TINTINA PROJECT - McQuesten Area

Report on Exploration Activities

N.T.S. 115-P

Atlas Explorations Limited
By: K. M. Dawson December 1969

CYPRUS ANVIL MINING CORPORATION

FILE COPY

012634

TINTINA PROJECT - McQUESTEN AREA

REPORT ON EXPLORATION ACTIVITIES

May - June, 1969

N.T.S. 115-P

By:

Kenneth M. Dawson

ATLAS EXPLORATIONS LIMITED

December, 1969

TABLE OF CONTENTS

INTRODUCTION	1
SUMMARY	2
CONCLUSIONS AND RECOMMENDATIONS	3
Aussie Creek Area; 116-A-4 : Priority 1	3
Mike Lake Area; 116-A-5 : Priority 2	8
Larsen Creek Regional Work : Priority 3	12
CLEAR CREEK; 116-P-14	13
CLUM CREEK; 116-A-3	16
DAWSON SHEET; 116-B-1, -2, -7, and -8	17
WILLOW LAKE; 115-P-2	22
COLDSPRING MOUNTAIN; 115-P-3	24
PIRATE CREEK; 115-P-5	25
REID LAKES; 115-P-6	26
STEWART CROSSING; 115-P-7	28
ETHEL LAKE; 115-P-8	42
MOOSE CREEK; 115-P-10	44
McQUESTEN; 115-P-11	46
GRAVEL CREEK; 115-P-12	49
GRAVEL LAKE; 115-P-13	51
SIXTYMILE AREA - MURRAY'S AND CALEY'S CLAIMS; 115-N-15	55
LOUIE BROWN'S MU, TIN, TINA, SUN CLAIMS; 115-O-15, 116-B-2	57

Appendix

1. Preliminary Budget Estimate, Aussie Creek and Mike Lake Projects, 1970

2. Geochemical Coverage, McQuesten Area

3. Larsen Creek Regional Sampling Map

4. Clum Creek; 116-A-3

   a. Geology

   b. Geochemistry

5. Aussie Creek; 116-A-4

   a. Geology

   b. Geochemistry

   c. Geology of Aussie Creek Copper Showing

   d. Aussie Creek Follow-Up Map

6. Fish Creek; 116-A-5

   a. Geology

   b. Geochemistry

   c. Geology - Mike Lake

   d. Mike Lake Follow-Up Map

7. Lee Creek; 116-B-1

   a. Geology

   b. Geochemistry

8. Rabbit Creek; 116-B-2

   a. Geology

   b. Geochemistry

Appendix (contd.)

9. Tombstone River; 116-B-7

a. Geology

b. Geochemistry

10. North Klondike River; 116-B-8

a. Geology

b. Geochemistry

11. Willow Lake; 115-P-2

a. Geology

b. Geochemistry

12. Coldspring Mountain; 115-P-3

a. Geology

b. Geochemistry

13. Pirate Creek; 115-P-5

a. Geology

b. Geochemistry

14. Reid Lakes; 115-P-6

a. Geology

b. Geochemistry

15. Stewart Crossing; 115-P-7

a. Geology

b. Geochemistry

Appendix (contd.)

16. Ethel Lake; 115-P-8

a. Geology

b. Geochemistry

17. Moose Creek; 115-P-10

a. Geology

b. Geochemistry

18. McQuesten; 115-P-11

a. Geology

b. Geochemistry

19. Gravel Creek; 115-P-12

a. Geology

b. Geochemistry

20. Gravel Lake; 115-P-13

a. Geology

b. Geochemistry

21. Clear Creek; 115-P-14

a. Geology

b. Geochemistry

22. Chefkoi Claims, Sixtymile Area; 115-N-15

23. Louie Brown Claims, Dawson Area; 115-O-15

Figures | Page

1. Location Map of McQuesten Area

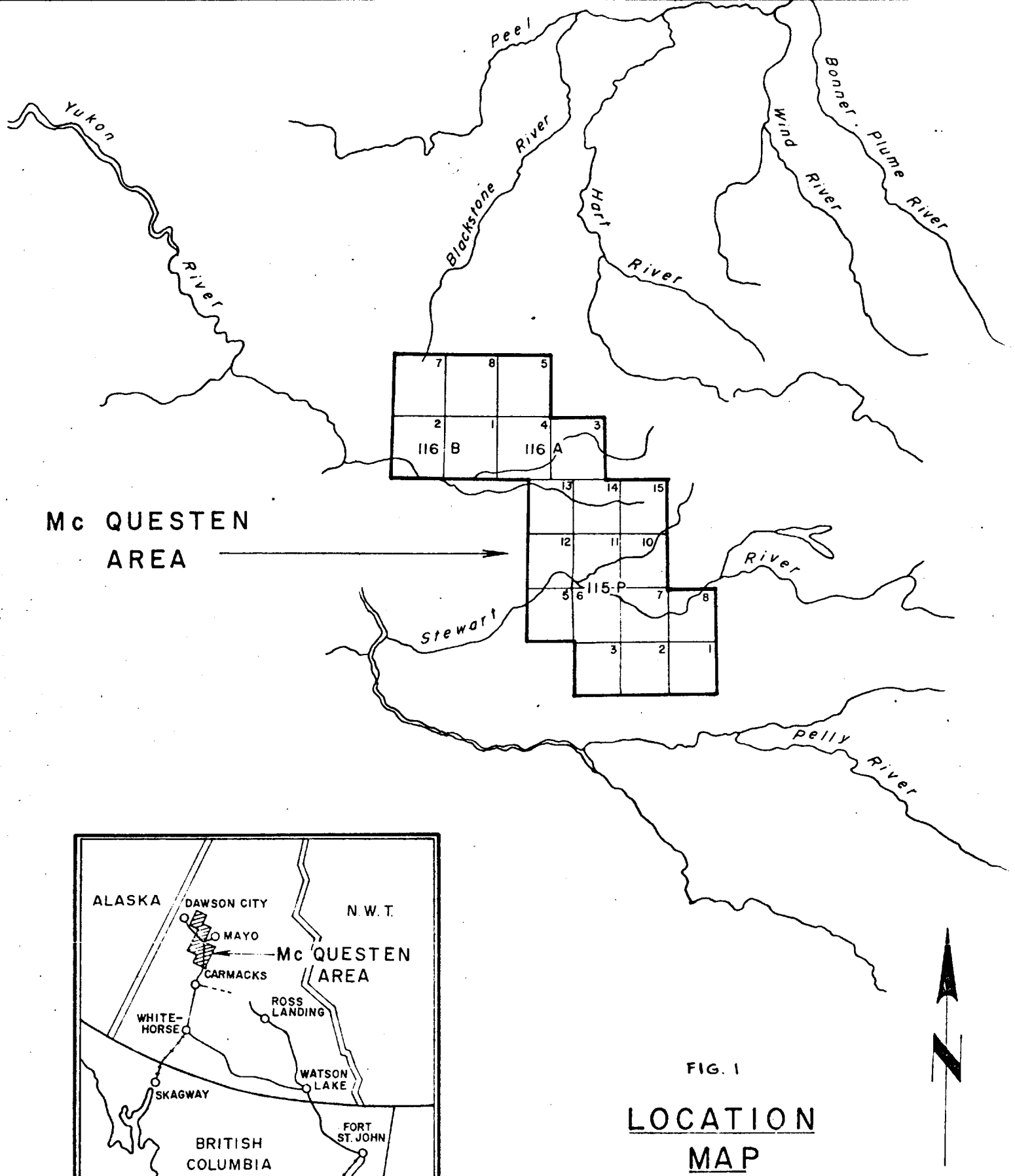
2. Lead in silts southwest of Tintina Trench, Stewart Crossing Sheet, 115-P-7 33

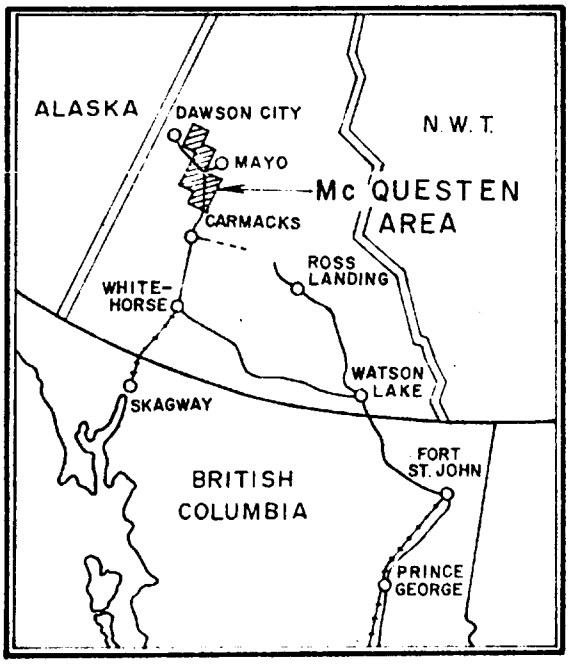
3. Lead in silts northeast of Tintina Trench, Stewart Crossing Sheet, 115-P-7 34

4. Zinc in silts southwest of Tintina Trench, Stewart Crossing Sheet, 115-P-7 35

5. Zinc in silts northeast of Tintina Trench, Stewart Crossing Sheet, 115-P-7 36

6. Copper in silts from whole Stewart Crossing Sheet, 115-P-7 37





KEY MAP

FIG. 1

LOCATION MAP

SCALE: 1 "= 8 miles

TELEPHONE 685-4331

ATLAS EXPLORATIONS LIMITED

330 MARINE BUILDING
355 BURRARD STREET
VANCOUVER 1, B.C.

TINTINA PROJECT - McQUESTEN AREA

REPORT ON EXPLORATION ACTIVITIES

INTRODUCTION

Sixteen men, under the supervision of the writer, carried out geochemical sampling, reconnaissance geologic mapping and prospecting in the McQuesten area during May and June, 1969. An area straddling Tintina Trench in northwestern Yukon, most of McQuesten Sheet (115-P), the southwestern corner of Larsen Creek Sheet (116-A), and the southeastern corner of Dawson Sheet (116-B), was examined from base camps at Stewart Crossing and Gravel Lake. Field and camp support were provided by a contract Bell G3-B2 helicopter (United Helicopters - Bob McCord, pilot), two 4-wheel-drive trucks and a camp trailer. Principal exploration technique used was geochemical silt sampling in the vicinity of intrusive contacts, aeromagnetic highs, gossans, mineral occurrences and other features of economic interest. Silt, soil, rock chip and panning samples were analyzed by Atlas' Ross River laboratory for Cu Pb Zn Mn and W. The object

of the exploration program was to delimit areas of potential mineralization for follow-up work in 1970. Geologists prepared reconnaissance 1-mile maps of areas of outcroppings. Prospectors examined areas of interest in detail.

SUMMARY

Drainage in the following sheets was silt-sampled at ½-mile intervals:

McQuesten: 115-P-2,3,4,6,7,8,10,11,12,13,14;

Larsen Creek: 116-A-3,4,5;

Dawson: 116-B-1,2,7,8.

Coverage of drainage in these areas is shown in Appendix 2. Reconnaissance geologic mapping in these areas is shown on enclosed 1-mile geology maps. Areas covered by prospecting fly camps including Aussie Creek 116-A-4, Mike Lake 116-A-5, Dualco showing 115-P-11, Syenite Range 115-P-14, Moose Creek 115-P-10 and White Mountain ultrabasics 115-P-13, are depicted by shaded areas in Appendix 2. Properties examined include Louie Brown's nickel property, 116-B-2 and 115-O-15; and Louella Murray's and Bob Caley's Sixtymile property, Dawson area 116-N-13. Summaries of these examinations are given below.

Geochemical anomalies and mineral occurrences were discovered at Aussie Creek 116-A-4, Mike Lake 116-A-5, and Syenite Range

115-P-14. Additional work is proposed for the first two areas in 1970.

CONCLUSIONS AND RECOMMENDATIONS

Silt geochemical anomalies in lead and copper have been discovered at Aussie Creek and Mike Lake. Veins and disseminations of chalcopyrite, pyrrhotite, pyrite and arsenopyrite have been observed in these areas. Results indicate Aussie Creek should be given first priority, followed by Mike Lake, for follow-up work in 1970. Summaries of the geology of these areas with recommendations for further work are given below. Budget estimates and scheduling are given in the Appendix.

Silt anomalies in zinc, and minor pyrite-arsenopyrite-chalcopyrite mineralization in the Syenite Range are of interest, but do not warrant further work at this time.

In general, examination and sampling of the rest of McQuesten area has yielded low geochemical values and sparse mineral occurrences. Few additional targets have been developed. Summaries of the geology and geochemistry of the 1-mile sheets are given below.

AUSSIE CREEK AREA; 116-A-4 : Priority 1

Results:

Two principal anomalous zones have been delimited by silt sampling, mapping and prospecting in the eastern drainage of Aussie Creek. Prospecting and geochemical coverage

of Aussie Creek area is shown in Appendix 2. These areas are shown on map 116-A-4 "Geochemistry" in Appendix. Copper geochemical assays average 112 ppm on a creek mapped by Colin Godwin, where disseminated chalcopyrite and pyrrhotite occur in tuff-chert-slate beds adjacent to porphyritic syenite dykes. Rock samples assayed between .02% and 0.5% Cu. A two-inch wide arsenopyrite vein assayed 0.82 oz/T Ag. Godwin's detailed geological-geochemical map of area is given in Appendix 5. Veins and disseminations of pyrite, arsenopyrite and chalcopyrite occur within a chert-shale sequence north and east of area of detailed mapping.

A lead anomaly in a creek south of the above showing averages 148 ppm Pb over 1½ miles along the creek. Scattered anomalous copper values are also noted. As with copper anomaly to the north, the area occupies a contact zone between syenite and chert-tuff-slate. No mineralization was seen. A creek east of syenite stock in this area also yielded anomalous lead and copper geochemical values.

Three creeks in northwest corner of the map-sheet yield silt assays of 73 to 105 ppm Pb. Paleozoic limestone contains disseminated pyrite where intruded by diorite and porphyry plugs and sills. The area has not been

prospected, and only sparsely sampled. The RN group of 6 claims was staked in this are in 1969, probably by Hart River Mines. A creek draining claims yields silt assays Cu 47, Pb 93, Zn 446 ppm.

Recommended Work

1. Creeks east of main Cu-Pb anomalies, draining to Hamilton Creek, should be silt-sampled at 1000-foot intervals. Samples should be assayed for Cu, Pb, Zn, W, Mo. Rock outcroppings should be mapped and prospected in this area, with attention focussed upon syenite contacts. Chip samples should be taken for assay across all visible mineralization. Contour soil samples should be taken at 500-foot intervals along hillsides bordering anomalous creeks. Soil samples should be taken in the course of prospecting and/or mapping traverses. Proposed silt and soil sample coverage is depicted on "Aussie Creek Follow-up Map" in Appendix. About 16 man-days of sampling are required.
2. Drainages of three creeks anomalous in lead located in northwest corner of sheet should be prospected and contour soil samples taken. Numerous creeks in the area have not been sampled, hence fill-in silt sampling at 1000-foot intervals is recommended. In prospecting this area, attention should be paid to small diorite

and porphyry intrusions, and particularly their contacts with Ordovician-Silurian carbonates. Proposed coverage is depicted on "Aussie Creek Follow-up Map" in Appendix. About 7 man-days of sampling are required.

3. Two silt anomalies of 400 and 560 ppm Zn occur in small creeks in the western drainage of Aussie Creek. Creeks flow over Ordovician and Silurian chert and argellite adjacent to a group of small syenite stocks mapped by Geological Survey of Canada. Atlas' prospector, Gunter Lishy, prospected to the south of this area. Basins of these anomalous creeks should be prospected and contour soils samples taken. Silt samples at 1000-foot intervals should be taken from creeks draining high ground west of anomalous creeks, as shown on Follow-up Map. About 3 man-days of sampling are required.

4. Base camp should be established in priority area 1, close to the area of densest sampling. A proposed site on a creek immediately south of Godwin's anomalous creek is shown on Follow-up Map. Crews may be set out on a daily basis for work in area 1, and on fly camps for areas 2 and 3.

5. A small mobile crew is recommended for work in this area, and Mike Lake area to north. The crew should consist of:

   1. Party Chief - geologist
   2. Field Assistant
   3. Camp manager - field man
   4. Prospector
   5. Sampler
   6. Sampler
   7. Helicopter pilot
   8. Helicopter engineer
   9. Cook

   By using Field Assistant for geological as well as geochemical traverses, including chopper-hopping, and by using Camp Manager for short traverses from base camp in afternoons when his camp duties are complete, the proposed work in Aussie Creek area may be completed in 10 days.

   Budget estimates and scheduling for Aussie Creek project are given in Appendix.

MIKE LAKE AREA, 116-A-5 : Priority 2

Coverage:

The southwest corner of Fish Creek sheet (116-A-5) was covered from a prospecting fly camp on Mike Lake (Lishy and Grunwald), plus helicopter reconnaissance silt sampling of creeks two to three miles to north and east of Mike Lake. Although coverage is quite sparse (see Appendix 2), anomalous areas have been delimited.

Results:

Creeks draining areas of syenite stocks and dykes at south end of Mike Lake yield silt anomalies in copper of 70 to 330 ppm. Drainage north of the lake, from areas of minor syenite intrusion into a Cambrian limestone-chert-quartzite sequence, yields silt anomalies in lead of 60 to 120 ppm. Reconnaissance silt sampling of creeks north and east of Mike Lake yields scattered lead anomalies of 60 to 75 ppm and one high copper assay of 425 ppm. Creeks in northern area drain a predominantly limestone-shale sequence. The high copper assay is adjacent to an aeromagnetic high, and disseminated pyrite-arsenopyrite was discovered in quartzite nearby.

Geology:

Rocks in Mike Lake area are mainly Precambrian and/or Cambrian sediments and metasediments, depicted as Unit 3 on GSC Map, 4-1962. In vicinity of Mike Lake the oldest unit

of sequence is rusty-weathering black argillite and shale containing disseminated pyrrhotite and pyrite. These rocks are overlain by beds of light grey limestone, dolomite and chert, overlain in turn by buff-weathering gritty quartzite. Beds are intruded by stocks, plugs and dykes of porphyritic hornblende syenite, and folded and faulted along contacts. Gossans developed over contact zones are visible in airborne reconnaissance. Several spot aeromagnetic highs lie adjacent to but not coincident with known syenite plugs. Limestone beds southeast of Mike Lake are marked by an aeromagnetic low.

