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Geological Reconnaissance Program

FIDLER, N.E. ALBERTA

on behalf of

Consolidated Pine Channel Gold Corp.

Vancouver, B.C.

September 1998

D.L. Dick B.Sc.

Mine-Geo Research Inc.

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INTRODUCTION

A geological reconnaissance program was conducted on behalf of Consolidated Pine Channel Gold Inc. of Vancouver,B.C., during a period from early September to early October 1998, in the vicinity of Fidler Point,N.E. Alberta. The program involved a two man crew comprised of a geologist and an assistant.The work activity included general prospecting, methodical geological reconnaissance, spot mapping, detailed radiometric surveying and the collection of a number of sandstone samples for clay studies and analysis. Two senior consultants, Dr.Les Beck of Regina,SK. and Dr. Steven Earl of Nanaimo,B.C. were also involved in consulting and study input.

CONCLUSIONS AND RECOMMENDATIONS

The results of the field program, outlined in this report, indicates that a fault extended half-graben, containing an uraniferous, compression-buckled sequence of sandstone/ regolith, lies across and beyond the regional Athabasca Sandstone margin and lies within the Aphebian crystalline basement. Along the strike of the fault, the sequence has been deformed, and so steeply tilted, that the unconformity is exposed. It is intimately fractured, sheared and block faulted by a series of pegmatite related, north to east cross-cutting faults. The process of buckling provides a mechanism for metal re-mobilization, migration and concentration. Sub-aerial decomposition and fault milling of the district-wide, pervasive, well-mineralized pegmatitic granites may be providing a source of metal for supergene concentration. Subsequent late migration is suggested by fracture controlled occurences of uranium in the basement granites and the later sedimentary rocks. These phenomena occur in coincidence with an interpreted metallogenic and tectonic center of confluence.

In my conclusions, I have taken different factors into consideration.

It is an unusual exploration situation for the type because of the geometry of the half-graben trap. It is of sufficient length to host a major sandstone unconformity deposit, being at least 3 kilometers long. Typical of a graben, it is relatively narrow to its length, being less than 200 meters across. The existing evidence suggests that the edge of the sandstone-regolith sequence is exposed along a narrow, steep radiometric fault 'ledge', which may be a limb of a shallow fault-syncline. The exposed limits of the more northerly sandstone-regolith outcrop are defined by a two kilometer long fault buckle, generated by movement over and during a major flexure in the fault plane. The mechanics involved in the overall fault configuration and certain variations in bedding orientation within the fault limb, suggest that a favourable dilatational roll may be occurring at some relatively shallow depth. The volume of sandstone-regolith relative to these dimensions, is quite amenable to stastistical testing by light, short hole diamond drilling.

The property is very extensive and has potential beyond the immediate program area. The following factors should be considered;

1.It was likely overlain by the flanking Athabasca Sandstone, the graben being evidence of this. Consequently,unconformity/supergene related mineral enrichments are possible in suitably prepared fracture systems in the crystalline basement.

2. Another possible altered sandstone occurence is reported, approximately 3 kilometers further north, up the fault [Netolitsky 1970] .

3. Towards the southwest property boundary, a disinct aeromagnetic anomaly overlies a previously reported zone of hematite altered porphyroblastic granite [Netolitsky 1970].

4. A lake geo-chemistry exercise conducted by the G.S.C. in 1992 indicates gold anomlies in the north-east corner.

5. Also,in the north-east corner pitchblende in granite was reported returned from a 1952 drilling program

6. On the east, a deposit of pegmatite was tested by sample pits and returned an average grade plus 0,10% U308. Because of the indicated grade, it was registered with the Atomic Energy Commission in 1969 by Hale.

7. In the course of the recent program, an anomalous gold value was returned from an altered quartz-rich fault exposure in the immediate area of interest. At least two altered granite zones in favourable structural settings were noted adjacent to the graben.

A 'crossover' airborne E.M.anomaly directly overlies the local structure. As well, a distinct but weak aeromagnetic anomaly defines the area of interest. Consequently, a surface survey response could be anticipated. But line cutting would likely be constrained. Low level airborne surveying could be useful in defining targets. It is matter of relative cost.

Further work is justified on the property area beyond the limits of the area worked in this program. But the immediate target area requires geological resolution in the third dimension. Further detailed surface work, beyond the careful selection of specific drill sites in the field and the double checking of essential trends, would be redundant. The determination of the dip trends of the fault plane, the relative thickness of the sedimentary-regolith sequence, the classification and orientation of the sandstone beds, the nature of the fault 'ledge' and even the influence of the cross-faults, would be most effectively resolved by a diamond drill section.

After consideration of these factors, my recommendation is that we take the initiative and diamond drill the sandstone-regolith graben as per the summary contained in Figure 22, within the Appendix.

[redacted]

Donald Laurence Dick B.Sc.

Mine-Geo Research Inc.

Property Description

The property comprises an area of 8009 hectares and lies on the immediate north shore of Lake Athabasca, some 35 miles northeast of Fort Chipewyan and 65 miles southwest of Uranium City and approximately 20 miles inside the Alberta border. The property is held in the form of an Alberta Metallic and Industrial Minerals Permit 9397020001. The registered Permit Holder is D.L.Dick of Abernethy,SK. who holds the permit by private agreement with three other partners.

The date of issue was Febuary 19,1997 and the term commencement date was Febuary 18,1997. The term is a two year period so the initial anniversary date is Febuary 18, 1999. Within 90 days of this date the Permit Holder must deliver an assessment report and an itemized list of expenditures incurred in assessing the property.

At the time of the Permit application lands immediately overlying the Fidler Point were denied as these were designated a candidate park site. The park boundaries have since been moved such that they encroach on the pre-existing southern boundary of the Permit and progressively overlap to the northeast. A letter is attatched to the Plat in the Appendix, wherein the Lands Administrator confirms that, as the original Permit boundaries pre-date the park boundaries, the Permit Holder's right to explore the Permit will be honored. An application for Mine Approval would be accepted and would follow regulatory approval for the removal of any conflicting lands from the park.

Access and Physiography

The property can be accessed by scheduled airline either from Fort Mcmurray via Fort Chipewyan or Saskatoon via Uranium City and then by charter to the property. On the basis of this September's experience, Fort Chipewyan appears to provide the more reasonable route. The airline schedule is daily, with two flights on some days. A. Frame Construction of Fort Mcmurray provides a weekly scheduled barge service in season and Contact Air Service maintains a float plane base in peak exploration season, to service the Fort Chipewyan area.

The intention of the initial reconnaissance program was to assess the sandstone occurences which strike N.N.W. from the shore of the bay in Lake Athabasca that joins Fidler and Lapworth point. Because of a combination of a strong, seasonal southwesterly flow and low water levels on sandbars, landing by aircraft was impeded. Several days were lost in accessing the property and finally access was achieved by a boat ride. In all, 5 days were taken to arrive on the property.

The property is quite accessible, particularily from the Fort Chipweyan direction. A general unfamiliarity with the area and the prevalence of a late season southwesterly flow compounded the access problems. Winds prevailing from almost any other direction, which would be more normal, would not pose any great difficulties in landing. Barge access for material and supplies, in particular would be quite feasible.

An all-weather camp, including a tentframe, was constructed. At the end of the program, the camp gear was cached and the tentframe was re-inforced with cut logs and left standing.

The project was terminated in a major snowstorm towards the end of the first week in October.

The physiography and the relative ease of traversing varies considerably over the property. There are zones of broad sandflats that grade into deep moss over rubble and into swamps. Local, open horst-like plateaux occur on higher ground flanked by imbricated scarps, often displaying steep opposing dips on adjacent walls in deep crevices, sometimes as narrow as a man's shoulders. The overall configuration of the landforms associated with this structure tend to be fault bounded 'wedge'. An alternate landform consists of smooth, steep, ovoid hills with cascading, curvilinear scarps. The major fault zones tend to occur in heavy, mature forested, relatively flat bottomed valleys, up to tens of meters across [i.e. at fault junctions]. The higher valleys tend to be poplar stands and the lower, spruce and pine. The floors are covered with rubble and deep, spongy moss. On the hillsides, secondary and/or cross-faults are often filled with jumbles of large talus and, in places, almost impenetrable scrub pine. Because of the dense vegetation associated with the faults and the tendency of all faults to curve into each other on junction and/or to occur in oblique sets, one can easily become dis-oriented.

In the event of a discovery on the property, the nearest mill is at Cluff Lake which is approximately 40 land miles from the south shore of Lake Athabasca. Part of this distance is likely covered by pre-existing infra-structure within that area.

Property Work History

A detailed summary of the property and vicinity's work history is included in the Appendix.

SUMMARY OF 1998 FIELD PROGRAM

The Fidler area has been subject to many fly-by visits by geologists of various companies. But to my knowledge no in depth programs have been carried out. The relatively high grade pegmatites, pervasive in the area, appear to have been the main stimulus. Except for regional programs by A.R.C. geologists, Godfrey [1972] and Wilson [1985], the sandstones are little known except as scattered outcrops indented more or less north of the Athabasca Formation boundary.

Consequently, the 1998 program began with very little specific information available on the sandstone occurence. After field reconnaissance, a decision was made to concentrate on the sandstone indentation and its apparent structural controls. In the descriptive details of traverses following this section, there are a few apparent loose ends. Nevertheless, I believe there are essential observations that are fuctionally valid and these are described in the following paragraphs.

The property occurs near the southwestern limit of a major N.E. lineament, where it passes under the Athabasca Sandstone Formation, in the flank of the north turning Allan Thrust. The lineament is typified by polyphase deformation and metamorphism, for at least 200 kilometers, along its warped strike. The east and west flanks carry extended uraniun geochemical trends which intersect within the property boundaries. The immediate property area is underlain by complexly faulted Aphebian granites and granodiorites of the Wylie Lake Granitoid Unit [after Godfrey]. [see figures 3,4,5,and 6.]

The overall district structure reflects a complex rheomorphism which is manifested by two overprinted landforms. The first are graben-slashed triangular wedges which occur in partially rotated 'jumbles' and occur over a continuum of scales. In detail the wedges are bounded by arcuate faults and fractures. Imprinted upon these and on a larger scale, surrounding these 'jumbles', are elongated zones of hills following the arcuate trends of major district faults. Stranded, branching swarms of late sinuous faults striking north,northeast,northwest and east appear to have disrupted an earlier district conjugate set, partially dismembering and rotating it. In the vicinity of the more major faults, a form of fault-ductility, probably folding, has been induced, forming trends of these elongated hills [after the writer, see district aerial photograph, Fig. 21]

The regional contact of the Athabasca Formation is generally interpreted as just lying off the north shore of Lake Athabasca, moving onland in the vicinity of Fair and Maurice Points, near and over the provincial border respectively. The sandstone unit was classified by Ramaekers [1979] as the Fairpoint Formation. Wilson [1985] classifies the sandstone as Lithic Greywacke.

A fault tracks up the western edge of Fidler Point on a N.N.W. trend, crosses the Athabasca contact and continues inland for approximately two kilometers where it appears to curve and join a more westerly fault. This fault has been designated the Fidler Fault by the writer.

It is a normal fault, southwest side downthrown, that dips 75 to 80 degrees. The lateral movement appears to be left-hand. A N.N.W. trending half-graben containing a sequence of commonly jointed sandstone/weathered granite occurs consistently, in the hanging wall, along the fault's length. Red and white pegmatitic biotite granites outcrop along the fault's extent in the footwall. Series of east to northeast faults cut the fault plane. The more easterly faults are associated with high angle graben structure in the F.W. and some appear to cross-cut and segment the N.N.W. trending half-graben in the H.W. The more north-easterly faults tend to pinch and swell, sometimes heaving up elongated outcrops along the swell, and tend to curve into the plane of the Fidler Fault. The fault scarps generally exhibit enhanced radiometric responses.

The fault zone has a peculiar cross-section consistent along it's length, except where the scarp is excavated by apparently contemporaneous cross-faults. A steep scarp, from four to fifteen meters high, is thrown up on the eastern edge [the F.W. side]. Then to the west, a broad ledge, thirty to fifty meters wide, extends to the contact with an almost continuous N.N.W.outcrop line of sandstone/regolith. At this point, a break in slope occurs. A symmetrical series of low, flat topped, jointed steps works down the western slope of the sandstone/regolith into the valley below.

The occurence of weathered pegmatitic granite regolith on the property is referred to by Netolitsky [1970] and by the A.R.C. sedimentologist, Wilson [1985]. Wilson postulates that the Fairpoint Formation is the result of relatively local subaerial erosion of a deeply weathered, crystalline basement. Transportation and deposition of the sediment was by fluvial means and the formation is capped by a paleosol.

The regolith is not identical everywhere, even along a continuous outcrop horizon. There appears to be a continuum from intensely hematitized granite to a 'dry', coarse, friable hematite-quartz-clay altered platy rock to a sheared, amorphous but tenacious clay-hematite heap, speckled with detrital quartz fragments from altered pegmatite lenses. The unit, where seen in extent, is up to 12 meters thick. The contact with sandstone where observed is not faulted, but the units are often sheared together by low angle northerly shears. The sandstone and regolith units display identical joint and outcrop patterns in the H.W. The units form an almost continuous outcrop line as described previously. Sometimes they outcrop together,or sometimes one and sometimes the other.

There were three special situations encountered with respect to altered granites, similar in appearance to regolith. One is related to the mapped N.E.fault exposure described in the text. Here, apparent fault milling and alteration has reduced pegmatitic granite to a limonite-hematite earth that relic quartz fragments can be raked out of. Secondly, within a planar fault swell of another N.E. fault, a low outcrop of friable hematite-quartz-carbonate altered granite is exposed in the midst of a swarm of very siliceous elongated granite outcrops. Lastly, an extensive outcropping of very friable, hematite-quartz-clay-carbonate altered granite occurs on a lower terrace below the sandstone, mid-way along the main outcrop.

The beds of the sandstone in the main outcrop dip steeply with the fault plane but appear to flatten to about 55 degrees S.W. within 20 to 30 meters of the fault. That is, the dip is away from the fault. The outcrops occur only intermittently in fanlike profusions, along very consistent and well-defined rubble terraces. A belt of small scale anastomosing fractures, 30 to 40 meters wide, follows the flank for the one kilometer extent of the lower outcrop. The complex overall fracture and jointing patterns imposed by the compression buckling complicates the bedding pattern. One bed of bluish mudstone was noted periodically, displaying a low dip. A conglomerate, similar to the conglomerates along the fault zone edge, was found in loose, marginal outcrop on one of the lowest terraces.

The sandstone 'bottom' conglomerates [i.e. in the fault H.W.] overlie a problematic hematitized, massive sandstone bed in contact with the regolith. The conglomerates are crude, heterolithic and poorly sorted. The coarsest and lowest bed, with clasts up to a foot in size, is referred to in the text as 'fanconglomerate'. A fine,banded sandstone containing layers of smooth, white quartz stones with rounded over flat ends, two to four inches in length, lies among the crude conglomerates. The conglomerates tend to fine up section into a plethora of pebble and fragment sandstone and clay matrix beds. A micaceous/sericitic sandstone bed lies in near contact with the conglomerate sequence. At least one distinct cross-bedded pebble bed was noted.

Locally, clasts are replaced and/or rimmed by hematite or clay. The general alteration trend is for moderate to intense clay-hematite alteration to occur along the fault contact. Moderate clay alteration tends to dominate along the lower terraces of the sandstone outcrop, in association with the anastomosing fracture belt, although hematite appears again along the lowest terraces. Extensive chloritized fault shale was mapped in an intersecting N.E.fault zone, but chlorite was not visually recognized in the surface sandstone, although it was indicated in at least one clay fraction sample [Earl 1998].

The basement granites are pervasively laced with red and white pegmatite segregation lenses. These lenses, often very siliceous and of variable coarseness, average two to five meters in length, and lie in warps along pre-dominately east to north-easterly shears. Biotite lineations are also common to this trend. The granites are distributed in nebulous or gradational red and white zones. They vary, according to potash and alkali feldspar content, from pegmatitic biotite granite to granodiorite. Locally, the rock is gneissic. The regional metamorphic grade is apparently amphibolitic with some local retrograde alteration of biotite to chlorite [Netolitsky 1970]. Extensive zones of intense silicification and local hematitization were noted. Outcrops were also noted in two distinct structural patterns. One is a pattern of sets of repeating and sub-parallel, east-north-east trending imbricated horst-grabens. The other is a pattern of elongate swarms of outcrop lying along N.E. fault swells like 'islands in a stream'.

The east to north-easterly structure is later or at least contemporaneous with the Fidler Fault. The exploration of the sandstones to the west, has to consider this structure in both the H.W. and the F.W. exploration. In the footwall, the easterly trend will likely dominate the economic potential.

Rock sampling, from insitu sandstone outcrop, for clay studies, was conducted throughout the course of the program's prospecting and mapping traverses.In total a representative group of 34 samples were taken along a three kilometer stretch of the Fidler Fault.

Three gold samples were taken and sent for assay. A sample taken from a siliceous pegmatite lense on the fault scarp south of the southeast exposure of sandstone/regolith and a sample taken from relic pegmatite quartz fragments within this exposure, returned values of 1 ppb. Another sample taken from an altered siliceous pegmatite within the exposure of a major N.E.fault zone, near the south end of the more northerly main sandstone outcrop, returned a value of 70 ppb. Boyle, in G.S.C. Bulletin 280, quotes 3 ppb as a normal background for gold in pegmatites, so this value is signifigant.

Continuous radiometric surveying, utilizing a Scintrex BGS-1 scintillometer was conducted throughout the program. The survey results plotted in Figures 11 and 12 indicate specific radiometric patterns over the area of immediate interest. Uranium staining is not common, consequently these radiometric patterns, though specific, are also subtle.

Two different ranges should be considered. These are pegmatite and non-pegmatite. A 3 second count interval was used in the survey [the alternatives being 1,5 and 7 count intervals] to draw out the complex thresholds of the different sources and variations within the individual sources. The pegmatitic granites are consistently radiometric at 1000 to 1500 c/s with numerous readings above 2000c/s, the highest being plus 15000c/s. The non-pegmatitic sources include fracture and fracture intersection controlled values in F.W. granite, regolith and sandstone. Weathered granite /regolith values vary from 600 to 800c/s with spots to 4000 c/s. The sandstones vary from 150 to 450 c/s with spots to 5000c/s. The regolith at 600 to 800 c/s average background appears to be depleted relative to the basement granites except where fracture control is evident. [note;these values are estimates based on the data plotted in figures 11 and 12 and discussed further under topic].

The common presence of uranium in non-pegmatitic sources is signifigant. In particular, this radiometric data indicates that late mobilization and migration of uranium has occurred in the Helikian sandstones and the weathered granite/ regolith.

The radiometric profile of the sandstone, beginning on the lower flank and working up to the fault, shows a general tendency for radioactivity to increase from 150 to 200c/s to a peak in the last 10 meters of the section to 3,4,or 5 times background, with local spot highs to 25 times background, coincidental with the beds of coarse 'bottom' conglomerates, exposed in the first 450 meters. The fault outcrop line is complex and is described in detail further under topic 11.NBL traverse. The complexity relates to the disappearance and reappearance of signifigant beds and regolith along the rubble covered fault 'ledge' and the sequence of scrub-pine and talus choked, cross-cutting valleys.

The profile indicates a relatively narrow, steep uraniferous conglomerate/regolith flank, lying more or less conformably on the fault plane. From a potential economic structural point of view, the uranium mineralizing potential is where 'it should be'. That is, poised for a deforming, flexural change of dip. The steep fracturing may be to 'tight', thus constraining mineralizing and related alteration, beyond a point. Dip slip, rather than strike slip dilatation may be dominate. The steep, narrow structure may be indicating a deeper mineral potential that could open dramatically with depth, relative to the scale of the volume of the trapped rock sequence and the degree of flexural bending along the fault plane within the given distance.

The indications of the beds dipping away from the fault plane suggests a shallow syncline with a steep fault limb and a low angle or even reverse 'floor' limb. The bedding data on the lower flank is to nebulous to confirm this. The steep fault limb is obvious but the floor limb is open to interpretation, particularily as it applies to sandstone bedding.

The linear presence of weathered /altered granites in the immediate hanging wall of the fault contrasted with relatively 'fresh' granites in the immediate foot wall suggests that the fault plane exploited the zone of weakness at the weathered/fresh granite interface. This would explain the entrapment of sandstone and regolith together and suggests a relatively shallow structure.

The structural principles of McKinstry and more recently, Twiss and Moore, suggest that certain mechanics are in play. The formation of fault anticlines and synclines, beginning with flat-lying sedimentary beds, are a function of relative changes of flat and steep dip of variable extent or 'length', along a displacing normal fault plane. Given the scale of the sandstone unit and the orientation of the beds dipping away from the steep fault plane, a theoritical flattening of dip is possible within a short distance down the fault plane.

A practical field observation is that on the steep fault limb, there is a tendency for the 'hot' bottom conglomerates to dip steeply at 70 to 80 degrees S.W.with the fault, whereas shortly upsection, the beds tend to flatten to 55 degrees S.W. These varying dips suggest an inverted 'V', opening to depth, which could accomodate a lower roll of conglomerate on the fault hanging wall. The braided fracture belt which extends the entire lower flank of the sandstone outcrop and which would provide an excellent host in an ore horizon, appears to be dipping back into this opening, at 35 to 50 degrees N.E.

In cross-section, following the writer's extensive experience in the Beaverlodge district, this complex fault buckled environment would exhibit sinuously rolling dip planes into ramp and roof fault junctions that are favourable for ore concentration. A multi-ore zone potential exists for the overall structure, particularily in the light of the favourable lithology, alteration and the distinct, associated, surface radiometric patterns.

Description of activities in the 1998 Program

After our initial reconnaissance, we decided to concentrate on the main sandstone outcrop.

The sandstone formation has been fault tilted, compressed and bent with an elusively conjugate layered but symmetrical deformation imprinted upon it. This compounded the comprehension of normal bedding relationships and contacts. A combination of a wide, continuous, reverse dipping anastomosed fracture system and upper symmetrically terraced slopes, in particular, made it difficult to make a preliminary assessment of bedding. A reference to Wilson's A.R.C. Bulletin 49 quoted a definite 55 degrees southwest dip for the formation i.e. away from the basement. So we prospected the unnamed N.N.W. fault, paralleling the trend of the formation along the 'top'. Working from this fault, we were able to confirm the orientation of the formation i.e. away from the basement [and away from the fault]. Ultimately, we found that the true width of the formation at its southern limit, was a fault deformed point only 20 to 30 meters across compared to a potential width in the centre of the graben of up to 200 meters.

I designated the fault, the Fidler Fault. It is the main controlling fault of the sandstone formation's deformation. Consequently, the program strategy evolved in exercises, including numerous traverses along and across the fault zone, the sedimentary/regolith formation and the immediate crystalline basement, to unravel this deformational event and it's related mineralizing and alteration trends.

1. Prospecting and reconnaissance traversing. [Figure 8]

Upon completion of the camp construction, two to three days were spent in general orientation traverses over the sandstone outcrop and the adjacent granite basement. Throughout the program prospecting and reconnaissance traversing was continued, usually to make the best of inclement weather or as 'end of the day' activities to broaden the spatial familiarity with the area of interest and to check, correct and evolve the impressions of it.

During the layover in Uranium City, a well-known local prospector, Jim Price told me that he had prospected the Fidler area during the mid-seventies. He showed me on an aerial photograph where he had discovered a 'high-grade' sandstone boulder in the broad, flat valley below the main sandstone outcrop. We combed that section of the valley carefully but didn't find a boulder.

The exposed sandstone/regolith outcrop at Fidler occurs in steeply dipping beds trapped, deformed and protected by a graben fault movement. The presence of mineralized trends in the structurally deformed outcrop suggested that the priority of the program be directed to unravelling and tracing these patterns through the deformation and ore concentrating processes, to 'underground' ore zones. These potential underground ore zones are anticipated to be supergene/ unconformity related. But because the units have been so specifically tilted and bent with a compressing fault movement, that captured the regolith and the sandstone together, it is an unique situation. The 'hot' fault ledge, which corresponds to the line of the unconformity, presents an outcrop source and a structural lead, in lieu of boulders.

This situation, for example, is quite distinct from the relatively undeformed, flat-lying sandstone occurences in the Wollaston Lake area.

Boulder prospecting of the valley is worthwhile to indicate buried sandstone souces. The valley floor is a mixture of swamp, moss covered rubble, zones of smooth sandflats and ponds. It is of sufficient breadth to be underlain by half-grabens sub-parallel to the main exposed sandstone outcrop. A weak but definite areomagnetic trend is deflected N.N.W. along the valley trend [see Fig.6].

2.Rock sampling for clay analysis. [Figure 10]

A rock sampling program was carried out over the course of the program. A total of 34 samples were taken for clay studies. All samples were taken in situ. A close spaced cluster was taken on the southern point of the main outcrop and at regular intervals on upper and lower traverse lines that ran oblique to the strike of the outcrop for the first kilometer. Additional samples were taken along a one kilometer NNW extension of the main outcrop trend which was exemplified by isolated outcrops in a talus field. Also, samples were taken from cross- section traverses of the main outcrop. The main outcrop was found to be segmented by east -west faults that lift the outcrop north and east. After some searching, high, near hanging wall conglomerates were found and sampled. A prospecting traverse to the south located another substantial sandstone outcropping which was sampled. Overall, sandstone occurences were found and sampled over 3 kilometers along the Fidler Fault.

The rock samples were fist-sized and were selected by the assistant on general directions from the geologist. Small hand specimens were taken at each site and are available. A brief description was written. A radiometric background reading at waist level was also taken. The information was duplicated in the geologist's notebook and the assistant's sample book which were resolved and balanced prior to leaving the property. The sample sites were all labelled and marked with blue and white striped flagging. Sample numbers 6, 17 and 32 were deleted.

Because of the deformed steepness of the unconformity feature at Fidler, and the variation in sandstone lithology, a potential alteration zone could prove difficult to detect, relative to the flat lying ore models on the eastern Athabasca rim.

3. Radiometric Survey [Figures 11 and 12]

A radiometric program was conducted simultaneously with all other activities. A Scintrex BGS-1 scintillometer was employed, except for a few day period, when the camp scintillometer malfunctioned and a second BGS-1 had to be brought in from Vancouver. During this interim, a Scintrex spectrometer was substituted.

Because the initial reconnaissance indicated a complex radiometric environment containing diverse sources and local variations in response from the individual sources, the BGS-1 scintillometer was read on the 3 second reading interval, with other options being 1, 5, and 7 second reading intervals. The spectrometer was operated on the 2 second interval. The values obtained from this instrument are underlined. Because the counts per second reading interval is different from the BGS-1, the values are lower with increasing discrepancy as the values increase [i.e. 200 c/s to 300c/s, 3000c/s to 5000 c/s etc.].

The instrument was run continuosly with periodic, systematic and random readings recorded. Two readings were recorded at each entry, an outcrop reading and waist level background reading. The waist level readings were taken to counterbalance the bias of visual clues on the outcrop. The outcrop readings, nevertheless, provide insight re. the nature, the pervasity and relative tenor of the radioactive sources.

In special cases, such as very high readings, yellow and white striped flagging labelled with the readings were left on site.

From figures 11 and 12, it can be seen that distinct radiometric thresholds are evident. The sandstones average over a range of 150 to 300 c/s, the weathered granite/regolith averages 600 to 800c/s, the fault flat reflects similar values and the pegmatitic granites range from 1000 to 2000 c/s [according to pegmatite influences].

In detail, beginning on the beach, there is a tendency for the following N.E.trend; sandstones on the beach - 150 to 200c/s; sandstones intermediate - 250 to 300 c/s; sandstone conglomerates in the H.W. - 500 to 700 c/s with local highs 1500 to 5000 c/s; the altered granite/regolith in the immediate H.W.- 600 to 800 c/s with local highs of 1200 to 4000 c/s [usually related to zones of fracture intersection with minimal pegmatite influence]; rubble covered fault terrace - 700 to 800 c/s; fault scarp - 1000 to 1500 c/s with numerous readings plus 2000 c/s, the highest being plus 15000 c/s, [related to pegmatite lenses, fracture intersections and on occasion, a biotite band]; granite 'plateau' - similar values to the scarp but slightly lower magnitude.

All fault scarps in the area tended to yield higher radiometric responses than the planar outcrop.

In evaluating the radiometric values above, two distinct radiometric environments should be considered; pegmatite and non-pegmatite sources.

The overall region is intimately flooded with relatively well-mineralized pegmatite segregations that occur in lensic swarms along east to north east trends. Within the immmediate area, sill-like concentrations are known as well. One concentration, on the eastern edge of the property, returned an average grade of plus 0.10% U308 from test pits and was subsequently registered with the A.E.C. [Hale 1969].

The non-pegmatitic sources include fracture controlled basement granites, granite regolith, sandstone and altered fault zones. The extent and intensity of these alternate sources was not known or previously reported.

Of particular signifigance is the fracture controlled mobilization of uranium into the late sandstones and the underlying regolith. The 'bottom' conglomerates which outcrop on the fault ledge for the first 400 meters of the main sandstone outcrop are the most anomalous feature in the sandstones. A detail map of fracture control in a weathered /altered granite [Figure 14] is discussed further on, under topic 6.

The source of this uranium is not known at this preliminary study level, although fault compression is apparently the controlling mechanism. The late hydrothermal stage often associated with pegmatite intrusion is not widely recognized along the regional northeast lineament associated with this property. Wilson [A.R.C. Bul.49] recognizes a weathered pegmatitic granite regolith underlying the Fair Point Formation that may have formed by sub-aerial decomposition of the crystalline basement with subsequent fluvial erosion. A third possible source, also for supergene uranium, is local fault milling [Figure] discussed under topic 5.

The local presence of pitchblende in the sandstone has not been confirmed. Pitchblende is not a common occurence in N.E. Alberta. Griffith et al [1962] in their metallogenic map of the region only indicate two places in Alberta where pitchblende is known to occur, one of these being Fidler [i.e. in granite, from a 1952 drilling program along Fishing Creek.]

4. Beach mapping. [Figure 15]

A line of continuosly, exposed sandstone outcrop occurs along the beach of the north shore of the bay for a distance of approximately 360 meters. A picket line, based on 30 meter spacings, was carefully compass surveyed in for 420 meters. The baseline was designated the 'SST BL'. Subsequent mapping indicated that the true cross-section of the unit occurred within the first 20 to 30 meters of the outcrop and the balance of the outcrop was a continous, curving terrace along the surface margin or flank of the sandstone unit.

