF	177	8	14	2	80
P	178 Ser, Mn Stain	9	60	2	730
F to PF	180A	8	8	8	120
F to PF	180B	8	36	8	830
P	182	9	58	15	50
F	184 Mn Stain	7	40	6	190
P	186 Alt → Ser	4	52	4	75
F	187	5	26	4	70
F	188	7	50	6	45
P	189 Ser, Musc, Py	6	22	6	85
PF	190	12	10	6	70
P	191 Ser	8	64	8	70
F	192	7	6	10	80
F	193	7	10	12	70
P	195 Ser	6	68	2	70
P	196	5	16	8	110
C	197 Alt → Chl	6	14	6	60
	197A	10	4	10	20
F	198 Mn Stain	22	14	12	40
F	199 Mn Stain	6	10	4	55
F Shear	200 Hem, Sphal, Qtz, Ser Py >	250	10	45	240
F	201 Shear Breccia	15	24	250	2450
PF	202	6	6	20	110
F to PF	203	6	12	2	80
F	205	7	4	4	85
F	210 Qtz Stringers, Mn Stain	37	60	15	390
F	211 Qtz Veins	4	10	2	145
P	212	5	54	4	1150
PF	213 Qtz Veins Stacked	4	46	6	415
F	213A Qtz Veins	5	48	6	95
P	214	4	22	2	55
-	216	4	8	2	95
F	J 78 217 Alt → Chl, Mn Stain	6	12	2	85
	STD.	4	120	2	

Note: Tungsten values below detection limit of 4 ppm reported as 2 ppm.

CTA MEMBER CANADIAN TESTING ASSOCIATION

CERTIFIED BY: Harold Bradley

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: 985-0642
AREA CODE: 604
TELEX 043 52597

CHEMEX LABS LTD.

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 45978

TO. Utah Mines Ltd.,
1600 - 1050 W. Pender St.,
Vancouver, B.C.
V6E 3S7

UTAH MINES LTD.
EXPLORATION DEPT.

INVOICE NO. 28395

RECEIVED Sept. 22/78

ATTN: SALAL CR. ROCKS

ANALYSED Oct. 3/78

SAMPLE NO.		PPM Mo	PPM Zn	PPM W	PPM F
F J 78	218 Alt Mn Stained felsimer	40	14	4	610
F	219 Qtz Veins + Mn Stain	2	8	2	240
P	220 Vuggy + Alt, Py	6	22	2	360
F	221 Qtz Vein + Mn Stain	2	10	2	240
F	222	1	8	2	120
F	223 Breccia (Crackle)	28	20	12	85
F	224 Breccia (Vein)	5	88	8	55
F	225 Breccia (vein)	25	140	6	150
F J 78	226 Qtz Vein	2	32	2	70
R 78	83	1	66	2	690
F	83A Yellow Min.	1	28	6	510
P	84A Py	6	36	2	390
P	85 Ser Py	60	28	8	300
F	86 Mn Stain	1	280	6	230
F	86A Mn Stain	1	975	6	1500
F	87A	1	24	2	75
F	87B	1	18	2	85
P	88	2	18	2	640
P	89	1	36	2	750
P	90 Py	5	56	2	145
F	91	1	22	2	80
F	92	1	8	2	80
F	93-1	2	38	18	110
P.F.	94	1	18	2	185
F	94-1	1	6	2	60
F.P	95	1	28	2	300
F P	95A	1	16	2	200
	95-1	1	38	2	75
	96	5	56	2	320
F	97	1	20	2	370
F	98	5	12	2	70
F	99	5	24	2	75
P	100 Py	1	34	2	225
F	101 Qtz Veins	2	30	2	300
F R 78	102	6	24	2	120
vein T	655 Breccia Py Cpy	150	184	> 800	370
P	656 Ser, Py	6	8	18	90
F (Vein)	657 Py Mo	17	1250	15	1450
P	658 Float, Mn Alt Py K-Felds.	5	42	2	200
vein T	659 Qtz, Ser Py	11	44	4	1100
STD.		4	120	2	

Note: Tungsten values below detection limit of 4 ppm reported as 2 ppm.