Mineralization:

Arsenopyrite, chalcopyrite and pyrrhotite veins are common in contact zones and shear zones in a syenite stock at south end of Mike Lake. Some large arsenopyrite veins, up to 2 feet wide, were discovered by Lishy. Lishy's prospecting map of Mike Lake area is given in Appendix 6. Disseminated pyrite and pyrrhotite occur mainly in black argillite. Gold values are reported to occur in pyrrhotite, similar to the gold occurrence at Hart River Mines property, 30 miles northeast of Mike Lake.

A specimen of massive arsenopyrite from Mike Lake area (Y-717) yields the following assay:

Au 0.19 oz/T; Ag 1.35 oz/T; Ni trace

A specimen of massive and disseminated chalcopyrite from Mike Lake area (Y-718) assays:

Au trace; Ag 2.00 oz/T Cu 0.62%

A specimen of massive arsenopyrite with chalcopyrite and tourmaline from Mike Lake area (Y-719) assays:

Au 0.32 oz/T Ag 0.50 oz/T Cu 0.25%

Recommended Work:

1. First priority should be given to the area covered by reconnaissance silt sampling three to four miles northeast of Mike Lake. The area is designated on the basis of copper-lead silt anomalies, an aero-magnetic high, and a syenite-quartzite contact. The area examined in detail around Mike Lake contains more visible mineralization, but has been covered with 24 claims of the GOLD group by Alex Briden for Hart River Mines (see Mike Lake Follow-up Map in Appendix). Hart River is mainly interested in reported gold values in pyrrhotite. All drainage north and east of Mike Lake in the anomalous area should be silt sampled on 1000-foot intervals, including Hart River Mines property not covered in 1969 program. Intensive prospecting and careful mapping of aeromagnetic anomalies, contact zones and observed mineralization in this area, should be carried out. Proposed soil and silt sample

sites are shown on Fish Creek Follow-up Map (see Appendix). Chip samples should be taken across all sulphide occurrences, and assayed for Au, Ag, Pb, Zn, Cu, Ni, Mo and W.

2. Two syenite plugs are mapped by GSC about 7 miles east of Mike Lake, bordering an aeromagnetic high. No sampling was done in this area in 1969. The local drainage should be silt sampled on 1000-foot intervals, and soil lines run across the intrusions, as depicted on Fish Creek Follow-up Map in Appendix. The ridge underlain by syenite stocks and adjacent area should be prospected.

3. A spot aeromagnetic high occurs adjacent to a small lake in central Fish Creek sheet. This area has not been sampled in 1969. Local drainage should be silt sampled, and soil lines run in vicinity of the magnetic anomaly, as depicted on Fish Creek Follow-up Map.

4. Approximately 15 man-days of sampling and prospecting are required to complete proposed work on Fish Creek sheet. This would be best accomplished by establishing fly camps in each of the three areas mentioned above. Fly camps would be set out and supplied from Aussie Creek base camp. Sampling crews could also be set out from base camp on a daily basis, with the helicopter giving

fly-camp samplers daily set-outs as required. Work in the Fish Creek sheet should be completed in 5 days.

Budget estimates and scheduling for the combined Aussie Creek - Fish Creek project are given in Appendix.

LARSEN CREEK REGIONAL WORK : Priority 3

Time and budget permitting, it would be advantageous for the follow-up crew to undertake a regional silt-sampling and prospecting program across central part of Larsen Creek sheet. The area is marked by a large south-dipping thrust fault that borders Hart River and drainages to the west, wherein Cambrian sediments and metasediments are thrust over Post-Devonian, pre-Middle Jurassic sedimentary rocks to the north. Mesozoic rocks along the fault zone are intruded by a belt of small Cretaceous stocks of diorite and gabbro. Cambrian limestones crop out in the vicinity of intrusives. The geological environment of this belt appears very similar to that at Hart River Mines' Cu-Pb-Zn-Au-Ag property 4 miles north of the belt.

Base camp should be located centrally in the area on the Hart River, map sheet 116-A-7. Much of the drainage could be conveniently sampled by chopper-hopping.

Drainage could be routinely sampled on ½-mile intervals, and areas of intrusive rock could be covered by prospecting-soil sampling crews. Proposed coverage is depicted on Larsen Creek Regional Sampling Map in Appendix 3. The work, covering the belt of intrusive rocks across sheets 116-A-6, -7, and -8, should be completed in 1 week. Budget estimate is given in Appendix 1.

CLEAR CREEK SHEET : 115-P-14

Coverage:

A prominent circular syenite stock on Clear Creek sheet was intensively prospected, and creeks draining contact areas were silt sampled and panned. Clear Creek drainage outside area covered by Dean and Skonseng in 1967, was silt sampled. On the basis of work done in 1967 and 1969, the Clear Creek area is considered to be adequately covered. Coverage of area is depicted in Appendix 2.

Results:

Five creeks draining contact zone of syenite stock yield high Zn silt assays. Highest Zn assays, ranging up to 4493 ppm, are from the drainage east of Syenite Range, underlain by Ordovician conglomerate. The sedimentary rocks flank syenite stock on the east and are intruded by small granite porphyry dykes.

Two creeks draining south flanks of Syenite Range are underlain by Ordovician limestone/quartzite beds intruded by small granite dykes and yield silt assays up to 1300 ppm Zn.

Two creeks draining western and northern (see Clum Creek 116-A-3) contacts of syenite stock yield silt assays up to 530 and 730 ppm Zn, respectively. Creeks drain an Ordovician black chert/argellite sequence intruded by lamprophyre and granite porphyry dykes.

Results of panning creeks in Syenite Range were almost uniformly low in tin and tungsten. Tin background is 0, mean is about 5 ppm, and highest assay obtained is 0.2%. Tungsten is negative in all but two pannings of .03% and .05%.

Lead and zinc backgrounds in silts taken from Yukon Group schists in southern half of Clear Creek sheet are notably lower than from Ordovician sedimentary rocks in the north. Copper is uniformly low throughout the area.

The Clear Creek prospecting project (Dean, 1967), included regional contour soil sampling, panning and silt sampling of all streams and prospecting ridges and headwaters in Left Clear Creek drainage. Geochemical results were low and panning for tin was negative. Panning of sluices and dredges produced minor amounts of cassiterite, gold, hematite, magnetite, galena and scheelite. Heavy metals will be detected only by panning samples taken 1 to 2 feet above bedrock. Prospecting contacts of granitic bodies revealed

only pyrite. Dean recommended no further work in the area. Clear Creek drainage covered in 1969 lay outside the 1967 project area. This area yielded low geochemical assays and no visible mineralization.

Geology and Mineralization:

Although outcropping is relatively abundant in Syenite Range - Clear Creek area, the unglaciated nature of the terrane, with intense leaching and weathering of rock exposures, renders difficult prospecting for visible mineralization.

A circular porphyritic syenite stock, 5 miles in diameter, intrudes an Ordovician sequence of quartzite, slate, phyllite, conglomerate and limestone. Stock is centrally intruded by 1½-mile diameter granite plug. The syenite-sedimentary rock contact zone is a rusty-weathering, predominantly quartzite-hornfels. Contact mineralization is mainly quartz-schorlomite (black tourmaline), minor pyrite and trace arsenopyrite and chalcopyrite. The chilled contact zone of syenite stock is marked by tabular K-feldspar megacrysts aligned parallel and sub-parallel to contact with long axes mainly vertical. Contact zone of central granite plug exhibits kaolinite-sericite-pyrite alteration.

Small plugs and dykes of porphyritic granite and lamprophyre intrude Ordovician rocks in the north and Yukon Group schists in the south. Disseminated pyrite is commonly found in contact zones, but other sulfides are rare.

Recommended Work:

Zinc anomalies in Syenite Range probably represent small skarn and vein deposits of sphalerite, possibly with minor values in tin and gold. Probably the tin potential in this area is more significant than the zinc, and a more thorough program of tin prospecting may be considered in future. Failure to find significant targets in the area after intensive prospecting and geochemical coverage in 1967 and 1969 indicates that chances of doing so in future are minimal. No further work on Clear Creek sheet appears warranted at this time.

CLUM CREEK SHEET : 116-A-3

Coverage:

Geochemical coverage of Clum Creek sheet in 1969 was limited to west half of the sheet. About half the drainage in this area was sampled at ½-mile intervals.

Results:

One anomalous drainage, a south tributary of Ross Creek at southern edge of sheet, yields silt geochemical assays of 160 to 730 ppm Zn and 53 to 83 ppm Cu. (Results are depicted on "Clum Creek Geochemistry" in Appendix.) Creek drains Ordovician black chert-argillite beds one mile west of northern limit of Syenite Range stock. Lamprophyre and porphyry dikes intrude the sedimentary rocks. Disseminated pyrite is common in contact zones.

Zinc background is 30 ppm outside the anomalous creek. Lead background is relatively low; about 10 ppm throughout sampled area. Copper background is 10 ppm in Cambrian slate and quartzite in the north, and 25 ppm in Ordovician sedimentary rocks in the south.

Recommended Work:

Anomalous creek may be considered a follow-up area in the event that a future prospecting program for tin and/or zinc is considered for the Clear Creek area to the south.

DAWSON SHEET : 116-B-1,-2,-7 and -8.

Coverage:

Lee Creek sheet (116-B-1) received most attention in Dawson area, with ½-mile-interval silt sampling and reconnaissance

geologic mapping of about 50% of the drainage. Eastern margin of Rabbit Creek sheet (116-B-2) was silt sampled in road traverses along Dempster Highway. The southeast corner of Tombstone River sheet (116-B-7) was covered by reconnaissance silt sampling and mapping. Two creek traverses and a road traverse along Dempster Highway provided sparse geochemical and geological coverage of western and northern parts of North Klondike River sheet (116-B-8). Drainage covered is depicted in Appendix 2.

Results:

Three creeks on Lee Creek sheet (116-B-1) yield anomalous silt geochemical assays. Silts from a creek draining Ordovician-Silurian black chert run 360 to 1020 ppm Zn. A spot aeromagnetic high coincides with anomalous area. Zinc geochemical values of 500 and 700 ppm are obtained from a creek draining Ordovician-Silurian cherts that are intruded by andesite and gabbro of probable Cretaceous age. A single high zinc silt assay of 1130 ppm is obtained from a small creek draining Ordovician chert-argillite rocks near a syenite stock on north bank of Klondike River. Weak lead silt anomalies of 70 to 80 ppm occur on a creek in northern Lee Creek sheet that drains on area underlain

by Ordovician sedimentary rocks intruded by small diorite and gabbro plugs. Copper mineralization was noted in northwest corner of Lee Creek sheet, as chalcopyrite plus malachite-azurite on fractures in large quartz veins within Cambrian quartzites. Minor arsenopyrite occurs in weathered feldspar porphyry dykes three miles north of Klondike River.

Large gabbro sills in southeastern Tombstone River sheet (116-B-7) have associated copper silt assays ranging from 50 to 150 ppm. Highest copper anomalies occur over gabbro contacts with Lower Mesozoic quartzite. Pyrite veining is noted in quartzite and shale near gabbro contacts. In southern part of Tombstone River sheet, silts assaying 100 to 200 ppm Zn are derived almost entirely from shales. Zinc in this case may be syngenetic, although shales contain disseminated pyrite of probable epigenetic origin. Northernmost creeks sampled were slightly anomalous in lead, with assays of 35 and 50 ppm.

Rabbit Creek (116-B-2) and North Klondike River (116-B-8) sheets yield no geochemical anomalies or significant mineralization.

Geology and Mineralization:

Oldest rocks in southeast corner of Dawson sheet are Precambrian and/or Cambrian gritty quartzites. This unit is unconformably overlain to the south by Ordovician and Silurian black cherts and argillites that dip shallowly southward and border Tintina Trench on the north. The two units comprise a thrust plate that dips shallowly southeastward and over-rides Mesozoic metasediments to the north. Mesozoic rocks include a Pre-Middle Jurassic sequence of quartzite, slate and phyllite and an overlying Middle Jurassic brown siltstone unit.

Near eastern border of Dawson sheet, Paleozoic rocks of the thrust sheet are intruded by stocks of syenite and plugs of diorite/gabbro. Conwests' stibnite showing at Antimony Mountain (116-B-8) occupies the contact zone of a small syenite stock. This area was not covered by Atlas crews in 1969. Larger stocks of syenite intrude Mesozoic metasediments in Tombstone River sheet (116-B-7) to the west, and underlie Tombstone Mountain. An intrusive body of porphyritic greenstone is host to Spotted Fawn silver-lead showing south of Tombstone Mountain.

A swarm of gabbro and diorite sills strike northeastward to eastward across sheets 116-B-7 and -8, flanking the leading edge of the thrust plate. Silt geochemical traverses across contacts between basic sills and intruded Pre-Middle Jurassic quartzite-shale beds yield copper anomalies ranging between 55-250 ppm in southeast Tombstone River sheet. The same terrane on adjacent North Klondike River sheet yields copper silt assays in the order of 50 ppm. Gabbro sills strike southwestward across Rabbit Creek sheet (116-B-2), but are obscured by unconsolidated glacial and alluvial deposits occupying Tintina Trench.

Recommended Work:

Syenitic and basic intrusives in southeastern Dawson sheet apparently are attended by antimony, silver-lead, copper and possibly zinc mineralization. Copper-zinc silt anomalies and observed mineralization on Lee Creek and Tombstone River sheets are interesting, but are not of a magnitude that warrants further work in the immediate future. However, favourable geology and geochemistry in the area covered plus an extensive belt of greenstones to north and west, are factors favouring a future regional geochemical and prospecting program in the Ogilvie Mountains.

WILLOW LAKE : 115-P-2

Coverage:

Terrane in Willow Lake sheet shows moderate relief with relatively wide-spaced drainage, hence 160 silt samples, spaced at ½-mile to 1-mile intervals adequately covers about three-quarters of the drainage. Rock outcroppings were covered in reconnaissance mapping. Coverage for the sheet is given in Appendix 2.

Results:

A small creek near southern edge of map-sheet yields anomalous silt assay of 360 ppm Cu and 42 ppm Pb. The creek drains an area underlain by Yukon Group schist intruded by small granitic stocks. Silts in same area assayed 10 and 20 ppm W. A creek east of Willow Lake draining an area underlain by fine-grained granite and porphyritic andesite yields tungsten silt assays of 10 and 20 ppm. Metal backgrounds over the rest of the sheet are Cu: 10 ppm; Pb : 3 ppm, and Zn : 25 ppm. Spot checks for tungsten yield a background of 0.

Geology:

Low metal values in silts may be accounted for, in part, by the unglaciated nature of Willow Lake area, except for low-lying ground along Willow Creek valley. The predominant rock type, Yukon Group quartz-mica schist, is known to be low in metals elsewhere. Yukon Group rocks are intruded by stocks of porphyritic granite and quartz monzonite. Contact areas revealed no visible mineralization and, with the exception of results cited above, uniformly low silt assays in copper, lead, zinc and tungsten. Aero-magnetic highs on Willow Lake sheet coincide with Eocene Carmacks Group andesitic flows, small gabbro stocks and Mesozoic volcanic rocks. No mineralization or silt anomalies are associated with these units.

Recommended Work:

Results indicate no additional work is warranted in this area in 1970. However, the creek anomalous in copper, lead and tungsten in southern part of map sheet, and the creek east of Willow Lake with weak tungsten anomaly, should be considered as potential targets for future follow-up work.

COLDSPRING MOUNTAIN : 115-P-3

Coverage:

Creeks in vicinity of Rough Top and Flat Top Mountains, and creeks in northeastern part of sheet were silt sampled at ½-mile intervals. Drainage in the northern one-third of Coldspring Mountain sheet has been covered with 82 silt samples. Forty-five soil samples were taken by Gunter Lishy over ultrabasic rocks underlying Rough Top Mountain. Coverage is depicted in Appendix 2, and "Coldspring Mountain Geochemistry" in Appendix 12.

Results:

Lishy examined ultrabasic rocks in Rough Top Mountain from two prospecting fly camps in June, 1969. Asbestos, nickel, chromite and other minerals were prospected for with no showings discovered. Dimethylglyoxime nickel tests on basic and ultrabasic rocks produced weak or negative results, indicating very low nickel content.

No significant geochemical anomalies are noted in either silts or soils in the area. Soils are high in copper and lead relative to a low metal background similar to that in other unglaciated terrane in McQuesten area. One soil sample taken over foliated diorite assays 80 ppm Cu, whereas other soils taken over serpentinized and fresh diorite and

adjacent Yukon Group shiet, yield means of 15 ppm Pb and 20 ppm Cu. Higher background is probably due to related basic and ultrabasic rocks.

Geology:

Ultrabasic rock underlying Rough Top Mountain is homogeneous serpentinized diorite. Local concentrations of magnetite account for strong aeromagnetic highs over both mountain peaks in area. An aeromagnetic low corresponds to a small body of unserpentinized diorite. Intrusives cut Yukon Group mica schist and quartzite that is overlain by Tertiary basalts of the Selkirk Group west of Rough Top Mountain. Fine-grained syenite crops out at eastern end of Tonsure Mountain, located in northeast corner of map-sheet. No geochemical anomalies or visible mineralization are associated with this intrusive rock.

Recommended Work:

No further work appears warranted in this area.

PIRATE CREEK : 115-P-5

Coverage:

Four creeks draining southern slope of Ice Chest Mountain were silt-sampled on reconnaissance basis. Schist and orthogneiss of Klondike Group in southern part of map-sheet

were not covered due to distance from both base camps and probable low mineral potential.

Results:

The four creeks sampled are low in Cu, Pb and Zn. Means are Cu:10, Pb:9, Zn:33 ppm. No mineralization was detected. Ice Chest Mountain is underlain by medium- to coarse-grained quartzose granite.

Recommended Work:

No additional work is required in this area.

REID LAKES : 115-P-6

Coverage:

High ground south of Reid Lakes underlain by Cretaceous granite of Pirate Mountain stock is covered by 102 silt samples at ½-mile to 1-mile intervals. Low, poorly-drained ground north of Reid Lakes is not covered. About half the drainage on Reid Lakes sheet is adequately sampled.

Results:

Spot assays for tungsten on silts from creeks draining granite contacts yield one value of 20 ppm and three of 10 ppm. Highest tungsten assay is from a creek underlain by two syenite stocks that intrude granite on north slopes of

Pirate Mountain. No other geochemical anomalies are detected. The area shows a low metal background similar to Stewart Crossing sheet to the east; i.e. Pb : 0 ppm, Cu : 10 ppm, and Zn : 20 ppm.

Geology:

Pirate Mountain is underlain by predominantly granite rocks. Contacts between granite and Yukon Group gneiss, and between syenite and foliated granite, were observed. The low geochemical background and lack of visible mineralization indicates these Cretaceous (?) stocks south of Tintina Trench in McQuesten area are not metalliferous.