Detailed mapping was impeded by the weathered 'loosened' nature of the outcrop and the presence of numerous erratics. The point containing the cross-section was quite broken up but the dip of the beds in the immediate H.W. of the Fidler Fault appear to be steeply S.W. Further along the beach a complex inter-layer of bluish mudstone displayed a flat to low angle dip [?}. A belt of anastomosing fractures [e.g. 6

to 8 inch braids] extends along the entire flank and appear to dip back into the fault at 30 to 54 degrees.

This belt of anastomosing fractures occurs along the extent of the lower sandstone margin, up to 30 to 40 meters wide. It continues inland for a kilometer which is the limit of exposed lower sandstone outcrop. The fracture system would make an excellent structural host for ore if it were to pass into an ore horizon at some depth.

5. N.E.Fault zone mapping [Figure 13]

A N.E. Fault Zone intersects the Fidler Fault just south and east of the main sandstone outcrop termination. This fault zone forms the arcuate east boundary of the large ovoid feature referred to in the 1998 Research Report by the writer. The Fidler Fault forms the west bounding fault, at least on the southern half.

The fault zone turns into the plane of the Fidler Fault on a broad, smooth curve. As it comes around, a 'whale back' of fault zone is exposed adjacent to a steep ovoid hill with a steep, curved scarp that joins the Fidler Fault trend.

The fault zone was mapped in detail because it is the best and only exposure of the actual valley floor associated with the district faults, that was seen this fall.

The fault zone emerges on the north side in a zone of curving, chloritic fault shale and rises to a 5 meter high face along about 30 meters of exposure. The face is highly fractured and sheared. Sheared pegmatitic granite rock, within the zone, shows progressive alteration, until in the last 15 meters it is reduced to a hematite-limonite earth. Shards and fragments of quartz from altered pegmatite lenses can be readily raked out of the earth. Radiometric readings across the width of the exposure ran 1200 to 5000 c/s BGS-1 and 800 to 2200 c/s spectrometer.

A 3 decimeter wide pseudo-quartz vein , very likely a siliceous pegmatite remnant, occurs towards the centre of the exposure on an oblique strike. A sample was taken and returned 70 ppb gold. Boyle, in G.S.C Bulletin 280, quotes 3 ppb as a normal background in granites and pegmatites.

The fault zone exposure displays the 'whale back' for some distance up the valley to where it slides back into the valley floor. The earthy section of the exposure is very close to a regolith in description but the fault association and orientation would tend to discount this. Nevertheless, the exposure illustrates a veritable uranium mill. The process is likely of considerable genetic signifigance to the surface movement and deposition of the this metal, and possibly of gold, within the district.

6. Detail map of a weathered granite/regolith outcrop [Figure 14]

These outcrops occur on the western edge of the fault terrace adjacent to the southern point of the main outcrop.

The outcrops were mapped as a detailed fracture exercise.

Showings of 2000 to 4000 c/s [BGS-1] occur on the outcrops related to fracture intersections and to intense hematite-quartz- clay alteration. There are no obvious pegmatites in the outcrop.

Within a short distance, this weathered hematitic granite disappears along an oblique strike into the fault ledge.It recedes or is absent along the lower sandstone margin ,then, re-emerges in relatively consistent outcrop one kilometer NNW down the fault trend. It continues for another Kilometer to the limit of the fault. But the outcrop is flatter after 1.2 kilometers, gradually steepening to its outcrop limit where it is steeply stacked into a major triangular fault point or closure.

An odd massive, hematitized sandstone which carries a scattering of angular and rounded clasts emerges about 75 meters down the fault strike. It lies between the weathered granite/regolith and the coarse 'bottom' conglomerates.It outcrops in local, steep, sinuous sheared arcs, a meter or less wide.It runs for approximately 600 meters in direct unfaulted contact with the 'bottom' conglomerates, except of course, in the gulleys. It is topographically slightly higher than the conglomerates. It is referred to as the 'Marker Outcrop' on the maps. Because of its granitic weathered appearance it could easily be confused with the regolith from a distance. On the Southeast Regolith Exposure, a fine-grained fault foliated intrusive can be seen in the hanging wall contact with the regolith. It's possible,but not likely, that this unit corresponds to this feature which would have incorporated a scattering of sedimentary clasts, perhaps, impressed from the conglomerates under fault pressure.

7.Traverse mapping of the Fidler Fault Scarp. [Figure 20]

A mapping traverse was made from the 00 point on the SSt baseline and carried for approximately one kilometer NNW along the immediate scarp of the Fidler Fault.

The fault zone has an unique cross-section. A blocky scarp is thrown up on the east side of the fault zone. A broad, rubble filled flat extends to the west for 30 to 50 meters to where it contacts the N.N.W. line of outcrop of the H.W. granite and/or sandstone. At this point, the H.W.granites and/or sandstones fall away downslope in almost perfectly spaced flat topped steps, in both talus and outcrop, and disappear under the lower valley floor.

This profile of an eastern scarp face, a broad rubble filled flat and a distinct H.W. outcrop line was observed along the three kilometer strike of the fault. One exception is a 'fresh' outcrop of granite at 950 meters on the NBL that crops out within a few meters of conglomerate.

The H.W. granites and sandstones are controlled by a common fracture and shear set. The fault scarp [and the F.W. granite] is controlled by a different structure set. Although the scarp appears to be terraced in places, it actually throws up scarps of diverse heights. A terrace-like blockiness is imparted by parallel shear foliation of one to two meters spacing in conjunction with 'flats' that are controlled by conjugate fractures which dip 26 degrees SW and NW.

The trend of the fault appears to be locally sinuous. The dip varies from 75 to 80 degrees WSW. It appears to be a left-hand normal fault with a half-graben capture of weathered/altered granite regolith and sandstone on it's western flank. The capture of these two units together would be related to the fault movement exploiting the natural plane of weakness of the interface of weathered granite/ regolith and the 'fresh' granite.

The fault flat is fairly easy walking but the immediate scarp environment proved to be a rough traverse. The writer was injured in a fall and slowed down for a few days.

The fault scarp is locally excavated by late easterly and north-easterly faults. The relative offsets are not simple or even apparent in some cases and warping on intersection may be occurring [particularily the N.E. faults]. Faults trending from the same direction seem to have different impacts. There is a distinct lifting and sliding to the north and east exhibited mid-way in the main sandstone formation and possible local variations in stratigraphic surface between cross-cutting gulleys may be occuring along the extent of the formation.

The easterly faults tend to cut straight through the scarp with minimal displacements. The faults exhibit reversing steep dips. These faults are related to imbricated grabens in the immediate footwall granites.

The northeast faults, which dip steeply SE, tend to curve into the plane of the fault similar to the fault exposure described previously under topic 5. These faults may be offsetting the sandstones and imparting a local sinuosity to the fault line. The sandstone offset seems to be absorbed within the fault 'ledge'.

The fault scarp proved to be very consistently radiometric. Pegmatites and local,relatively unaltered to well-hematitized fracture intersections,particularily flat fracturing, accounted for most of the responses. The pegmatite segregations follow an easterly to northeasterly trend, so outcrop in steep cross-section on the fault plane. The lenses average 2 to 5 meters in length. Red and white pegmatites occur with variable coarseness and lie in warps along local shears. Some are very siliceous, almost appearing to be quartz veins. The granites are a mixture of medium to coarse grained white and red granites, well lineated with east trending biotite bands. Biotite schlerien was also common. Occasionally, the biotite was highly radiometric, particularily when in massive concentrations.

8.Mapping traverse of the F.W. granite basement [Figure 20]

In conjunction with the scarp traverse a mapping loop was made over the triangular granite 'plateau' in the fault footwall. It was also tied in to the 00 point on the SST baseline.

The granites tend to occur in generalized red and white zones. They are medium to coarse grained, although the grain sometimes appears 'faint'. The granites are mapped regionally as Wylie Lake Granitoids [Godfrey 1978]. The Alberta Research Council geologists use this term widely and refer to 'granitoids' as rocks subject to ultrametamorphism at the climax of regional metemorphism i.e. temperatures high enough for the rocks to start to melt. The granitoid magma is then a mixture of melt and solid material [Langenberg 1982].

The local granitic unit is well-lineated with biotite bands on easterly to northeasterly trends, and local biotite schlerien is common, particularily as seen on scarp faces. The composition varies according to feldspars from pegmatitic biotite granite to granodiorite, possibly moreso the latter. In places, it is distinctly gneissic.

Lensic red and white pegmatite segregation swarms are pervasive on easterly to north-easterly trends. As mentioned previously, more extensive sill or sill-like concentrations are reported on the property. Some of the white variety are very siliceous.

Sets of graben and/or imbricated structure are a very distinctive feature. These sets occur on different scales but display a similar pattern. Approaching and moving northerly, a series of faulted humps are encountered. Deeply incised fault zones, from one to three meters wide and two to five meters deep, define the humps. At some point the humps continue up the slope but the crevices are no longer defined. The outcrop levels out flat on top. Then at some distance, the profile drops off sharply to the north. There are a number of these structures in the area. The structures can be difficult to get through and are a little nerve-wracking because the crevices are very reminiscent of breakthrough take-down-back stopes. The dips are steep and sometimes reverse dips occur on adjacent walls.

The north to east to north-east faults tend to define these fault sets. The N.E. faults display a pinch and swell character, with elongated oval outcrops heaved up in the swell portions,rather like 'islands in the stream'. One narrow fault zone contained a proportionately narrow ovoid outcrop in the swell. A wide fault zone carried a number of ovoid outcrops in the swell.

Extensive zones of silicification and more or less local zones of hematitization were encountered.

The silicified zones are laced with veinlets of clear silica. The outcrop displays a distinctive white cast and is very smooth and hard. It was very difficult to take a representative hand specimen from. The silicification was noted in graben structure and also in very radiometric outcrops along a broad swell in a north-east fault zone at 800 meters on the line. A local zone of hematite-quartz-carbonate altered granite was noted in low outcrop in the midst of silicified white granite ovoids within the swell.

Local zones of hematite alteration occur in the traverse area in varying degrees of intensity. The most intense zone occurs in the 'back and top' of a horst-graben in the central east side of the area.

The [late] structure encountered in this traverse trends in to the main sandstone outcrop at normal to oblique angles. It is controlling the sandstone structure and possible mineral concentrating trends to some degree, in both the foot and hanging wall of the Fidler Fault.

9.Traverse over Fidler Point proper

The structure,lithology and alteration described in the preceding was also noted in a prospecting traverse over Fidler Point proper.

10.Establishment of N.B.L. picket line [Figure 8]

A picket line was turned off the 60 meter station on the SST baseline and run for approximately two kilometers N.N.W. along the Fidler Fault flat. Pickets were installed on 100 meter intervals with 50 meter stations being flagged in. The line is marked with limy-green and pink flagging.

11. N.B.L. traverse of the H.W.conglomerate/regolith outcrop line [Figure 20]

A number of traverses were made along the extent of the H.W. conglomerate/regolith outcrop line which defines the western edge of the Fidler Fault zone or flat. This is a composite summary.

Proceeding north-north-west, within 50 meters of the beach the granite fault triangle occurs as described in Topic 6. This regolithic feature has a slightly oblique strike relative to the trend of the sandstones so may be passing into the fault flat under the rubble.

Between 75 and 150 meters, ground level outcrops of a crude, coarse, heterolithic 'fanglomerate' begin to occur in the midst of fault talus.The clasts are of very diverse composition and vary in size from a pebble up to a 'football.' The matrix is a fine sandstone.

At 150 meters a trend of north-sheared, steep S.W. dipping, hump-like outcrops of conglomerate begin and continue to approximately 450 meters to the edge of a cross-gulley. The fault zone edge of the outcrop line is consistently slightly higher than the 'flat step' of the conglomerate behind it. A massive, hematitized sandstone , as described previously under topic 6., occurring in outcrop approximately one to two meters wide, forms this raised fault edge. It outcrops for at least 600 meters along the fault zone edge. For this discussion, this problematic unit is called the 'marker outcrop'. The conglomerate base lies in steep [i.e. 70 to 80 degrees] , conformable contact with this outcrop.

From 150 to 320 meters the conglomerate beds are 6 to 8 meters wide narrowing down to 4 meters on the contact beyond 320 meters with narrow interfingers of conglomerate running through an interbedded banded sandstone which contains layers of rectangular white quartz stones [2 to 4 inches in length]. At about 450 meters the outcrop terminates against a cross-gulley.

At 320 meters the radiometric readings rise from 321c/s to 400 to 800 c/s at 175 meters with outcrop spots from 1000c/s to 5000c/s along the length, the higher values coming from shallow holes.

The dip of the contact is steep at 75 degrees S.W.and the strike varies locally from 330 to 345 degrees. A well-defined pebble bed which occurs about 20 meters back from the contact, at approximately 220 meters, dips at 57 degrees S.W. on a similar strike. This fluctuation in dips could be quite signifigant structurally. It suggests an open inverted 'V' between the lower conglomerates and the upper sandstones. This opening could be filled by conglomerates rolling to depth.

At approximately 500 meters, on the other side of the gulley the 'marker outcrop' can be seen in direct contact with the conglomerate but the conglomerate is not quite so crude and the clasts are reduced to 2 to 3 inches.

Between 500 and 550 meters, the outcrop is offset 25 to 35 meters to the east and lifted 5 to 7 meters to the north. The scarp wall is locally excavated, perhaps, 100 meters to the east but not offset on strike [i.e. broken faulted valley embayment].

From 550 to about 600 meters there is well exposed sandstone outcrop in contact with the 'marker outcrop'.

The radiometric values fall off through this section. The rise in relative stratigraphy may be related to this.

From 600 to 950 meters there is a field of terraced sandstone rubble with ground level conglomerate outcrop found here and there, in talus, up higher on section. Marker outcrop was not seen in contact. The bush is heavy in places on the upper surface of the talus. Extensive outcrops of sandstone occur on lower slopes.

At 950 meters a coarse conglomerate bed occurs within a meter or two of unaltered granite outcrop.

The radiometric readings are lower through 500 to 900 meters being in the order of 200c/s spectrometer [about 300 to

400c/s on BGS-1], but pick-up to 500 to 550c/s beyond 900 meters.

From 950 to 1100 meters there is little outcrop on the contact. Well-defined terraces covered in sandstone rubble extend down slope to the middle of the slope where extensive intensely hematitized sandstone outcrops occur in the vicinity of 1000 meters. Below this, beyond a distinct break in slope, the zone of lower regolith outcrops in flat terraced outcrops.

Emerging from a forested cross-gully at 1100 meters very hematitized conglomerate occurs on the contact zone. Along strike, at about 1200 meters, a major outcropping of regolith occurs apparently without conglomerate in lower contact. The terraces along this stretch are in the order of 3 meters high in a steep configuration suggestive of a fault closure. This closure zone is an area of intense alteration.The height of the terraces reflect the tendency of the terrace steps to gradually and symmetrically increase to the N.N.W., along the one kilometer trend of the sandstone flank, this being the highest step [see cross-sections]. There may be a secondary shear fault, bounding and separating the lower sandstone and regolith to the southwest which is passing sinuously up to this fault closure, on the northeast. This fault would effectively divide the sandstone/regolith structure into two equal segments. The first segment would exactly bound the limit of the sandstone as indicated by outcropping and talus along the symmetrical terraces.

The evidence for this fault is the occurence of adjacent sandstone outcrops across a gulley below the regolith, a tree line and break in slope between the regolith and upper sandstone outcrops, the stacking of the sandstone outcrops along the upper Fidler Fault plane.

From 1200 to 1650 meters, low intermittent outcrops of weathered granite/regolith parallel a swing in the fault plane to the north west. These outcrops are generally low and flat topped by jointing. A broad open talus field of smoothly undulating terraces, follows the slope to the lower valley floor. The edge of the valley floor and the plane of the fault progressively close to the north. Prospecting over the top half of the field encountered primarily granite and regolith talus with local occurences of sandstone talus. At 1650 meters, a loose, banded sandstone outcrop was found in a valley ledge 15 meters below a local regolith outcrop. The valley ledge was not prospected between 1000 meters and 1600 meters. This is a priority area for any further programs.

Emerging from a forest cross-gulley at about 1725 meters an outcrop of banded sandstone in contact with a relatively wide belt of regolith was encountered. The upper regolith edge defined the outcrop line with the typical fault ledge and the eastern scarp. The cross-section distance from the scarp to the valley edge is less than 100 meters at this point.

Emerging, once again, from a forested cross-gulley at 1850 meters regolith outcropping rises about 15 to 20 meters from the valley floor with relatively high terraces on a west curving steep flank. The upper line of regolith outcrop defines once again the edge of the Fidler Fault 'flat' with the scarp wall rising approximately 30 meters to the east. The tight configuration is similar to the fault closure suggested at 1100 meters. At approximately 2000 meters the structure terminates against a major forested valley.The regolith is intensely altered/weathered. Old prospector trenches can be seen here and there. The regolith has a consistent and typical background of 600 to 800 c/s. The fault scarp reads a typical 1500c/s.

At this point the Fidler Fault appears to be turning into a major northwest fault in the closing of a regionl fault loop and the closing of the local [2 Kilometer] compression buckle.

12.Gold sampling

Three gold samples were taken and sent for assay. A sample taken from a siliceous pegmatite lense on the Fidler Fault scarp south of the southeast sandstone/regolith exposure and asample was also taken from a relic pegmatite quartz fragments within the exposure. Both samples returned 1ppb. However, a sample taken from the N.E. fault exposure, described previously, returned a signifigant 70 ppb. Further work is warranted.

13.South sandstone/regolith outcropping. [Figure 19]

An extensive exposure of sandstone /weathered granite/ regolith was encountered southeast of the camp along the west beach of Fidler Point. A buff colored, maroon banded and stained sandstone, similar to and visually downstrike, of the banded sandstone seen in the northern main sandstone outcrop, passively abutts a 10 to 12 meter thick weathered, hematite-clay altered granite.

The sandstone lies low on the beach, dipping at 65 degrees S.W. It contains scattered fragments and layers of rectangular, white quartz clasts, up to 10 cm. in length. It passes into the lake, at a low angle, approximately 70 meters upstrike to the south. It displays a tendency to braided fracturing towards this limit.

The regolith and sandstone contact is not faulted but low angle north shearing binds them. These north shears cut incised embayments in at least 3 places along the 170 meter strike of the outcrop. The unit is intensely hematitized throughout and clay altered in pockets. Steep veins of hematite and limonite [1to 2 cm.] periodically cross the rock. The rock is relatively competent but is speckled with shards and fragments of quartz from relic pegmatite segregations. It displays peculiar,structurally defined zones of surface coloration, blue,green and yellow though generally red in overall color. A fine grained intrusive occurs at the south end, between the sandstone and the regolith. It has a structurally imprinted southwest dipping foliation, almost fissile in places. The regolith outcrops steeply, perhaps up to a height of 10 meters. The flat fault ledge is up to 50 meters across to a scarp 15 meters high. It passes into the lake at approximately 170 meters.

14. Sandstone cross-section mapping [Figures 16,17,18]

In the last few days of the program an attempt was made to map a series of cross-sections from the fault scarp, across the sandstone formation, to the lower valley. The purpose of the exercise was to close and define the actual 'volume' of the formation for interpretive and drilling purposes.

Two cross-sections were completed. The mapping lines were established by 'breaking slope' chain and compass. A third cross-section was measured by pace and compass. There may be some exaggeration of height and length but the elements along the line should be close to being proportionally equal.

The essential features illustrated by the cross-section are summarized as follows;

There is a broad flat between the H.W.outcrop line and the fault scarp i.e. a fault ledge.

The slope of the sandstone formation is symmetrically cut by steps from the outcrop line to the valley floor. These terraces are perfectly flat topped and of the same width, except for a subtle break in slope. The terraced steps increase in height, looking N.N.W. In the first cross-section the steps are about half a meter, in the second the steps rise to one meter and in the third, to almost two meters. On the last sandstone outcropping on the N.N.W. [1100 meters], the steps rise to almost 3 meters as mentioned in section 11.

There is a belt of anastomosing fractures, 30 to 40 meters wide along the extent of the lower outcrop. The dip is variable from 30 to 54 degrees N.E. These fractures are well clay altered or weathered. The fineness of braiding is about 6 to 8 inches. The reverse dip tendency is a field observation as per the dominant fracture angle on the outcrop.

There are other fracture and shear sets imprinted on the outcrop probably related to north, north-east and east-north-east cross-faulting as well as secondary shear and tension compenents within the buckle.

The outcrops occur intermittently along the well-defined terraces. Extensive clusters or concentrations of outcrops occur in fanlike profusions at various elevations on the slope.

The dip of the beds is conformable to the fault plane at 75 degrees but flattens to 55 degrees down the slope. Bedding was difficult to distinquish in the midst of the complex structural imprinting. Crude, poorly sorted conglomerates form the bottom, with a plethora of clastic sandstone and clay matrix beds throughout the upper section. Wilson classified the unit as an overall lithic greywacke.

The most common sandstone occurence is a buff, sandy type that extensively displays narrow [e.g. 1 to 2 inches wide] bands of manganese/ hematite staining. These occur at various orientations and are weakly radiometric on their fracture planes. This sandstone with its characteristic staining can be seen in contact with the regolith on the southeast exposure, along the point of the main outcrop on the beach, within the anastomosed fracture set, and on the extreme north and west limit of the fault graben.

Elevated radiometric readings are particularily concentrated in the intensely hematitized, coarse, 'bottom' conglomerates along the fault ledge. The lower braided fracture belt is clay rich.

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PROPERTY WORK HISTORY

I was able to extract 5 partially complete microfiche recorded assessment reports from the 1968-70 period. The 'histories' noted in these reports are included in this summary. The reports overlap the present property boundaries.

1953 - Goldfields Uranium conducted an extensive drilling program on 'hot' granites along the northern limit of the property in the vicinity of Fishing Creek. References are Lang, Griffith and Steacy G.S.C Series No. 16, p.229 who classify it as 'pitchblende in vein'.

1953 to 1968 - Local rumours of prospecting activity by companies and individuals.

1968 - Athabasca Mining and Exploration conducted a reconnaisance compass and aerial photograph program utilizing a geiger counter and two scintilometers. The survey covered an area,Permit 44, basically north of the present property with an overlap of the northeast quadrant. Thirty rock samples were taken but a record of results is not given.

1969 - Athabasca mining returned and conducted a brief follow-up program involving a helicopter grid survey at tree top level with ground checks of anomalies. As well,in the east quadrant, nine pits were blasted and sampled on five granite-pegmatite outcrops.Limited assay results indicated four pits averaging 0.017 to 0.32 % U308 content. The average was 'likely' 0.10 to 0.115 % U308 with some difficulty in assay processes [see appendix - Westbury report]. The area was taken to lease [designated Lease 44] and apparently optioned to North Canadian Oils whose consultant, Hale registered the radioactive occurence in 1970 with the Atomic Energy Commission because the average grade of the deposit exceeded 0.05 % U308.

1969 - North Canadian Oils obtained, among other permits, Permit 104. This permit extended along the north shore of Lake Athabasca from Lapworth Point, west of Fidler Point,and then east to the Saskatchewan border. It overlapped the southern half and northeast quarter of the present property. A helicopter Gamma Ray Spectrometer Survey was flown over the area by Rover Exploration Services of Calgary under the direction of J.T.Cooke P.Geol. Numerous radioactive anomalies were indicated within the present property area. The anomalies, which tended to occur as 'clusters',were assumed to be attributed primarily to pegmatitic granite grading to gneissic granite and pegmatitic gneiss outcroppings. One anomaly, 104a, was found to be associated with an inlier remnant of schist or phyllite within a pegmatitic granite [J. Cooke 1969].In places, rock sampling was carried out on the ground by Cooke and the east quadrant, nine pits were blasted and sampled on five granite-pegmatite outcrops.Limited assay results indicated four pits averaging 0.017 to 0.32 % U308 content. The average was 'likely' 0.10 to 0.115 % U308 with some difficulty in assay processes [see appendix - Westbury report]. The area was taken to lease [designated Lease 44] and apparently optioned to North Canadian Oils whose consultant, Hale registered the radioactive occurence in 1970 with the Atomic Energy Commission because the average grade of the deposit exceeded 0.05 % U308.

1969 - North Canadian Oils obtained, among other permits, Permit 104. This permit extended along the north shore of Lake Athabasca from Lapworth Point, west of Fidler Point,and then east to the Saskatchewan border. It overlapped the southern half and northeast quarter of the present property. A helicopter Gamma Ray Spectrometer Survey was flown over the area by Rover Exploration Services of Calgary under the direction of J.T.Cooke P.Geol. Numerous radioactive anomalies were indicated within the present property area. The anomalies, which tended to occur as 'clusters',were assumed to be attributed primarily to pegmatitic granite grading to gneissic granite and pegmatitic gneiss outcroppings. One anomaly, 104a, was found to be associated with an inlier remnant of schist or phyllite within a pegmatitic granite [J. Cooke 1969].In places, rock sampling was carried out on the ground by Cooke and the Northern Canadian geological consultant, J.D. Hale. The relevant property assays are attatched in the appendix [1969-70]. In the last statement of his conclusions Cooke doesn't rule out the possibility of recessive and non-radiometrically responsive veins being present in the area.

1970 - J.D. Hale returned for a brief compass traverse follow-up on Permit 104 on behalf of North Canadian Oils. He did not make any formal recommendations or conclusions on the Fidler area other than general comments in his text and to identify it as one of two signifigant areas of radioactivity within a very large area of investigation.

1970 - in the same year Unity Resources conducted a brief ground 'follow up' program on Permit 125 which overlaps the northwest quadrant of the present property. Their geologist, R.X. Netolitsky P.Geol., refers to a lost report by Rich and Creig [April 14,1969] which recommends that Summit Oils Ltd. conduct an airborne scintillometer survey of their mineral permits. The Rich and Creig reports cover an area west and south of the Fidler area. The survey was done by Geo-X Surveys Limited of Vancouver and a 'follow-up' program was recommended by K.W. Campbell which for some reason was carried out by Unity Resources. The survey results for Permit 125 are missing except that it is referred to in Netolitsky's summary report which is included in the appendix. In his sixth conclusion, Netolitsky refers to the amount of anomalous radioactivity in the area being favourable but there was a lack of obvious defining structure [except north of Big Bay in the Fidler Area]. However,in his fifth and seventh conclusions he, like Cooke, doesn't rule out the possibility of recessive ore structure.

1970 to 1994 - no record of activity.

1994 - As part of the Canada-Alberta Agreement on Mineral Development (1992-1995) the Geological Survey of Canada conducted a comprehensive lake sediment and water geochemical reconnaissance program over the N.E. segment of the Canadian Shield. It was primarily on the basis of an in-depth analysis of this program, Open File 2856, that the writer chose this area for permitting.

1997 - the writer obtained the permit,Metallic and Industrial Minerals Permit No. 9397020001,that covers the present property. Comprehensive research report prepared by Mine-Geo Research Inc., labelled Fidler Point Gold-Uranium Property and dated August 1,1997.

1998 - Mine-Geo Research Inc. conducted a geological reconnaissance program on behalf of Consolidated Pine Channel Gold Ltd.

The Immediate Regional Work History

1978 - Uranerz Exploration and Mining Ltd. conducted an extensive exploration and drilling program in the vicinities of Greywillow and Fallingsand Points just inside the Alberta border,north of Fidler Point.

1978 - Flin-Flon Mines Limited conducted a limited drilling program on Burntwood Island, south of Fidler Point.

1978 - On the south shore, Golden Eagle Oil and Gas conducted programs at Stone Point and Jackfish Creek. Further to the south, Esso Minerals Canada Limited conducted a program near Old Fort Bay.

1978 - Chevron Oil and Gas Limited conducted a program around Agar Lake.

1981 - Norcen Energy Resources Limited conducted a program on the Alberta-Sask. border,exploring a sandstone outlier south of Griffith Creek and east of Burstall Lake, back up the N.E.belt from Fidler.

1984 - Uranerz Exploration and Mining Ltd. commenced a program in the Barber Lake area within the Athabasca Formation to the south.

At the present time a number of companies hold dispositions in the general region.

Alberta
ENERGY

MA-1

Mineral Operations Division

METALLIC AND INDUSTRIAL MINERALS PERMIT NO. 9397020001

Date of Issue: **February 19, 1997**

Term Commencement Date: **February 18, 1997**

In this Permit:

(a) "Date of Issue" means the date shown above as the Date of Issue;

(b) "Location" means the tract or tracts of land described under the heading "Description of Location" in the Appendix to this Permit;

(c) "Metallic and Industrial Minerals" means the minerals described under the heading "Permitted Substances" in the Appendix to this Permit;

(d) "Permit Holder means

DONALD LAWRENCE DICK

(e) "Term Commencement Date" means the date shown above as the Term Commencement Date.

(f) a reference in this Permit to the Mines and Minerals Act or to any other Act of the Legislature of Alberta shall be construed as a reference to

(i) that Act, as amended from time to time,

(ii) any replacement of all or part of that Act from time to time enacted by the Legislature, as amended from time to time, and

(iii) any regulations, orders, directives, by-laws or subordinate legislation from time to time made under any enactment referred to in clause (a) or (b), as amended from time to time.

This Permit grants to the Permit Holder the right to explore for Metallic and Industrial Minerals that are the property of the Crown in right of Alberta in the Location subject to the following terms and conditions:

1. The Permit Holder shall comply with all provisions of the Mines and Minerals Act that pertain or relate to Metallic and Industrial Minerals Permits and those provisions shall be deemed to be incorporated into and to form part of this Permit.

2. Nothing in this Permit shall be construed as removing the necessity to obtain, in relation to the conduct of exploration on the Location, a right of entry, user and taking of the surface of the Location or an exploration approval for the conduct of the exploration, if such a right of entry or exploration approval is required by the Mines and Minerals Act or by any other Act of the Legislature of Alberta.

3. (1) The Permit Holder shall comply with

   (a) the provisions of the Mines and Minerals Act that relate to, apply to or affect the rights and obligations of a holder of metallic and industrial minerals rights that are the property of Her Majesty, or that relate to, apply or affect the Permit Holder in the conduct of its operations or activities under this Permit, and

   (b) the provisions of any other Act of the Legislature of Alberta relating to, applying to or affecting the rights and obligations of holders of metallic and industrial minerals rights that are the property of Her Majesty, or relating to, applying to or affecting the Permit Holder in the conduct of its operations or activities under this Permit.

   (2) The provisions of the Acts and regulations referred to in section 3(1) of this Agreement shall be deemed to be incorporated into and to form part of this Permit.

   (3) In the event of conflict between a provision of this Permit and a provision of an Act referred to in section 3(1) of this Agreement, the provision of the Act prevails.