CTA MEMBER CANADIAN TESTING ASSOCIATION

CERTIFIED BY: Hart Biddle

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: 985-0643
AREA CODE: 604
TELEX 043-52597

CHEMEX LABS LTD.

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 45979

TO: Utah Mines Ltd.,
1600 - 1050 W. Pender St.,
Vancouver, B.C.
V6E 3S7

UTAH MINES LTD.
EXPLORATION DEPT.

INVOICE NO. 28395

RECEIVED Sept. 22/78

ATTN: SALAL CR. ROCKS

ANALYSED Oct. 3/78

SAMPLE NO. :		PPM Mo	PPM Zn	PPM W	PPM F
Vein T	660 Qtz, Ser, Py, Cpy	5	32	15	1250
Vein	661 Qtz, Ser, Py	3	8	12	1200
F	661A Rusty	1	14	2	110
F (vein)	662 Qtz, Ser, Py, Hem	5	2	22	800
F (vein)	663 Qtz Ser Py Hem	62	6	18	940
F (vein)	664 Qtz Ser Py Hem	15	2	20	1150
F (vein)	665 Qtz Ser Py	5	4	25	500
F	665A	1	10	2	55
M	666	5	14	2	85
F	667 Mn Stain	1	22	2	145
P	668 Py	8	66	2	160
C	669	1	8	2	90
P	670	1	34	2	540
F	671	1	22	2	290
P	672	1	48	2	680
	673A	3	18	2	380
	673B	1	16	2	380
P	674	2	26	4	> 4000
	675	1	20	2	75
	676	1	30	2	50
F	678 Stacked Qtz Veins	13	48	2	680
	680 Qtz Veining	8	32	6	480
M	681 Qtz Veins	74	24	8	150
F	682 Qtz Veins	5	34	2	90
F	683 Qtz Veins	4	240	2	85
F	684 Qtz Veins	74	200	2	820
F	685 Qtz Veins, Mn Stain	27	82	10	115
F T	686 Qtz Veins, Mn Stain	5	122	2	300

Note: Tungsten values below detection limit of 4 ppm reported as 2 ppm.

STD	5	120

CTA MEMBER CANADIAN TESTING ASSOCIATION

CERTIFIED BY: Hank Biddle

Appendix II

BRITISH COLUMBIA MINING RECEIPT

Mining Division LILLOOET

Issued at Vancouver № 133557 E

Date October 6, 1978

RECEIVED from Utah Mines Ltd

the sum of Thirty-eight hundred 00/100 Dollars,

in payment of Recording 6 yrs work on SALAL 10 (20 units)
2 yrs work on SALAL 9 (20 units)
7 yrs work on SALAL 11, 12, 13 (31 units)
4 yrs work on SALAL 6 (9 units)
2 yrs work on SALAL 7 (9 units)

Signature [signature]

$ 00.00 Office SUB-RECORDER

STATEMENT OF COSTS

B. Bowen (Geologist)	8 days	-	September 1978	$ 646.16
D. Crow (Geologist)	10 days	-	September 1978	550.00
J. R. Deighton (Geologist)	May 1978	-	October 1978	14,003.08
J. Hume (Assistant)	August 1978	-	October 1978	2,322.61
B. Lawrence (Assistant)	June 1978	-	August 1978	2,627.31
M. Murphy (Assistant)	June 1978	-	August 1978	1,561.12
				$21,710.28

Contract Geologists

T. Elliott (Bema Industries Ltd.	$ 7,125.00
G. Rayner (G. Rayner and Associates)	8,787.50
	$37,622.78

Total wages and contract costs		$37,622.78
Assay Costs June to October 1978	$ 4,347.27	
Consumable supplies	5,213.67	
Hotel and motel expenses	420.80	
Telephone	244.05	
Drafting supplies and reproduction costs June to October 1978	569.73	
Transportation Vehicle rental and gas June to October 1978	371.52	
Helicopter support June to October 2, 1978	19,847.79	
Expense accounts	879.34	
TOTAL		31,874.14
TOTAL COST OF PROGRAM		$69,496.92