Recommended Work:

Tungsten 'anomalies' are probably non-significant, but indicate that tungsten assays should be done routinely on all silt and soil specimens from granitic terranes. No further work is warranted in this area.

STEWART CROSSING ; 115-P-7

Coverage:

Stewart Crossing was the first area examined in 1969. The area has relatively dense drainage and good rock exposure, and all parts of area are readily accessible from base camp at Stewart Crossing. Tintina Fault strikes northwestward through center of the map-sheet, separating two areas of distinctly different geology to northeast and southwest of Stewart River valley. About 80% of drainage was silt-sampled on ½-mile intervals, and reconnaissance mapping was done on all rock outcroppings. 231 silt samples were assayed for Cu, Pb, Zn and Mn, 31 of which were selected for W assay.

Results:

A silt geochemical anomaly is obtained from a small creek draining southward to Stewart River four miles east of Stewart Crossing bridge. One silt sample assays Cu:37, Pb:62 and Zn:114 ppm. Other samples from creek show similar assays in copper, but low values in lead and zinc. The creek drains Yukon Group mica schist and quartzite in which no mineralization was observed. Small granite dykes intruding Yukon Group two miles east of anomaly are depicted on GSC Map 1143A.

STEWART CROSSING : 115-P-7 (continued)

Results (contd.)

A small eastern tributary of Airport Creek yields a silt assay of Cu:24, Pb:25, Zn:115. The creek drains a small stock of porphyritic granite that intrudes a metamorphic complex of quartzite, limestone and mica schist of indeterminate Carboniferous to Cretaceous (?) age. A silt sample from Airport Creek ½-mile downstream assays Cu:45, Pb:55, Zn:107 ppm, and a nearby soil sample assays Cu:102, Pb:0, Zn:102 ppm. The latter two samples are taken over a locally rusty quartzite that contains minor chalcopyrite in quartz veins.

Four silt samples taken from Crooked Creek, three miles east of chalcopyrite occurrence, are weakly anomalous in lead (12 to 23 ppm), and one sample assays 167 ppm Zn. The geologic environment is similar to that at Airport Creek anomaly, with a small granite stock intruding rusty quartzite. No mineralization was observed.

Seven anomalous tungsten assays of 20 to 40 ppm are derived from silts collected in southwestern corner of Stewart Crossing sheet. Anomalous samples are taken from contact zones between Carboniferous to Cretaceous andesite and a syenite stock, a quartz monzonite plug, and

STEWART CROSSING : 115-P-7 (continued)

Results: (contd.)

a granite stock. Tungsten anomalies form an arcuate zone bordering the andesite unit.

Isolated zinc assays of 125 and 180 ppm in eastern part of map sheet, and a copper assay of 60 ppm in the south probably are non-significant.

Geology:

The area northeast of Tintina Trench is underlain by uniformly bedded quartz-sericite schist and quartzite of Yukon Group. One small porphyritic granite stock intrudes these rocks near the summit of Ferry Hill. No mineralization was observed in the area. Only the ridge tops north of Tintina Trench are unglaciated.

Geology is more complex and notably dissimilar on southern side of Tintina Trench. Yukon Group rocks were not observed in this area. A metamorphic complex, resembling Yukon Group in part, and comprising blue-grey quartzite with distinctive blue quartz, mica schist and limestone, trends southeastward across the area. This unit, which also contains conglomerate, chert and tuff members, is overlain by andesite and trachyte flows.

The older and younger units are mapped as Carboninferous to Cretaceous(?) in age by Bostock (Map 1143A). Both units are intruded by a variety of intrusive rocks, including stocks, plugs and dykes of granite, granodiorite, hornblende syenite and quartz monzonite. Geochemical anomalies and minor chalcopyrite occurrences are associated with these contacts.

Higher ground in Willow Hills in southwestern corner of map sheet is unglaciated.

Geochemistry

Two hundred and thirty-one geochemical assays from differing geologic terranes north and south of Tintina Trench in Stewart Crossing area are compared statistically for mean, standard deviation and threshold values in copper, lead and zinc in Table 1.

Table 1.

Metal	Mean	Standard Deviation	Threshold
Cu,Pb,Zn	$\bar{X}$ (ppm)	σ (ppm)	$\bar{X} + 2\sigma$ (ppm)
Pb SW of Tintina Trench	3.95 = 4	5.0	14
Pb NE of Tintina Trench	1.98 = 2	5.0	12
Zn SW of Tintina Trench	37.0	18.0	73
Zn NE of Tintina Trench	31.0	18.0	67
Cu NE of Tintina Trench	12.6	7.1	27
Cu SW of Tintina Trench	11.0	7.1	25

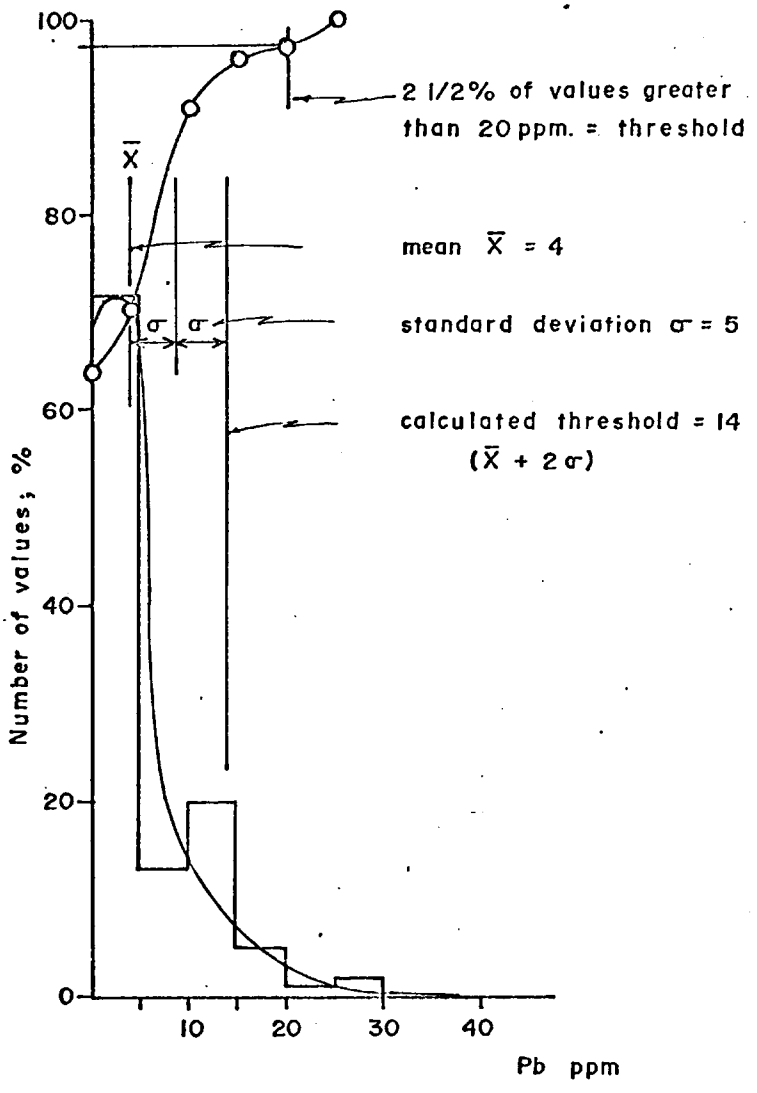
Frequency distribution histograms and cumulative frequency curves for above populations are given in Figures 2 to 6.

The above calculations of threshold values are best applied to symmetrically distributed populations, either normal or lognormal (Hawkes and Webb, 1962, p.30). With small bodies of single-population background data, or where the statistical distribution is irregular, probably the best approximation is to take the median value as background and to estimate threshold as that value which is exceeded by no more than 2½ percent of total number of observations, excluding markedly high erratic values (Ibid, p.31). A comparison of two threshold values for each element is given in Figures 2 to 6.

A third method of determining threshold value involves simply taking all values above the 95 percentile cumulative frequency as anomalous.

A comparison of thresholds determined for Cu Pb Zn by three methods is given in Table 2.

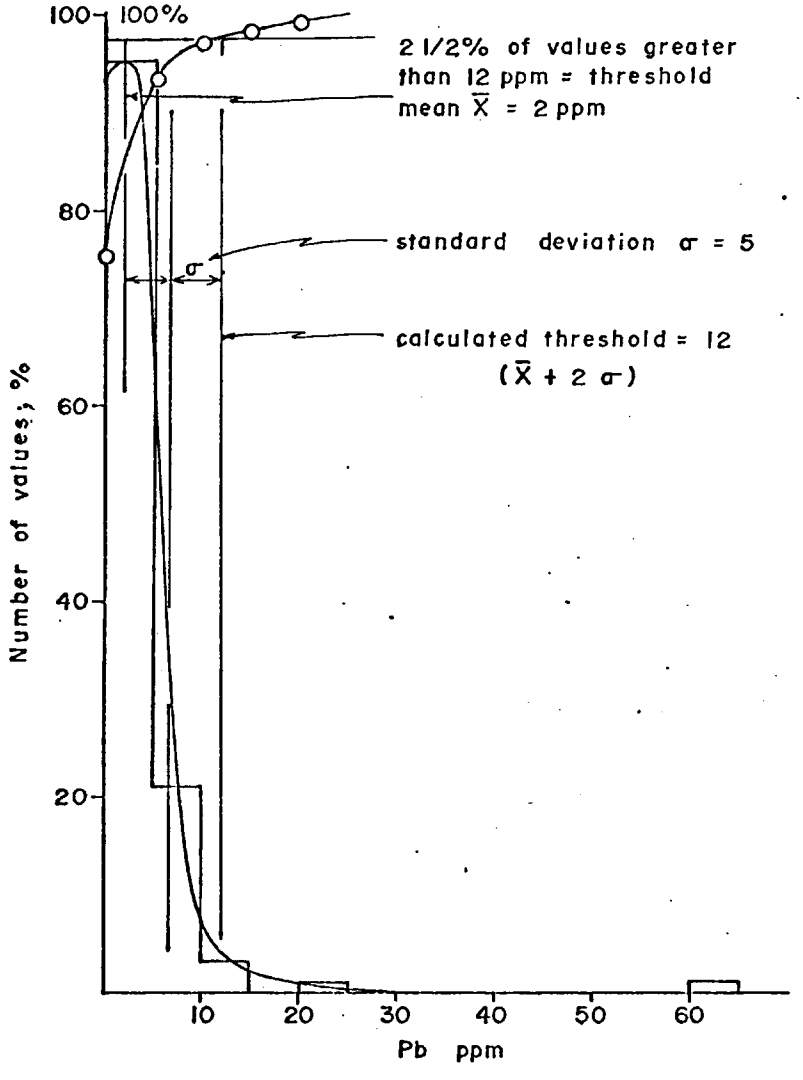
FIGURE 2



Lead in silts southwest of Tintina Trench, Stewart Crossing Sheet, 115P7. Frequency distribution histogram and cumulative frequency curve.

TO ACCOMPANY REPORT "TINTINA PROJECT
Mc QUESTEN AREA — 1969 " K. M. D.

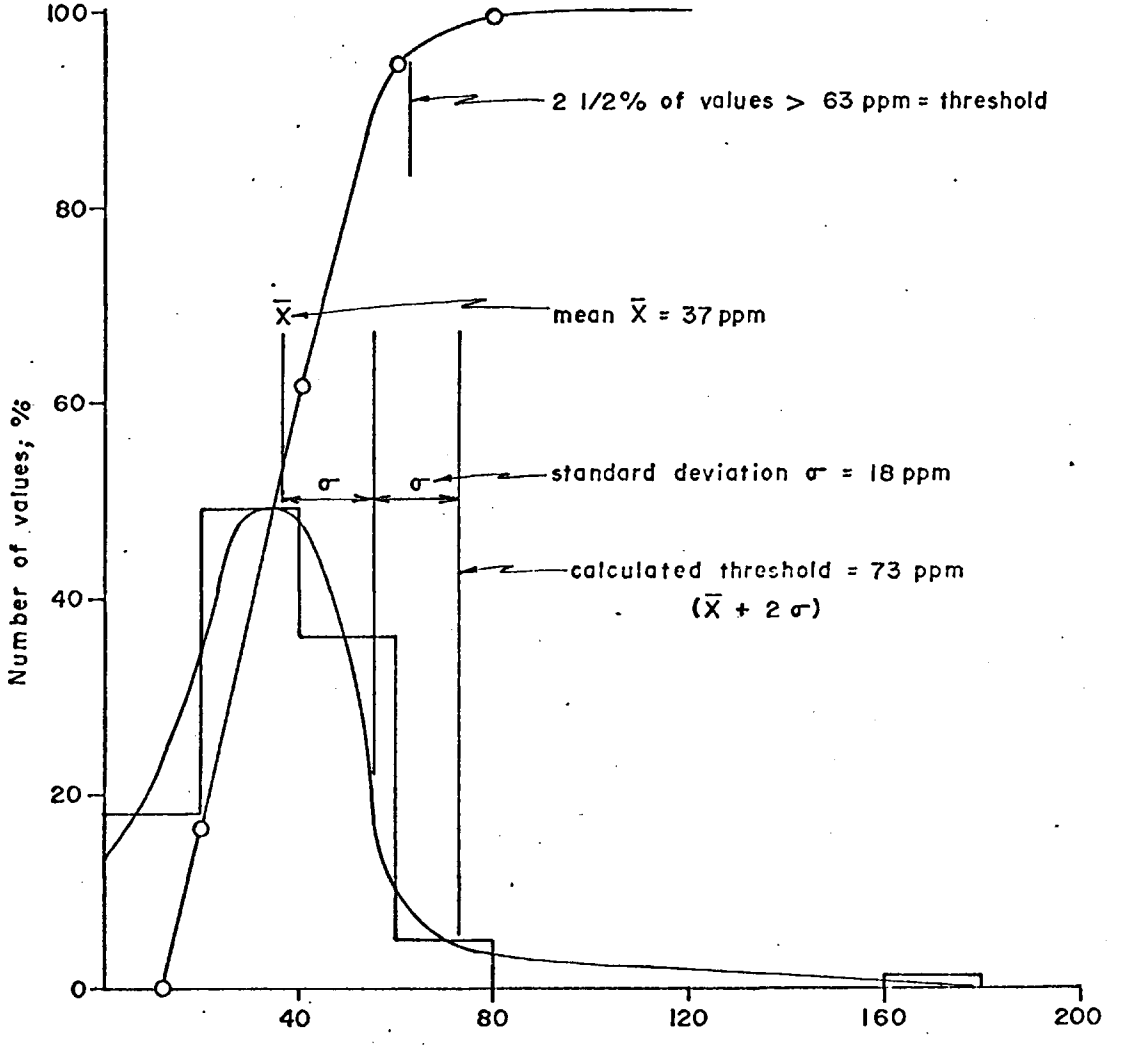
FIGURE 3



Lead in silts northeast of Tintina Trench, Stewart Crossing Sheet, 115P7. Frequency distribution histogram and cumulative frequency curve.

TO ACCOMPANY REPORT "TINTINA PROJECT
Mc QUESTEN AREA — 1969" K. M. D.

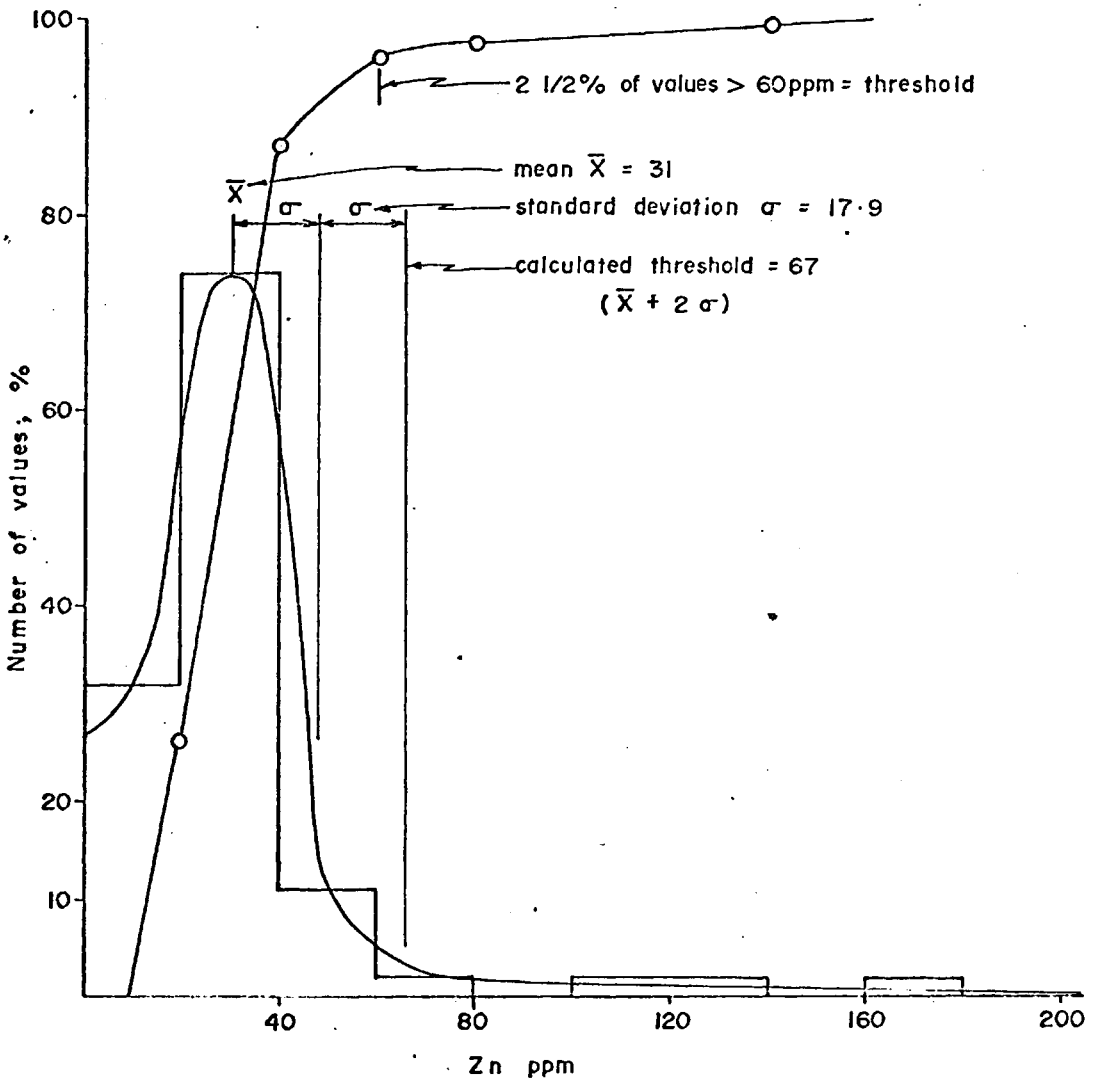
FIGURE 4



Zinc in silts southwest of Tintina Trench, Stewart Crossing Sheet, 115 P7
Frequency distribution histogram and cumulative frequency curve.