4. This Permit is subject to the special provisions, if any, contained in the Appendix to this Permit.

[signature]

FOR THE MINISTER OF ENERGY
ON BEHALF OF HER MAJESTY

Alberta
ENERGY

Phone: (403) 427-7707
Fax: (403) 422-0382

Petroleum Plaza - North Tower
9945 - 108 Street
Edmonton, Alberta
Canada T5K 2G6

File No.

December 22, 1998

Donald L. Dick
c/o Mine-Geo Research Inc.
P.O. Box 136
Abernethy, Saskatchewan S0A 0A0

Dear Mr. Dick:

Re: **Metallic and Industrial Minerals Permit No. 9397020001**

In follow-up to our recent telephone conversations regarding Fidler Point.

A portion of your metallic mineral application contained lands within a Special Places candidate site. These lands were excluded from permit no. 9397020001 as minerals within candidate sites are reserved from disposition. The Minister of Environmental Protection subsequently designated the Fidler-Greywillow Wildland Park in March 1998. This park encompasses the original candidate site and additional lands, some of which were granted in your permit. I have enclosed a map indicating the boundaries of the park.

You should note the draft Natural Heritage Act states "no new sub-surface dispositions for coal mining or quarriable extraction will be approved in wildland parks. Existing commitments will be honored and reasonable access provided to determine the potential of these resources. If the lessee should wish to proceed to development, a new mine would be reviewed through existing regulatory processes and if approved, the area would be deleted from the park."

As a portion of your permit predates the approval of the wildland park, you are eligible to fulfill your commitments of the metallic and industrial minerals permit. No new agreements for coal or quarriable extraction will be granted in wildland parks.

...2

I hope this addresses your concerns. If you have further questions please contact Claire Foulds, Mineral Access and Geology, Department of Energy, telephone: (403) 427-9467.

Yours truly,

Hazel Henson

Hazel Henson
Agreements Administrator
Mineral Agreements

/kjd
Enclosure

APPENDIX

TO

METALLIC AND INDUSTRIAL MINERALS PERMIT NO. 9397020001

COMMENCEMENT OF TERM:

1997 FEBRUARY 18

AGGREGATE AREA:

8 009 HECTARES

DESCRIPTION OF LOCATION:

4-03-116: 31;32;33W,SEP
PORTION(S) LYING SOUTH AND WEST OF THE BANK OF LAKE ATHABASCA.
4-03-117: 2N,SW;3-30

PERMITTED SUBSTANCES:

METALLIC AND INDUSTRIAL MINERALS

SPECIAL PROVISIONS:

NIL

Donald Laurence Dick B.Sc. - Mine-Geo Research Inc.

My resume encompasses approximately 30 years of diverse geological experience including several years of senior staff responsibility in both mining and exploration geology, from grass-roots to production.

Overall, my tendency has been to seek new areas of geological endeavor, carrying the experience from one area to another. This has enabled me to develop unique and original analytic approaches to the problems inherent in economic geology.

My academic specialization involves the definition and evaluation of vein fracture systems as they relate to regional structure and have guest lectured in graduate studies on the subject at McGill University and the University of Saskatchewan.

My professional expertise has developed and evolved from my extensive industrial experience and through intensive personal research into the controls of ore deposition and the related economics. Because this subject involves fundamental aspects of mining, exploration and corporate geology, my expertise includes;

Mining Geology - (1) Complex ore zone interpretation at the production, development or exploration stage, (2) Ore reserve analysis, (3) MIne and property evaluation, (4) Grade control theory, (5) Underground and surface drill strategy and (6) Management consultation of development, exploration and re-activation programs.

Exploration Geology - (1) Integrated regional OEX programs, (2) Target selection and (3) District exploration models of mining camp ore inter-relationships involving hydrothermal, economic and geological models.

Corporate Geology - (1) Underground and surface feasibility studies including ramp, adit, raise and shaft sinking activities (2) Establishment of mine geological standards (3) Staff development, (4) Production trouble shooting, (5) Conceptual corporate planning and (6) Innovative unit cost analysis.

BACKGROUND

Consulting Geologist Based in Vancouver area, BC, September 1983 to present.
President Vancouver-based Mining Subsidiary of an International Oil and Gas Consulting Group - The D & S Group of Calgary - November 1981 to September 1983.

Chief Geologist and Manager Bema Geological Group, Langley, BC, March 1981 to November 1981.

Senior Staff Geologist Pan Ocean-Marathon Oil Co. Ltd., Calagary, AB, April 1980 to March 1981.

District Chief Geologist Eldorado Nuclear Ltd., Eldorado, SK, May 1973 to April 1980.

Project Geologist Giant Mascot Mines Ltd., Vancouver, BC, June 1972 to January 1973.

Junior Geologist Giant Mascot Mines Ltd., Vancouver, BC, May 1968 to March 1970.

Field Draftsman Anvil Mining Corp., Faro, Yukon, June 1967 to December 1967.

Field Expeditor Anvil Mining Corp., Faro, Yukon, April 1966 to September 1967.

Geologist Assistant Noranda Mines, Manitouwadge, ON, April 1964 to September 1963.

University of Saskatchewan, B.Sc. 1972 Night School: Spanish

ICP package 6.9 (Boron)

1. A 0.100 portion of the pulp is fused with Na_2O_2 and the resulting fusion dissolved in dilute HNO_3.
2. The resulting solution is analyzed by ICP for Boron.

Precious Metals Assaying 7.2

The samples in question were not assayed for precious metals but we have included the method as requested.

Gold Assaying

1. A 30 g portion of the pulp is fire assayed using typical standard fire assaying procedures with a silver inquart.
2. The dore bead is parted in hot dilute HNO_3 to remove the silver inquart.
3. The residual gold is dissolved in hot aqua regia and diluted to volume with deionized water.
4. The resulting solution is analyzed by either axial ICP, flame Atomic Absorption or weighed gravimetrically according to client instructions and /or the quantity of gold present in the sample.

Equipment

Crusher	Rhino TM Engineering
Grinder	Seibtechnik Germany
ICP6.3	Perkin Elmer Optima 3000 DV
ICP6.9	Thermo Jarrel Ash Axial Trace Scan

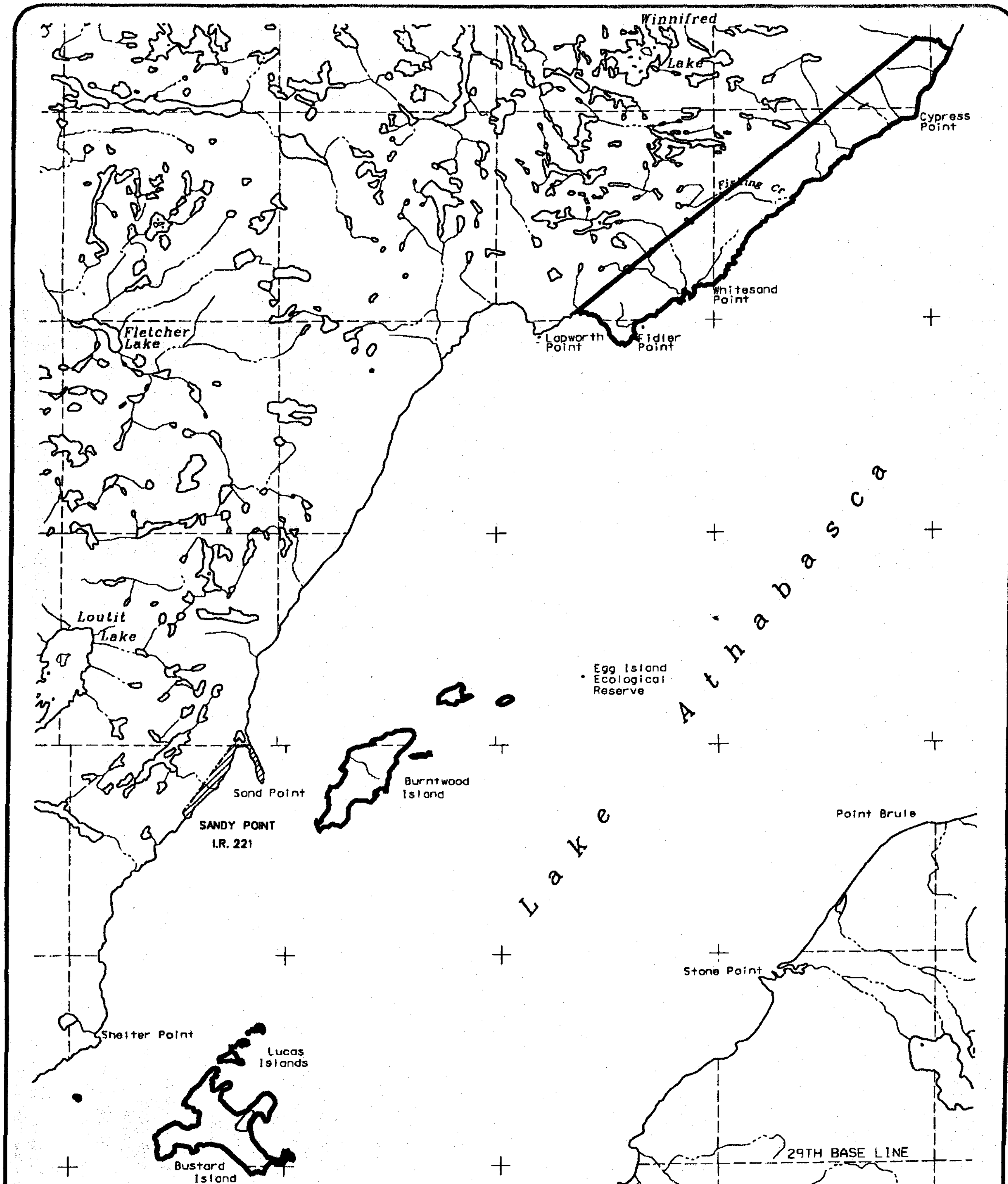
Quality Control

Refer to section 2.6 in our fee schedule.

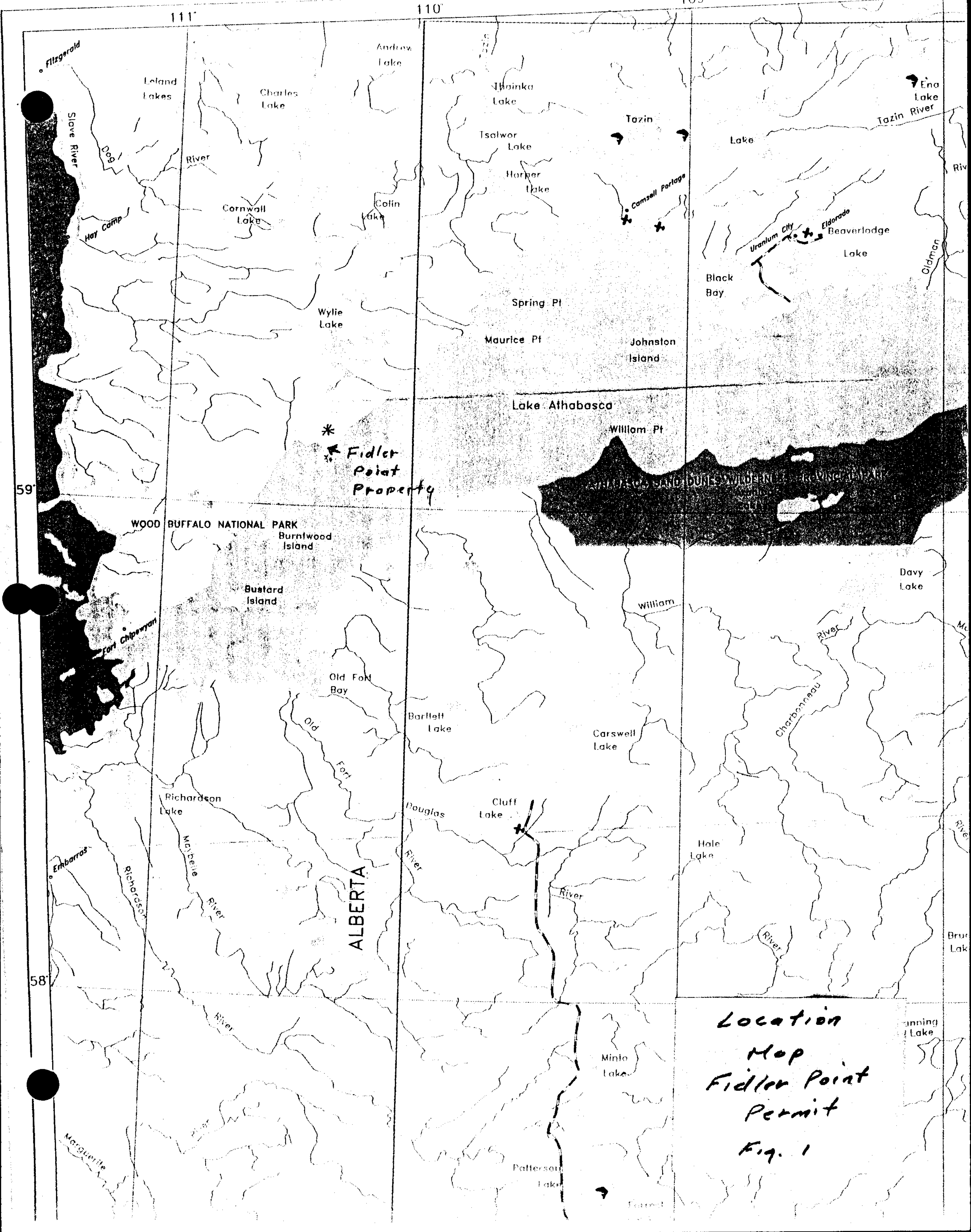
Saskatchewan Research Council Geoanalytical Services
125-15 Innovation Blvd., Saskatoon, SK., S7N 2X8
Phone:306-933-5426 Fax:306-933-5656

M649 HOFFMAN JNR OCTOBER 5/98 (1) [FIRE ASSAY]
1 Au ppb FIRE ASSAY ICP JNR98.86
2
3
4
5
6
7
8
9

	Au
1828	70



Area 16,112.46 Ac. 6,520.63 Ha	**DEPARTMENT OF ENVIRONMENTAL PROTECTION** **Recreation and Protected Areas Division**	Scale 1:250 000
O.C. Number 101/98	PLAN SHOWING **FIDLER-GREYWILLOW**	Date Jan. 15, 1998
Graphic File FIDLGREY	WILDLAND PROVINCIAL PARK IN PARTS TWPS. 112-118; RGES. 1-5 WEST OF THE 4TH MERIDIAN	Drawn by LAC
Remarks PLAN No. P0372 GEN.	PARK BOUNDARY SHOWN THUS ━━━	Digital data: 1:250 000 74L, 74M Supplied by Resource Data Division, 1997 NAD 83


111°
110°
109°
59°
58°
Fitzgerald
Leland Lakes
Charles Lake
Andrew Lake
Thainka Lake
Tazin Lake
Ena Lake
Tazin River
Slave River
Dog River
Tsalwor Lake
Harper Lake
Camsell Portage
Cornwall Lake
Colin Lake
Hay Camp
Uranium City
Eldorado
Beaverlodge Lake
Oldman
Black Bay
Spring Pt
Wylie Lake
Maurice Pt
Johnston Island
Lake Athabasca
William Pt
Fidler Point Property
WOOD BUFFALO NATIONAL PARK
Burntwood Island
Bustard Island
Fort Chipewyan
Davy Lake
William River
Old Fort Bay
Bartlett Lake
Old Fort River
Carswell Lake
Charbonneau
Richardson Lake
Cluff Lake
Douglas River
Embarras
Richardson
Maybelle River
ALBERTA
Hale Lake
Minto Lake
Patterson Lake
Marguerite
Location Map
Fidler Point Permit
Fig. 1

G.S.C. Geological Map of Canada

Douglas (1967)

1:5,000,000

Fig. 2

Spencer (1969)
"Introduction
to Structure
of the Earth"

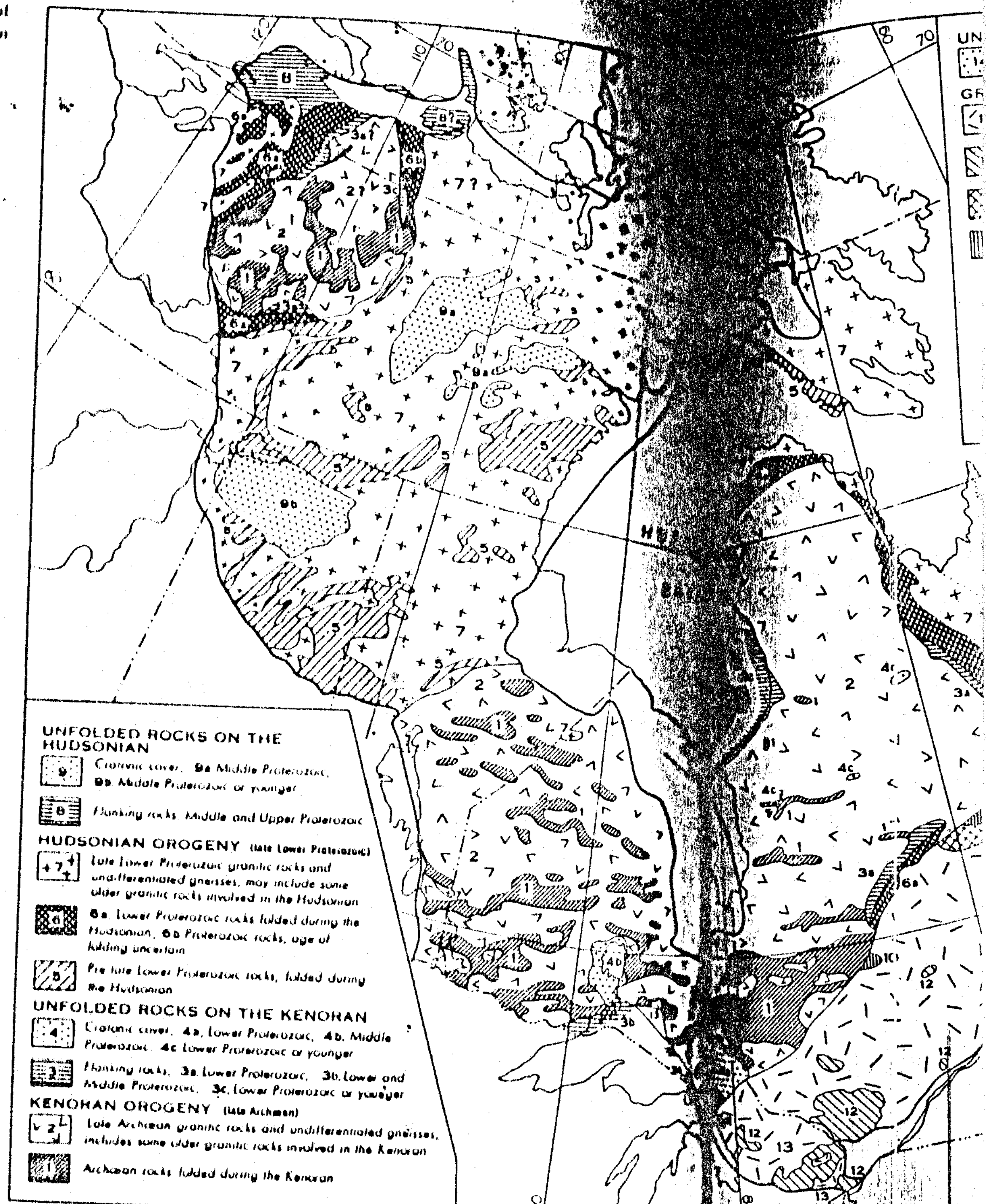
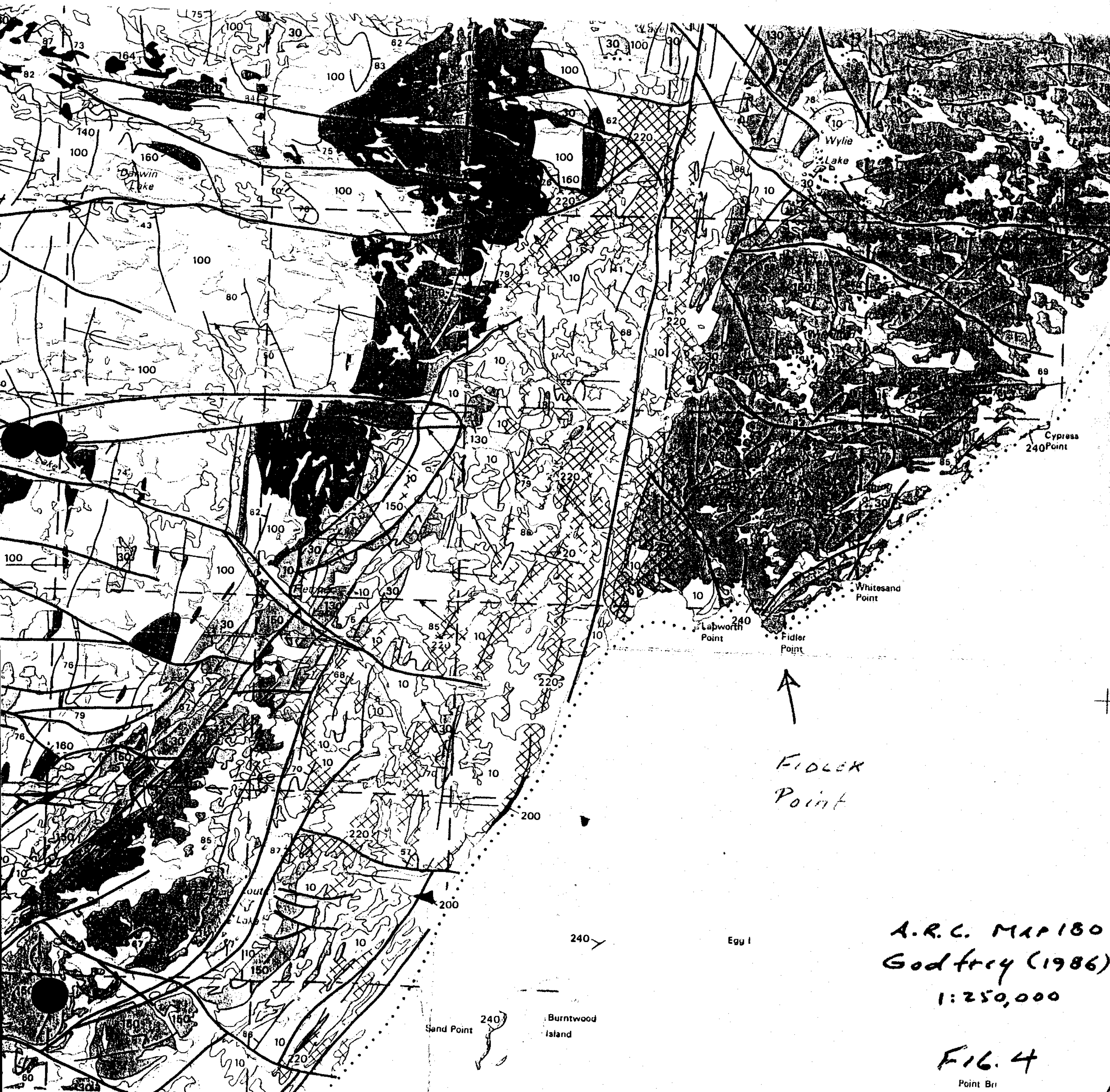
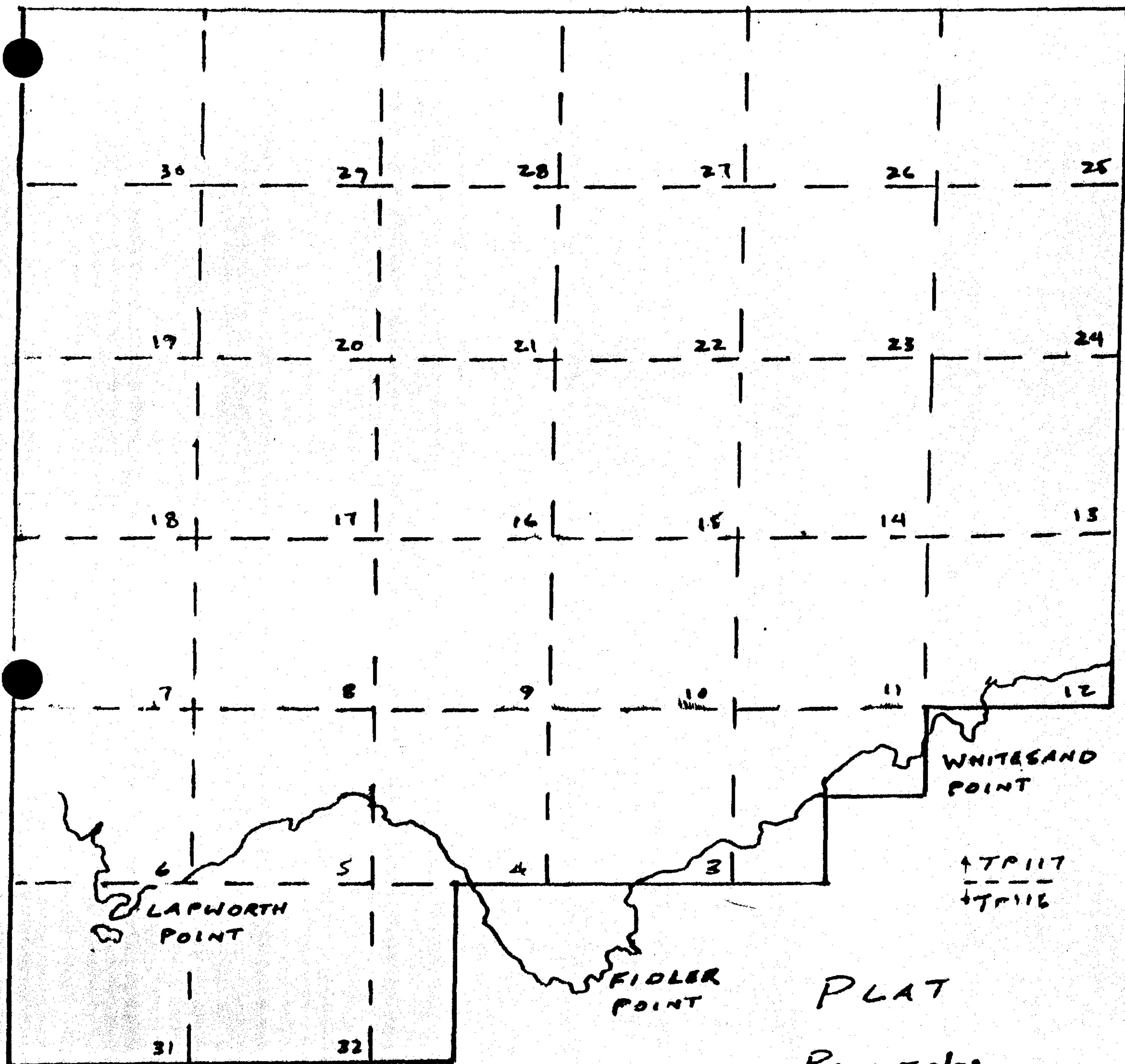


Fig. 11-4 Tectonic map of the Canadian shield. (*From Stockwell, 1962.*)



A.R.C. Map 180
Godfrey (1986)
1:250,000

FIG. 4



PLAT

Permit No:
939702001

1:100,000

4-03-116 31; 32; 33W SEP
4-03-117 2N, SW; 3-30

FIG. 4

Uranium-INAA
in
Lake Sediment

ppm		percentile
153.0 -	○	- Max
66.2 -	○	- 98
36.0 -	□	- 95
18.0 -	□	- 90
5.9 -	△	- 75
3.1 -	+	- 50
< detection -		- Min

1160 Samples

GEOLOGICAL SURVEY OF CANADA — COMMISSION GÉOLOGIQUE DU CANADA

NATIONAL GEOCHEMICAL RECONNAISSANCE

G.S.C. Open File 2858 & 2856

Saskatchewan, 1994

NTS 74N and 74O

COMPOSITE

O.F. 2858 & O.F. 2856

U-INAA

D. DICK.

Uranium-INAA
in
Lake Sediment

ppm		percentile
989.0 -	○	- Max
273.0 -	○	- 98
146.0 -	□	- 95
79.3 -	□	- 90
29.1 -	△	- 75
10.0 -	+	- 50
0.8 -		- Min

1139 Samples

Fig.