APPLICATION OF ASSESSMENT WORK

Total Cost of Program $69,496.92

No. of units work was done on Salal 5, 6, 9 - 13 68

Therefore, cost/unit of work done

$69,496.92 ÷ 68 = 1,022.01

Group "D" Salal 3, Salal 6, Salal 7 (38 units)

No. of units worked on 9

Value of assessment work

9 x 1022.01 =	$ 9,198.09
30% transferred from P.A.C.	2,759.43
Total avaliable for assessment	$11,957.52

Apply 4 years assessment to Salal 6 (9 units)

9 x $200 x 4 =	7,200.00

Apply 2 years assessment to Salal 7 (9 units)

9 x $200 x 2 =	3,600.00
Total Assessment	$10,800.00

Amount to be Returned to P.A.C. $1157.52 .

Salal 9 - 20 units

No. of units worked on 8

Value of assessment work

8 x $1022.01 =	8,176.08

30% transferred from P.A.C. $ 2,452.82

Total amount available for assessment $10,628.90

Apply 5 years work to Salal 9 (20 units)

20 x $200 x 2 = 8,000.00

Amount to be returned to P.A.C. 2,628.90

Group "H" Salal 11, 12, 13 (31 units)

No. of units worked on - 31 units

Value of assessment work

31 x $1022.01 = 31,682.31

30% transferred from P.A.C. - ($9,504.69), $5,776.56
Amount available

Total amount available for assessment 37,458.87

Apply 6 years work to Salal 11 (6 units)

6 x $100 x 2 = $1200
6 x $200 x 5 = $6000

Apply 6 years work to Salal 12 (16 units)

16 x $100 x 2 = $3200
16 x $200 x 5 = $16,000.00

Apply 7 years work to Salal 13 (9 units)

9 x $100 x 2 = $3200
9 x $200 x 5 = $10,800.00

Total Assessment 37,200.00

Amount to be returned to P.A.C. 258.87

Salal 10 (20 units)

No. of units worked on - 20

Value of assessment work

20 x $1022.01 =	$20,440.20	
Transfer from P.A.C.	258.87	
Total amount available for assessment		$20,699.07

Apply 6 years assessment to Salal 10 (20 units)

2 x $100 x 20 = $4,000.00
4 x $200 x 20 = $16,000.00

Total Assessment	20,000.00
Amount to be returned to P.A.C.	699.07

TOTALS

GRAND TOTAL OF ASSESSMENT WORK CLAIMED

Group "D" Salal 3, 6, 7 (38 units)	$10,800.00
Salal 9 (20 units)	8,000.00
Group "H" Salal 11, 12, 13 (31 units)	37,200.00
Salal 10 (20 units)	20,000.00
Total Assessment	$76,000.00

Amount of Assessment work done		$69,496.92
Amount borrowed and returned from P.A.C. Accounts		
In P.A.C. account at beginning		7,202.39
Borrowed Group "D"	2,759.43	4,442.96
Returned Group "D"	1,157.52	5,600.48
Borrowed Salal 9	2,452.82	3,147.66
Returned Salal 9	2,628.90	5,776.56
Borrowed Group "H"	5,776.56	0
Returned		258.87
Borrowed Salal 10	258.87	0
Returned Salal 10	699.07	699.07
Total amount borrowed from P.A.C.		$6,523.08
Odd amount left over from unit work calculation		.24¢
Total amount to be in P.A.C. Account		$ 699.31

Appendix III

CERTIFICATION

I, JOHN RAYMOND DEIGHTON, of 3250 West 33rd Avenue, Vancouver, British Columbia, do hereby certify that:

I am a graduate of the University of British Columbia, with a Bachelor of Science Degree in Geology, 1965.

Since graduation I have been engaged in Mineral Exploration in British Columbia, Yukon, North-west Territorites, Washington, Arizona and California.

I am a Fellow of the Geological Association of Canada and of the Canadian Institute of Mining and Metallurgy.

I am a Geologist.

Vancouver, B. C.

John R. Deighton
Geologist