TO ACCOMPANY REPORT "TINTINA PROJECT
Mc QUESTEN AREA — 1969" K. M.D.

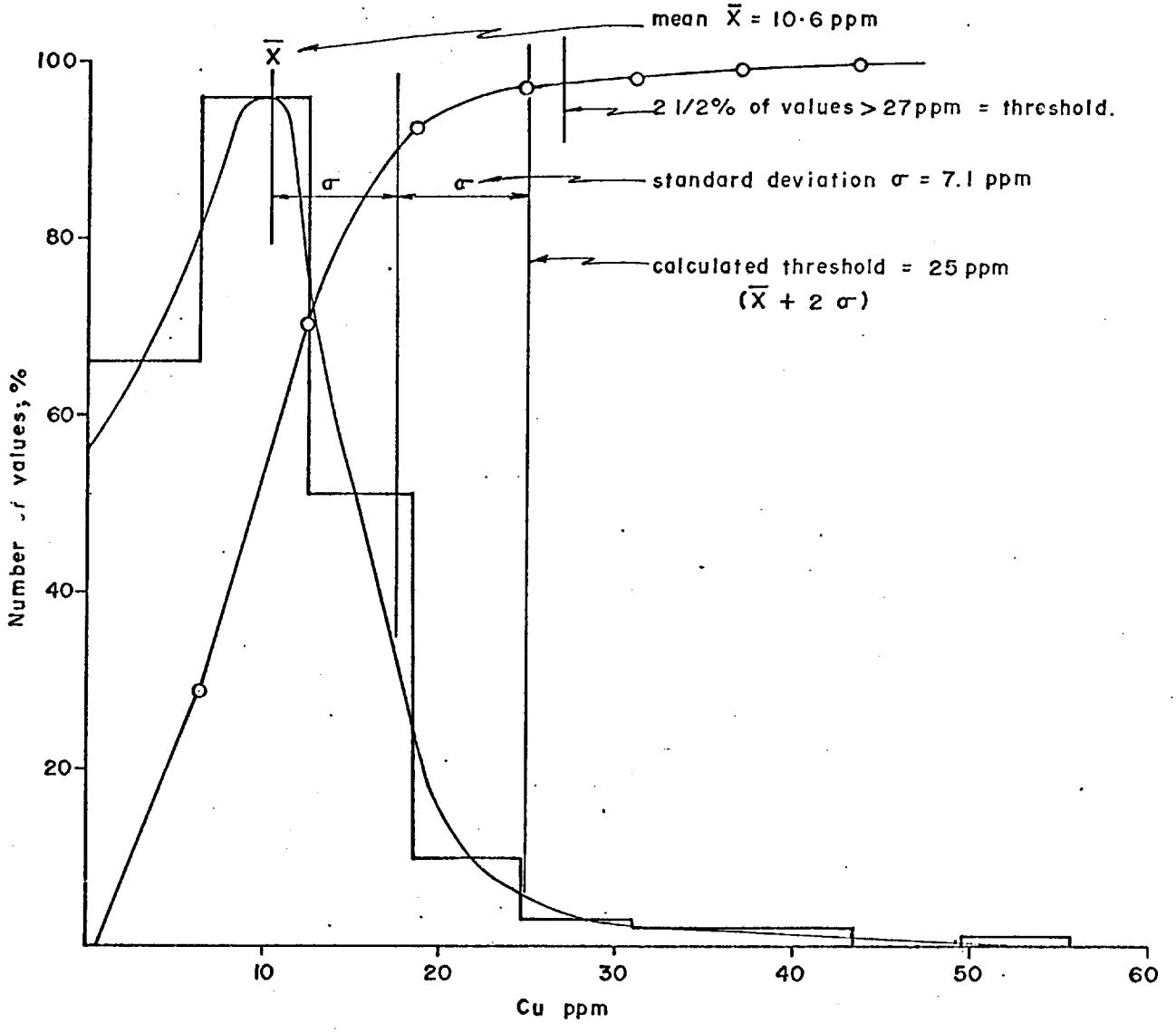
FIGURE 5



Zn in silts northeast of Tintina Trench, Stewart Crossing Sheet, 115 P7.
Frequency distribution histogram and cumulative frequency curve.

TO ACCOMPANY REPORT "TINTINA PROJECT
Mc QUESTEN AREA — 1969" K. M. D.

FIGURE 6



Copper in silts from whole Stewart Crossing Sheet, 115 P 7
Frequency distribution histogram and cumulative frequency curve.

TO ACCOMPANY REPORT "TINTINA PROJECT
Mc QUESTEN AREA — 1969" K. M. D.

Table 2.

Element area	Method of threshold calculation		
	Top 5%	Top 2½% - erratic highs	$\bar{X} + 2\sigma$
Cu, sheet	21 ppm	27 ppm	25 ppm
Pb, NE	8	12	12
Pb, SW	14	20	14
Zn, NE	58	60	67
Zn, SW	62	63	73

The most significant aspect of the above comparison is the similarity in threshold values determined by three different methods. The "top 5 percentile" method gives consistently lower thresholds than other two methods. Differences between "standard deviation" and "top 2½ percentile" methods are dependant upon the unimodal or polymodal nature of population distribution. Since differences between these latter two methods are slight, the "top 2½ percentile" method is judged the better in that tedious calculations of standard deviation are avoided, and variance is partially compensated for by eliminating erratic highs. In the five populations tested, the arithmetic mean appears to be the best measure of population

background, since no significant bimodal tendencies were observed.

Lead and zinc geochemical assays show a small but consistent difference in background (mean) from differing geological terrances northeast and southwest of Tintina Trench. Both metals have lower background from Yukon Group rocks north of Tintina Trench. Copper backgrounds from the two areas appear to show the opposite distribution, i.e. mean of 11 southwest of trench and 12.6 to northeast. Copper values are generally low throughout the sheet, and a group of anomalous assays in northern part probably skewed the smaller population. The difference in copper background is believed to be non-significant.

Prior to this statistical study of geochemical assays in McQuesten area, thresholds of Cu:60, Pb:40 and Zn:100 were selected by visual inspection. These values are notably higher than average calculated thresholds of Cu:25, Pb:15 and Zn:70 for Stewart Crossing sheet, but probably are more realistic in delimiting strongly anomalous areas in other map sheets showing higher metal backgrounds.

Recommended Work:

High copper, lead and zinc assays from the small creek four miles east of Stewart Crossing bridge probably represent mineralization related to small granite dykes in area. Since this locality is readily accessible from Mayo Highway, it should be checked out by a geologist who may happen to be in the area in the course of other work in 1970.

Copper, lead and zinc anomalies on Airport Creek and Crooked Creek are probably due to mineralization of a similar nature as that observed, i.e. small quartz-sulphide veins in quartzite adjacent to intrusive contacts. No additional work appears warranted on these two creeks.

The broad arcuate area of tungsten silt anomalies in southwestern Stewart Crossing sheet is apparently related to acidic intrusive rocks in the same area. The accuracy of these assays is considered to be somewhat uncertain, however. These assays represent the first batch of tungstens run in Ross River laboratory in 1969, and the technicians experienced some difficulties in interpreting results. When feasible, pulps from these and other sample sites in the area will be sent to Chemex Lab, Vancouver, for check assaying. A comparison between these

and W assays from streams draining CAB group tungsten deposit shows that values of 40 ppm W should be considered as definitely anomalous. No additional work is foreseen for this area at present.

ETHEL LAKE : 115-P-8

Coverage:

Silt sampling was done mainly south and west of Ethel Lake. Seven creeks north of Ethel Lake were sampled. One hundred and two samples were collected from the map sheet. Six geologic mapping traverses were carried out.

Results:

Ethel Lake area exhibits a low geochemical background similar to adjacent Stewart Crossing sheet; Cu:15 ppm, Pb:5 ppm, Zn:30 ppm. No geochemical anomalies are noted. Lead values are slightly higher (15-25 ppm) in drainages of Crooked Creek at southeastern corner of sheet, adjacent to granite contact. No mineralization was observed on this sheet. An old shaft, windlass and dump of rusty quartz with no visible sulfides was noted on a ridgetop 3 miles east of Mt. Sether summit. Large quartz veins, possibly containing pyrite, probably were prospected for gold in the early days.

Geology:

Ethel Lake area is almost entirely underlain by quartz-sericite schist of Yukon Group. Schist is interbedded with thick beds and lenses of coarsely-crystalline white

ETHEL LAKE : 115-P-8 (continued)

Geology (contd.)

limestone south of Ethel Lake. Schist is intruded by a large stock of coarse-grained pink granite south of Crooked Creek, and by plugs of porphyritic granite containing pink apatite, along Ethel Lake Road.

Lack of visible sulfides in rusty quartz at old workings east of Mount Sether, and in rusty-weathering schist elsewhere is attributed to unglaciated nature of the terrane.

Recommended Work:

No further work in this area appears warranted.

MOOSE CREEK : 115-P-10

Coverage:

A prospecting fly camp (Peter Dean, Ray Wells) was located on Moose Creek near the junction of Reverse Creek. Aeromagnetic highs near the west end of Conservative Ridge and along a ridge to the west were prospected, and silt samples were taken from two creeks draining the western magnetic high. The rest of the map sheet was not examined.

Results:

Silt geochemical assays from aeromagnetic high are low in Cu, Pb, Zn. No mineralization was detected in the area. The ridge examined is underlain by Yukon Group quartz-sericite schist. Pyroxenite float was noted in the area. Since only the valleys have been glaciated, the pyroxenite probably crops out nearby, and may be the cause of magnetic anomalies.

Recommended Work:

Silt sample coverage of Moose Creek area is very limited. Reconnaissance was hampered by lack of outcrop in vicinity of aeromagnetic anomalies. Rusty zones in schist in this area and along the ridge west of the sheet indicate magnetic response may be due to presence of magnetic sulfides.

MOOSE CREEK : 115-P-10 (continued)

Recommended Work (contd.)

The area does not warrant immediate attention, but future work should be considered in the vicinity of aeromagnetic highs. Rusty zones should be spotted from the air, and along with magnetic anomalies, these areas should be prospected and soil sampled on 500-foot spacing.

Coverage:

About 80% of drainage in McQuesten sheet is covered by 132 silt samples taken at ½-mile intervals. The Dualco Pb-Zn-Cu showing was prospected by Dean and Lishy, as shown on "McQuesten - Geology" in Appendix. Creeks crossing the highway were sampled in a road traverse.

Results:

Lead and copper mineralization in McQuesten area accounts for significantly higher backgrounds in these elements than noted for Stewart Crossing area to southeast: Cu:16 ppm, Pb:19 ppm, and Zn:27 ppm. Two tributaries of Vancouver Creek are anomalous in lead (60 and 100 ppm). Porphyritic granite and vein quartz float were noted in Vancouver Creek below anomalies, indicating lead veins may be associated with small granite stocks intruding Yukon Group in this area. Lead anomalies of 300, 53 and 43 ppm are noted from mouths of creeks draining into McQuesten River near Vancouver Creek. Boulders of rusty schist were observed in creek that yields 300 ppm Pb anomaly. This creek drains an area only 3 miles north of Dualco showing. The creek draining the Dualco showing yields

geochemical assays of Cu:38, Pb:63 and Zn:260 ppm, whereas creeks to the east are not anomalous. Drainage west of Vancouver Creek is underlain by a granite stock that extends northward to Clear Creek. No anomalous silt assays were obtained in this area.

The Dualco showing is located 20 miles northwest of Stewart Crossing and is accessible from the highway. It is on old chalcopyrite-galena-sphalerite showing that has been known since 1906. Bulldozer trenching in 1968 by Carl Springer revealed minor sulphide occurrences in one trench, the only mineralization observed by Dean and Lishy in 1969. Small quartz porphyry stocks and dykes, accompanied by green and violet fluorite veining, intrude Yukon Group quartz-sericite-garnet schist in the area. Roy Bates of Mayo restaked the original four claims covering visible mineralization while Atlas' crew was in the area.

Geology:

The area south of McQuesten River is underlain by quartz-sericite-garnet schist of Yukon Group that is intruded by small bodies of porphyritic granite.

Minor sulfide mineralization, including chalcopyrite, pyrite, sphalerite and galena, and fluorite veins occur at or near contacts of these intrusions. These minor granite intrusions represent the southern end of a belt of plugs and dykes extending northwestward through Clear Creek area to Syenite Range. A large granite stock occupies northwestern part of map-sheet, and extends northward to Clear Creek. No mineralization or silt anomalies were noted in the vicinity of this stock.

The McQuesten map-area lies almost entirely on the northeast side of Tintina Trench. A small area in southwestern corner of map sheet is underlain by granite that is probably related to Ice Chest Mountain stock. This area is on southwest side of Tintina Trench, but yields low metal backgrounds similar to those from the area to northeast.

Terrane above 2000-foot elevation contour in McQuesten area is predominantly unglaciated.

Recommended Work:

Sulfide occurrences in vicinity of Dualco showing do not appear to be of economic significance. The

magnitude of anomalies in Cu-Pb-Zn from creek draining the showing indicates that the 300 ppm Pb anomaly, three miles north of Dualco showing, should be followed up. The campsite at Dualco showing is accessible by road, and headwaters of anomalous creek are only half a day's hike over the hill. A geologist or prospector could spend a day or two in this area to prospect and soil-sample the anomalous drainage.

GRAVEL CREEK - 115-P-12

Coverage:

Widely-spaced drainage and low relief over most part of Gravel Creek map sheet are typical of Tintina Valley, the physiographic feature encompassing over half the Gravel Creek area. Sixty-three silt samples, at intervals between ½ mile and two miles, were taken from drainages of 10 major creeks in area. Reconnaissance geologic mapping was done in areas of rock outcropping on the periphery of Ice Chest Mountain granite stock, and over ultrabasic intrusions near western edge of sheet.

Results:

Geochemical backgrounds are low in Gravel Creek area: Cu:13, Pb:10 and Zn:18 ppm. No geochemical anomalies

are noted. No mineralization is noted within the medium to coarse-grained granite underlying Ice Chest Mountain, or in contact zones of the same rock. Veinlets of antigorite and rosettes of actinolite occur in a sheared serpentinite body in western part of map sheet. Four claims, numbers Y 15224-5-6-7, are staked in the area, presumably for "asbestos".

Geology:

Oldest rocks in area are banded quartzites of Yukon Group. These rocks apparently are overlain by biotite orthogneiss of the Proterozoic (?) Klondike Group. Contacts between these rocks and coarse-grained pink granite of stock underlying Ice Chest Mountain are not exposed. Yukon and Klondike Group rocks are intruded by an elongate body of sheared serpentine, and by smaller granite dykes. On northeast side of Tintina Valley, Yukon Group quartzite underlying Two Sisters Hill is intruded by small granite plugs associated with a larger stock in Clear Creek area to the northeast. No sulfides were observed in the area.

Recommended Work:

No further work is warranted in this area.

GRAVEL LAKE - 115-P-13

Coverage:

About 90% of the drainage in Gravel Lake area was sampled from base camp at Gravel Lake. One hundred and eighty-nine silt samples were taken at intervals of ½-mile and less. Eight reconnaissance geologic mapping traverses were carried out. The southwestern corner of Gravel Lake sheet occupies Tintina Valley. Ground elevation increases gradually northeastward, marked by rounded rolling hills typical of unglaciated terrane in this part of Yukon.

Results:

Backgrounds of Cu:18, Pb:12, and Zn: 76 ppm, are relatively high compared to most of McQuesten area. Anomalies in these elements are noted on Glacier and Gates Creeks. Paleozoic sedimentary and metamorphic rocks in Gravel Lake area carry a higher background in lead and zinc than do predominantly Yukon Group metamorphic rocks to the south.

Glacier Creek and its tributaries yield a group of anomalous zinc assays ranging between 100 and 650 ppm. Zinc anomalies on Glacier Creek are not spatially related to observed stocks and dykes of granite and feldspar porphyry, indicating that the Ordovician black slates, shales, siltstones and limestones drained by these creeks are relatively high in syngenetic zinc. In the headwaters of Glacier Creek copper anomalies of 83 and 102 ppm, and lead anomalies of 60 and 80 ppm are associated with minor intrusions of granite and feldspar porphyry.

An eastern tributary of Gates Creek drains an area of Ordovician phyllite and limestone that is intruded by two granite stocks. As with Glacier Creek to the east, lead anomalies of 35 to 40 ppm are associated with granitic intrusions, whereas higher zinc values of 100-150 ppm are more randomly distributed over the drainage.

Drainage from Yukon Group rocks south of anomalous creeks is notably lower in Cu, Pb, Zn values, except for small lead anomalies of 61 and 42 ppm on Zinc and Barlow Creeks, respectively.

Areas of granite intrusion on Gates Creek are marked by aeromagnetic highs, indicating magnetic mineralization may accompany these intrusive rocks. Conversely, a granite stock west of Glacier Creek has an associated mag low.

Geology:

Quartz-mica schist and quartzite of Yukon Group are intruded by granite near the mouth of Clear Creek in southeastern part of area. Yukon Group is overlain on the north by a sequence of sedimentary and metasedimentary rocks of Ordovician or later age. In Gravel Lake area, the sequence comprises black graphitic phyllite; black, green and brown slate, siliceous siltstone and laminated limestone. Ordovician and older rocks are intruded by granitic stocks and dykes that form a northwesterly-trending belt originating near McQuesten River. This intrusive belt is parallel to Tintina Fault and may represent a parallel zone of deep fracturing. Granitic dykes and drainage show a minor northeast trend, parallel to a more weakly developed set of cross-faults.

No mineralization was observed in Gravel Lake area. Iron-stained slate and phyllite containing some pyrite

was mapped in headwaters of Glacier Creek. Rusty seeps on south bank of Little South Klondike River yield zinc geochemical assays of 220 ppm.

Recommended Work:

Geochemical sampling indicates that minor lead, zinc and copper mineralization may accompany intrusion of granitic rocks in Gravel Lake area. Zinc anomalies probably are derived, for the most part, from sedimentary rocks high in primary zinc. The area has been thoroughly covered by silt sampling and reconnaissance geologic mapping, and the probability of economic mineral deposits in the area is deemed to be quite low. No additional work is warranted in the area.