UTM Projection, Zones 12 and 13

Kilometres 20 0 20 Kilometres

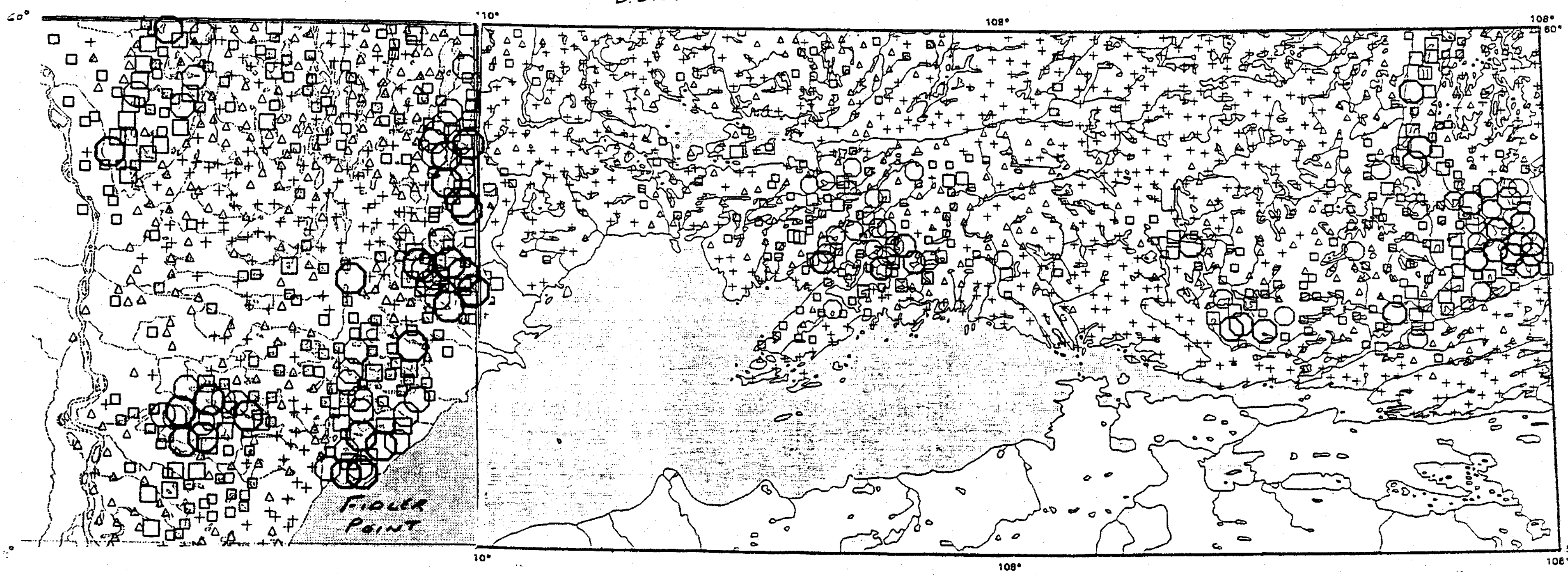
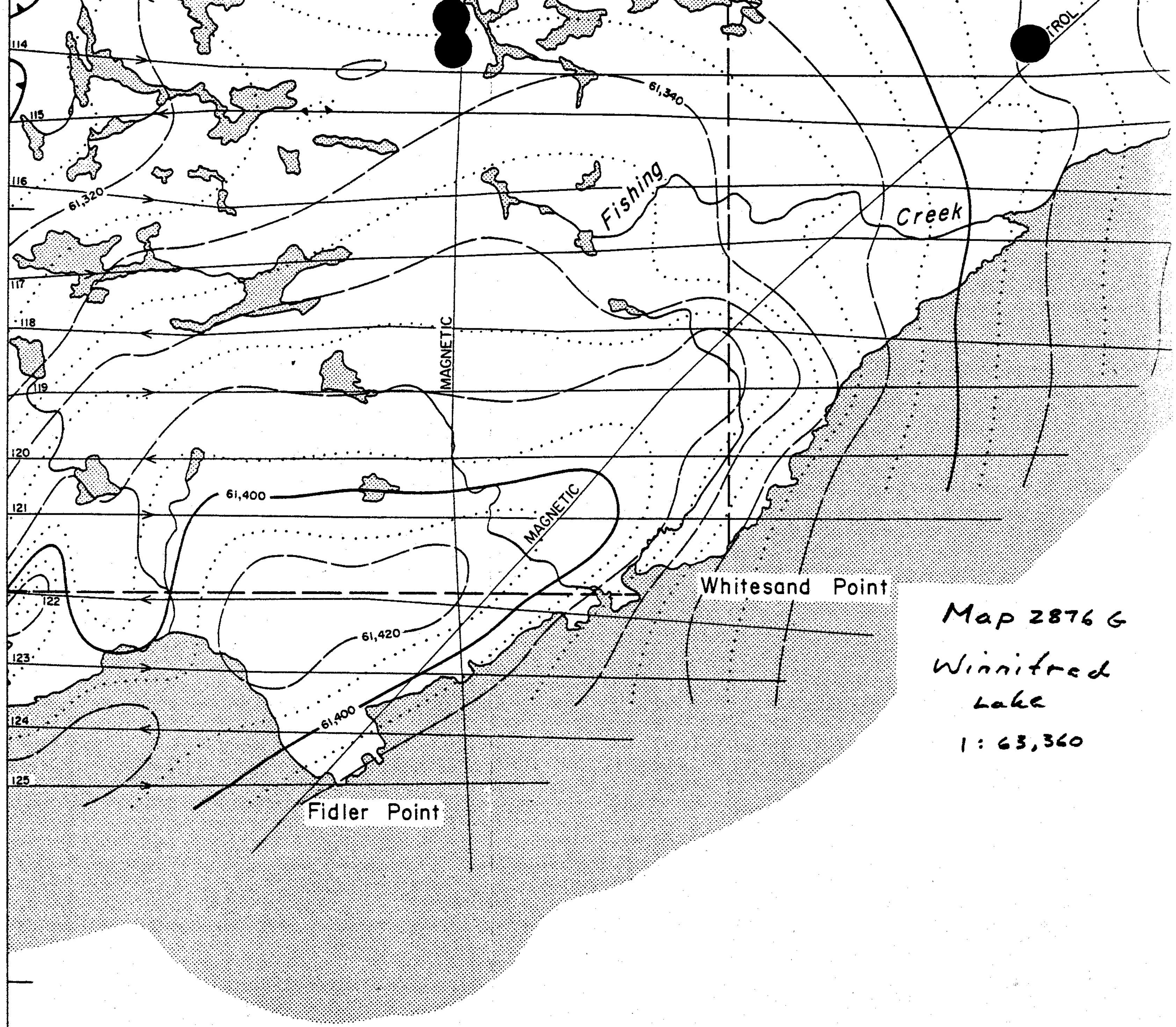


Fig. 5

T117

10'

Joins Map 2877G, "Fletcher Lake"



Map 2876 G

Winnifred Lake

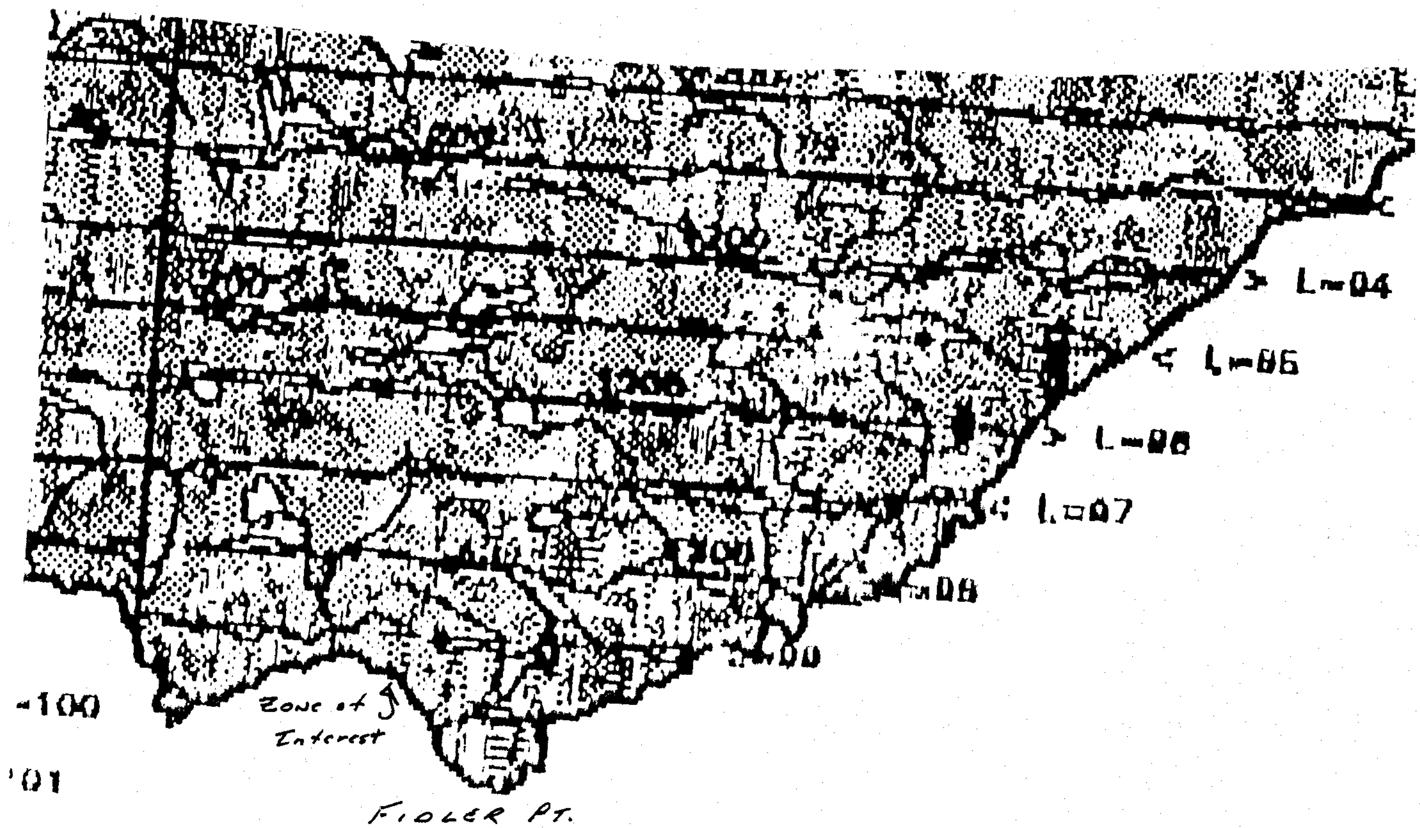
1 : 63,360

Fig.

T116

05'

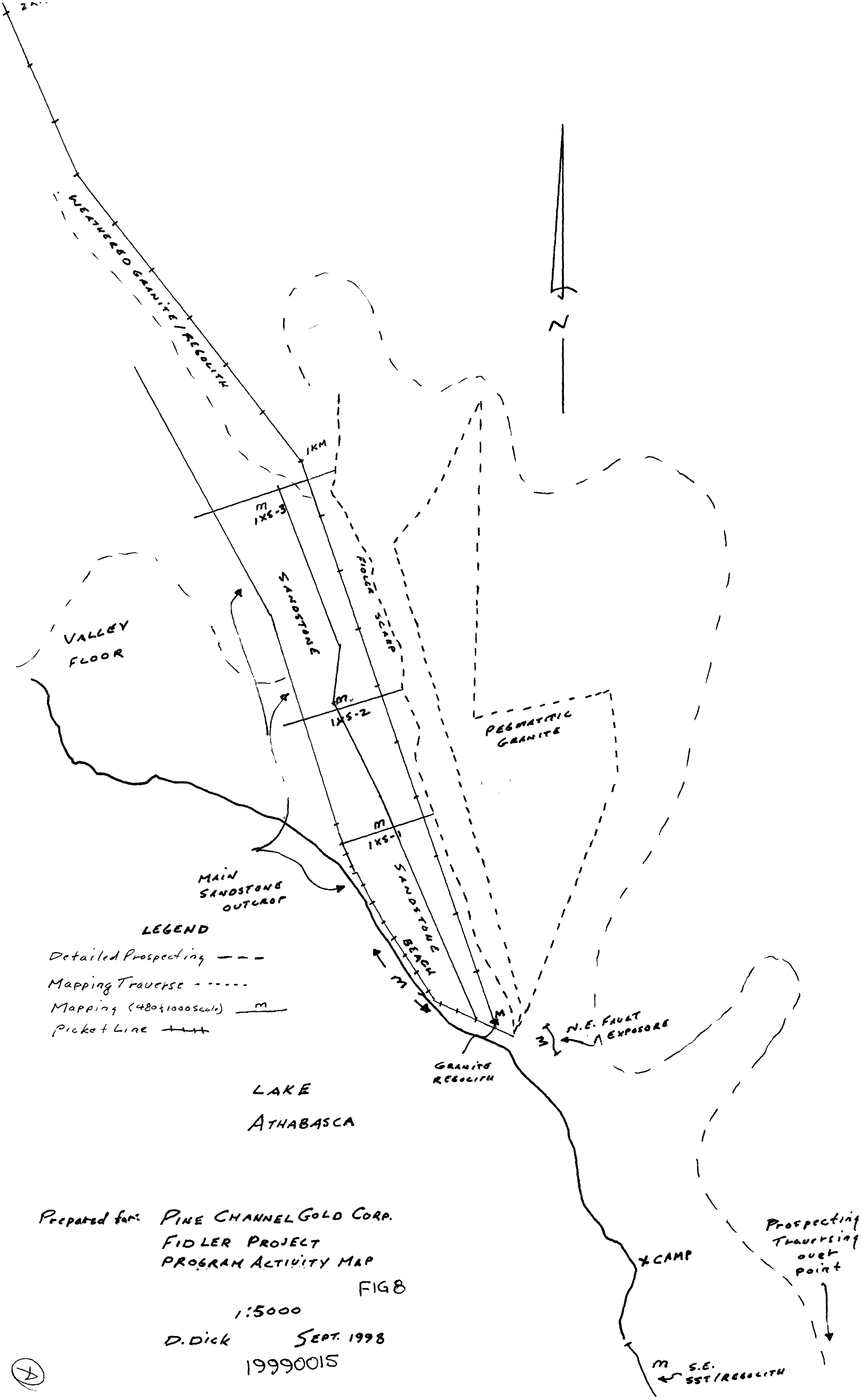
Fig. 6



GEOLOGICAL SURVEY OF CANADA

GC

Fig. 7



Prepared for: PINE CHANNEL GOLD CORP.
FIDLER PROJECT
PROGRAM ACTIVITY MAP
FIG 8
1:5000
D. DICK SEPT. 1998
19990015

NTS 74M/1

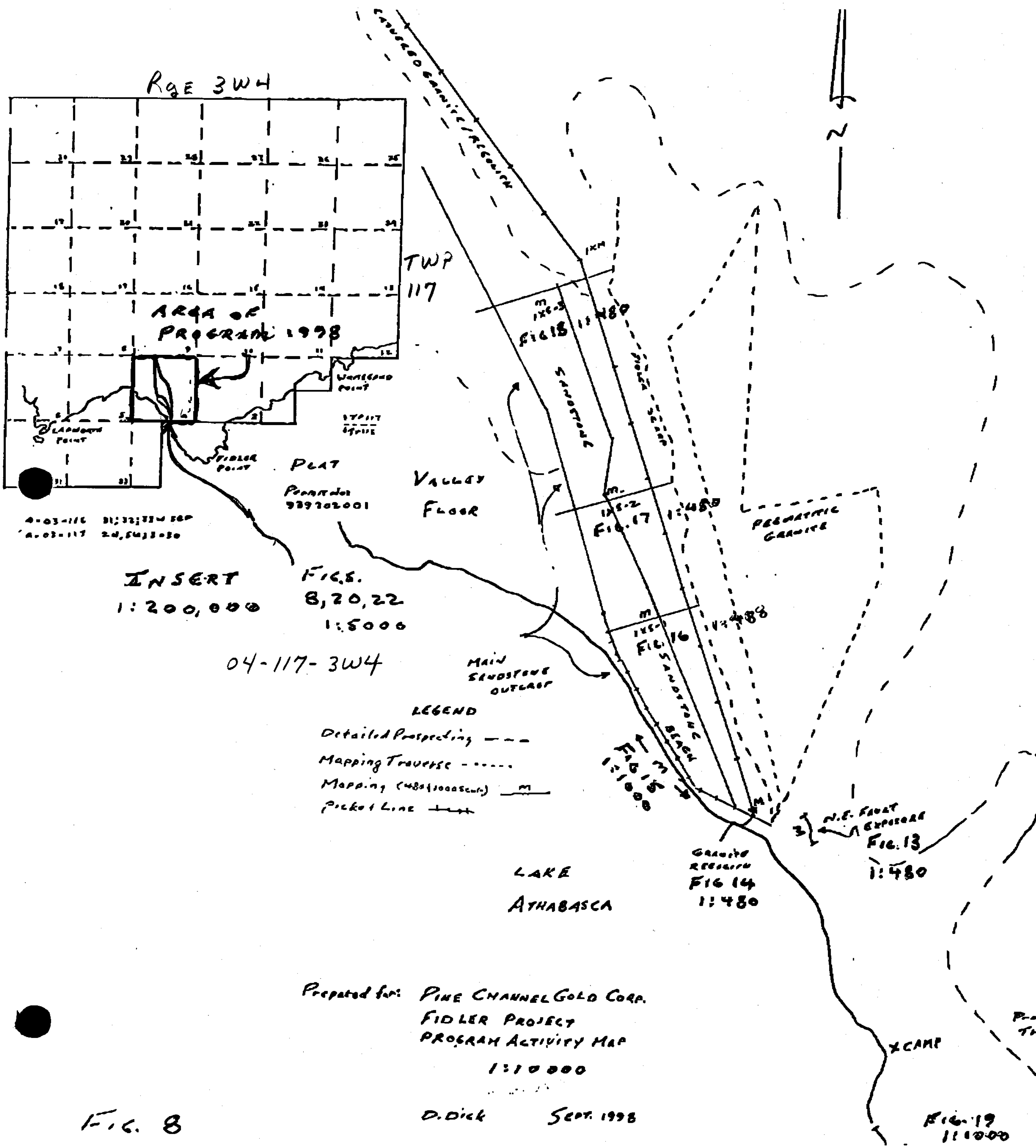


FIG. 8

LEGEND

Outcrop Trace

Fault [observed]

Fault [inferred]

Shear [local]

Joint/fracture

Anastomosing Fracture

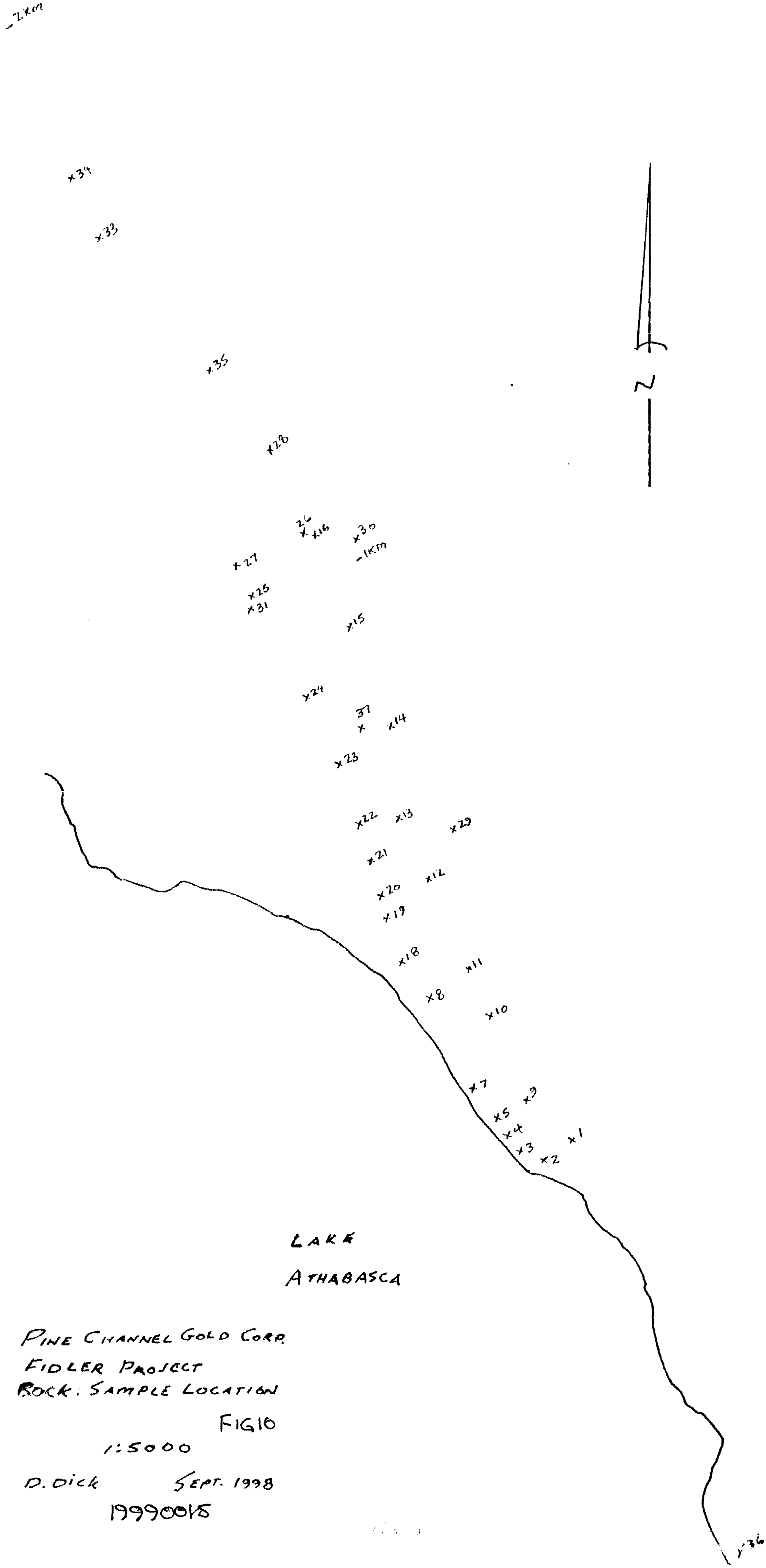
Bedding

Lineation

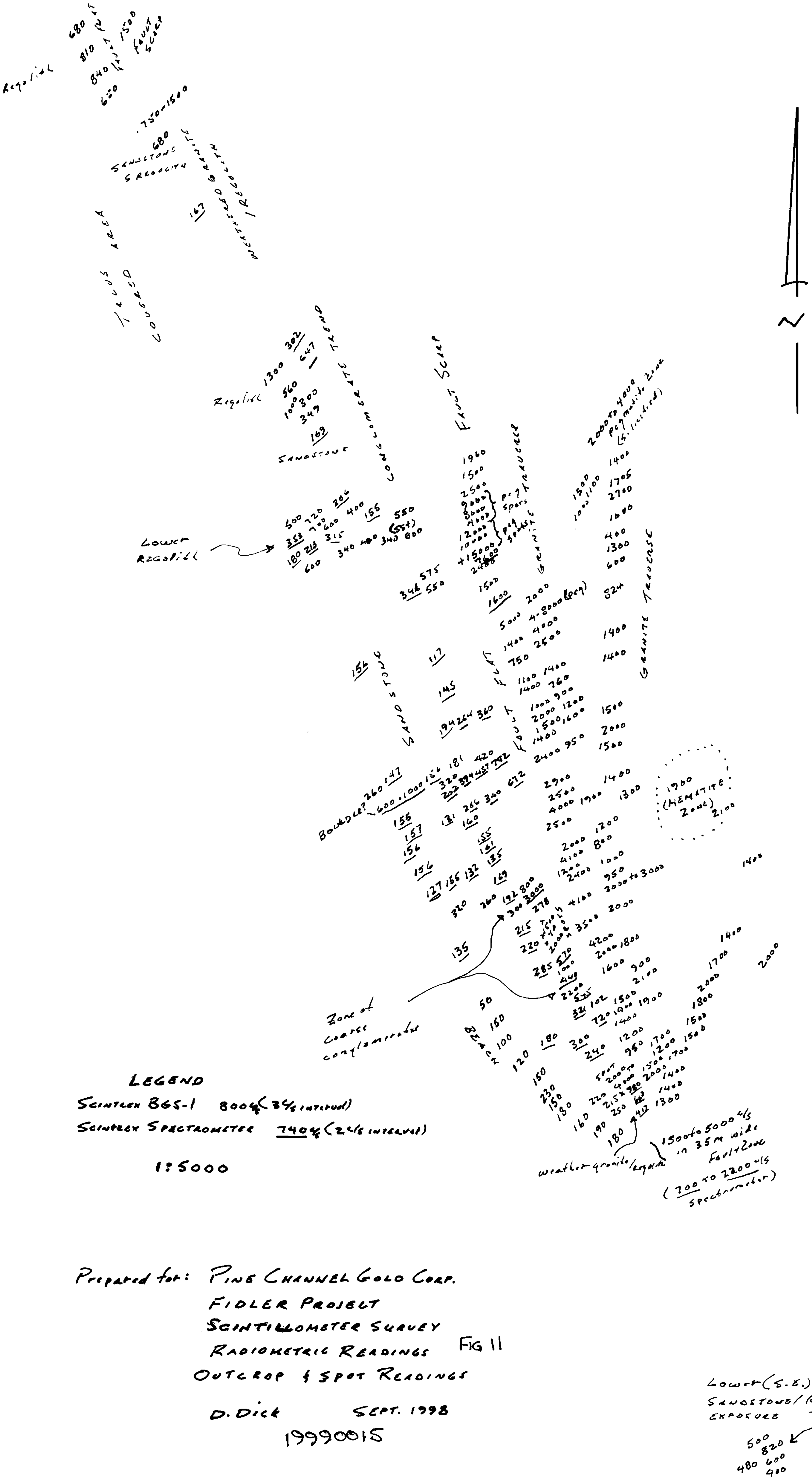
Abbreviations

peg.bio.gr. ...pegmatitic biotite granite
sst............sandstone
cgl. ....conglomerate
WG/R ....weathered granite/regolith
Qtz. ....quartz
o/c ....outcrop
c/s..............counts per second

FIG. 9



Prepared for: PINE CHANNEL GOLD CORP.
FIDLER PROJECT
ROCK: SAMPLE LOCATION
FIG16
1:5000
D. DICK SEPT. 1998
19990015



LEGEND

Scintrex BGS-1 800c/s (3c/s interval)

Scintrex Spectrometer 740c/s (2c/s interval)

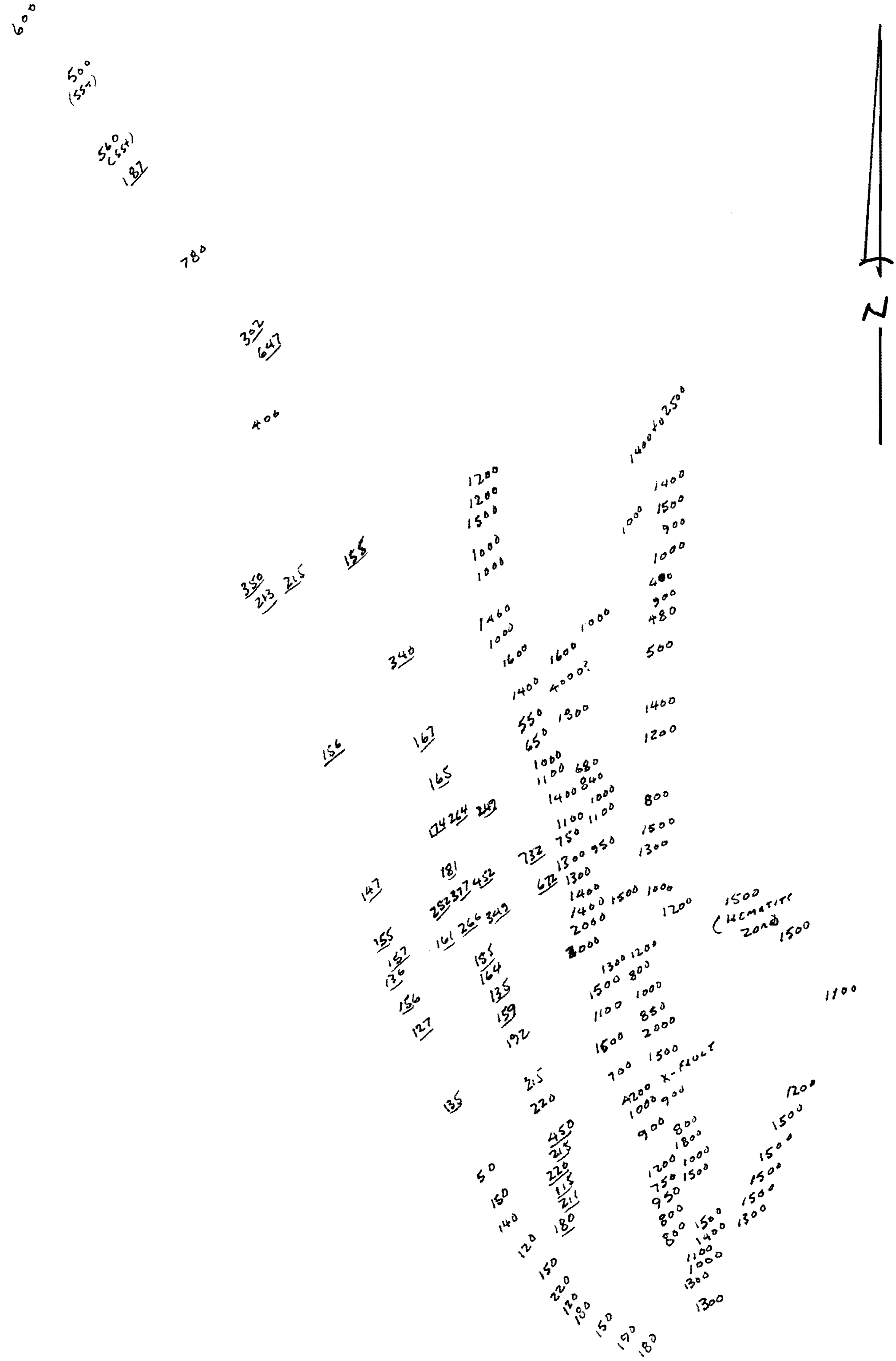
1:5000

Prepared for: Pine Channel Gold Corp.
Fidler Project
Scintillometer Survey
Radiometric Readings
Outcrop & Spot Readings

FIG 11

D. Dick   Sept. 1998

19990015



LEGEND

SCINTREX BGS-1 800c/s (34/s interval)

SCINTREX SPECTROMETER 740c/s (2c/s interval)

1:5000

Prepared for: PINE CHANNEL GOLD CORP.