SIXTYMILE AREA - MURRAY'S AND CALEY'S CLAIMS (115-N-15)

The claims were visited by the writer and Godwin, with Louella Murray and Bob Caley, in June, 1969, The property was staked by the late Mike Chefkoi while under contract to Atlas. Miss Murray has inherited Chefkoi's interest.

The only mineralization observed in place was an apparently syngenetic band of arsenopyrite-pyrrhotite-minor chalcopyrite about 4"-8" wide in Yukon Group schist (see Map 115-N-15 in Appendix 21). Two specimens yield the following semiquantatative spectrographic assays:

Specimen	Cu%	Au	Pb%	Mo	Ni%	Ag	Sn	Zn
Y-801	.05	tr.	.2	ND.	.001%	tr.	.01%	N.D.
Y-804	.05	tr.	N.D	ND	.001%	tr.	.005	N.D.

Showings described by Chefkoi as being "on strike" with large galena veins on adjacent Connaught Mines claims consist of vein float downhill from these veins. Veins examined on Connaught claims are typically epithermal: fillings of gaping, lenticular, discontinuous fractures with galena and dogtooth quartz. Extensions may occur on Sixtymile claims, but detailed soil sampling is required to pinpoint the veins.

A magnetite skarn was examined on LOU and BEN claims at southeast end of the property. Two bands of magnetite-quartz-

siderite 5 to 10 feet thick are exposed in a shear zone bordering a granite stock in the area. Mineralization was not of economic interest.

The silver-lead potential of the area does not appear to warrant further work. However, recent reports of copper and molybdenum geochemical anomalies in the area indicate that porphyry deposits may be associated with granite stocks in the Sixtymile area, similar to mineralization in Dawson Range to the south. A regional geochemical-prospecting program in the area should be considered in conjunction with Victor Project.

Louie Brown's MU, TIN, TINA, SUN Claims: 115-O-15, 116-B-2

In the spring of 1969, Louie Brown of Mayo staked approximately 260 claims in five groups extending northwestward from Allgold Creek to north of Dawson. The claims cover an elongated body of nickeliferous serpentinized ultrabasic rock along south bank of Klondike River. Mount Leotta area was visited by the writer and Colin Godwin on June 15. Due to a misunderstanding Louie Brown did not meet Atlas geologists. Road cuts were examined, a ridge traverse was run along Mount Leotta and rock specimens collected for assay. The writer and Brown revisited the area by truck on June 25, and examined outcroppings of quartz-carbonate altered rocks at the contact of the ultrabasic intrusive in a highway pit across Klondike River from the old Y.C.G.C. powerhouse.

The ground was staked on the basis of strong response to dimethylgloxime tests. Brown's specimens and rocks observed in the field lacked any visible epigenetic sulfides. Traces of syngenetic pyrrhotite are noted. Four specimens of serpentinized ultrabasic rock collected from Mount Leotta (see map 105-O-15 in Appendix 22) yield the following values in nickel and chromium; by semiquantatative spectrographic analysis:

Sample No.	Ni%	Cr%
Y 702	0.24	0.5 to 1.0
Y 703	0.24	0.5 to 1.0
Y 704	0.3	0.2
Y 705	0.22	0.02

Nickel is probably contained in silicate minerals since the above assays are about the average for crustal abundance of nickel in ultrabasic rocks.

A piece of float was found in a gravel pit at mouth of Leotta Creek that contained rounded chromite nodules in plagioclase matrix. The sample yields the following assay:

Sample No.	Cr%	Fe%	Ti%
Y 701	31.87	0.78	0.09

The specimen is a round pebble located in an extensive alluvial deposit, and its source is not known.

Traces of galena and mariposite were found in quartz-carbonate altered rocks at the contact of the ultrabasic intrusive. The sample yields the following assay:

Sample No.	Ag oz/T	Pb%	Zn%	Cu%	Ni%	Cr%
Y 727	Trace	.04	tr.	tr.	.18	.38

Mineralization observed on Brown's claims does not appear to be of economic significance. The chromite potential of ultrabasic rocks in Dawson area should be kept in mind for future prospecting.

Respectfully submitted,

K.M. Dawson.

December, 1969

Appendix 1.

PRELIMINARY BUDGET ESTIMATE

AUSSIE CREEK AND MIKE LAKE PROJECTS, 1970

A. PERSONNEL

		Salary
1.	Party chief - geologist	900.00/mo.
2.	Field assistant	650.00/mo.
3.	Camp manager - field man	600.00/mo.
4.	Prospector	600.00/mo.
5.	Sampler	600.00/mo.
6.	Sampler	600.00/mo.
7.	Helicopter pilot	contract
8.	Helicopter engineer	contract
9.	Cook	650.00/mo.

B. BUDGET FOR 15-DAY EXPLORATION PROGRAM

- 02 Prospecting

-1 (wages) 15 man-days	300.00
-5 (camp operations)	150.00
-6 freight and transportation	
-3 helicopter 5 hrs @ 130.00	650.00
-44 (overhead - includes expediting, administration)	300.00
Total Prospecting	1,400.00

- 03 Staking

-1 (wages) estimated 5 man-days	100.00
-3 (field expenses)	50.00
-5 (camp operations)	50.00
-6 (freight and transportation	
- 3 helicopter 4 hrs @ 130.00	520.00
-44 (overhead)	100.00
Total Staking	820.00

B. BUDGET (contd.)

- 06 Geology

-1 (wages) 15 days geologist, 5 days assistant	700.00
-3 (field expenses)	50.00
-4 (assays)	100.00
-5 (camp operations)	200.00
-6 (freight and transportation -3 helicopter 10 hrs @ 130.00	1,300.00
-44 (overhead)	700.00
Total Geology	3,050.00

- 08 Geochemistry

-1 (wages) 36 man-days @ 20.00	720.00
-3 (field expenses)	100.00
-4 (assays) 800 samples for CuPbZnMo @ $2.50 50 samples for W @ $1.50	2,075.00
-5 (camp operations)	360.00
-6 (freight and transportation -3 helicopter 15 hrs @ 130.00	1,950.00
-44 (overhead)	720.00
Total Geochemistry	5,925.00

- 21 Camp Operations

-1 (wages) cook 15 days, camp set-up 5 man-days	425.00
-2 (groceries) - allocated	
-3 (miscellaneous supplies) - allocated	
Total Camp Operations	425.00

- 22 Freight and Transportation

-1 freighting supplies to and from base camp	
2-48 mi round trips Dawson - Mike L. by Beaver @ .70/mi.	67.00
4 helicopter trips Mike L. - base camp 2 hrs @ 130.00	260.00
Truck supplies Ross-Dawson & local: 400 mi @ .20	80.00

B. BUDGET (contd.)

- 22 Freight and Transportation (contd.)

-2 transportation and accommodation	
Beaver Ross-Mike L. return	
500 mi. @ .70	350.00
-3 local transportation - helicopter	
allocated to Prospecting, Geochem.etc.	
ferry time from Ross 4.1 hr @ 130.00	535.00
fuel 15 drums 100/130 @ 35.00 in Dawson	525.00
Beaver fuel haul Dawson-Mike L. 5-48 mile round trips @ .70/mi.	168.00
Total Freight and Transportation	1,985.00
GRAND TOTAL	13,605.00

C. SCHEDULING OF EXPLORATION PROGRAM

Exploration in Aussie Creek-Mike Lake area will be carried out by Tintina crew. A proposed timetable for Tintina work in 1970 is:

1. May 15 to early June

   Regional geochem/prospecting in Ross River area until snow conditions allow camp move to Fyre Lake.

2. June to August 1

   Follow-up work in Finlayson Lake area, from Fyre Lake base camp.

3. August 1 - 21

   Crew moves to Magundy area for follow-up work.

4. August 22 - September 5

   Crew moves from Magundy to Aussie Creek area for proposed follow-up work.

C. SCHEDULING OF EXPLORATION PROGRAM (contd.)

5. September 5 - end of season

   Crew returns to Ross River area to complete regional program.

Move from Magundy to Aussie Creek will be accomplished as follows:

1. Camp gear Magundy-Dawson by truck, with 3 men.

2. Helicopter crew ferries chopper to Mike Lake.

3. 4 men, remaining camp and personal gear fly Ross River-Mike Lake via Beaver.

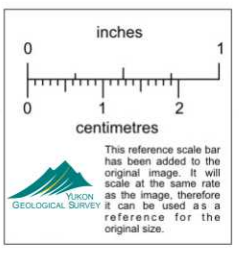
4. Beaver ferries supplies to Mike Lake from Dawson, truck is left on Dempster Highway about 12 miles north of Klondike River, available for supply trips to Dawson.

5. Helicopter ferries men, camp gear from Mike Lake to Aussie Creek base camp, 10 miles to southeast.

6. Beaver makes fuel haul of 5 round trips Dawson-Mike Lake. Helicopter either fuels at Mike Lake or back-hauls drums to base camp.

7. Upon completion of program, crew returns to Ross River via Beaver, camp gear moved by truck.

Appendix 2



115-O & N(E½)

1:250,000

141°00′ 64°00′ 510000m.E. 45′ 30′ 15′ 2 3 4

7090000m.N.

MT NOLAN 4566 · BEDROCK HILL 4299 · Mile Creek · Sixty Mile · Boucher Ck · SIXTY MILE · MT CHART 5318 · Enchantment Ck · CRAG MTN 5058 · Fifty Mile Creek · Sixty Mile River · 3873 · 5441 · Cabin · 6157 · 3044 · ALASKA YUKON TERRITORY · Pine Creek · Borden Ck · 4078 · Ladue River · 3536 · Matson Ck · Marion Creek · Dickson Ck · Ten Mile Creek · 4837 · 4511 · North Ladue River · Rice Creek · 3609 · 4007 · Ladue Creek · 3605 · 3597 · 3409 · WHITE RIVER · MOOSEHORN RANGE · 4074 · 4439 · Seven Mile Ck · 5225

8 7 6 5 4 3 2 1 0

45′ 30′ 15′ 2 3 4

63°00′ 141°00′ 510000m.E. 6990000m.N.

inches
0 1
0 1 2
centimetres
YUKON GEOLOGICAL SURVEY
This reference scale bar has been added to the original image. It will scale at the same rate as the image, therefore it can be used as a reference for the original size.

Refer to this map as: 115O-N EDITION 1 ASE SERIES A 502

EDITION 1

115-O & N(E½)

Dawson 24 m

LOUIE BROWN

3156 MT LEOTA

King Solomon Dome 4048

Hunker Summit

Dominion Mtn 4003

Sulphur

Granville

Dominion

Jensen Creek

Flat Creek

Allgold Ck

Hunker Ck

Power Line

North Klondike R

Klondike River

Florence Creek

Medrick Ck

Strickland L

Flat Creek

Bull Run Ck

McKay Lake

3840

3641

Gold Run Ck

Burnham Ck

Mt 4571 Burnham

Gravel Ck

Rob Roy Creek

Melba Creek

Australia Mtn 4865

Australia Creek

Wounded Moose Creek

Eureka Dome 4127

Eureka Ck

Moose Ck

Wounded Moose Dome 4553

Dome Ck

Black Hills Creek

McCrimmon Ck

3696

Valley Creek

Mass Creek

3004

3852

3524

Mt Adami 4158

Rosebud Creek

3259

Grizzly Dome 3862

2802

Deep Creek

Grand Valley Creek

3736

3607

Scougale Creek

Walhalla Creek

Alberta Creek

Pyroxene Mtn 4551

3370

4006

Barker Creek

Tor Ck

Pulcher Ck

Telford Ck

Stewart Crossing 55 m

640000m.E.

7090000m.N.

700000m.N.

139°00′ 45′ 30′ 15′ 138°00′

63°00′ 64°00′

inches
0 1
0 1 2
centimetres
YUKON GEOLOGICAL SURVEY
This reference scale bar has been added to the original image. It will scale at the same rate as the image, therefore it can be used as a reference for the original size.

116 A

NATIONAL TOPOGRAPHIC SERIES

DEPARTMENT OF N
ARMY SURVEY

37
45'
38
30'
39
15'
40
721
720
719
718
717
716
715
714
713
712
Two Beaver L
One Eighty L
MIKE LAKE
Hamilton
Creek
Officer Creek
Davidson
Wolf
Creek
Swamp Cr
Chair Creek
Creek
Creek
Creek
Klondike
Klondike
RIVER
Mile
Mile
Mile

McQUESTEN

YUKON TERRITORY

Scale 1:250,000 Échelle

Miles 5 0 5 10 15 Miles

Kilometres 5 0 5 10 15 20 Kilomètres

Transverse Mercator Projection
North American Datum 1927
Contour Interval 500 feet
Elevations in feet above Mean Sea Level

Projection Transverse de Mercator
Réseau géodésique nord-américain unifié (1927)
Équidistance des courbes: 500 pieds
Élévations en pieds au-dessus du niveau moyen de la mer

Compiled, 1960, by the SURVEYS AND MAPPING BRANCH, DEPARTMENT OF MINES AND TECHNICAL SURVEYS, from large scale maps. Printed 1963.

Copies may be obtained from the Map Distribution Office, Department of Mines and Technical Surveys, Ottawa.

Rédigée en 1960, par la DIRECTION DES LEVÉS ET DE LA CARTOGRAPHIE, MINISTÈRE DES MINES ET DES RELEVÉS TECHNIQUES, d'après les cartes à large échelle. Imprimée en 1963.

Ces cartes sont en vente au Bureau de distribution des cartes, ministère des Mines et des Relevés techniques Ottawa.

inches 0 1
centimetres 0 1 2

This reference scale bar has been added to the original image. It will scale at the same rate as the image, therefore it can be used as a reference for the original size.

YUKON GEOLOGICAL SURVEY

Road / Route
- hard surface, all weather ... pavée, toute saison ... more than 2 lanes / plus de 2 voies; 2 lanes / 2 voies; less than 2 lanes / moins de 2 voies
- loose surface, all weather ... de gravier, toute saison ... 2 lanes or more / 2 voies ou plus; less than 2 lanes / moins de 2 voies; dry weather / période sèche
- wagon, cart track ... chemin de terre ... trail or portage ... sentier ou portage
- Railway, normal gauge ... Chemin de fer, écartement normal ... station / gare; multiple track / voies multiples; flagstop / arrêt; single track / voie unique; (abandoned) / (abandonné)
- Depression contours ... Courbes de cuvette ... 2000
- Spot elevation, in feet ... Repère de nivellement en pieds ... 2550
- Power transmission line ... Ligne de transport d'énergie

		Stream	Cours d'eau
Town	Ville	intermittent or dry	intermittent ou à sec
Village or Settlement	Village ou hameau	Intermittent lake	Lac intermittent
Post office	Bureau de poste	Rapids; falls	Rapides; chutes
Church	Église	Marsh or swamp	Marais ou marécage
School	École	Lighthouse	Phare
Boundary monument	Borne frontière	Airport	Aéroport
Horizontal control point	Point géodésique	Seaplane base	Base d'hydravions

Index to adjoining sheets / Tableau d'assemblage des feuilles adjacentes

Dawson 50 m

Mayo Landing 5 m

Minto 34 m

MPASS NEEDLE 1962
IQUE EN 1962

dle is decreasing
y.
écroît de
ent

Appendix 3

Adjoins Map 13-1962, "Dawson"

Domond Creek

Two Beaver L

Lake Creek

Callison Lake

Middle Hart River

Base Camp

Hart River

Mouse Creek

One Eighty L

Davidson Pass

Bald Creek

Fisher Creek

Hamilton Creek

Davidson Creek

Wolf Creek

Swamp Creek

Clem Creek

Austin Creek

Little South Klondike R.

Hobo Cr.

Cabin

Carter Creek

Sluice Creek

Eagle Creek

McQuesten R.

Mountain

Pb Zn

Cu

Au

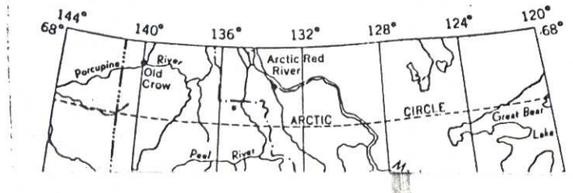
SOUTH NAHANNI RIVER

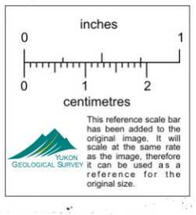
KLONDIKE RIVER

YUKON

DAVIDSON MOUNTAINS

PUBLISHED, 1962





MAP 14-1962
TO ACCOMPANY PAPER 62-7
GEOLOGY

LARSEN CREEK
YUKON TERRITORY

LARSEN CREEK REGIONAL SAMPLING MAP
Scale 1 inch = 4 miles

Granite, quartz porphyry, syenite and diorite intrusives

Proposed silt sampling

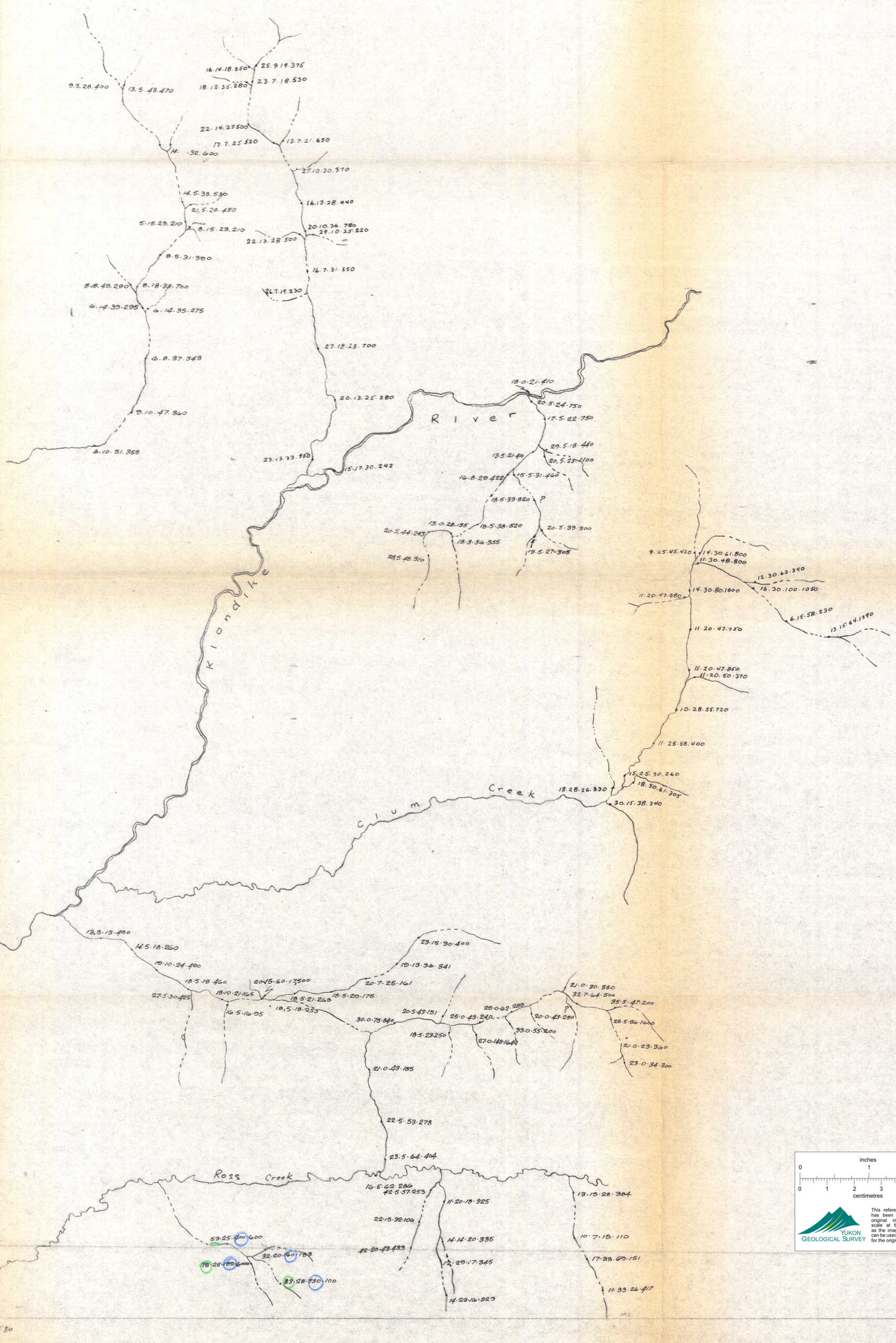
Height in feet above mean sea-level 2327

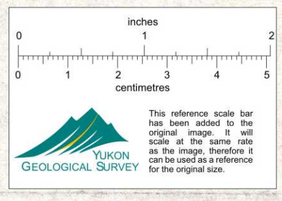
Appendix 4

116 A3

137°30'
15

137°00
64°15





Cu	○ 60-90	Pb	○ 40-60	Zn	○ 100-150
	○ 90-150		○ 60-90		○ 150-250
	○ >150		○ >90		○ >250

116-A-3

137°30

64°00
137°00

CLUM CREEK

ASSAYS: Cu, Pb, Zn, Mn

116 A 3

Appendix 5

AUSSIE CREEK SHOWING

MAP: 116 A04

(appx: 64°09'N, 137°40'W)

Control: Sketch-pace only.