FIDLER PROJECT

SCINTILLOMETER SURVEY

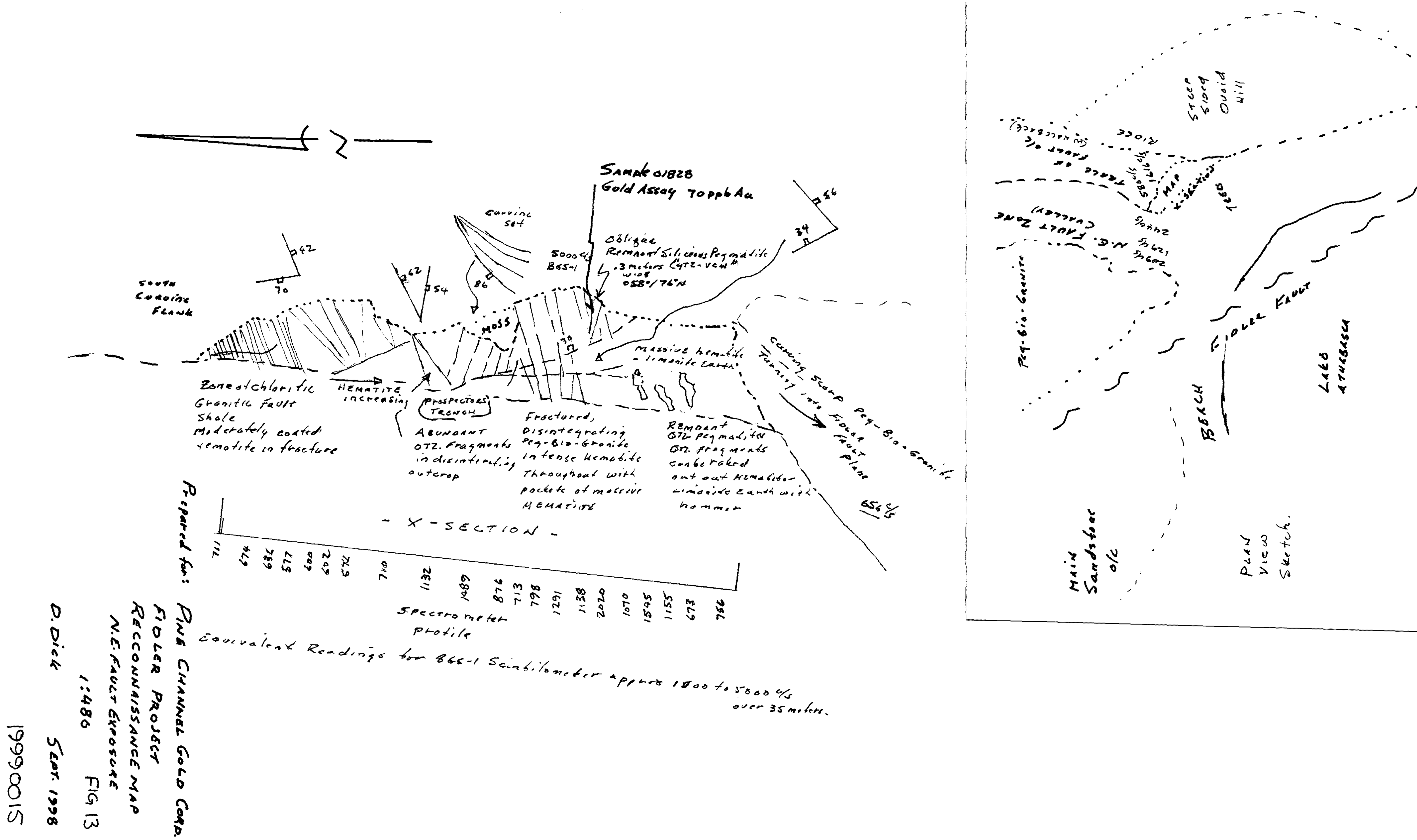
RADIOMETRIC READINGS

BACKGROUND

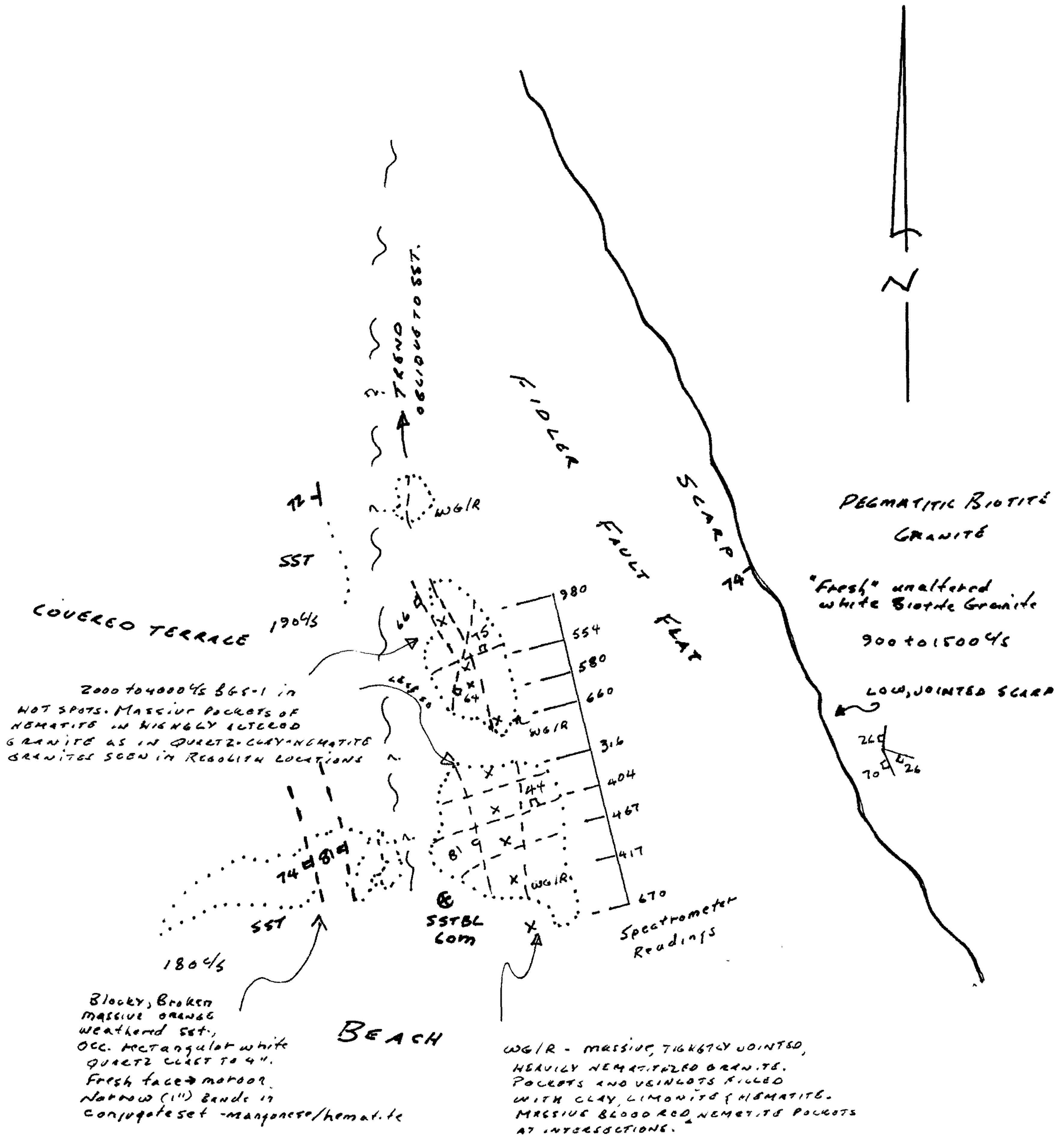
FIG 12

D. DICK SEPT. 1998

19990015



Sample 01828
Gold Assay 70ppb Au
Curving set
South Curving Flank
42
70
62
54
86
Moss
5000 c/s
BGS-1
Oblique
Remnant Siliceous Pegmatite
.3 meters QTZ-vein
058°/76°N
34
56
massive hematite - limonite earth
Curving Scarp Peg-Bio-Granite
Turning into Fidler Fault plane
656 c/s
Zone of chloritic Granitic Fault Shale
Moderately coated hematite in fracture
Hematite increasing
Prospectors' Trench
Abundant QTZ. fragments in disintegrating outcrop
Fractured, Disintegrating Peg-Bio-Granite
Intense hematite throughout with pockets of massive Hematite
Remnant QTZ pegmatites
QTZ. fragments can be raked out out hematite-limonite earth with hammer
- X-SECTION -
711 674 687 577 600 602 672 710 1132 1489 876 713 798 1291 1138 2020 1070 1545 1155 673 786
Spectrometer profile
Equivalent Readings for BGS-1 Scintilometer approx 1000 to 5000 c/s over 35 meters.
Steep sided Ovoid Hill
Ridge
Trace of Fault o/c
5800 c/s
Map X-section
1880
N.E. Fault Zone (Valley)
2244 c/s
1291 c/s
2092 c/s
Peg-Bio-Granite
Fidler Fault
Lake Athabasca
Beach
Main Sandstone o/c
Plan View Sketch
Prepared for: Pine Channel Gold Corp.
Fidler Project
Reconnaissance Map
N.E. Fault Exposure
1:480
FIG 13
D. Dick
Sept. 1998
19990015



Prepared for: PINE CHANNEL GOLD CORP.

FIDLER PROJECT

DETAIL GEOLOGY MAP FIG 14

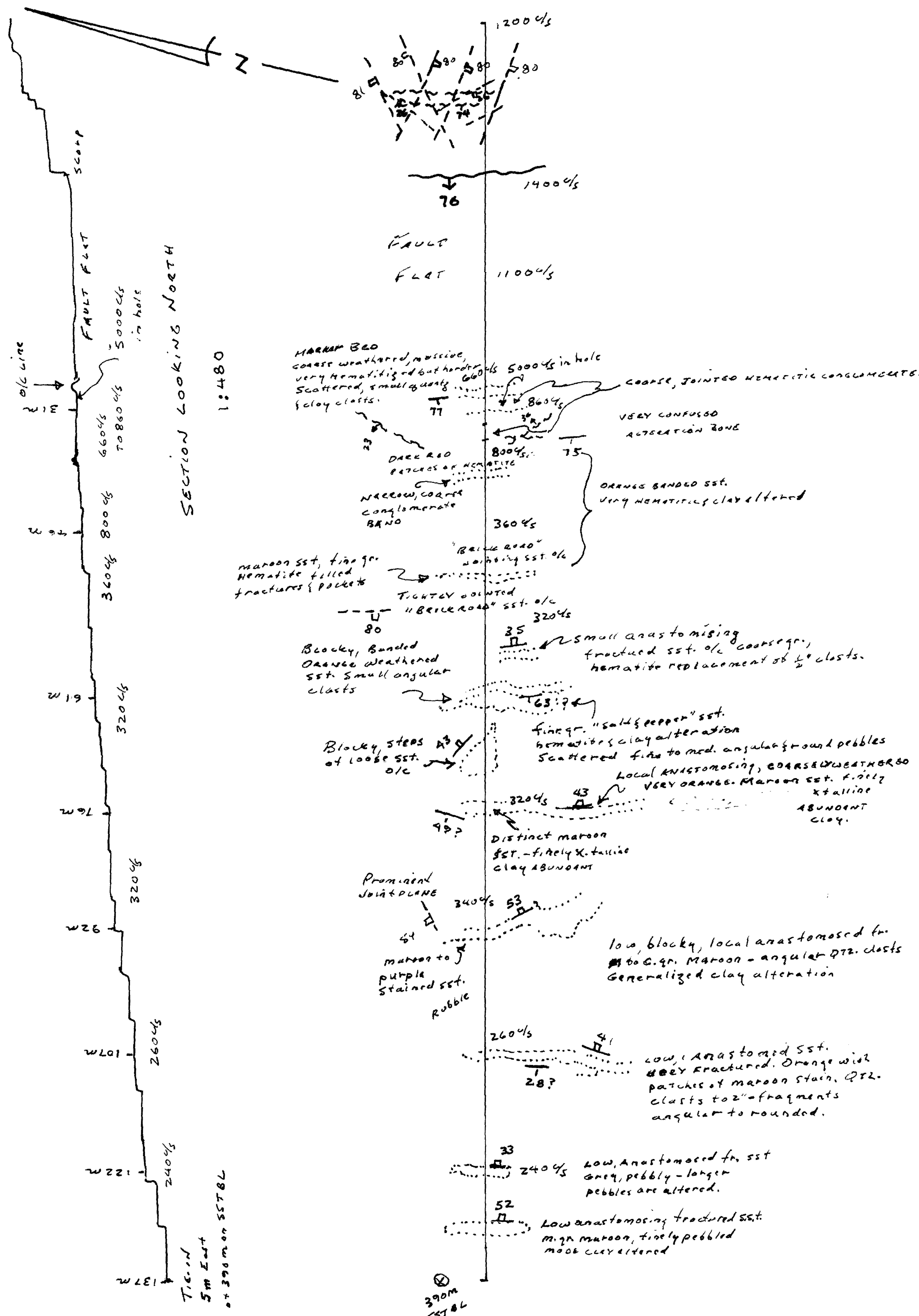
GRANITE/REGOLITH OCCURENCE

1:480

D. Dick SEPT. 1998

19990015

Prepared for: PINE CHANNEL GOLD CORP.
FIDLER PROJECT
RECCONNAISANCE MAP
BEACH OUTCROP EXPOSURE
ATHABASCA
LAKE
BEACH
FIDLER FAULT
SCARP
Peg-Gr.
N
← 345°
← 300°
PIMA 1
PIMA 2
PIMA 3
PIMA 4
PIMA 5
PIMA 6
PIMA 7
330m
300m
270m
240m
210m
180m
150m
120m 180°/S
90m 150°/S
60m 170°/S
30m 180°/S
RUBBLE
HEMATITE STAINING PREVALENT AND 1" to 2" BANDS COMMON
CROSS-BEDDED CONGLOMERATE LARGE CLASTS OF QUARTZ AND COUNTRY ROCK. MAY BE ANDERETIC.
Blocky jointed sst. mixed with braided sst.
DEEP RED HEMATITE STAINING ON ROCK PLANES ALL ALONG THE BEACH.
COARSE NODULES OF WHITE QUARTZ IN buff, COARSE ANASTOMOSED SST.
PROMINENT LOW, EAST DIPPING BRAIDED SST. O/C ON LOWER TERRACE ON BEACH Buff, clay-rich
ANASTOMOSED FRACTURED SST.
Anastomosed fractured, orange to buff weathered sst. Fresh rock is finely xtalline micaceous/sericitic grey to dark green with local hematite rimmed replaced clasts - coarse rounded white quartz stones 2" to 3" lightly scattered clay alteration some maroon patches.
Coarsely weathered, orange sst. with maroon stains laced with narrow conjugate maroon bands scattered clear to white sharp clasts to 1" local biotite? filled fractures. Massive & jointed in O/C
CONGLOMERATE BED MISSING
POINT TERMINATION ACTUAL X-SECTION OF MAIN SST. O/C
865004S
BOULDER TRAIN BRONZE PEG. Granite 1000 to 1500 m/S on fracture planes.

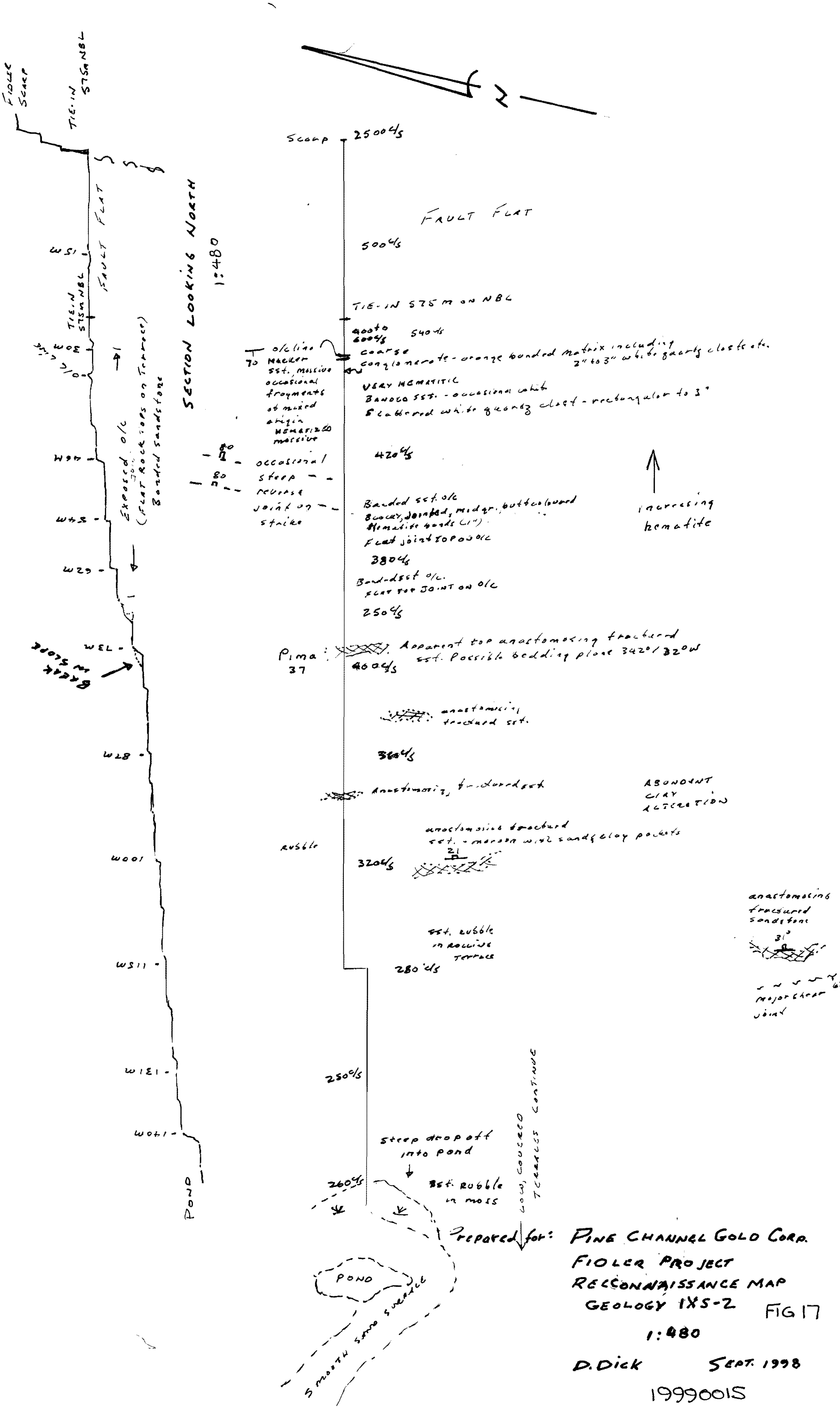


Prepared for: PINE CHANNEL GOLD CORP.
FIDLER PROJECT
RECCONNAISSANCE MAP
GEOLOGY 1XS-1.
1:480

FIG 16

D. Dick SEPT. 1998

19990015



Prepared for: PINE CHANNEL GOLD CORP.

FIDLER PROJECT

RECONNAISSANCE MAP

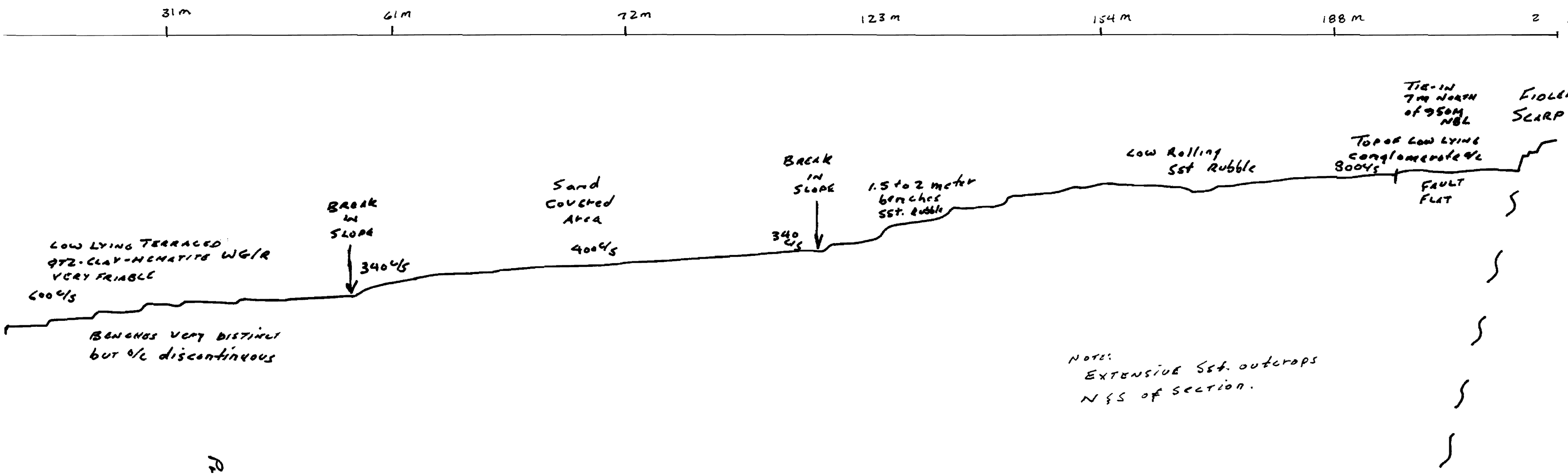
GEOLOGY 1XS-2

FIG 17

1:480

D. Dick SEPT. 1998

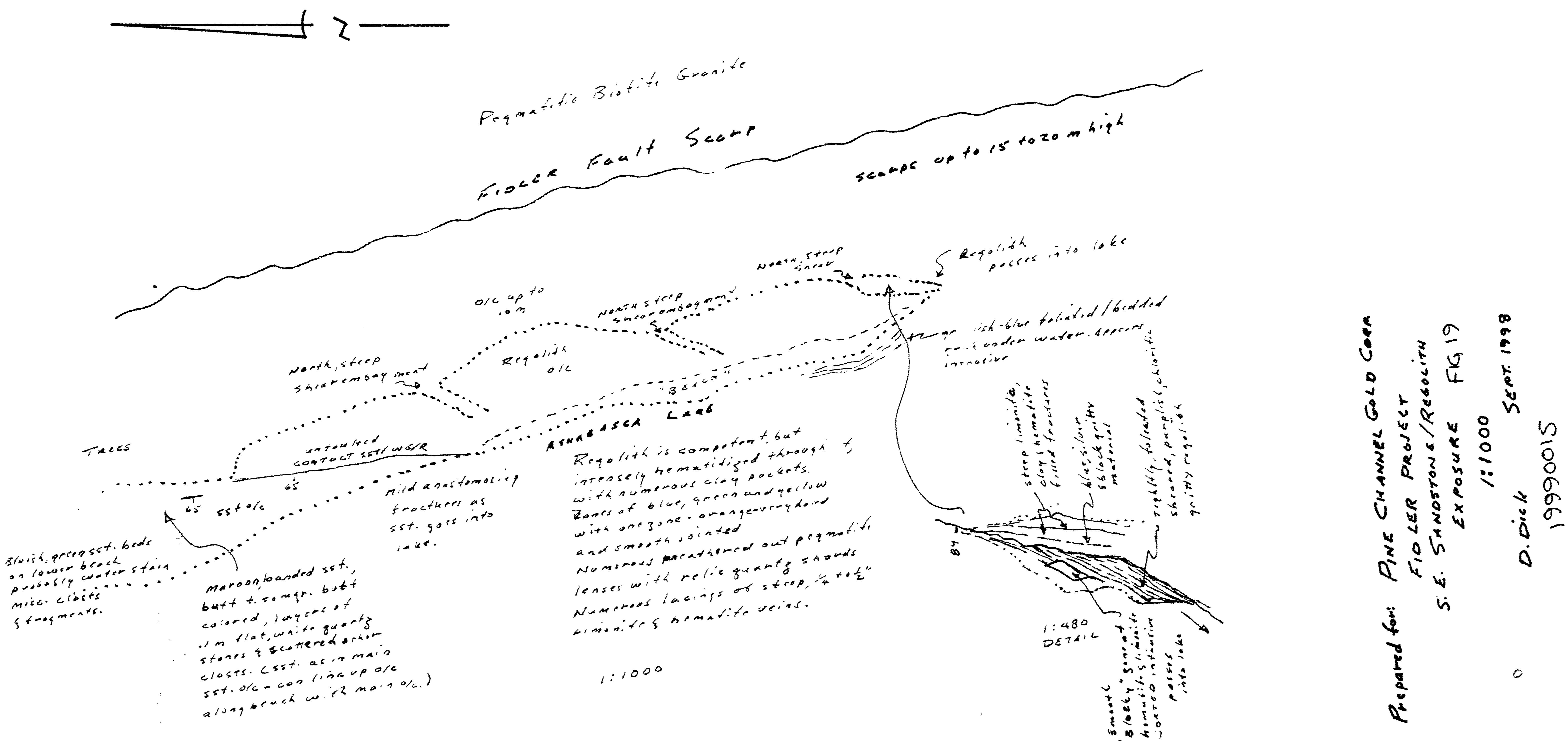
19990015

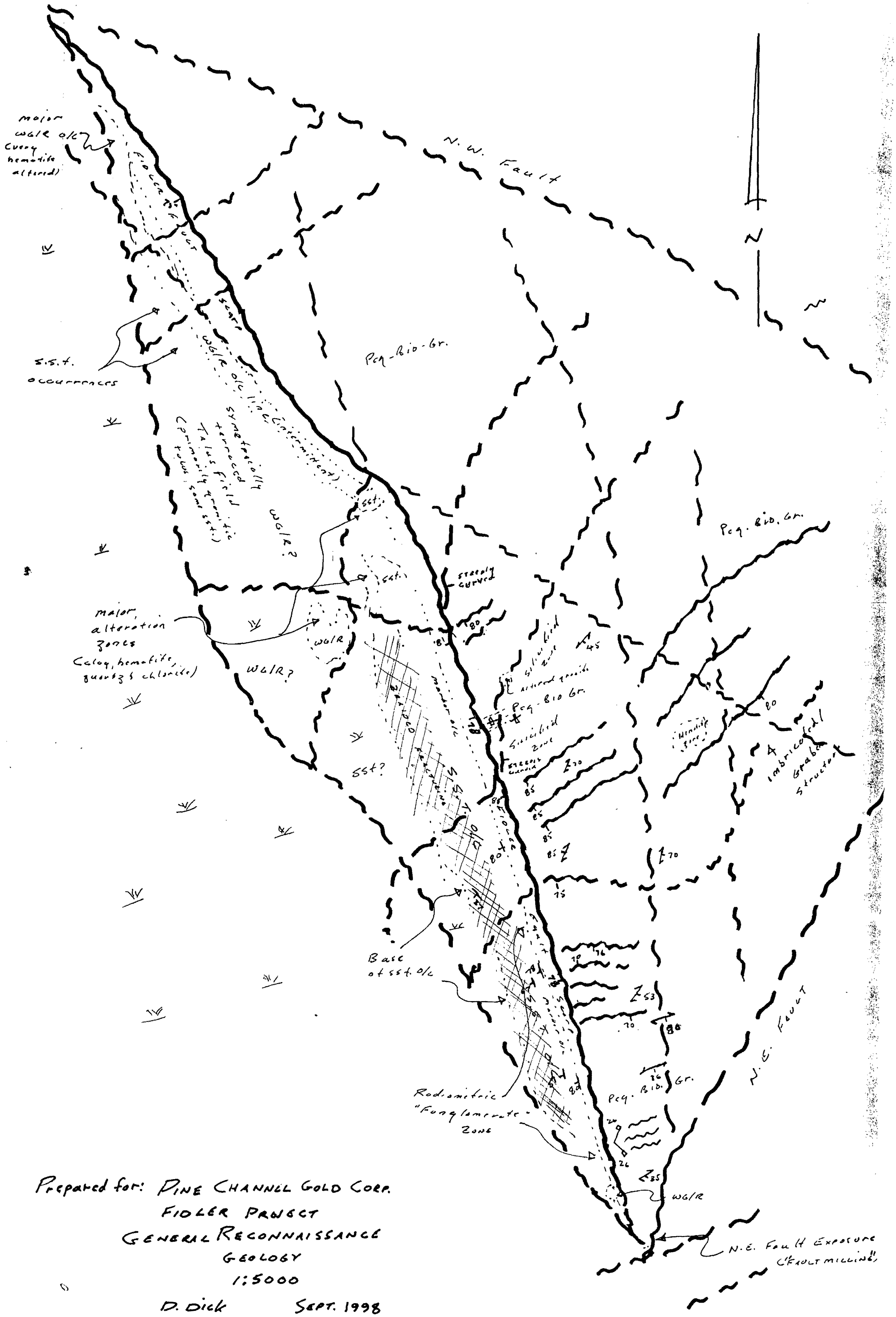


Looking North

Note: This is a relatively rough pace & compass survey. There may be some exageration in vertical & horizontal but the components should be relative.

Prepared for: Pine Channel Gold Corp.
Fidler Project
Reconnaissance Map
Pace & Compass 1XS-3
1:480 Fig 18
D. Dick Sept. 1998
19990015

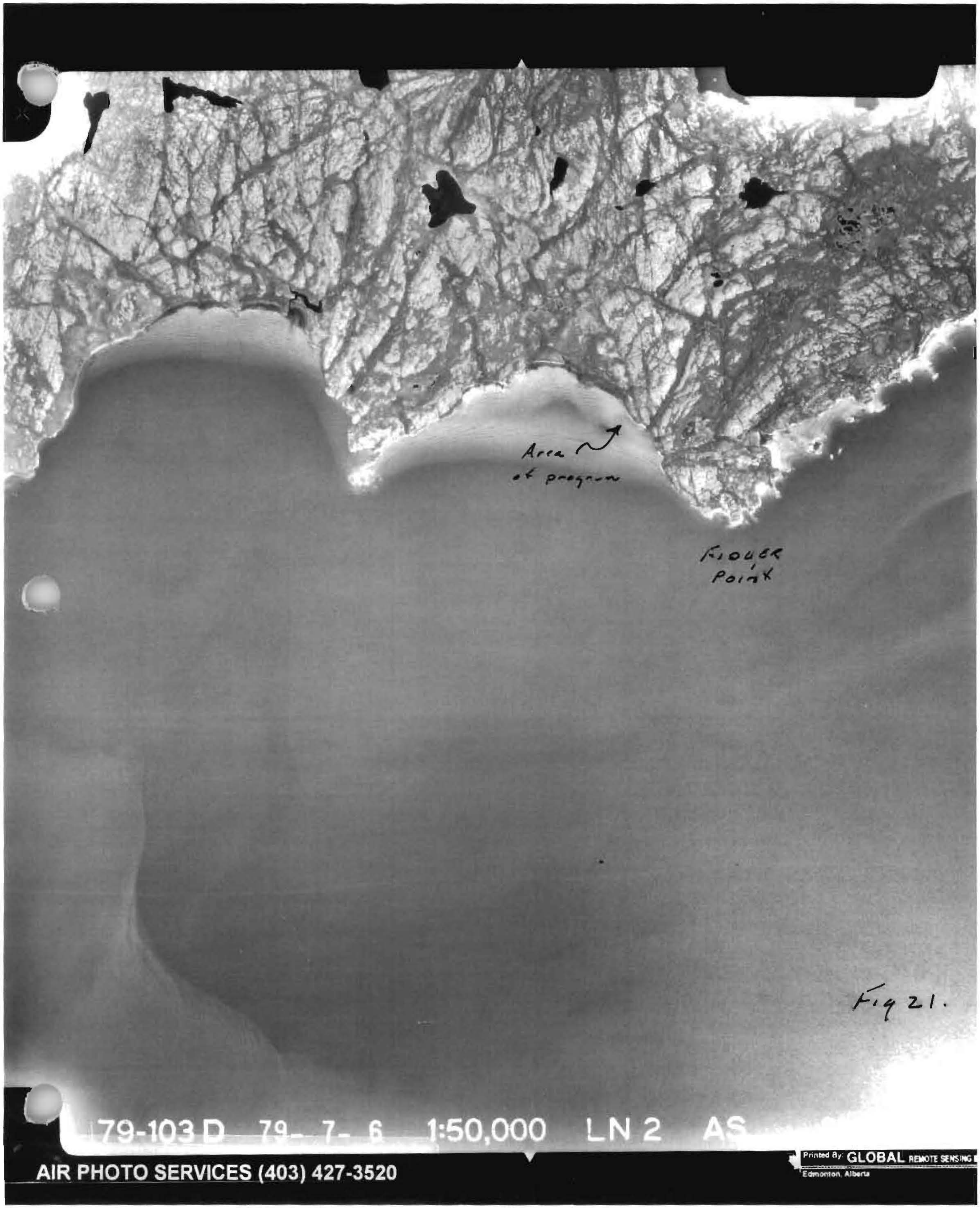

N
Pegmatitic Biotite Granite
Fidler Fault Scarp
scarps up to 15 to 20 m high
Regolith passes into lake
North steep shear
North steep shear embayment
o/c up to 10 m
Regolith o/c
North, steep shear embayment
grayish-blue foliated/bedded rock under water. Appears intrusive
"Beach"
Athabasca Lake
Trees
unfaulted contact sst/WGR
65
sst o/c
Mild anastomosing fractures as sst. goes into lake.
Regolith is competent but intensely hematitized throughout, with numerous clay pockets. Zones of blue, green and yellow with one zone - orange - very hard and smooth jointed. Numerous weathered out pegmatite lenses with relic quartz shards. Numerous lacings of steep, ¼ to ½" limonite & hematite veins.
Bluish, green sst. beds on lower beach probably water stain misc. clasts & fragments.
Maroon, banded sst., butt t. some gr. butt colored, layers of .1 m flat, white quartz stones & scattered other clasts. (sst. as in main sst. o/c - can line up o/c along beach with main o/c.)
1:1000
steep limonite, clays & hematite filled fractures
blue, silver & black gritty material
tightly foliated sheared, purplish, chloritic gritty regolith
84
1:480 DETAIL
Smooth, blocky, sonorous hematite & limonite coated intrusive
passes into lake
Prepared for: Pine Channel Gold Corp
Fidler Project
S. E. Sandstone/Regolith Exposure FIG 19
1:1000
D. Dick Sept. 1998
19990015

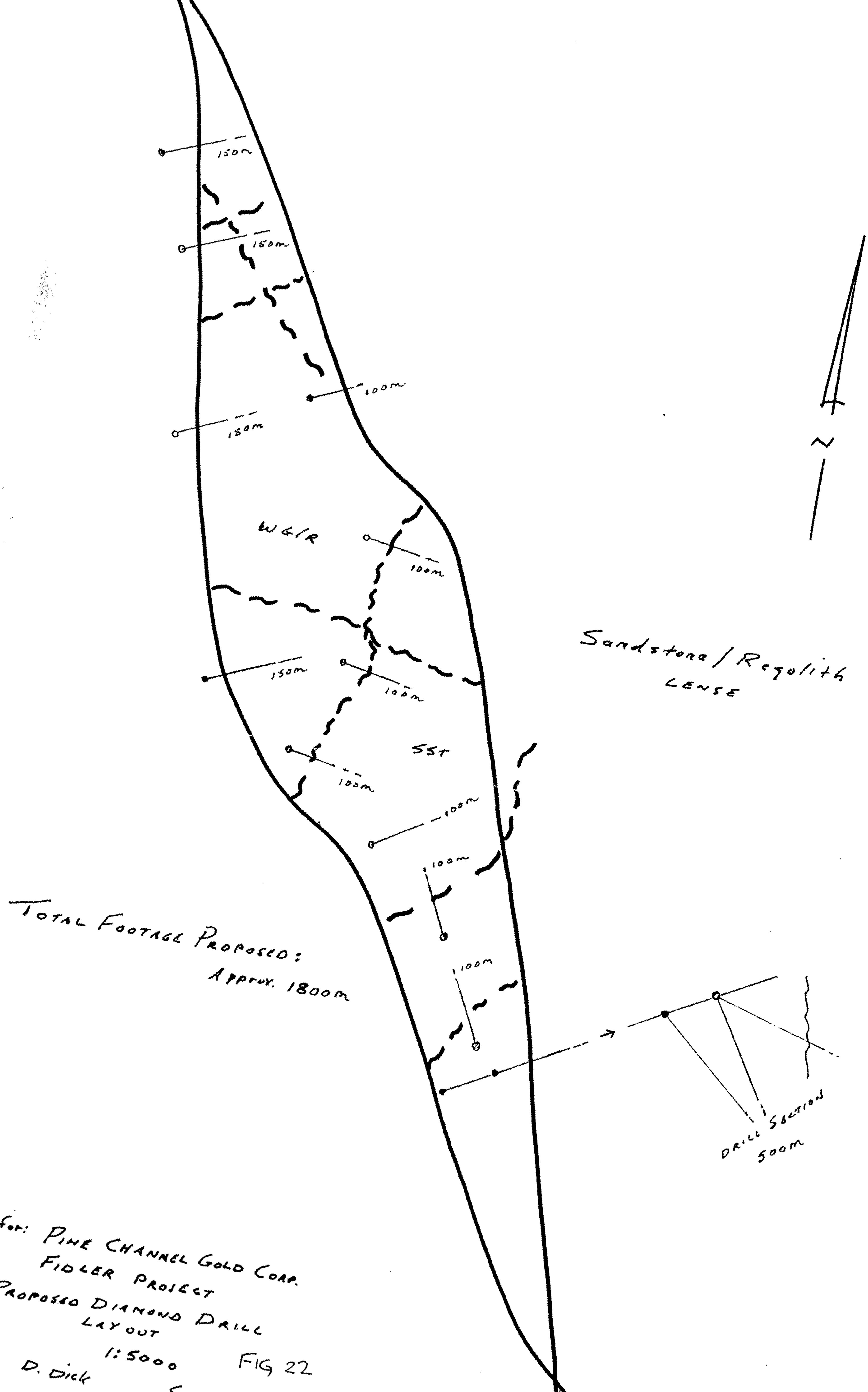


Prepared for: Pine Channel Gold Corp.
Fidler Project
General Reconnaissance
Geology
1:5000
D. Dick Sept. 1998

FIG 20

19990015


Area of program
Flower Point
Fig 21.
179-103 D 79- 7- 6 1:50,000 LN 2 AS
AIR PHOTO SERVICES (403) 427-3520
Printed By: GLOBAL REMOTE SENSING
Edmonton, Alberta



pared for: PINE CHANNEL GOLD CORP.
FIDLER PROJECT
PROPOSED DIAMOND DRILL
LAYOUT
1:5000
FIG 22
D. DICK
SEPT. 1998
19990015

To Accompany:
Geological Reconnoissance Program
Fiddler N.E. Alberta
D. L. Dick

Assessment of outcrop geochemical data from the Fiddler Point area

Introduction

Lithogeochemical data from 34 sandstone and basement samples collected in the Fiddler Point area have been compiled and briefly assessed. A preliminary interpretation of the results is presented in this report.

Fiddler Point is situated on the northwestern shore of Lake Athabasca, approximately 25 km west of the Alberta-Saskatchewan border. The study area is located on the western side of Fiddler Point, and is situated at the contact between the Fair Point Formation of the Athabasca Group and older granitic rocks. It is evident that the existence of sandstone in this area is controlled by a north-northwesterly trending fault system. However, based on exceprts from a geological mapping report by Wilson (1985), which shows regolithic granite at the granite-sandstone contact, it is apparent that the contact between the sandstone and granite is an unconformity, and not a fault.

Sample collection and analysis

All of the samples included in this study were collected by Don Dick of Mine-Geo Research Inc. The sample locations are shown on Figure 1. The criteria for selection of specific sites to sample, and the procedures for sample collection, have not been described to the author.

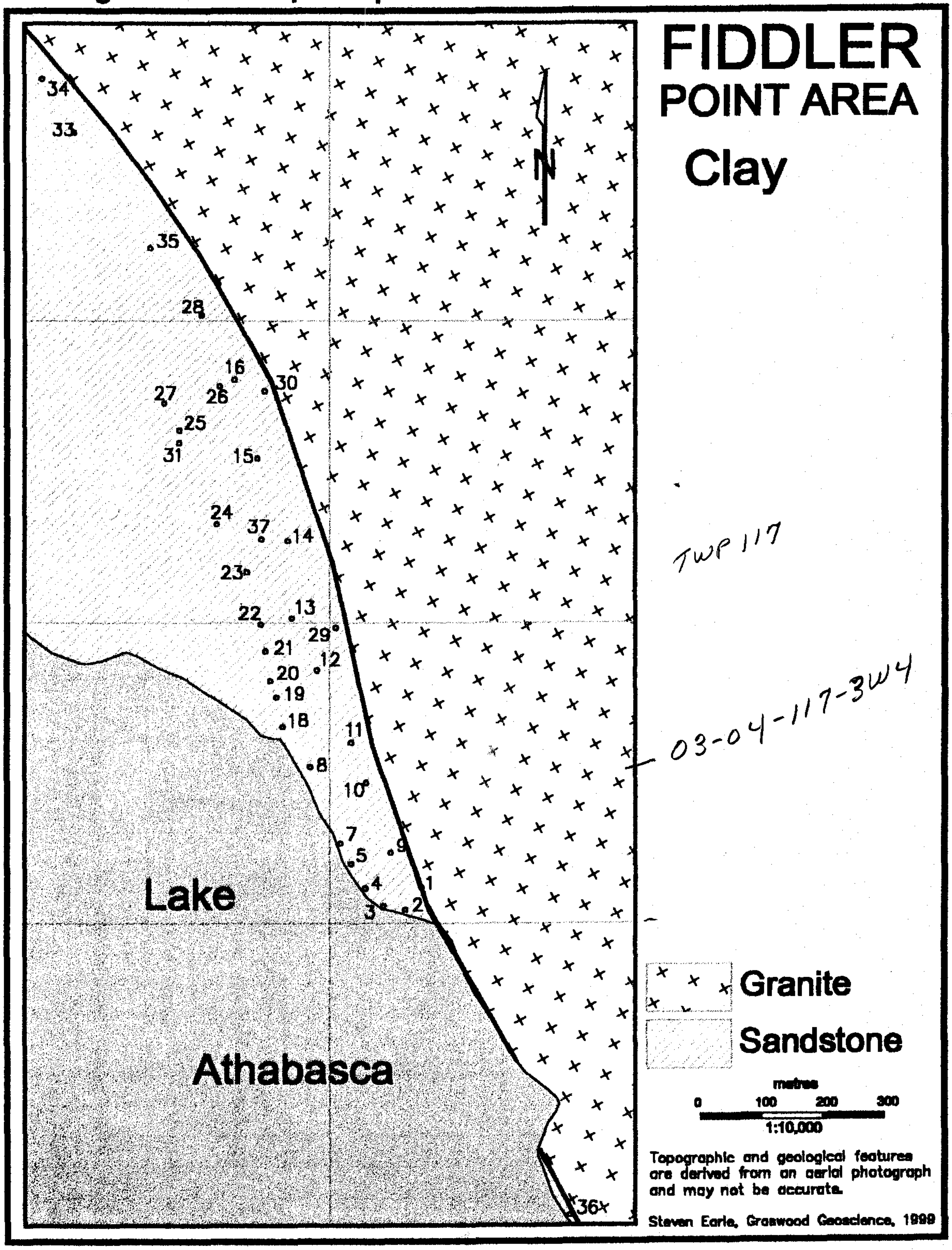
The samples were analyzed at the Saskatchewan Research Council in Saskatoon, using routine procedures for the analysis of sandstone samples. Both major and trace elements were analyzed by plasma emission spectrophotometry (ICP) following digestion in HF, $HClO_4$ and HNO_3 acids. Numerous trace elements were also analyzed by ICP following digestion in HNO_3 and HCl acids. Boron was analyzed by ICP following fusion with NaOH, and uranium was analyzed by fluorimetry following digestion in HNO_3 and HCl acids.

The data for Al_2O_3, MgO, K_2O and B have been used to estimate the clay mineral proportions in the sandstone samples, following the procedure of Earle and Sopuck (1989). This calculation is based on the assumption that the only alumino-silicate minerals present are illite, chlorite, kaolin and dravite. While this assumption is generally valid for the Manitou Falls Formation in the eastern part of the Athabasca Basin, it is not known how valid it may be for other formations. Useful ctiteria for the presence of feldspar (apart from K-feldspar) are the contents of sodium and calcium.

Results

The geochemical results for the 34 samples are presented in Appendix 1. The sample location coordinates are shown (based on an arbitrary north-south grid). 3 of the 34 samples are described as altered granite (1 and 27) or questionable granite (35). One of the sandstone samples is described as coarse sandstone conglomerate (11), and two of the samples are described as banded sandstone (33 and 34).

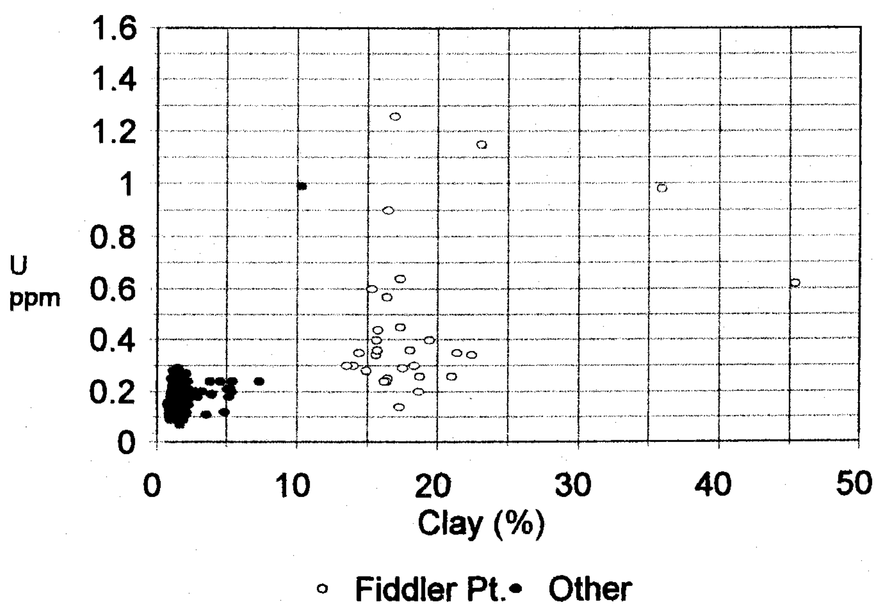
Figure 1 Outcrop sample locations in the Fiddler Point area



With regard to the suitability of these samples for geochemical clay mineral estimations, the sodium levels are reported as 0.01% Na_2O in all of the sandstone samples, while calcium levels are generally low. Most are less than 0.04% CaO. The conglomeritic sample (11) has 0.07% CaO and a very high Al_2O_3 level (14%). It appears likely that this sample includes some feldspar-bearing basement rock fragments, and that the clay mineral estimates are therefore not reliable. The banded sandstone samples (33 and 34) also have conspicuously high Al_2O_3 levels (16 and 12%), and while their description as sandstone is not in question, they appear to be lithologically distinct from the other sandstone samples.

Uranium levels are consistently quite high in the Fiddler Point area, with more than 0.3 ppm in two-thirds of the samples, and with more than 0.5 ppm in one-third of the samples. As shown on Figure 2, there is some correlation between uranium and clay levels, although there are several samples with uranium levels above the U:clay trend. Uranium is strongly correlated with some of the elements which are normally associated with heavy mineral accumulations in the Athabasca Group, including phosphorous, thorium, zirconium and lanthanum (Figure 3).

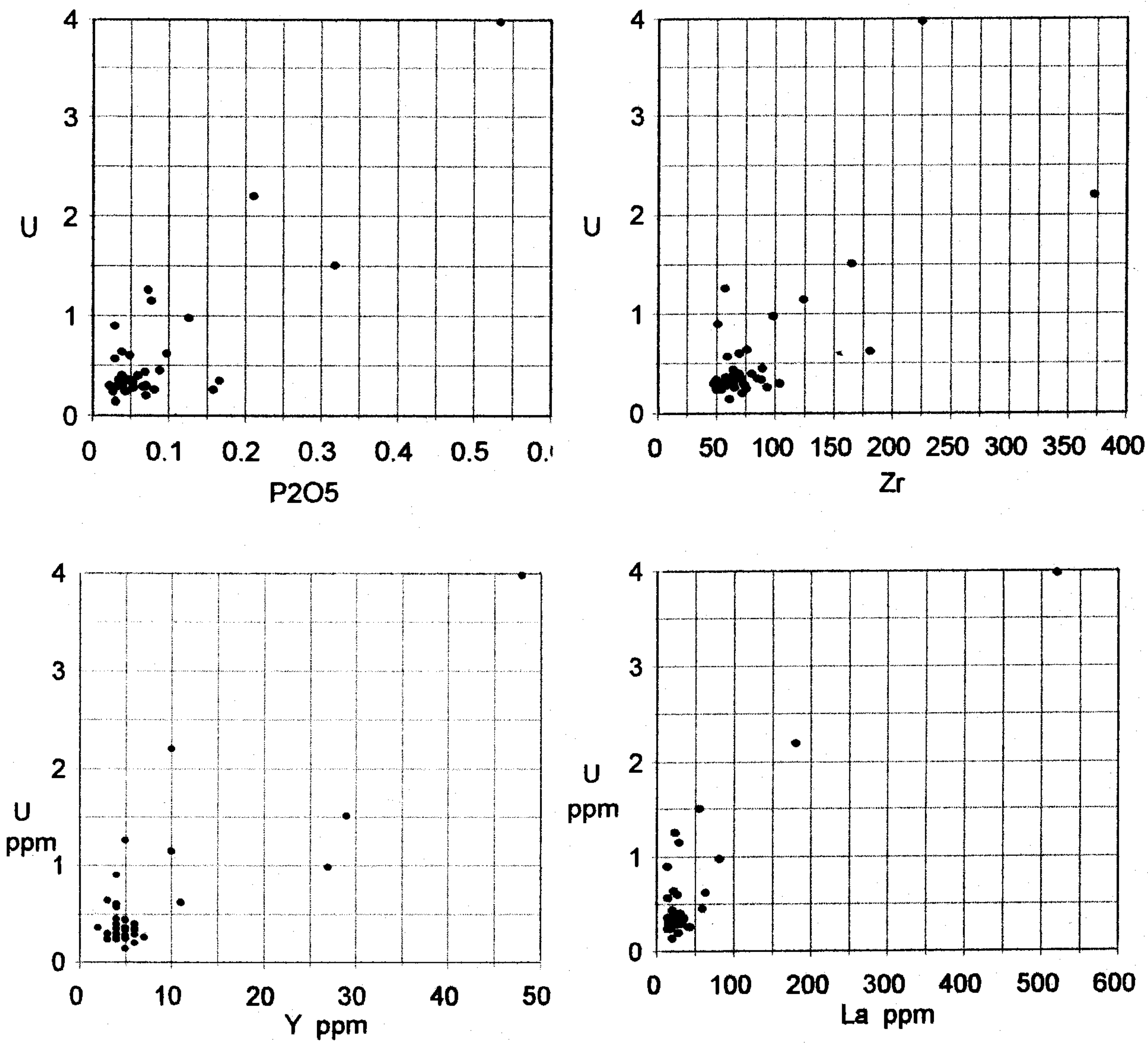
Figure 2 U versus clay in sandstone from Fiddler Point and another Athabasca Basin area



The results for selected elements are shown on a series of 1:10,000 scale maps[1]. The data are represented by different-sized symbols based on the 98, 95, 90 and 80th percentiles of the data set.

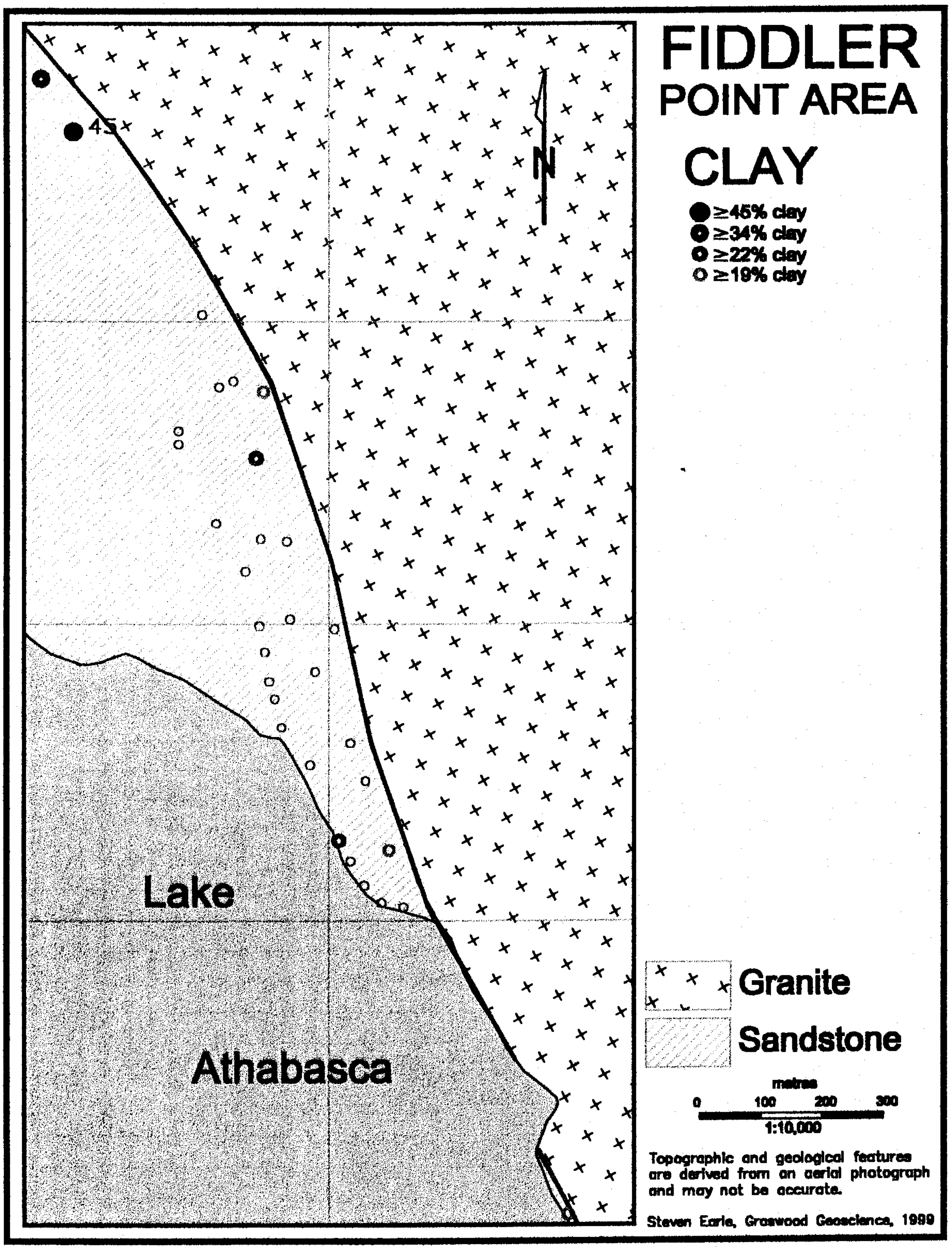
[1] The base map is derived from an air-photo which has not been geometrically corrected.

Figure 3 X-Y diagrams for U versus P2O5, Zr, Y and La in Fiddler Point outcrop samples



Clay levels are consistently very high in the Fair Point Formation sandstone samples from the Fiddler Point area. All samples have at least 13% clay, as compared with levels of just a few per cent in the Manitou Falls Formation. As noted above, the two banded-sandstone samples from the northern part of the study area have significantly higher clay levels than the other sandstones (Figure 4).

Figure 4 Clay levels in sandstone outcrop samples at Fiddler Point



Illite levels are relatively low at Fiddler Point. Most samples have less than 20% illite, although a few samples have levels in the 40 to 45% range, and one sample, from the southernmost part of the study area, has 76% illite (Figure 5).

Only a few of the samples have geochemical evidence of chlorite, including one from the the north-central part with 13%, and two from the south-central part with 0.4 and 3% (Figure 6).

The kaolin background is in the 70 to 90% range but there are a few samples from the central part of the study area with over 90% kaolin, and one with 99% (Figure 7).

Dravite levels are generally under 0.6%, although there are several samples with between 0.6 and 1%, and one sample with 2.4% (Figure 8). The background boron levels in this area are between 20 and 40 ppm, which is a little higher than the 5 to 30 ppm background of the Manitou Falls Formation in the eastern part of the basin. The estimated dravite levels are not higher than those of the Manitou Falls Formation.

As noted above, the uranium background at Fiddler Point is quite high. There are two samples from the southern part with over 2 ppm U, but one of these is a granite, and the other is the conglomeritic sandstone (Figure 9). There are a few other samples with over 1 ppm U, including two which are ordinary sandstones, and one granite. Most of the sandstone samples with elevated uranium levels are from the northern part of the study area.

The map for lanthanum is shown here because it is one of the several heavy-mineral elements which shows a consistent relationship with uranium (Figure 10). It is obvious that the two most uraniferous samples are strongly enriched in lanthanum. Some, but not all of the other uranium-rich samples are also enriched in lanthanum, and/or one or more of the other heavy-mineral elements. One sample, from the north-central part of the study area (sample 26 - with 1.26 ppm U, 131 ppm B and 13% chlorite), is not enriched in any of the heavy-mineral elements, and is not conspicuously enriched in clay.

The partial-extraction lead levels at Fiddler Point are generally quite high, with a background range extending from around 1 ppm to nearly 3 ppm. Some of the lead-rich samples are the granitic rocks, but there are several sandstone samples, particularly from the southern region, with lead enrichment (Figure 11).

Discussion and recommendations

Lithogeochemical data for 34 outcrop samples from an area of Athabasca Group sandstone at Fiddler Point, Alberta, have been compiled and assessed. There is little evidence of significant clay alteration at Fiddler Point. There is only weak illitization, and while there are a few samples with chlorite or kaolin enrichment, the anomalies are isolated. None of these