SCALE: 1 IN. ≈ 200 FT.

400 FT.

C.g. 20.6.69.

FLY CAMP P. DEAN & R. WELLS JUNE 1969.

9G287 $\frac{35}{35}, \frac{21}{34}, \frac{104}{145}, \frac{365}{355}$.

.65

70 70 70

Gp48C. MASSIVE 2 INCH WIDE ARSENOPYRITE VEIN PARALLEL TO TUFF BANDING. Y-711. ASSAY: Au 0.82, Ag tr, Ni tr.

Gp48A. Y-714. SEMI-QUANT. SPEC.

Pb	Zn	Cu	W	Au	Ag	Ni	Sb	Ba	Mo
–	–	0.005%	–	–	<.1g	.003%	–	0.4%	–

RUSTY, SHATTERED PORPH. SYENITE. CP and PR DISSEM. Gp49A. Y-712. ASSAY: Au 0.01, Ag tr., Cu 0.01, Ni tr.

DISSEMINATED CP AND PR IN SILICEOUS TUFF BANDS.

TUFF: BEDS 1-2 INCHES THICK

68

.73

9G286 $\frac{30}{30}, \frac{35}{57}, \frac{140}{180}, \frac{430}{355}$.

68

65

DISSEM. AS, PR, Py, CP. (SOME CONC. IN BANDS). Y-710: SEMI-QUANT. SPEC.

Pb	Zn	Cu	W	Au	Ag	Ni	Sb	Ba	Mo	Zn
–	–	0.5%	–	–	0.2	.004%	–	0.3%	–	0.003%

$\frac{29}{30}, \frac{20}{29}, \frac{122}{128}, \frac{470}{375}$

70

9G285

.61

66

9G284 $\frac{40}{45}, \frac{28}{44}, \frac{137}{223}, \frac{500}{363}$.

MAIN SHOWING: DARK GREY GRAPTOLITE (REPLACED WITH PR) SHALE WITH REPLACEMENT TEXTURE OF PR AND MINOR CP. WIDTH APPX. 6 FEET. Gp46A. Y-709. ASSAY. GRAB: Au, Ag, Cu, Pb, Zn, Ni. tr, tr, 0.02, tr, tr, 0.01.

Gp46B. Y-708. ASSAY. GRAB: Au, Ag, Cu, Pb, Zn, Ni. tr, tr, 0.02, tr, tr, 0.02.

SYENITE DIKE (PORPH.).

TUFF

SYENITE FLOAT AND TALUS.

FLOAT: MASSIVE SULPHIDES IN CHLORITIZED MATRIX. PR AND MINOR CP. Gp49B. Y-713. ASSAY: Au 0.01, Ag tr, Cu 0.06, Ni 0.01

PREFERENTIAL CONCENTRATION OF SULPHIDES IN DARKER BANDS.

TUFF

9G283 $\frac{25}{39}, \frac{30}{39}, \frac{165}{138}, \frac{194}{204}$.

LIGHT COLOURED TUFF. DISSEMINATED ARSENOPYRITE OVER 30 FOOT THICKNESS. GRADED BEDDING.

28

53

TUFF 9G282 $\frac{40}{70}, \frac{27}{60}, \frac{350}{330}, \frac{980}{1090}$.

.84

$\frac{35}{35}, \frac{37}{53}, \frac{153}{130}, \frac{600}{424}$

9G281

Gp44C · SULPHIDE RICH SPECIMEN Y-707: SEMI-QUANT. SPEC.

Pb	Zn	Cu	W	Au	Ag	Ni	Sb	Ba	Mo.
–	–	0.02%	–	–	<.1g	.002%	–	0.2%	–

CHRT

2 INCH DIA. BLEB MASSIVE PR AND MINOR CP IN CHLORITIZED MATRIX. RUSTY SULPHIDE RICH STREAKS PARALLEL TO 1 INCH THICK CHRT. TUFF BANDING.

9G280 $\frac{25}{35}, \frac{14}{20}, \frac{47}{72}, \frac{253}{273}$.

45

17

DIKE: PORPHYRITIC SYENITE WITH PHENOCRYSTS TO 3/4 INCH LONG AND XENOLITHS TO 4 INCHES DIAMETER. Gp44B.

9G279 $\frac{20}{20}, \frac{18}{19}, \frac{70}{72}, \frac{253}{220}$.

7

TUFF-CHRT

.73

9G278 $\frac{25}{45}, \frac{19}{27}, \frac{104}{143}, \frac{335}{267}$.

Gp44A: TUFF WITH VERY FINELY DISSEM. SULPHIDES.

CHRT

19

CHRT-TUFF

11

16

CHERT TUFF TALUS

$\frac{20}{30}, \frac{13}{20}, \frac{104}{143}, \frac{273}{273}$.

9G277

9G276

FLOAT: BRECCIA WITH TOURMALINE MATRIX. VUGGY, QU CRYSTALS $\frac{30}{30}, \frac{14}{18}, \frac{96}{22}, \frac{353}{270}$.

.79

80% SYENITE

20% TUFF-CHRT LOCALLY WITH SCORODITE AND RUSTY STAIN

Gp44B SYENITE WITH VERY MINOR DISSEMINATED PYRITE.

FLOAT: Gp43A LAMPROPHYRE WITH DISSEMINATED SULPHIDES. Y-706: SEMI-QUANT. SPEC.

Pb	Zn	Cu	W	Au	Ag	Ni	Sb	Ba	Mo	Co
–	–	.02%	–	–	<.1g	.005%	–	.2%	–	.01%

FLOAT: Gp43C. CHRT-TUFF WITH PR AND CP AS REPLACEMENT TEXTURE

9G273 $\frac{15}{25}, \frac{15}{21}, \frac{129}{149}, \frac{396}{372}$.

275

9G274 $\frac{35}{35}, \frac{14}{17}, \frac{88}{85}, \frac{255}{215}$.

Geochemical site — Pb, Zn, Cu, Mn

9G278 $\frac{25}{45}, \frac{13}{27}, \frac{104}{143}, \frac{335}{267}$ Rocks: tuff (Yukon region)

bedding

contact

Ts

crop out

Gp44H: Sample H described in Def. report of Gp44

inches 0 1 0 1 2 centimetres

This reference scale bar has been added to the original image. It will scale at the same rate as the image, therefore it can be used as a reference for the original size.

YUKON GEOLOGICAL SURVEY

138°00'
64°15'
45'
137°30'
64°15'

Fly Camp

Base Camp

Fly camp

Aussie Creek

Hamilton Creek

O'BRIEN CREEK

O'BRIEN CREEK

Aussie Creek

Creek

KLONDIKE RIVER

64°00'
138°00'
45'
137°30'
64°00'

AUSSIE CREEK

PROPOSED FOLLOW-UP WORK 1970

1 0 1 2 3

SCALE : 1" = 1 mile

● ..... Silt sample

× ..... Soil sample

..... Magnetic anomaly

1 0 1 2 3

MILES

inches
0 1 2
0 1 2 3 4 5
centimetres

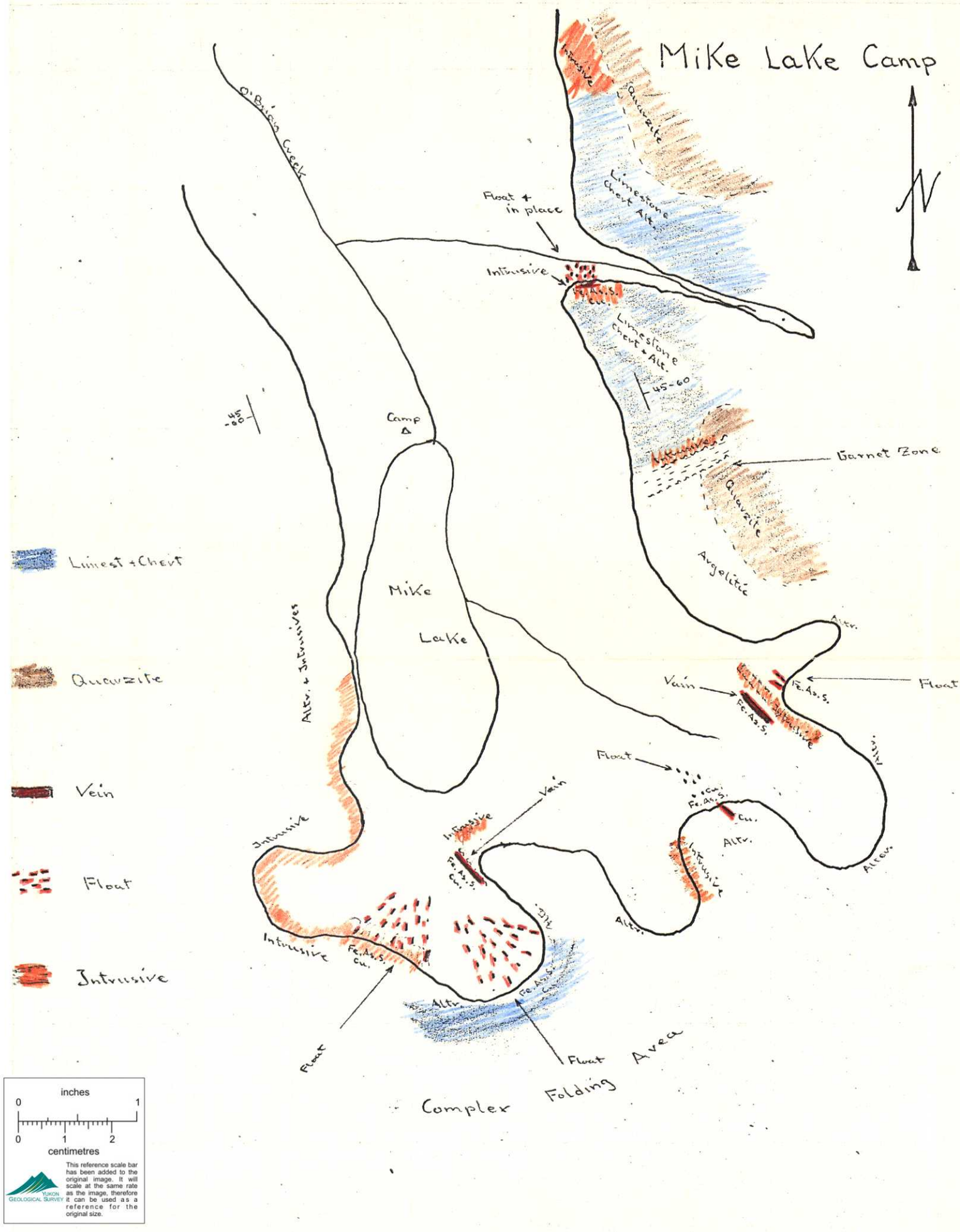
This reference scale bar has been added to the original image. It will scale at the same rate as the image, therefore it can be used as a reference for the original size.

YUKON GEOLOGICAL SURVEY

116A 04

137°30'
64°15'
64°00'
45'
Aussie Creek
Hamilton Creek
O'BRIEN CREEK
KLONDIKE RIVER
Syenite
Lat.
Area of Tanesonite of CP US focused by B4 Ex in 1956-57
frost tracks unit 9
Ord + Sil
interbedded black chert + argillite
Pb
AUSSIE CREEK
Pb, Zn, Cu, Mn
uncorrected?
H.O. = HIGHLY ORGANIC
116A 04
MILES
inches
centimetres
This reference scale bar has been added to the original image. It will scale at the same rate as the image, therefore it can be used as a reference for the original size.
Cu ○ 60-90 ○ 90-150 ○ >150
Pb ○ 40-60 ○ 60-90 ○ >90
Zn ○ 100-150 ○ 150-250 ○ > 250
116-A-4

Appendix 6


Mike Lake Camp
O'Brien Creek
Float + in place
Intrusive
Fe. As. S. Cu.
Quartzite
Limestone Chert Alt.
45-60
Camp
Garnet Zone
Avgelitic
Mike Lake
Altr. + Intrusives
Vein
Float
Altr.
Cu.
Limest + Chert
Quartzite
Vein
Intrusive
Complex Folding Area
inches
centimetres
This reference scale bar has been added to the original image. It will scale at the same rate as the image, therefore it can be used as a reference for the original size.
YUKON GEOLOGICAL SURVEY
G. Lishy
116 A 5

mag high

Fly camp

17 25 30 610·0 ·0

20 60 41 500·0·0

18 50 34 800

Gossan

mag high

Gossan

mag high

20 75 78 480

25.25.19.1390

42 60 58 ·0

23 75 38.1150.0·4

Fly Camp

45,33,25,355,0,0

59,38,33,320

17.43.22.490

Fly camp

42,45,35,700

40,63,47,300

47,65,53,330

54,30,28,286

40,35,31,630

52,38,41,375

67,120,75,840

76,28,26,325

71,80,89,1270

66,33,34,625 ·0

77,20,25,1650 ·0,0

96,25,30,540

75,20,28,440

Syenite plugs

mag high

37.50.34.1450

mag high

110.50.51.730 0

Mike

330,30,19,780

GOLD CLAIMS

40.40.37.480

Assays: Cu, Pb, Zn, Mn.

PROPOSED FOLLOW-UP WORK 1970

1 0 1 2 3

SCALE: 1" = 1 mile

●····· Silt sample

X····· Soil sample

·····Magnetic anomaly

116-A-5

FISH CREEK

116-A-5

inches 0 1

0 1 2 centimetres

This reference scale bar has been added to the original image. It will scale at the same rate as the image, therefore it can be used as a reference for the original size.

YUKON GEOLOGICAL SURVEY

red shale
qtzite

red shales

18 50 24 800

20 [illegible] 41 500 0 0
sulphide
float (py)

red shale,
qtzite

25 25 19 1390

Shale,
qtzite

Dy+asp

23 [illegible] 38 1150 0 4

17 43 22 490

37 50 34 1450

40 40 37 480

Limestone
beds

syenite

gossan

mag
high

Syenite
plugs

45 33 25 355 0 6

59 38 33 320

42 45 35 700

4
Limestone,
Chert, Qzite

40 43 47 300

47 65 53 330

54 30 28 286

40 35 31 630

52 38 41 375

67 20 75 840

76 28 26 325

7 80 89 1270

66 33 34 625
0 0

77 20 25 650 0 0

asp, cpy

75 20 28 415 0 0

96 25 30 500

110 50 51 730 0 4

Mike L.

asp

137 65 78 580 0 0

330 30 19 183

asp
cpy

asp
cpy

Lst, chert

Syenite stock

mag high

mag high

mag high

Appendix 7

LEE CREEK

Cu ○ 60-90 Pb ○ 40-60 Zn ○ 100-150
○ 90-150 ○ 60-90 ○ 150-250
○ >150 ○ >90 ○ >250

Creek
Antimony
Creek
Lee
O'Brien
Creek
KLONDIKE RIVER

inches
0 1 2
0 1 2 3 4 5
centimetres

YUKON GEOLOGICAL SURVEY

This reference scale bar has been added to the original image. It will scale at the same rate as the image, therefore it can be used as a reference for the original size.

Appendix 8

ISSUED UNDER THE AUTHORITY OF THE MINISTER OF NORTHERN AFFAIRS AND NATIONAL RESOURCES

116-B-14	116-B-15	116-B-16

PRICE 25 CENTS

WHITEHORSE 14 Feb 62 28 Jul 62

39°00' 64°15' 135°30'

28.8.20.233
22.10.24.290
11.10.20.260
35.15.37.310
28.5.30.284
38.20.77.765
11.13.47.770
22.2953.1200
22,18.53.455
20,20,53.270

RDCK
C.R.
CREEK
BENSON
C.R.
FISH
C.R.
COAL
CREEK
RABBIT
C.R.
RIVER
KLONDIKE
WHITEHORSE
ALSEK
CR.
C.R.
95
GORING
C.R.
DAWSON
DOGNOSE
C.R.
BILCHER
GERMAINE
Power Line
RIVER
Power House
Ferry
L.S.C.A. Road
LEROY
Power Line
DITCH
NORTH KLONDIKE
Power Line
DITCH

2327

16	15				
17	13				
18	20				

GR-1032

Cu ○ 60-90	Pb ○ 40-60	Zn ○ 100-150
○ 90-150	○ 60-90	○ 150-250
○ >150	○ > 90	○ > 250

116-B-2

Assays : Cu Pb Zn ppm

inches
0 1 2
0 1 2 3 4 5
centimetres

YUKON GEOLOGICAL SURVEY

This reference scale bar has been added to the original image. It will scale at the same rate as the image, therefore it can be used as a reference for the original size.

Appendix 9

SHEET 116-B-7

LATITUDE 64° 15' to 64° 30'
LONGITUDE 138° 30' to 139° 00'

TOMBSTONE RIVER

CANADA
DEPARTMENT OF NORTHERN AFFAIRS AND NATIONAL RESOURCES
NORTHERN ADMINISTRATION BRANCH
RESOURCES DIVISION

SCALE: ½ MILE To 1 INCH

ISSUED UNDER THE AUTHORITY OF THE MINISTER
OF
NORTHERN AFFAIRS AND NATIONAL RESOURCES

inches
0 1 2
0 1 2 3 4 5
centimetres

YUKON GEOLOGICAL SURVEY

This reference scale bar has been added to the original image. It will scale at the same rate as the image, therefore it can be used as a reference for the original size.

116-B-12	116-B-10	116-B-9
116-B-6	116-B-7	116-B-8
116-B-3	116-B-2	116-B-1

PRICE 50 CENTS

WHITEHORSE 31 Oct 62

139°00'
64°30'
139°30'
64°15'

TOMBSTONE RIVER
SHEEP CREEK CANYON
LITTLE TWELVE MILE RIVER
MT. ISCHELL 6400'
ROCK CREEK
NORTH FORK
TOMBSTONE MTS.

116-B-7

Assays: Cu Pb Zn Mn

Cu ○ 60-90 ○ 90-150 ○ >150
Pb ○ 40-60 ○ 60-90 ○ >90
Zn ○ 100-150 ○ 150-250 ○ > 250

116-B-7

Appendix 10

Cu ○ 60-90 Pb ○ 40-60 Zn ○ 100-150

○ 90-150 ○ 60-90 ○ 150-250

○ >150 ○ > 90 ○ > 250

SHEET 116-B-8

LATITUDE 64° 15' To 64° 30'
LONGITUDE 130° 00' To 138° 30'

CANADA
DEPARTMENT OF NORTHERN AFFAIRS AND NATIONAL RESOURCES
NORTHERN ADMINISTRATION BRANCH
RESOURCES DIVISION

SCALE: ½ MILE To 1 INCH

ISSUED UNDER THE AUTHORITY OF THE MINISTER OF NORTHERN AFFAIRS AND NATIONAL RESOURCES

inches
centimetres

YUKON GEOLOGICAL SURVEY

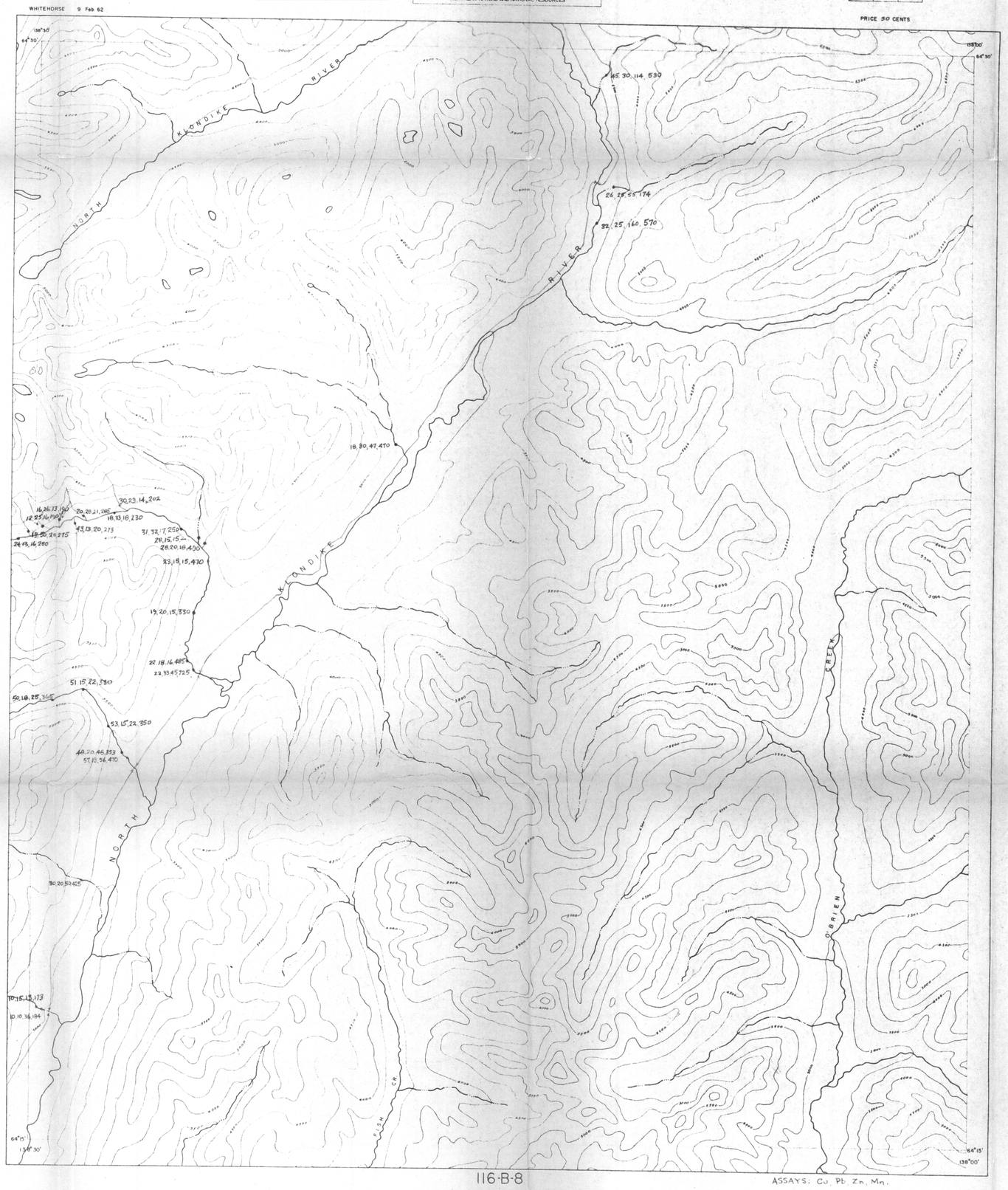
This reference scale bar has been added to the original image. It will scale at the same rate as the image, therefore it can be used as a reference for the original size.

MAGNETIC NORTH 1970

116-B-10	116-B-9	116-A-12
116-B-7	116-B-8	116-A-5
116-B-2	116-B-1	116-A-4

WHITEHORSE 9 Feb 62

PRICE 50 CENTS



116-B-8

ASSAYS: Cu, Pb, Zn, Mn.

Appendix 11

JOINS MAP 115 P/7, "STEWART CROSSING"

137°00'
63°15'

136°30'
63°15'

JOINS MAP 115 P/1, "SUMMIT LAKE"

LEGEND

CARMACKS GROUP

- eTan — Andesite, Trachyte, Rhyolite, Dacite
- Jgr, gr — Fine to coarse grained granite, in places porphyritic. Fresh and propylitized qtz. monzonite occurs within the granite just north of Willow Lake. diorite (a)
- Man — Andesite
- Mry — Trachyte, rhyolite porphyry
- pC ls — Limestone, hornblende gneiss (a)
- pC qt — Quartzite
- pC bs — Quartz biotite shist, quartz sericite schist
- pC agn — Biotite hornblende feldspar augen gneiss

Willow Lake

Stewart Crossing

Grayling Lake

JOINS MAP 115 I/16, "PELLY CROSSING"

SHEET 115 P/2 WILLOW LAKE

Scale: One Inch to One Mile = 1/63,360

Miles 10 0 5

inches 0 1 2

centimetres 0 1 2 3 4 5

YUKON GEOLOGICAL SURVEY

This reference scale bar has been added to the original image. It will scale at the same rate as the image, therefore it can be used as a reference for the original size.

137°00'
63°15'
45'
136°30'
63°15'

DAWSON

WHITEHORSE

WILLOW LAKE

LAKE

CREEK

WILLOW

CREEK

63°00'
137°00'
63°00'
136°30'

Cu	○ 60-90	Pb	○ 40-60	Zn	○ 100-150
	○ 90-150		○ 60-90		○ 150-250
	○ >150		○ > 90		○ > 250

WILLOW LAKE

1 0 1 2 3
MILES

inches
0 1 2
0 1 2 3 4 5
centimetres

This reference scale bar has been added to the original image. It will scale at the same rate as the image, therefore it can be used as a reference for the original size.

YUKON GEOLOGICAL SURVEY

Assays: Pb, Zn, Cu, Mn

115P 02

Appendix 12

137°30'
63°15'
15'
137°00'
63°15'

ROUGH TOP
5334

ROSEBUD CREEK

COLDSPRING CREEK

ROSEBUD CREEK

COLDSPRING MOUNTAIN
4557

LAKE

63°00'
137°30'
15'
137°00'
63°00'

Assays: Pb, Zn, Cu, Mn.

Cu	○ 60-90	Pb	○ 40-60	Zn	○ 100-150
	○ 90-150		○ 60-90		○ 150-250
	○ >150		○ > 90		○ > 250

COLDSPRING MOUNTAIN

1 0 1 2 3
MILES

inches
0 1 2
0 1 2 3 4 5
centimetres

This reference scale bar has been added to the original image. It will scale at the same rate as the image, therefore it can be used as a reference for the original size.

YUKON GEOLOGICAL SURVEY

115P 03

Appendix 13

JOINS MAP 116-P/12, "GRAVEL LAKE"

138°00'
63°30'

137°30'
63°30'

STEWART RIVER

Trail Creek

PIRATE CREEK

Pirate Creek

63°15'

138°00'

JOINS MAP 115-P/4, "VALLEY CREEK"

137°30'

JOINS MAP 115-P/6, "REID LAKES"

LEGEND

Jgr Granite

SHEET 115-P/5 PIRATE CREEK

Scale: One Inch to One Mile = 1/63,360

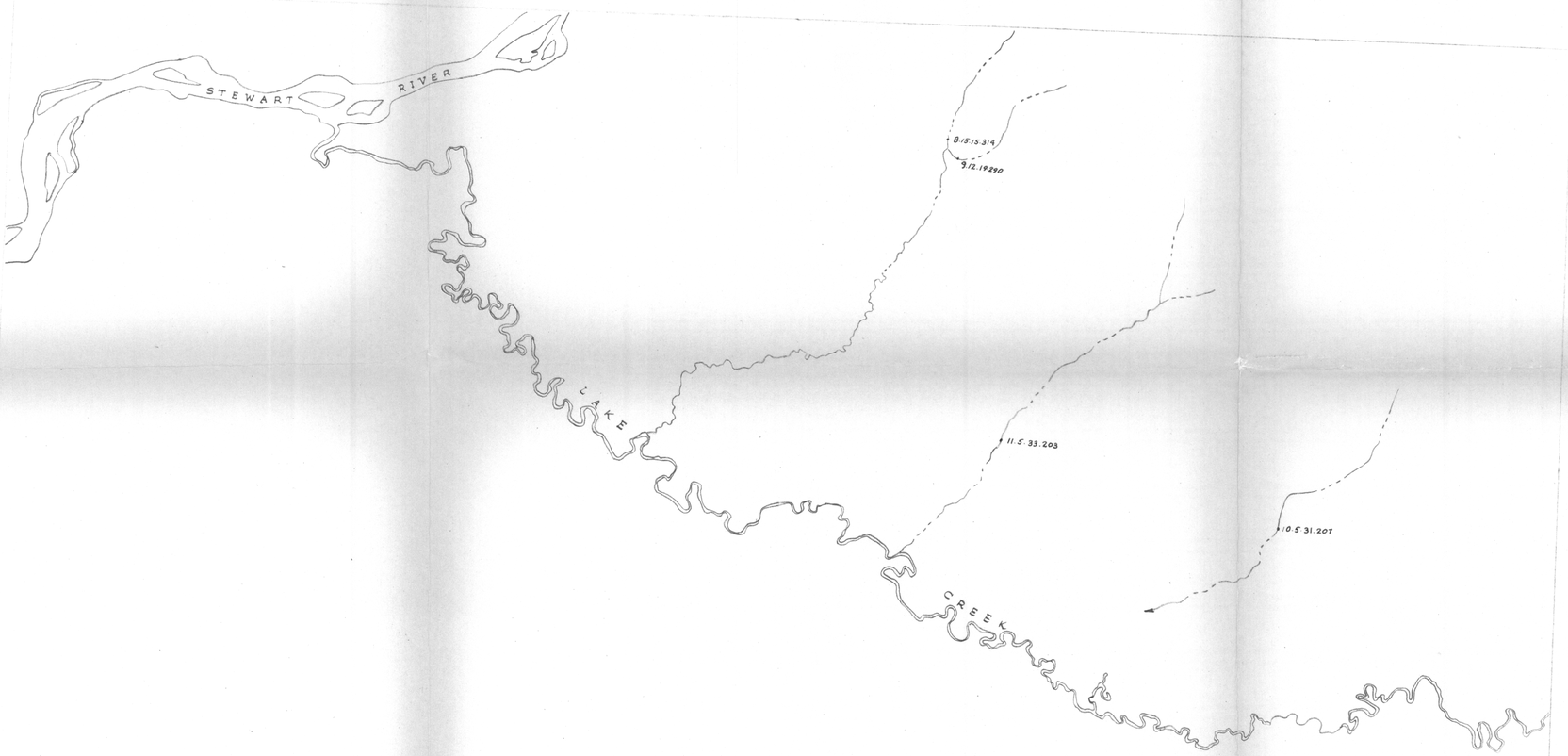
Miles 1/2 0 1 2 3

inches 0 1 2

centimetres 0 1 2 3 4 5

YUKON GEOLOGICAL SURVEY

This reference scale bar has been added to the original image. It will scale at the same rate as the image, therefore it can be used as a reference for the original size.

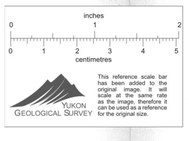


Cu	○ 60-90	Pb	○ 40-60	Zn	○ 100-150
	○ 90-150		○ 60-90		○ 150-250
	○ >150		○ > 90		○ > 250

PIRATE CREEK

Assays: Pb. Zn. Cu. Mn.

115 P/5



Appendix 14

LEGEND

- Jgr — Coarse grained biotite granite.
- Jgd — Medium to coarse grained granodiorite.
- Jdi — Fine to coarse grained hornblende diorite, quartz diorite, porphyritic in places; coarse grained biotite hornblend syenite (a)
- Man — Andesite.
- Mry — Trachyte and rhyolite prophyry.
- Mgt — Quartzite, phyllite, schist (undivided).
- pEsc — Schist (undivided), minor augen gniess.

Reid Lakes

LAKE CREEK

PIRATE Creek

Tonsure Mtn

SHEET 115 P/6

REID LAKES

Scale: One Inch to One Mile = 63360

inches
0 1 2
0 1 2 3 4 5
centimetres

YUKON GEOLOGICAL SURVEY

This reference scale bar has been added to the original image. It will scale at the same rate as the image, therefore it can be used as a reference for the original size.

137°30'
63°30'
15'
137°00'
63°30'

STEWART RIVER

REID

LAKES

LAKE

CREEK

ROB RED

CREEK

Pr 3 B

Creek

FIVE STONE

63°15'
137°30'
15'
63°15'
137°00'

Pb Zn Cu Mo

REID LAKES

MILES
1 0 1 2 3

inches
0 1 2
0 1 2 3 4 5
centimetres

YUKON GEOLOGICAL SURVEY

This reference scale bar has been added to the original image. It will scale at the same rate as the image, therefore it can be used as a reference for the original size.

115P 06

Appendix 15

LEGEND

- Jgr — Medium to coarse grained granite, porphyritic granite, quartz monzonite. (a)
- Jgd — Granodiorite, porphyritic granodiorite.
- Jsy — Hornblende syenite.
- Man — Andesite.
- Mry — Trachyte, rhyolite porphyry.
- Mqt — Blue grey quartzite, minor limestone phyllite and schist; phyllite and schist.(a)
- Mls — Limestone.
- pC sc — Quartz sericite schist, quartz biotite schist, minor quartzite, limy units and graphitic schist.

pCsc

Jgr

STEWART CROSSING

Mqt

Mls

Jgd

Jgr(a)

Mqt(a)

Man (float)

Jsy

Mry

Man

SHEET 115 P/7

STEWART CROSSING

Scale: One Inch to One Mile = 1/63,360
Miles

inches
0 1 2
0 1 2 3 4 5
centimetres

YUKON GEOLOGICAL SURVEY

This reference scale bar has been added to the original image. It will scale at the same rate as the image, therefore it can be used as a reference for the original size.

137°00'
63°30'
45'
136°30'
65°30'
McQuesten
STEWART
RIVER
Mayo
BRIDGE
STEWART CROSSING
Carmacks
63°15'
137°00'
45'
136°30'

STEWART CROSSING

Pb Zn Cu Mn

MILES

inches
centimetres
This reference scale bar has been added to the original image. It will scale at the same ratio as the image, therefore it can be used as a reference for the original size.
YUKON GEOLOGICAL SURVEY

115 P 07

Cu	○ 60-90	Pb	○ 40-60	Zn	○ 100-150
	○ 90-150		○ 60-90		○ 150-250
	○ >150		○ >90		○ >250

Appendix 16

LEGEND

Jgr — Coarse grained grey biotite granite

pЄls — Limestone

pЄsc — Quartz biotite schist, quartz sericite schist, minor quartzite.

SHEET 115P-8 ETHEL LAKE

Scale: One Inch to One Mile = 1/63,360

Miles

1/2 0 1 2

inches

0 1 2

0 1 2 3 4 5

centimetres

YUKON GEOLOGICAL SURVEY

This reference scale bar has been added to the original image. It will scale at the same rate as the image, therefore it can be used as a reference for the original size.

136°30'
63°30'
15'
136°00'
63°30'

MAYO

STEWART RIVER

STEWART CROSSING

ETHEL LAKE

N.S.