Figure 5 Illite levels in sandstone outcrop samples at Fiddler Point

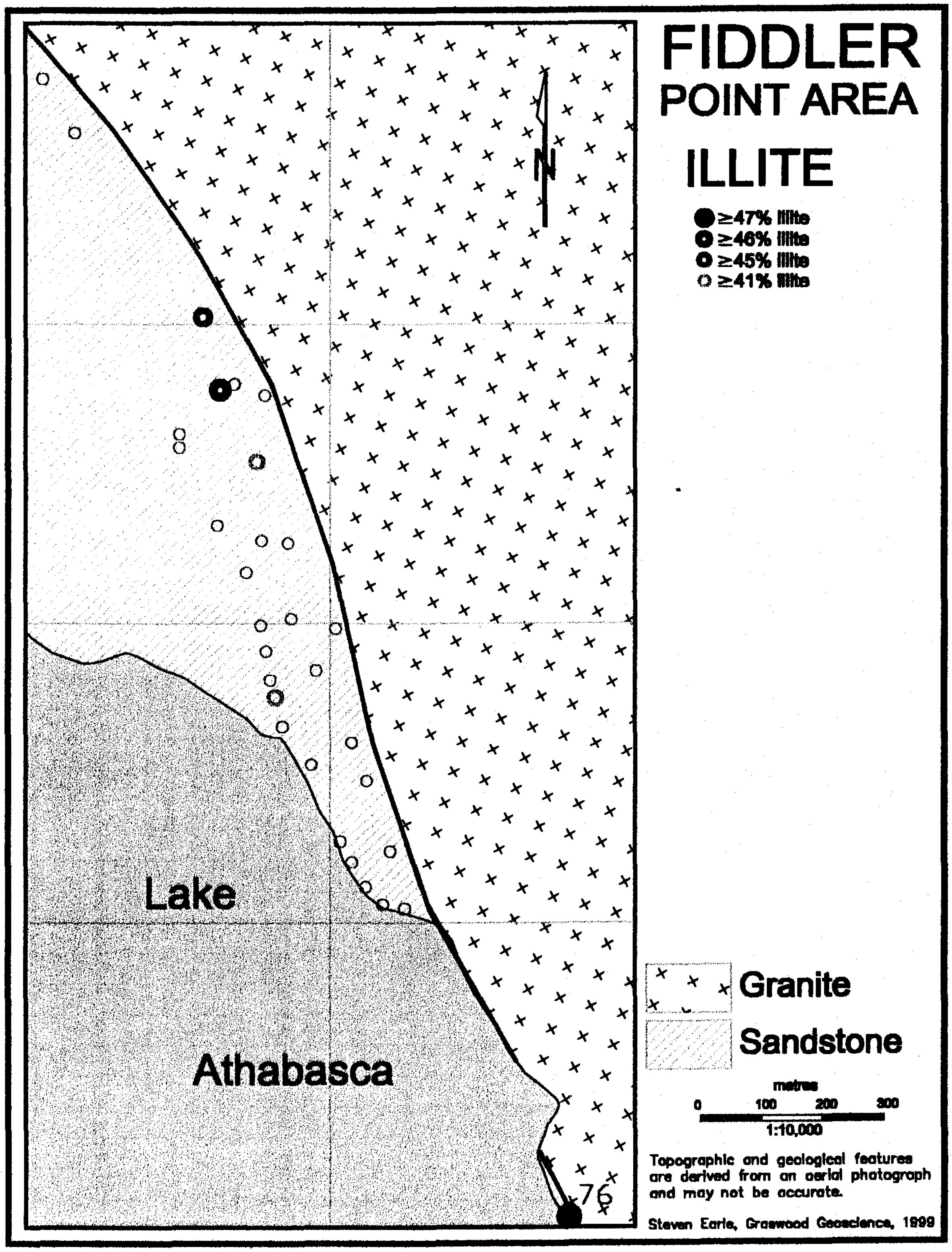


Figure 6 Chlorite levels in sandstone outcrop samples at Fiddler Point

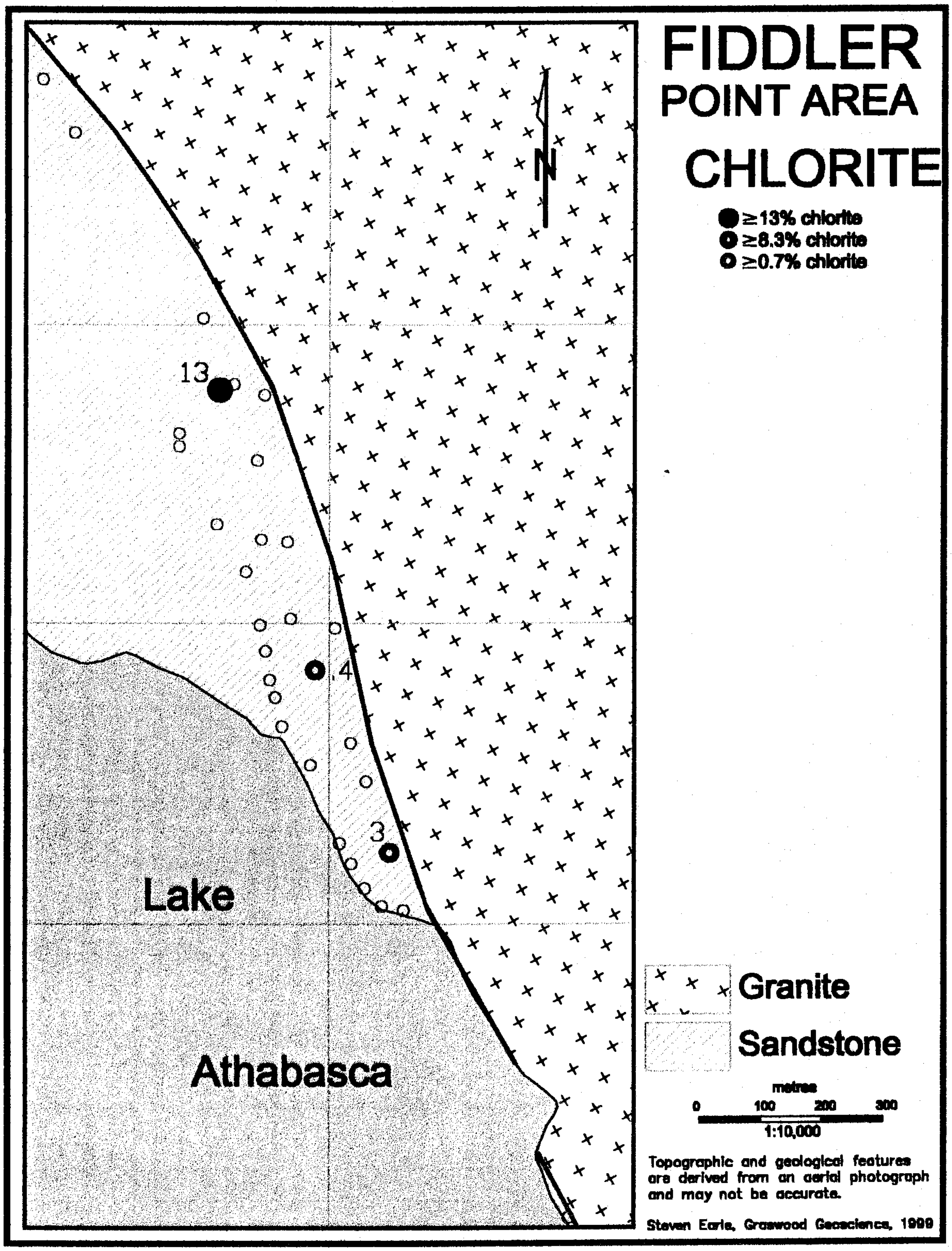


Figure 7 Kaolin levels in sandstone outcrop samples at Fiddler Point

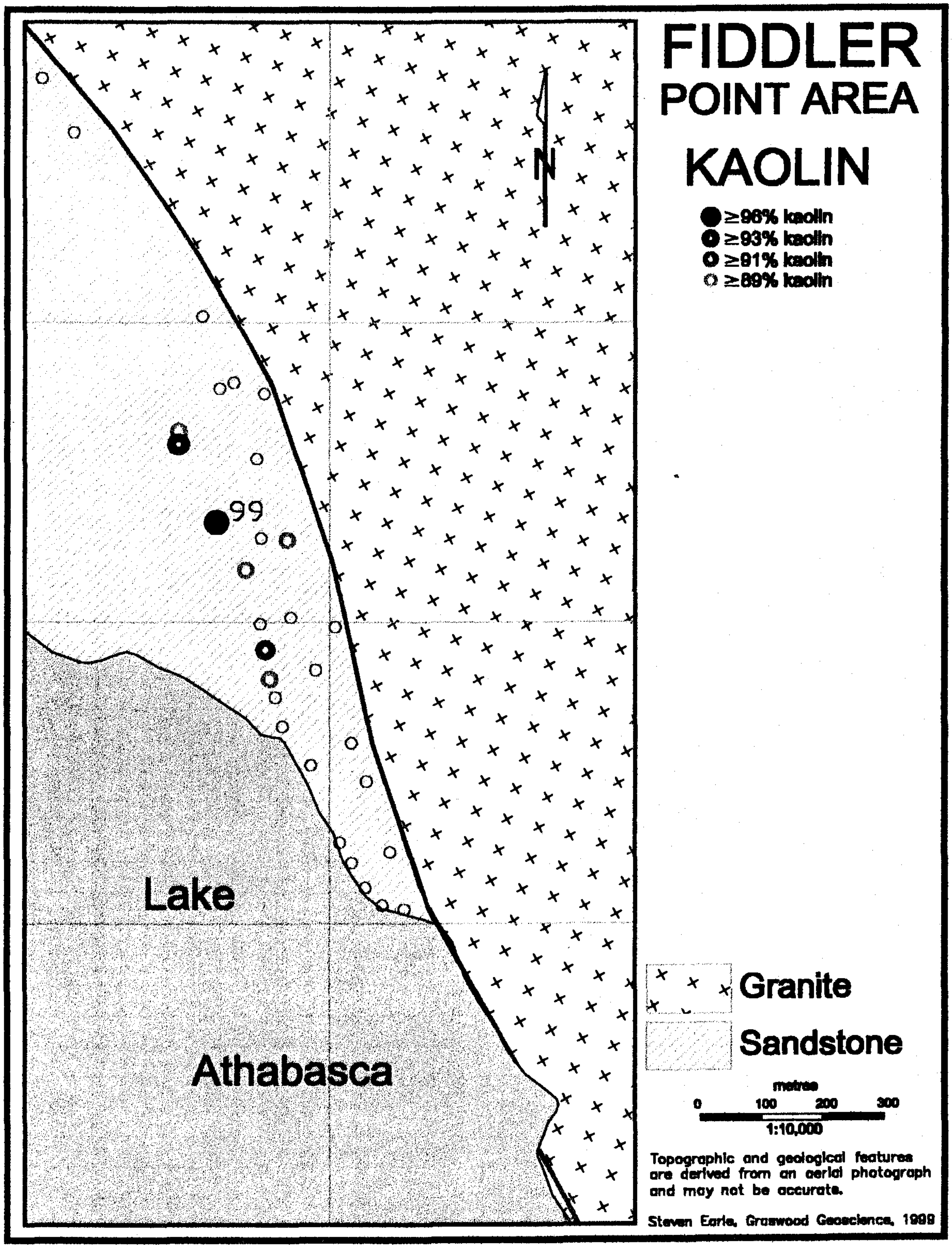


Figure 8 Dravite levels in sandstone outcrop samples at Fiddler Point

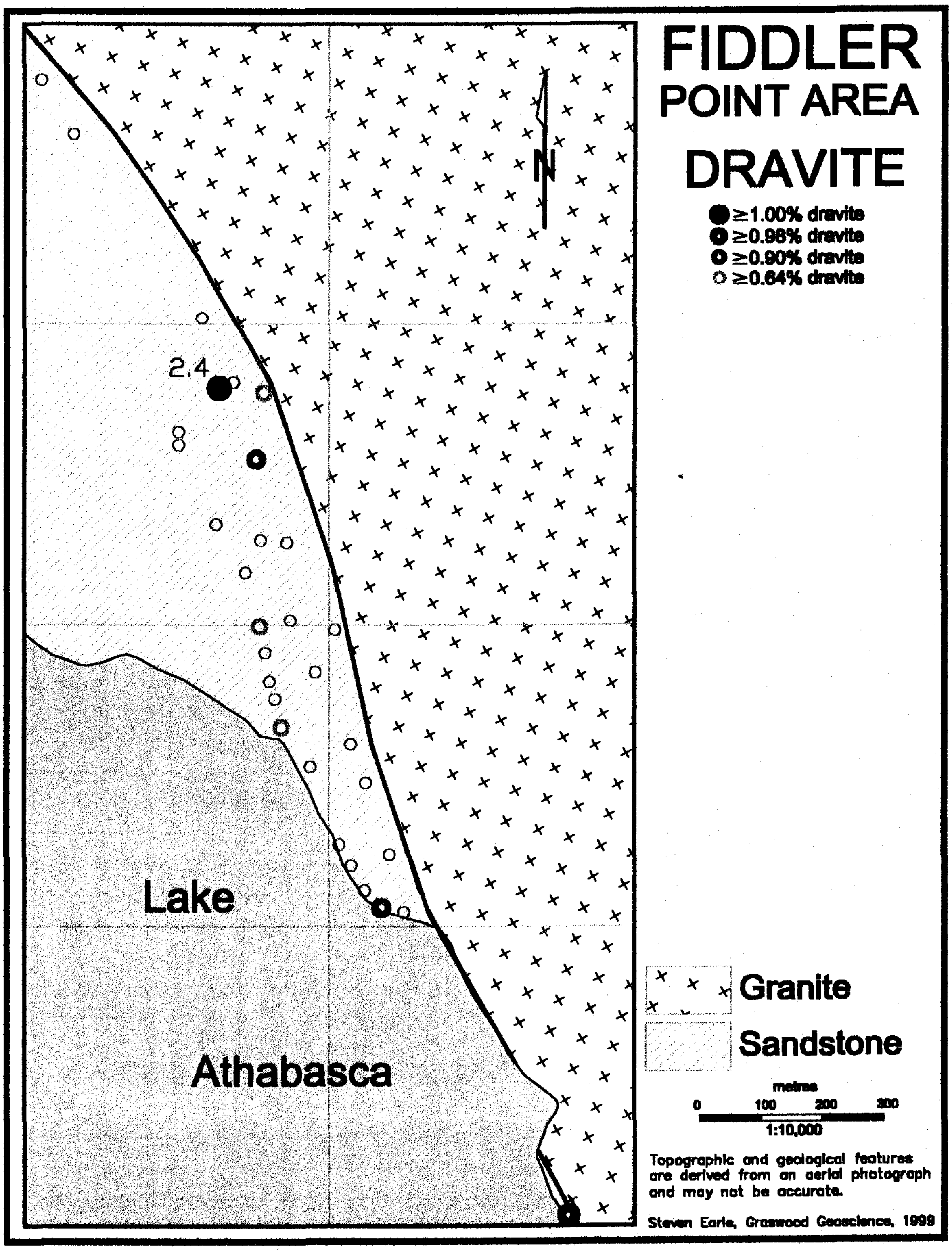


Figure 9 Uranium levels in outcrop samples at Fiddler Point

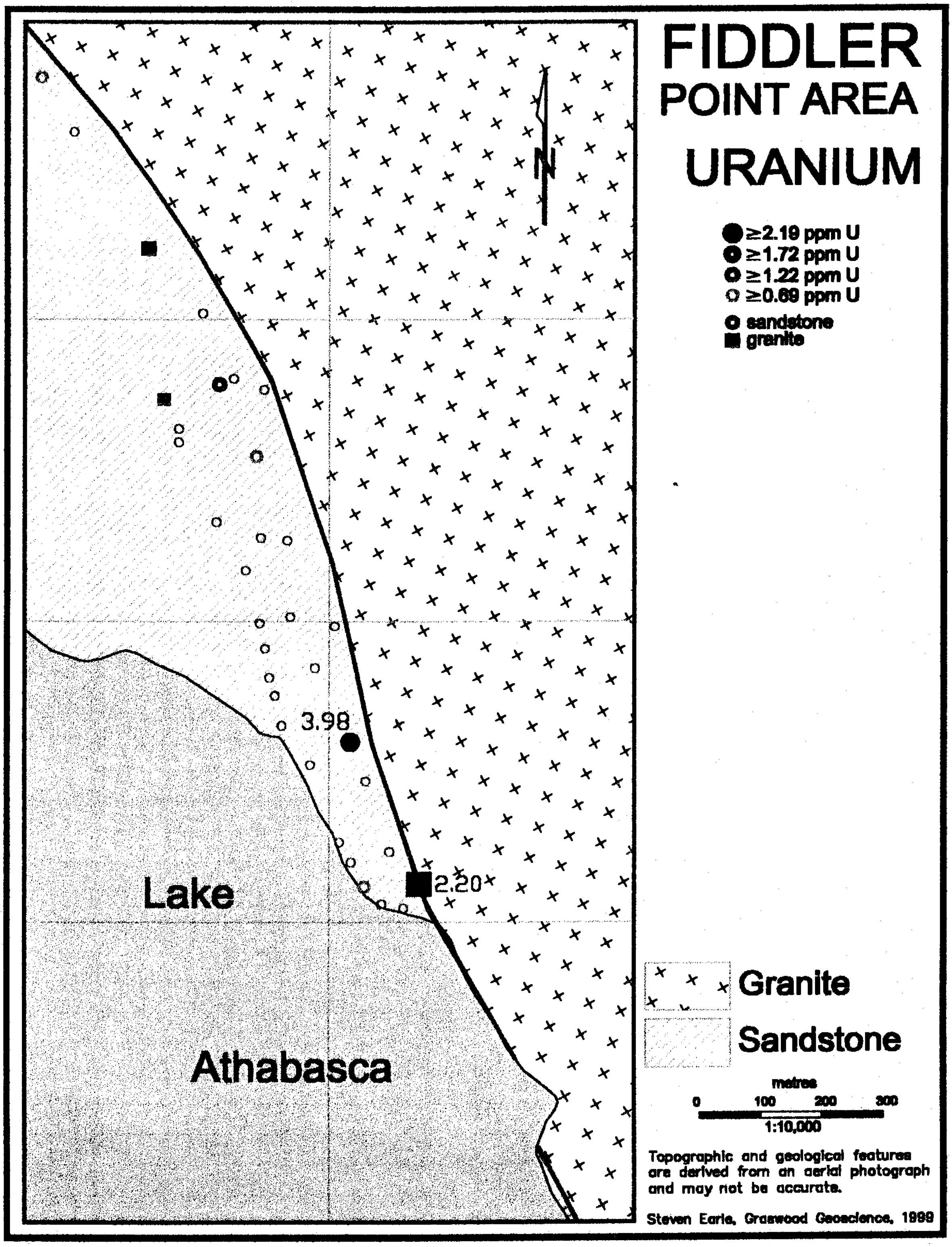


Figure 10 Lanthanum levels in outcrop samples at Fiddler Point

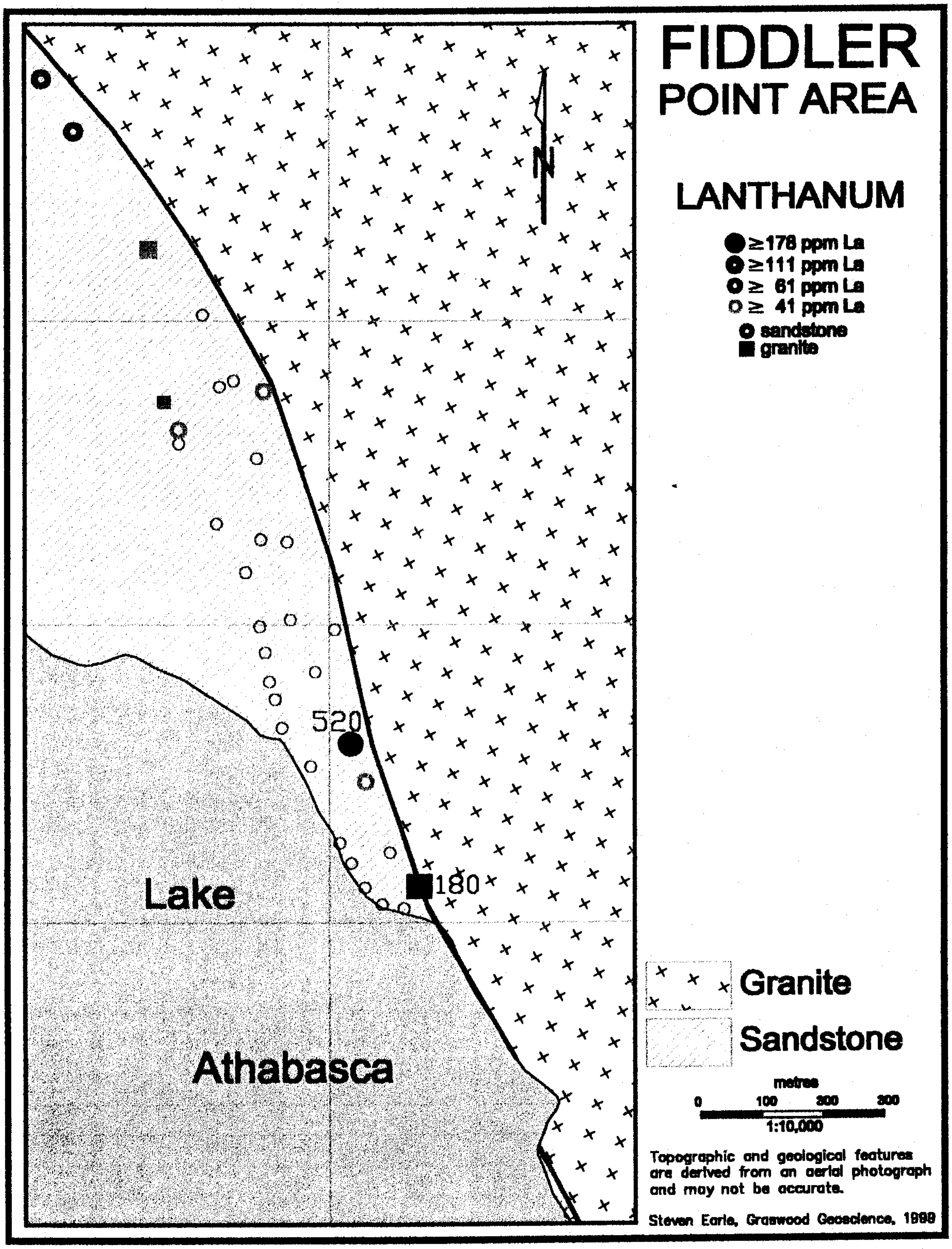
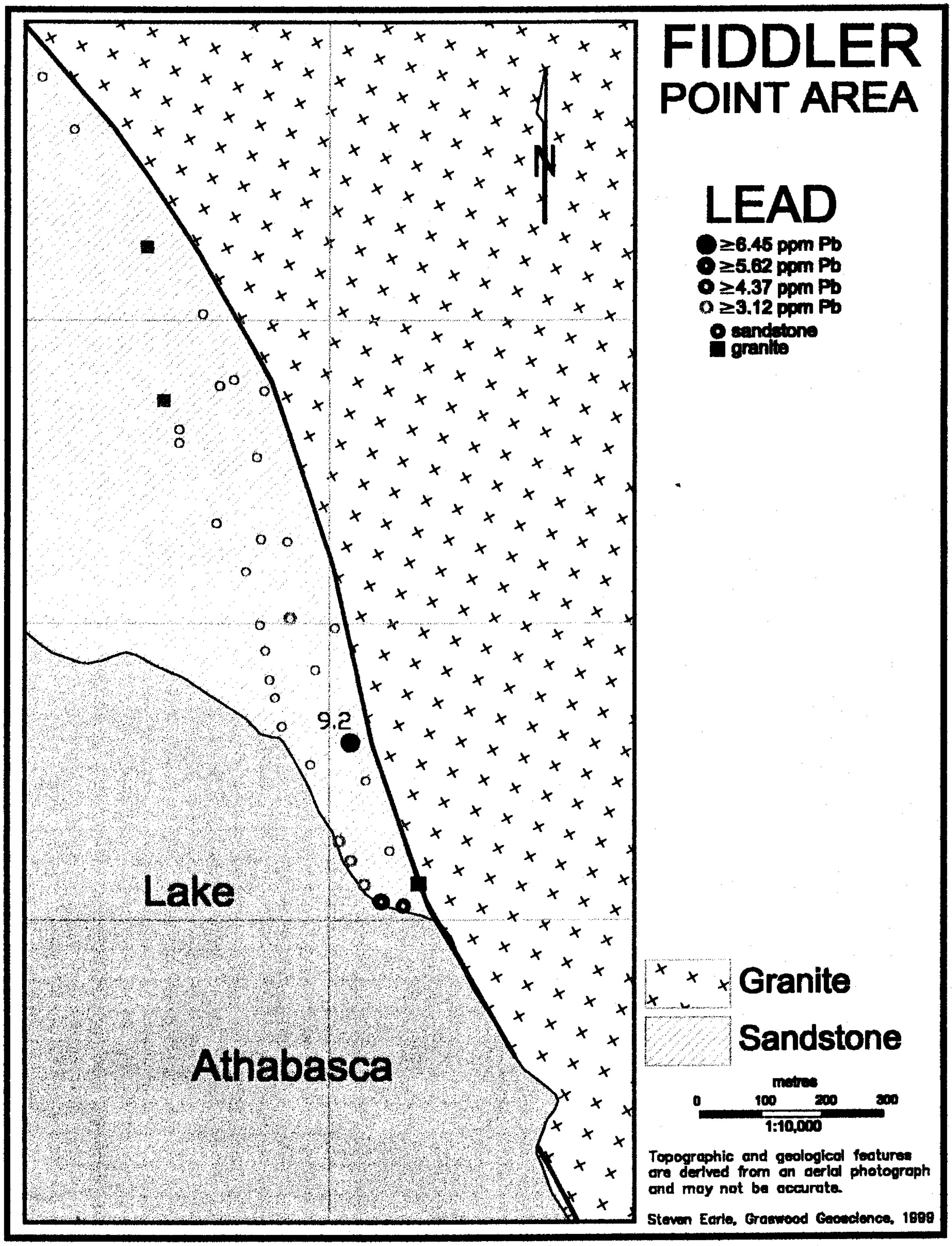


Figure 11 Lead levels in outcrop samples at Fiddler Point



features is comparable to the type of strong, consistent and extensive hydrothermal alteration observed in the sandstone above unconformity-type deposits in the eastern part of the basin.

There is a high uranium background in the sandstone at Fiddler Point, and many of the samples have signficant enrichment of uranium and lead, elements which are normally present at anomalous levels around unconformity-type deposits.

It is evident that the elevated uranium background is related to the high sandstone clay levels, and that some of the more pronounced uranium enrichment is related to concentration of heavy minerals in these samples. On the other hand, the relationship between uranium and heavy minerals here is not as clear as that in some other areas, where the levels of some of the heavy-mineral elements are several times as high as those here. (For example, in one area at the eastern margin of the basin the Zr levels reach 2000 ppm, while the highest Zr level in a sandstone sample from Fiddler Point is 181 ppm.) There is one sample from Fiddler Point (sample 26 - from the north-central region) which has a high uranium level and does not have a particularly high clay level (for this area), nor elevated levels of the heavy-mineral elements.

The elevated lead levels may or may not be related to the high clay levels and/or to the concentrations of heavy minerals, however in view of the close proximity to a rich source of radiogenic lead (ie. the adjacent granitic rocks) it is not surprising to see this amount of lead enrichment in this area.

In conclusion, while there is some uranium enrichment in the sandstone at Fiddler Point, it can be generally attributed to either high clay levels or accumulation of heavy minerals. One sample, with 1.26 ppm uranium, does not fall into this category, and while this anomaly may be significant, a single anomalous sample, surrounded by several non-anomalous samples, does not represent a good target for follow-up exploration. Similarly, the one sample with 76% illite does not represent a legitimate follow-up target.

While these results are generally negative, it is important to recognize that this area is geologically different from the eastern part of the Athabasca Basin. The structural setting is different, the basement rocks are different and the sandstone is different. The criteria used to evaluate these types of results in the eastern part of the basin may not apply to this area. It is more appropriate to compare the results from Fiddler Point to those from the Maurice Bay area, although there is relatively little comprehensive information on sandstone alteration from Maurice Bay. Mellinger (1981) described "strong illitization of the host rocks" and "pervasive chloritization which extensively overprinted previous illitization" at Maurice Bay, but he does not provide a diagram showing the extent of this alteration, or its relationship to the lithology. In the absence of a clear summary of sandstone alteration and trace element enrichment for uranium mineralization in this region it would not be prudent to dismiss the potential of the Fiddler Point area solely on the basis of the data presented in this report.

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Mellinger, M., 1981, Uranium metallogenic studies - Maurice Bay Deposit, in Summary of Investigations 1981, *Sask. Geol. Survey*, Misc. Report 81-4, p. 90-91.

Wilson, J., 1985, (Report on the geology of the Athabasca Group in Alberta), *Alberta Research Council*, Bull. 49.

Prepared by:

Steven Earle, PhD, P.Geo.
Grasswood Geoscience Ltd.
January 1999

Appendix 1 Geochemical data for Fiddler Point outcrop samples

Sample number		East	North	comments	Clay %	Illite %	Chlrt %	Kaolin %	Drvt. %	Al2O3 (tot-%)	Fe2O3 (tot-%)	CaO (tot-%)	MgO (tot-%)	K2O (tot-%)	Na2O (tot-%)	Pb (t-ppm)
PIMA	1	647	562	granite alt. zone						16.56	3.83	0.04	0.545	1.270	0.01	25
PIMA	2	622	524		15.6	11.8	0.0	87.6	0.63	5.39	0.73	0.03	0.062	0.283	0.01	11
PIMA	3	586	531		14.4	20.4	0.0	78.7	0.90	4.92	0.43	0.02	0.063	0.347	0.01	20
PIMA	4	558	560		16.5	15.9	0.0	83.6	0.43	5.65	0.93	0.02	0.067	0.346	0.01	7
PIMA	5	536	601		14.0	14.6	0.0	84.8	0.60	4.8	0.62	0.02	0.043	0.280	0.01	8
PIMA	7	517	635		22.4	13.2	0.0	86.3	0.51	7.72	1.19	0.02	0.067	0.430	0.01	9
PIMA	8	469	765		13.5	12.8	0.0	86.8	0.41	4.66	0.76	0.02	0.038	0.255	0.01	8
PIMA	9	599	619		21.4	19.9	3.6	75.9	0.54	7.23	0.84	0.03	0.276	0.509	0.01	5
PIMA	10	560	738		18.7	11.5	0.0	87.9	0.61	6.45	0.5	0.03	0.055	0.334	0.01	3
PIMA	11	535	802	crs. sst. cglm.	41.1	10.2	1.4	88.0	0.43	14.15	4.42	0.07	0.347	0.700	0.01	30
PIMA	12	477	922		15.6	19.5	0.7	79.3	0.50	5.33	0.83	0.02	0.132	0.367	0.01	5
PIMA	13	436	1008		16.4	15.2	0.0	84.2	0.62	5.64	0.39	0.02	0.082	0.336	0.01	10
PIMA	14	431	1136		18.6	10.0	0.0	89.5	0.53	6.44	0.75	0.02	0.058	0.314	0.01	3
PIMA	15	381	1274		23.1	42.3	0.0	56.8	0.97	7.68	0.53	0.03	0.132	0.910	0.01	4
PIMA	16	343	1402		16.4	13.2	0.0	86.4	0.42	5.64	1.57	0.01	0.049	0.313	0.01	4
PIMA	18	422	829		15.7	33.3	0.0	65.9	0.79	5.28	2.92	0.01	0.062	0.521	0.01	5
PIMA	19	411	877		16.3	41.9	0.0	57.5	0.61	5.44	0.68	0.02	0.098	0.640	0.01	4
PIMA	20	402	906		14.9	8.6	0.0	90.9	0.54	5.17	0.72	0.02	0.059	0.237	0.01	3
PIMA	21	395	954		15.7	7.5	0.4	91.6	0.51	5.45	1	0.04	0.107	0.237	0.01	6
PIMA	22	386	997		17.5	24.6	0.0	74.8	0.64	5.95	1.02	0.02	0.061	0.474	0.01	5
PIMA	23	363	1086		18.3	9.4	0.0	90.2	0.41	6.34	1.72	0.01	0.035	0.301	0.01	5
PIMA	24	315	1166		15.3	0.1	0.0	99.6	0.32	5.35	1.52	0.01	0.053	0.140	0.01	8
PIMA	25	253	1320		17.3	9.3	0.0	90.2	0.50	5.99	1.21	0.02	0.040	0.283	0.01	6
PIMA	26	320	1392		16.9	46.8	13.0	37.8	2.40	5.4	3.79	0.03	0.529	0.714	0.01	5
PIMA	27	229	1367	h.w. grnt (alt.,friable)						15.45	2.12	0.02	0.307	1.778	0.01	8
PIMA	28	292	1511		17.3	45.4	0.0	54.1	0.50	5.74	1.36	0.03	0.164	0.721	0.01	4
PIMA	29	509	992		18.0	38.6	0.0	60.8	0.57	6.02	0.47	0.03	0.156	0.665	0.01	7
PIMA	30	393	1384		21.0	40.7	0.0	58.4	0.87	7	2.33	0.03	0.171	0.805	0.01	4
PIMA	31	253	1298		16.2	4.3	0.0	95.5	0.27	5.63	0.53	0.01	0.025	0.208	0.01	5
PIMA	33	81	1818	banded sst.	45.4	15.7	0.0	83.9	0.42	15.58	3.44	0.03	0.301	0.950	0.01	11
PIMA	34	28	1907	banded sst.	35.9	29.1	0.0	70.5	0.41	12.13	1.92	0.04	0.246	1.087	0.01	8
PIMA	35	204	1620	granite ??						14.69	4.79	0.34	1.558	1.907	0.02	13
PIMA	36	892	17		19.4	76.2	0.0	22.8	0.98	6.19	2.84	0.03	0.236	1.226	0.01	5
PIMA	37	388	1140		17.3	19.7	0.0	79.9	0.47	5.9	0.37	0.02	0.066	0.408	0.01	6