Crooked Creek

63°15'
136°30'
15'
63°15'
136°00'

ETHEL LAKE

Pb Zn Cu Mn

115P 08

MILES

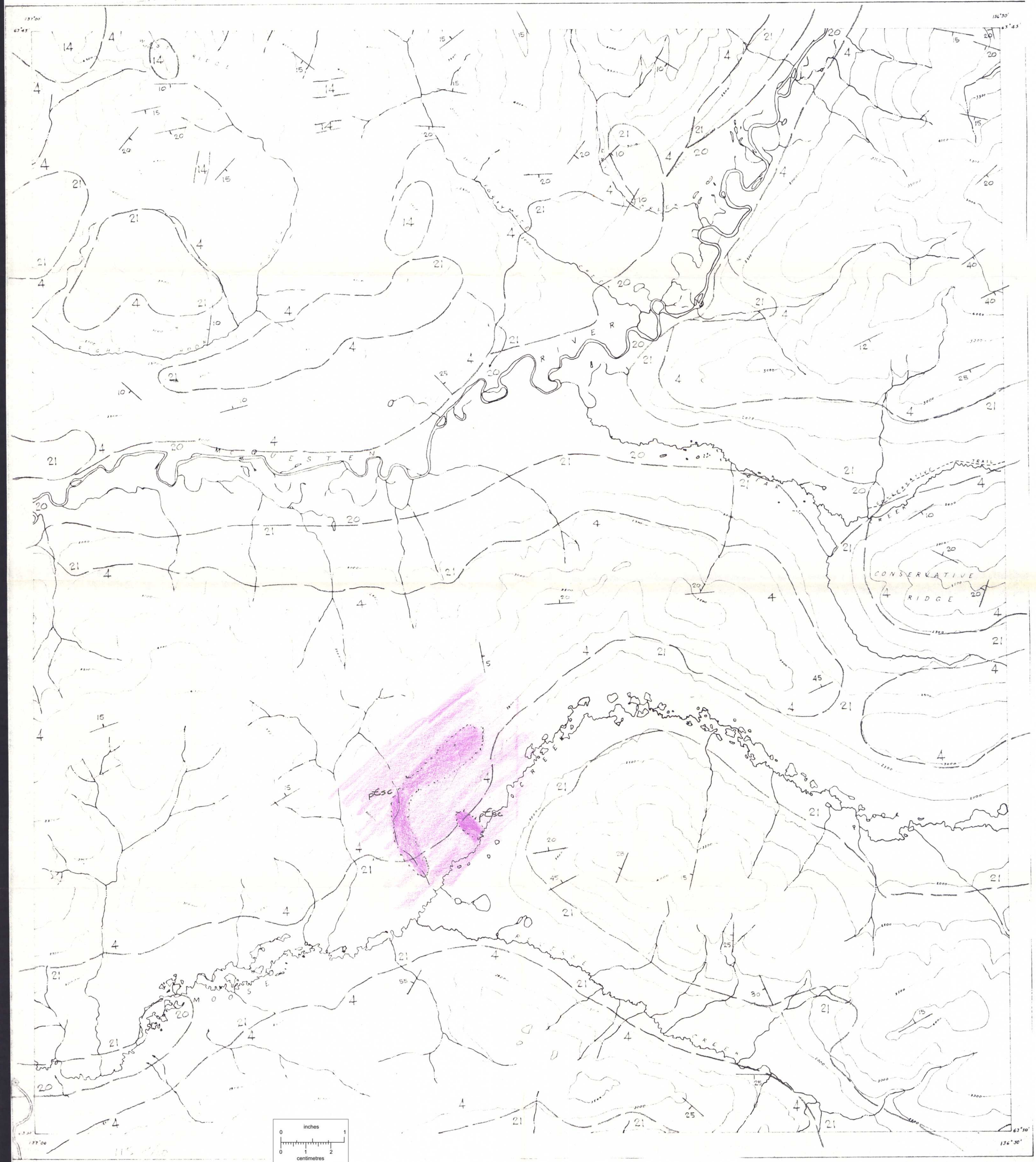
inches

centimetres

YUKON GEOLOGICAL SURVEY

This reference scale bar has been added to the original figure. It was plotted at the same ratio as the image, therefore it can be used as a reference for the original size.

Appendix 17


137°00'
63°45'
136°30'
63°30'
R I V E R
N E W S T E N
M O O S E
CONSERVATIVE
RIDGE
TRAIL
CREEK
pEsc
inches
0 1
0 1 2
centimetres
This reference scale bar has been added to the original image. It will scale at the same rate as the image, therefore it can be used as a reference for the original size.
YUKON GEOLOGICAL SURVEY

137°00'
63°45'
45'
136°30'
63°45'
Forty mile
May
Creek
Creek
Creek
Right
Hook
RIVER
McQUESTEN
Bear
Creek
Creek
Moose
Creek
Reverse
Creek
63°30'
137°00'
45'
63°30'
136°30'

Pb Zn Cu Mn

MOOSE CREEK

1 0 1 2 3
MILES

inches
0 1 2
0 1 2 3 4 5
centimetres

YUKON GEOLOGICAL SURVEY

This reference scale bar has been added to the original image. It will therefore print out the same size as the image, therefore it can be used as a reference for the original size.

115P 10

Appendix 18

LEGEND

Jgr — Granite and porphyritic granite

pЄsc — Quartz biotite schist, quartz sericite schistz, garnetiferous quartz mica schist

SHEET 115 P/11

Mc QUESTEN RIVER

Scale: One Inch to One Mile = 1/63,360

Miles

1 1/2 0 1 2 3

inches

0 1 2

0 1 2 3 4 5

centimetres

This reference scale bar has been added to the original image. It will scale at the same rate as the image, therefore it can be used as a reference for the original size.

YUKON GEOLOGICAL SURVEY

137°30'
63°45'
15°
137°00'
63°45'

Thecoughfore

VANCOUVER

CREEK

Portrage

Creek

RIVER

McQUESTEN

DAWSON

McQuesten

STEWART

RIVER

WHITEHORSE

63°30'
137°30'
15°
137°00'
63°30'

ASSAYS - Cu., Pb., Zn., Mn.

McQUESTEN

MILES

inches
centimetres

This reference scale bar should measure 5 cm on original image. It will scale at the same rate as the image, therefore it can be used as a reference for the original size.

YUKON GEOLOGICAL SURVEY

115P 11

Cu ○ 60-90 Pb ○ 40-60 Zn ○ 100-150

○ 90-150 ○ 60-90 ○ 150-250

○ >150 ○ > 90 ○ > 250

Appendix 19

LEGEND

Jgr — Medium grained to very coarse grained granite.

?Jub — Highly altered sheared pyroxenite

pEqt — Banded quartzite

pEgr — Biotite granitoid ortheogneiss

SHEET 115 P/12

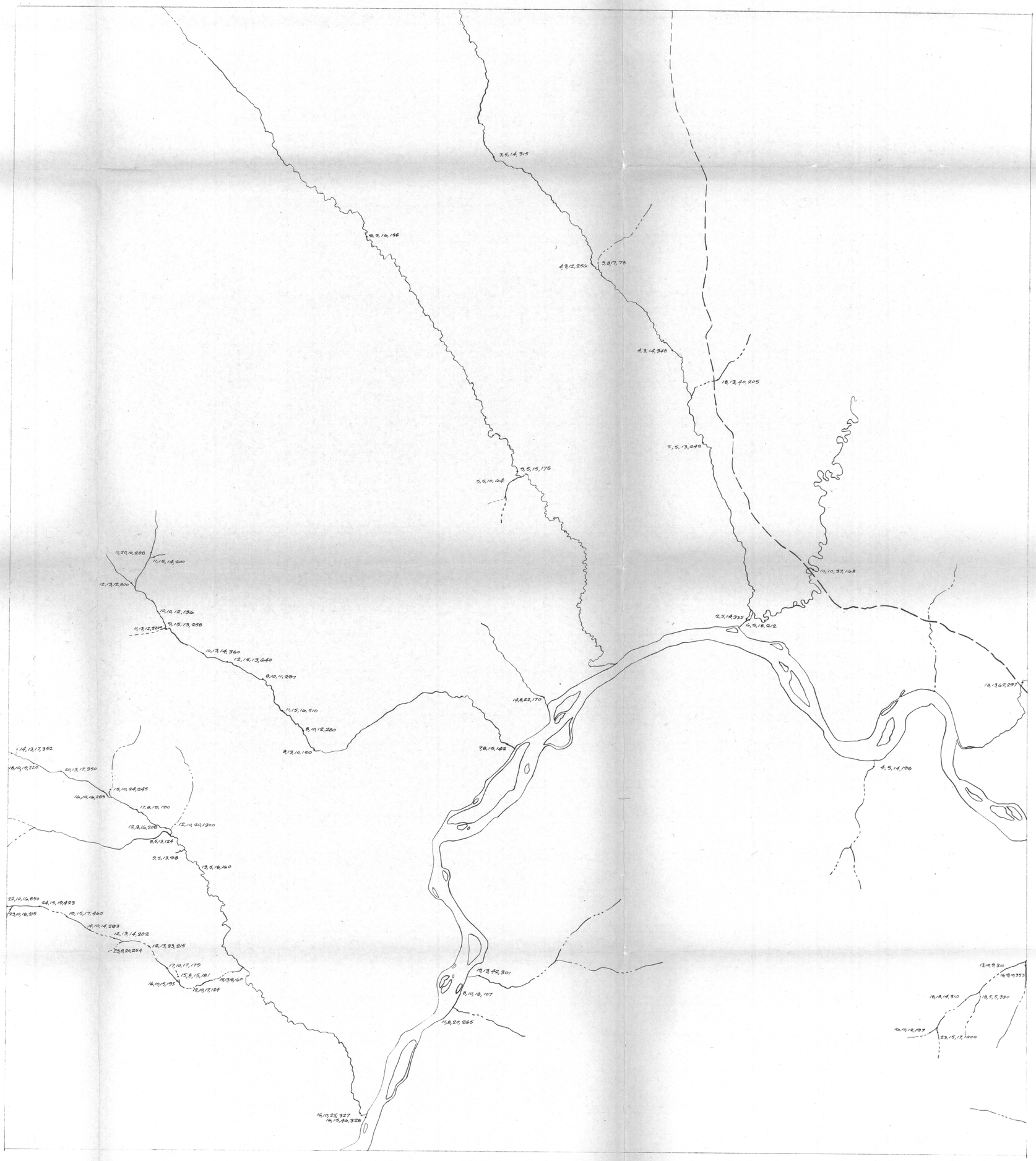
GRAVEL CREEK

Scale: One Inch to One Mile = 1/63,360 Miles

inches
0 1 2
0 1 2 3 4 5
centimetres

YUKON GEOLOGICAL SURVEY

This reference scale bar has been added to the original image. It will scale at the same rate as the image, therefore it can be used as a reference for the original size.



ASSAYS -- Cu., Pb., Zn., Mn.

GRAVEL CREEK
NTS 115-P/12

115P 12

Cu	○ 60-90	Pb	○ 40-60	Zn	○ 100-150
	○ 90-150		○ 60-90		○ 150-250
	○ >150		○ >90		○ >250

inches 0 1 2
centimetres 0 1 2 3 4 5

YUKON GEOLOGICAL SURVEY

This reference scale bar has been added to the original image. It will scale at the same rate as the image, therefore it can be used as a reference for the original size.

Appendix 20

LEGEND

- Jgr — Granite feldspar porphyry.
- Jub — Serpentinized peridotite.
- Ols — Laminated limestone veined by calcite.
- Osh — Black shale, including minor slate and graphitic phyllite.
- Ost — Thinly laminated grey siliceous siltstone.
- Osn — Sandstone.
- Opt — Grey phyllite.
- Ocg — Mixed pebble conglomerate.
- Osl — Red, grey, black and brown slate, minor phyllite.
- Oqt — White and blue-grey quartzite, minor quartz pebble conglomerate horizons.
- pC sc — Quartzose mica schist, quartzite.

SHEET 115 P/13

GRAVEL LAKE

Scale One Inch to One Mile = 63,360

Miles 0 1/2 1 2 3

inches 0 1 2

centimetres 0 1 2 3 4 5

YUKON GEOLOGICAL SURVEY

This reference scale bar has been added to the original image. It will scale at the same rate as the image, therefore it can be used as a reference for the original size.

GRAVEL LAKE

Pb, Zn, Co, Mn

115 P 13

Yukon Geological Survey

This reference scale bar has been added to the original image. It will scale at the same ratio as the image, therefore it may be used as a reference for the original size.

Appendix 21

LEGEND

J gr	Coarse grained porphyritic biotite hornblende granite, granitic dykes.
J sy	Coarse grained porphyritic biotite hornblende syenite and quartz syenite.
Ols	Limestone.
Ost	Grey, thinly laminated siltstone.
Ocg	Mixed pebble conglomerate.
Osl	Black slate; minor shale.
pC sc	Quartz mica schist and quartzites.

SHEET 115-P/14

CLEAR CREEK

Scale: One Inch to One Mile = 1/63,360

Miles

1 1/2 0 1 2

inches 0 1 2

centimetres 0 1 2 3 4 5

YUKON GEOLOGICAL SURVEY

This reference scale bar has been added to the original image. It will scale at the same rate as the image, therefore it can be used as a reference for the original size.

CLEAR CREEK

115 P 14

N.B. 9H 42-68 are missing
ie. no assays can be found

137°30' 15' 137°00'
64°00 64°00
63°45' 63°45'

KLONDIKE RIVER SOUTH

Black Canyon Creek

Big Creek

Syenite Creek

Bell Trail Creek

Left Clear Creek

65 Pup Creek

Barney Creek

Squaw Creek

CLEAR CREEK

VANCOUVER CREEK

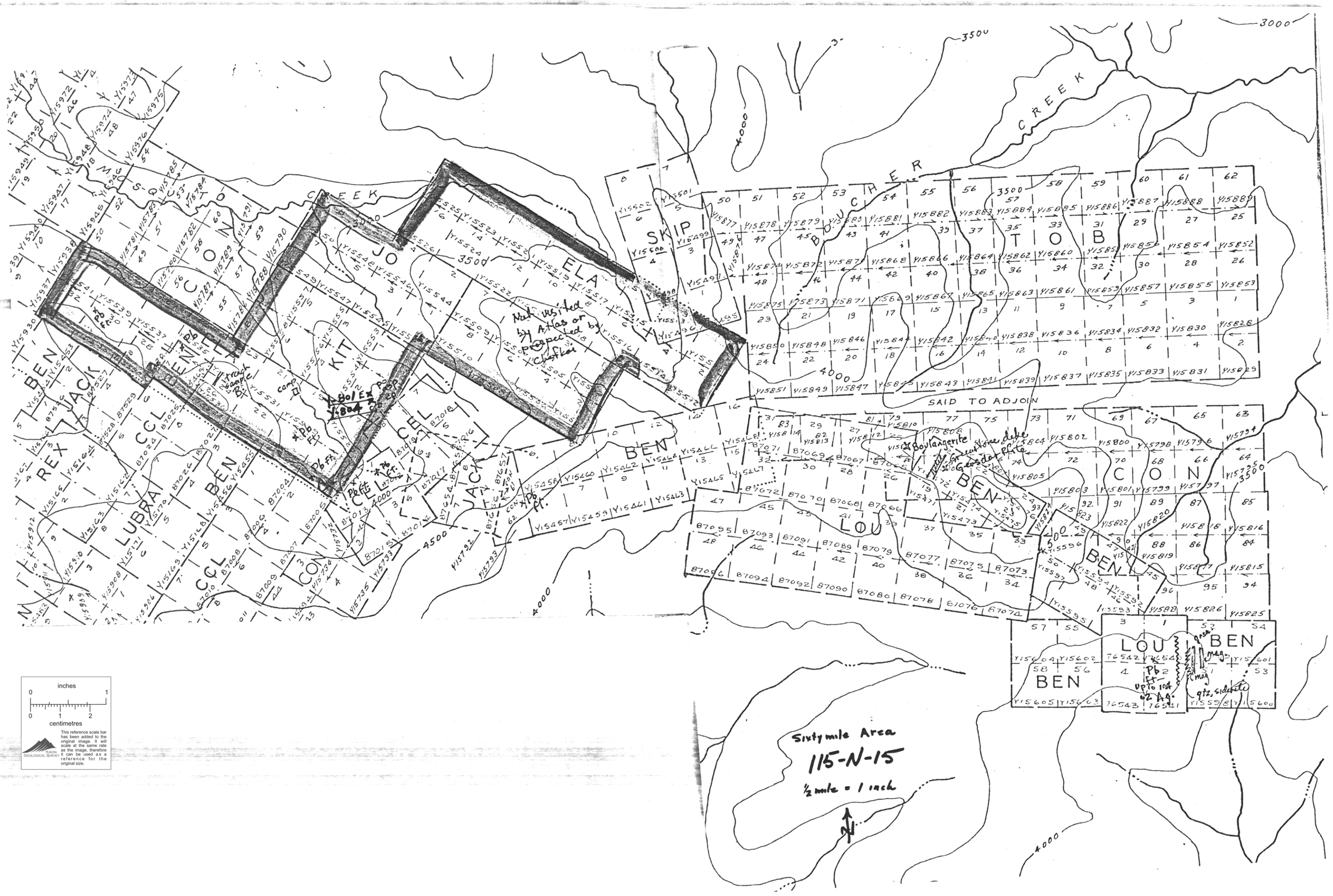
MILES 1 0 1 2 3

inches 0 1 2
centimetres 0 1 2 3 4 5

This reference scale bar has been added to the original image. It will scale at the same rate as the image, therefore it can be used as a reference for the original size.

YUKON GEOLOGICAL SURVEY

Appendix 22


CREEK
SKIP
JO
ELA
KIT
BEN
JACK
REX
LUBRAI
CCL
CON
LOU
TOB
SAID TO ADJOIN
Not visited by Atlas or Prospected by Chisholm
Sixty mile Area
115-N-15
½ mile = 1 inch
inches
centimetres
This reference scale bar has been added to the original image. It will scale at the same rate as the image, therefore it can be used as a reference for the original size.
YUKON GEOLOGICAL SURVEY

Appendix 23

105-O-15

½ mile = 1 inch

Chromite float in gravel pit
Cr 31.87 %. Fe 0.78%. Ti 0.09 %.

Louie Brown
Nickel claims

#105
Ni 0.22%
Cr 0.02%

#104
Ni 0.31%
Cr 0.2%

#103
Ni 0.24%
Cr 0.5 to 1.0%

#102
Ni 0.24%
Cr 0.5 to 1.0%

M.U.

MT. LEOTTA

LEOTTA

JACKIE

MUCH TOO

STAR

KLONDIKE RIVER

May Pup

Star Creek

Power line

TIN

inches
0 1
0 1 2
centimetres

This reference scale bar has been added to the original image. It will scale at the same rate as the image, therefore it can be used as a reference for the original size.

YUKON GEOLOGICAL SURVEY