Appendix 1 Geochemical data for Fiddler Point outcrop samples

Sample number		Li (t-ppm)	U (t-ppm)	Mo (t-ppm)	P2O5 (tot-%)	Cd (t-ppm)	MnO (tot-%)	Cr (t-ppm)	V (t-ppm)	Be (t-ppm)	TiO2 (tot-%)	Zr (t-ppm)	Y (t-ppm)	La (t-ppm)	Th (t-ppm)	Sr (t-ppm)
PIMA	1	225	2	1	0.211	0.2	0.010	185	36	4.2	0.383	372	10	180	100	477
PIMA	2	59	2	1	0.059	0.2	0.006	232	17	1.1	0.182	80	6	30	12	192
PIMA	3	56	2	1	0.050	0.2	0.006	365	11	0.9	0.238	85	4	35	16	164
PIMA	4	52	2	1	0.029	0.2	0.003	248	13	0.6	0.068	51	4	13	4	101
PIMA	5	54	2	1	0.033	0.2	0.004	292	9	0.6	0.089	52	4	19	6	117
PIMA	7	63	2	1	0.050	0.2	0.003	259	25	0.9	0.213	88	6	34	11	124
PIMA	8	50	2	1	0.022	0.2	0.004	336	13	0.7	0.082	48	3	15	6	67
PIMA	9	39	2	1	0.166	0.2	0.002	263	21	1.1	0.161	71	6	22	7	1020
PIMA	10	62	2	1	0.158	0.2	0.003	367	11	0.8	0.128	65	4	43	7	708
PIMA	11	178	2	1	0.534	0.2	0.013	151	27	3.7	0.066	225	48	520	58	1049
PIMA	12	35	2	1	0.052	0.2	0.002	230	13	0.9	0.082	50	5	15	5	116
PIMA	13	53	2	1	0.042	0.2	0.003	280	15	0.9	0.152	75	5	17	8	153
PIMA	14	74	2	1	0.070	0.2	0.003	362	14	0.9	0.159	72	6	28	9	277
PIMA	15	93	2	1	0.077	0.2	0.003	280	21	1	0.269	124	10	29	15	269
PIMA	16	66	2	1	0.029	0.2	0.004	322	14	0.6	0.095	59	4	14	7	69
PIMA	18	25	2	1	0.034	0.2	0.003	285	25	0.6	0.104	58	2	14	6	92
PIMA	19	56	2	1	0.043	0.2	0.003	299	12	0.7	0.093	50	3	16	5	81
PIMA	20	55	2	1	0.053	0.2	0.003	319	14	0.9	0.13	58	5	18	7	248
PIMA	21	51	2	1	0.069	0.2	0.004	328	14	1.1	0.141	64	5	20	8	294
PIMA	22	95	2	1	0.065	0.2	0.004	316	12	0.7	0.181	73	6	25	9	221
PIMA	23	37	2	1	0.038	0.2	0.005	360	12	0.3	0.134	64	4	22	6	100
PIMA	24	35	2	1	0.048	0.2	0.011	243	15	0.4	0.159	69	4	26	9	159
PIMA	25	99	2	1	0.088	0.2	0.004	371	15	0.5	0.205	89	4	59	11	266
PIMA	26	29	2	1	0.073	0.2	0.010	425	27	1.1	0.153	57	5	23	7	163
PIMA	27	211	2	1	0.070	0.2	0.007	196	15	1.3	0.164	104	3	32	18	171
PIMA	28	80	2	1	0.038	0.2	0.004	386	18	0.7	0.14	76	3	22	9	80
PIMA	29	39	2	1	0.046	0.2	0.003	260	14	1.1	0.104	62	5	20	6	192
PIMA	30	137	2	1	0.081	0.2	0.004	193	25	0.9	0.191	93	7	41	13	362
PIMA	31	30	2	1	0.026	0.2	0.003	317	15	0.3	0.086	54	4	14	5	32
PIMA	33	418	2	1	0.097	0.2	0.010	222	42	3.2	0.447	181	11	63	23	201
PIMA	34	189	2	1	0.126	0.2	0.004	254	49	2.8	0.343	98	27	81	19	245
PIMA	35	176	2	1	0.318	0.2	0.007	179	33	2.1	0.222	165	29	55	18	84
PIMA	36	26	2	1	0.038	0.2	0.005	407	18	0.9	0.137	69	4	24	7	151
PIMA	37	62	2	1	0.030	0.2	0.003	291	7	0.6	0.141	61	5	20	8	64

Appendix 1 Geochemical data for Fiddler Point outcrop samples

Sample number		Ba (t-ppm)	W (t-ppm)	Sn (t-ppm)	Sc (t-ppm)	Nb (t-ppm)	Ga (t-ppm)	Ta (t-ppm)	Pr (t-ppm)	Nd (t-ppm)	Sm (t-ppm)	Eu (t-ppm)	Gd (t-ppm)	Tb (t-ppm)	Dy (t-ppm)	Ho (t-ppm)
PIMA	1	77	6	4	5	1	29	3	25	127	14.6	1.4	10.6	1.4	2.8	0.5
PIMA	2	108	2	1	2	3	9	1	4	23	3.2	0.6	2.6	0.5	1.5	0.4
PIMA	3	66	1	1	2	4	8	1	5	26	3.5	0.6	2.6	0.4	1.3	0.4
PIMA	4	28	1	1	1	1	8	1	2	11	2.1	0.4	1.5	0.3	0.8	0.4
PIMA	5	36	1	1	2	1	7	1	2	14	2.2	0.4	1.8	0.3	0.9	0.4
PIMA	7	66	1	1	3	4	13	1	5	29	4.2	0.8	2.9	0.4	1.2	0.4
PIMA	8	41	1	1	2	1	7	1	2	11	2.2	0.4	1.6	0.3	0.7	0.4
PIMA	9	110	1	1	3	3	13	1	3	20	3.2	0.6	2.7	0.5	1.2	0.4
PIMA	10	85	1	1	3	2	13	1	7	45	7.3	1.1	4.4	0.6	1.1	0.5
PIMA	11	93	1	1	6	1	26	1	93	552	72.6	5.3	44.8	6.8	14	2.7
PIMA	12	40	1	1	2	1	11	1	2	13	2.8	0.5	2.1	0.4	1	0.4
PIMA	13	68	1	1	3	2	10	1	2	14	2.6	0.5	2	0.3	1.1	0.4
PIMA	14	55	1	1	2	3	11	1	4	23	3.5	0.6	2.2	0.4	1	0.4
PIMA	15	75	1	1	4	4	16	1	4	24	3.6	0.8	3	0.5	1.7	0.6
PIMA	16	46	1	1	2	1	9	1	2	11	2.1	0.5	1.6	0.3	0.8	0.5
PIMA	18	42	1	1	1	1	9	1	1	10	1.8	0.3	1.3	0.3	0.4	0.4
PIMA	19	57	1	1	2	1	10	1	2	11	2.2	0.4	1.4	0.3	0.7	0.4
PIMA	20	53	1	1	2	2	8	1	2	14	2.4	0.5	2	0.4	1	0.4
PIMA	21	77	1	1	2	2	10	1	2	15	2.7	0.6	2.1	0.3	1	0.4
PIMA	22	73	1	1	3	4	10	1	3	23	3.5	0.7	2.6	0.3	1.4	0.4
PIMA	23	49	1	1	2	2	11	1	2	16	2.5	0.4	2	0.3	0.6	0.4
PIMA	24	64	1	1	2	2	10	1	3	20	3	0.6	2.5	0.3	1.2	0.5
PIMA	25	45	1	1	3	3	10	1	9	50	5.8	0.9	3.2	0.4	0.9	0.4
PIMA	26	59	1	1	3	2	10	1	3	18	2.6	0.5	2.7	0.3	1.1	0.4
PIMA	27	46	3	1	5	2	24	1	4	26	3.6	0.8	2.5	0.3	0.4	0.4
PIMA	28	57	1	1	2	1	11	1	2	15	1.8	0.5	1.9	0.3	0.7	0.4
PIMA	29	103	1	1	2	1	12	1	2	16	2.5	0.5	2.1	0.3	0.9	0.5
PIMA	30	47	2	1	3	3	13	1	5	29	3.7	0.7	3.2	0.5	1.1	0.4
PIMA	31	26	1	1	2	1	10	1	1	11	2.1	0.4	1.5	0.3	0.9	0.4
PIMA	33	65	1	2	9	1	31	1	8	51	6.3	0.9	4.5	0.5	1.9	0.6
PIMA	34	111	1	2	7	1	32	1	11	70	10.9	2	9	1.4	4.3	1.1
PIMA	35	170	1	1	11	1	25	1	8	51	7.9	0.9	7.2	1.4	5.2	1.1
PIMA	36	49	1	1	2	2	10	1	3	17	2.3	0.5	2.3	0.3	0.5	0.4
PIMA	37	58	1	1	1	2	11	1	2	15	2.5	0.5	2	0.3	0.9	0.4

Appendix 1 Geochemical data for Fiddler Point outcrop samples

Sample number		Er (t-ppm)	Hf (t-ppm)	Yb (t-ppm)	Lu (t-ppm)	Ce (t-ppm)	Tm (t-ppm)	Cu (t-ppm)	Zn (t-ppm)	Co (t-ppm)	Ni (t-ppm)	Ag (t-ppm)	Cu (p-ppm)	Ni (p-ppm)	Pb (p-ppm)	Zn (p-ppm)
PIMA	1	1.7	13.2	0.8	0.2	359	0.2	2	9	3	20	0.2	2.2	4.7	5.25	7.1
PIMA	2	0.8	2.8	0.9	0.2	60	0.2	2	8	1	5	0.2	2.6	3.8	4.64	7.1
PIMA	3	0.7	3.2	0.6	0.1	68	0.2	3	4	1	5	0.2	3.8	4.9	6.47	2.5
PIMA	4	0.5	2	0.6	0.2	27	0.2	3	3	1	5	0.2	2.9	4.1	3.1	1.6
PIMA	5	0.5	2	0.6	0.1	37	0.2	3	3	1	5	0.2	2.8	4.1	3.97	2.2
PIMA	7	0.8	3.3	1	0.1	73	0.2	2	3	1	5	0.2	2.8	3.6	3.19	2.4
PIMA	8	0.3	2	0.4	0.1	28	0.2	3	2	1	5	0.2	3.4	4.7	2.89	1.1
PIMA	9	0.9	2.7	0.9	0.2	46	0.2	3	3	1	6	0.2	2.7	3.8	1.66	1.1
PIMA	10	0.7	2.6	0.7	0.1	97	0.2	3	3	1	6	0.2	3.8	4.8	1.11	1.4
PIMA	11	6.7	6.8	2.1	0.3	1133	0.8	2	3	1	7	0.8	1.9	2.9	9.17	2
PIMA	12	0.5	2	0.6	0.2	30	0.2	2	5	1	6	0.2	2.2	3.2	2.06	1.9
PIMA	13	0.7	2.8	0.7	0.1	35	0.2	3	4	1	5	0.2	3.1	4.1	3.49	1.8
PIMA	14	0.7	2.8	0.8	0.2	57	0.2	2	2	1	5	0.2	3	4	0.94	1.2
PIMA	15	1.3	4.5	1.2	0.2	59	0.2	3	4	1	5	0.2	2.7	3.5	1.98	2.8
PIMA	16	0.5	2.4	0.7	0.1	27	0.3	3	3	1	5	0.2	3.2	4	1.33	2.5
PIMA	18	0.2	2.4	0.4	0.1	25	0.2	3	2	1	5	0.2	2.9	3.6	1.18	1.8
PIMA	19	0.5	2	0.5	0.1	30	0.2	3	2	1	5	0.2	3	4.2	1.13	1.3
PIMA	20	0.6	2.3	0.7	0.2	33	0.2	3	2	1	5	0.2	3.3	4.3	1.28	1.3
PIMA	21	0.5	2.5	0.7	0.2	38	0.2	3	3	1	6	0.2	3.6	5	1.84	1.9
PIMA	22	0.8	2.8	0.8	0.2	53	0.2	3	4	1	5	0.2	3.2	3.9	1.91	3.8
PIMA	23	0.4	2.6	0.5	0.1	41	0.2	3	2	1	6	0.2	3.7	4.6	1.57	1.5
PIMA	24	0.5	2.7	0.7	0.1	51	0.2	2	6	1	4	0.2	2	3	2.31	6
PIMA	25	0.9	3.4	0.8	0.1	122	0.2	3	2	1	6	0.2	4	5.1	1.77	2.5
PIMA	26	0.5	2.6	0.6	0.1	43	0.2	3	13	1	12	0.2	3.6	5.5	1.12	12.9
PIMA	27	0.4	4.1	0.4	0.1	67	0.2	4	9	1	9	0.2	2.2	3.2	2.88	6.2
PIMA	28	0.5	3	0.7	0.1	41	0.2	3	3	1	9	0.2	3.8	5.5	0.83	2.6
PIMA	29	0.6	2.4	0.7	0.1	38	0.3	3	4	1	6	0.2	3.4	4	2.84	1.5
PIMA	30	0.8	3.4	0.8	0.1	79	0.3	1	6	1	6	0.2	2	2.9	0.67	5.3
PIMA	31	0.5	2.2	0.6	0.1	27	0.2	3	3	1	5	0.2	3.2	4	1.79	2.1
PIMA	33	1.4	6.8	1.1	0.2	140	0.2	3	6	1	15	0.2	2.4	4.3	2.25	4.2
PIMA	34	2.5	4	2	0.3	158	0.4	3	6	1	14	0.2	2.3	4.3	2.91	3
PIMA	35	2.3	6.7	2	0.3	113	0.6	3	32	6	28	0.4	2.1	13.4	3.06	20.5
PIMA	36	0.4	2.9	0.5	0.1	44	0.2	3	2	1	12	0.2	3.8	6	1.35	2
PIMA	37	0.6	2.4	0.5	0.1	38	0.2	2	4	1	6	0.2	3	4.1	1.77	2.6

Appendix 1 Geochemical data for Fiddler Point outcrop samples

Sample number		Co (p-ppm)	Mo (p-ppm)	Ag (p-ppm)	Ge (p-ppm)	As (p-ppm)	Sb (p-ppm)	Bi (p-ppm)	Se (p-ppm)	Te (p-ppm)	Hg (p-ppm)	U (p-ppm)	V (p-ppm)	B (p-ppm)
PIMA	1	0.6	0.4	0.1	0.6	1.2	0.2	2.7	0.9	0.2	0.03	2.20	11.5	80
PIMA	2	0.5	0.6	0.1	0.2	0.4	0.2	0.2	0.2	0.2	0.03	0.40	3.8	32
PIMA	3	0.6	0.7	0.1	0.2	0.3	0.2	0.2	0.2	0.2	0.03	0.35	1.3	42
PIMA	4	0.5	0.7	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.03	0.90	4.7	23
PIMA	5	0.5	0.7	0.1	0.2	0.3	0.2	0.2	0.2	0.2	0.03	0.30	2.2	27
PIMA	7	0.4	0.6	0.1	0.2	0.4	0.2	0.2	0.3	0.2	0.03	0.34	6.8	37
PIMA	8	0.5	0.8	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.03	0.30	3.8	18
PIMA	9	0.4	0.6	0.1	0.2	0.5	0.2	0.2	0.2	0.2	0.03	0.35	5.4	37
PIMA	10	0.5	0.7	0.1	0.2	0.4	0.2	0.3	0.2	0.2	0.03	0.26	1.5	37
PIMA	11	0.5	0.6	0.5	0.6	3	0.2	5.5	1.1	0.8	0.06	3.98	9.7	57
PIMA	12	0.3	0.5	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.03	0.34	3.6	25
PIMA	13	0.4	0.8	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.03	0.25	3.2	33
PIMA	14	0.5	0.4	0.1	0.2	0.2	0.2	0.3	0.2	0.2	0.03	0.20	2.9	32
PIMA	15	0.3	0.6	0.1	0.2	0.4	0.2	0.2	0.2	0.2	0.03	1.15	2.2	72
PIMA	16	0.5	0.5	0.1	0.4	0.2	0.3	0.4	0.3	0.2	0.03	0.57	5.5	22
PIMA	18	0.4	0.6	0.1	0.4	0.2	0.3	0.3	0.3	0.2	0.03	0.36	4.1	40
PIMA	19	0.4	0.7	0.1	0.2	0.3	0.2	0.3	0.2	0.2	0.03	0.24	1.9	32
PIMA	20	0.4	0.8	0.1	0.2	0.3	0.2	0.4	0.2	0.2	0.03	0.28	4.2	26
PIMA	21	0.5	0.8	0.1	0.2	0.2	0.2	0.3	0.2	0.2	0.03	0.44	4.7	26
PIMA	22	0.5	0.7	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.03	0.29	3.1	36
PIMA	23	0.6	0.7	0.1	0.3	0.2	0.2	0.3	0.2	0.2	0.03	0.30	3.5	24
PIMA	24	0.5	0.5	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.03	0.60	5.2	16
PIMA	25	0.6	1.1	0.1	0.3	0.7	0.2	0.2	0.3	0.2	0.03	0.45	4	28
PIMA	26	0.9	0.6	0.2	0.6	1	0.7	0.7	0.6	0.2	0.03	1.26	9.5	131
PIMA	27	0.4	0.4	0.1	0.3	0.3	0.2	0.2	0.3	0.2	0.03	0.30	2	67
PIMA	28	0.6	0.6	0.1	0.3	0.5	0.2	0.4	0.2	0.2	0.03	0.64	3.2	28
PIMA	29	0.3	0.6	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.03	0.36	1.6	33
PIMA	30	0.3	0.4	0.1	0.2	0.4	0.2	0.2	0.2	0.2	0.03	0.26	4.2	59
PIMA	31	0.4	0.7	0.1	0.2	0.2	0.2	0.3	0.2	0.2	0.03	0.24	3.1	14
PIMA	33	0.6	0.4	0.1	0.4	0.8	0.2	0.2	0.4	0.2	0.03	0.62	11.4	62
PIMA	34	0.5	0.6	0.2	0.3	1.7	0.2	0.4	0.3	0.2	0.03	0.98	11.1	47
PIMA	35	2.7	0.4	0.2	0.4	1.4	0.6	0.4	0.6	0.2	0.03	1.51	8	69
PIMA	36	0.8	0.7	0.1	0.4	0.2	0.4	0.5	0.3	0.2	0.03	0.40	3.7	61
PIMA	37	0.4	0.6	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.03	0.14	0.9	26

TO ACCOMPANY;FIDLER POINT URANIUM-GOLD PROPERTY
D.L.DICK B.Sc. Mine-Geo Research Inc.
August 1,1997

APPENDIX 2 ..separate attatched folder

Figures

40-1

G.S.C. Geological Map of Canada

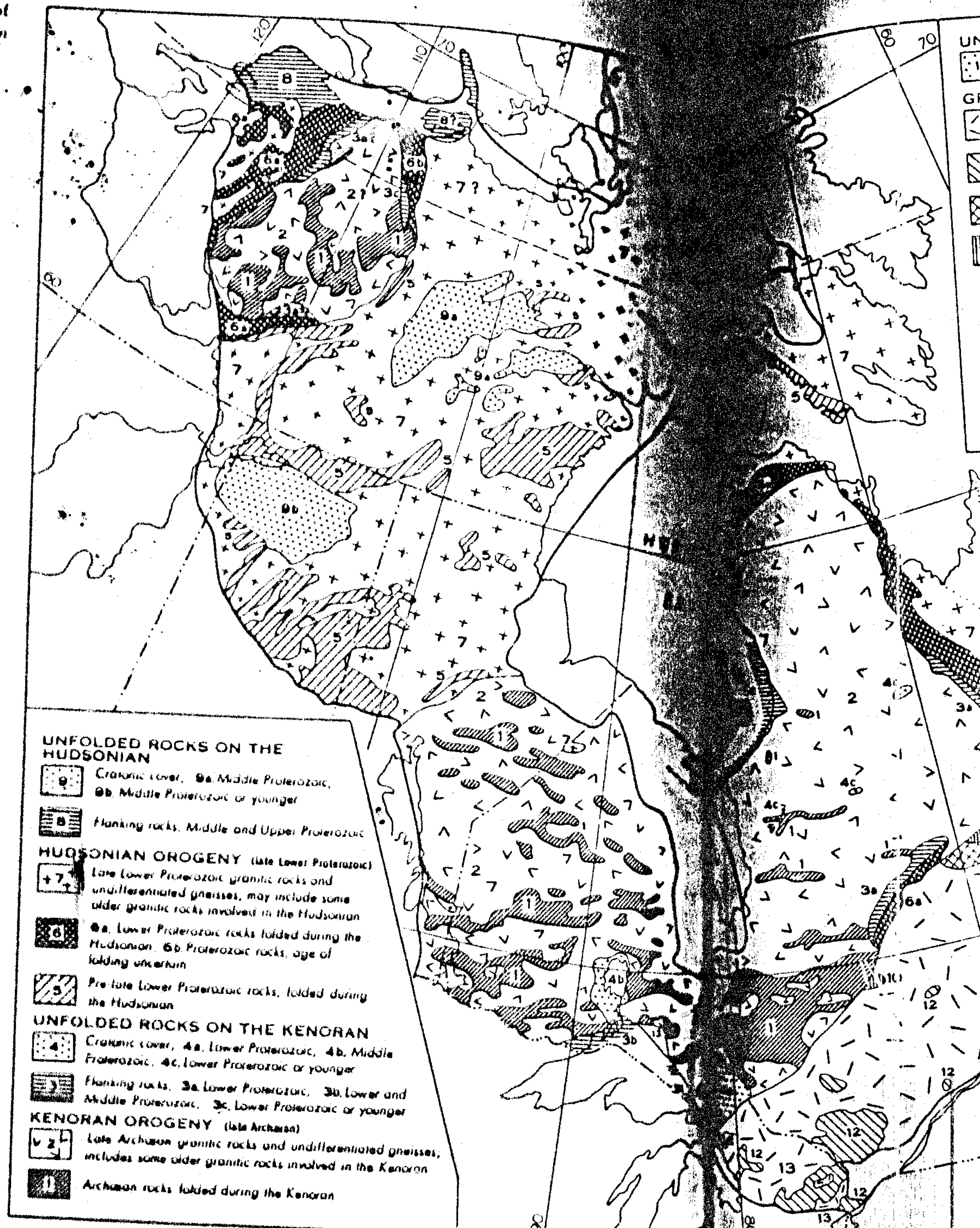
Douglas (1967)

1:5,000,000

Fig. 6

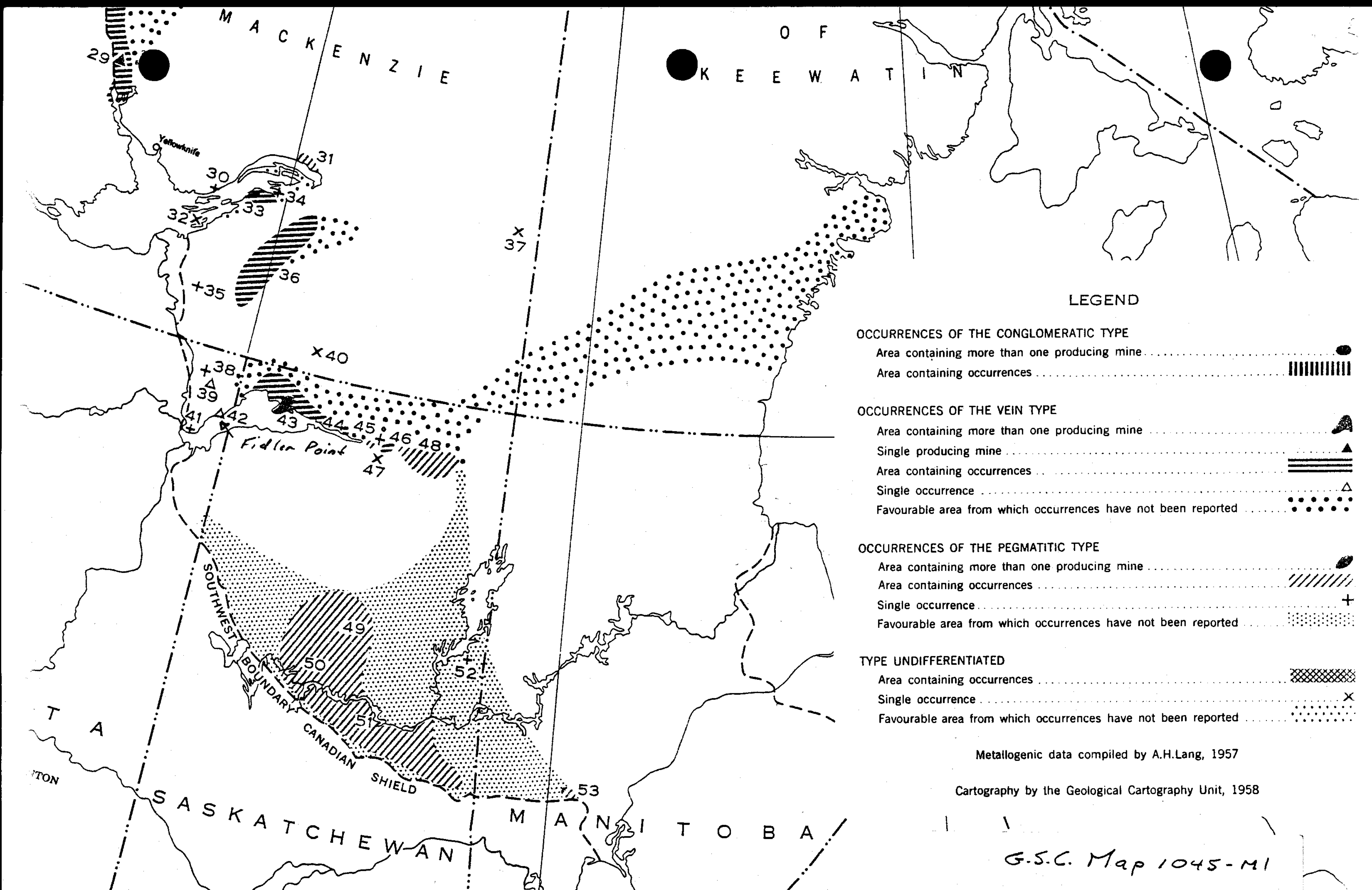
Fig. 11-4 Tectonic map of the Canadian shield. (*From Stockwell, 1962.*)

Spencer (1969) 'Introduction to Structure of the Earth'



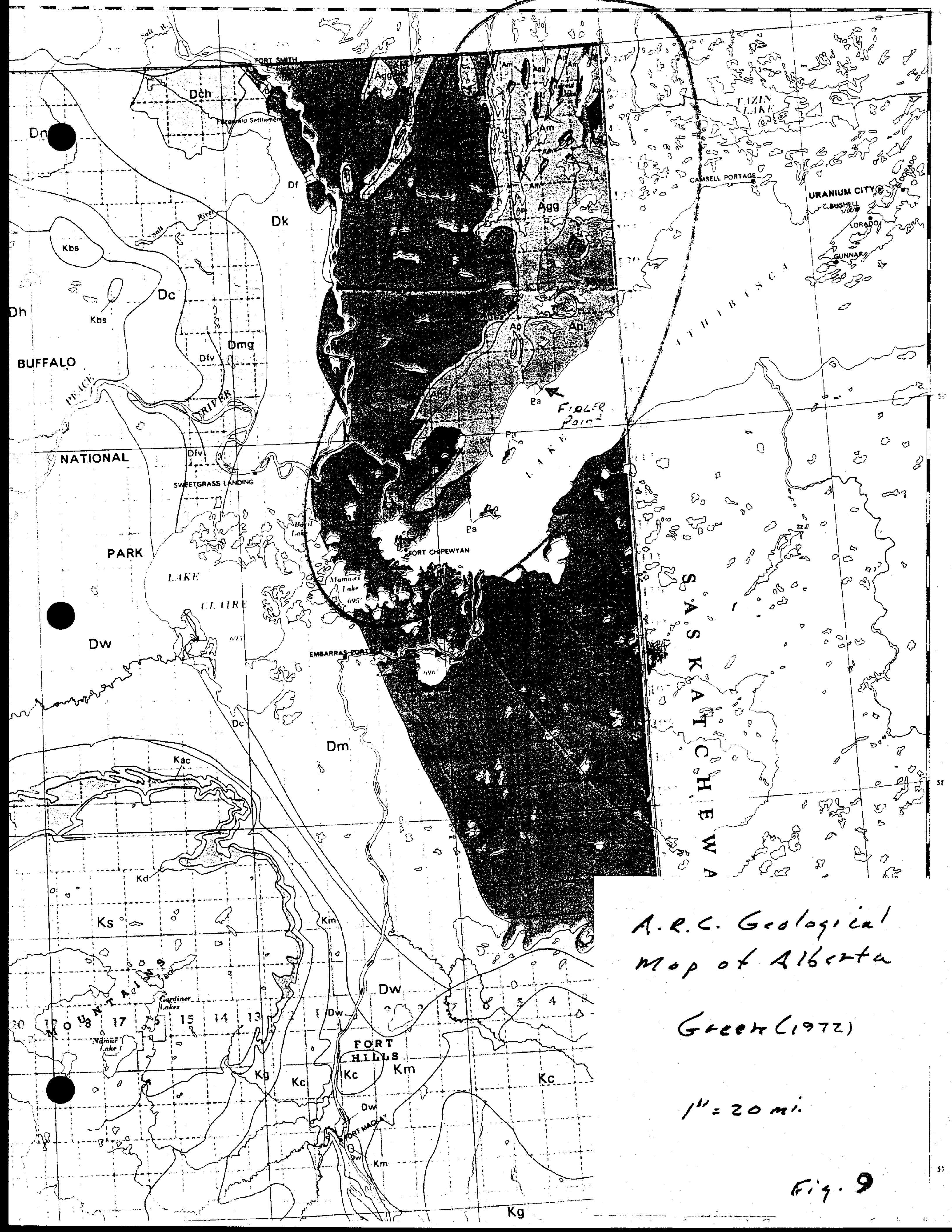
Stockwell (1962)

Fig. 7



38. Leggo Lake area (pegmatitic). Dog River Mining Co. Ltd.
39. Leggo Lake. Dog River Mining Co. Ltd. (pitchblende)
40. Abitau River. New Santiago Mines Ltd.
41. Fort Chipewyan. New Delhi Mines Ltd., etc. (uraninite)
* 42. Fidler Point. Goldfields Uranium Mines Ltd. (pitchblende)
43. Beaverlodge or Goldfields area. Ref. 1, p. 68-106; 8, 9, 10, 11 (pitchblende)
44. Sucker Bay and Grease River. Ref. 1, p. 107, also Fond-du-Lac Exploration Co. Ltd. (pitchblende)

Fig. 8



A.R.C. Geological Map of Alberta

Green (1972)

1" = 20 mi.

Fig. 9

S.G.S. Report #81
Koster (1963)

Fig. 10

LEGEND*

MAFELSIC DYKES AND BODIES

11 — Amphibolite; minor diabase

PEGMATITE

Pegmatite; predominantly with white and pink feldspar

WESTERN GRANODIORITE COMPLEX

9 — Leucocratic Granodiorite; white to pink, medium and fine grained; commonly equigranular and foliated. Minor pegmatite

8 — Granodiorite; light grey to pink; medium and fine grained, with feldspar megacrysts commonly smaller than one inch; biotitic and chloritic; foliated. Minor pegmatite

7 — Megacryst Granodiorite; light grey to pink; medium and fine grained with feldspar megacrysts of two to four inches; biotitic and chloritic, locally amphibolitic; foliated and massive. Pegmatite minor to abundant

Quartz diorite; dark grey, white, mottled with feldspar megacrysts of less than one-third inch; foliated; biotitic and amphibolitic mafélsic. Minor pegmatite

WESTERN META-SEDIMENTARY ROCKS

5 — Quartzites, schists, and phyllites; grey, green and rusty; layered; intensely contorted; tourmaline locally abundant. Pegmatite minor to abundant

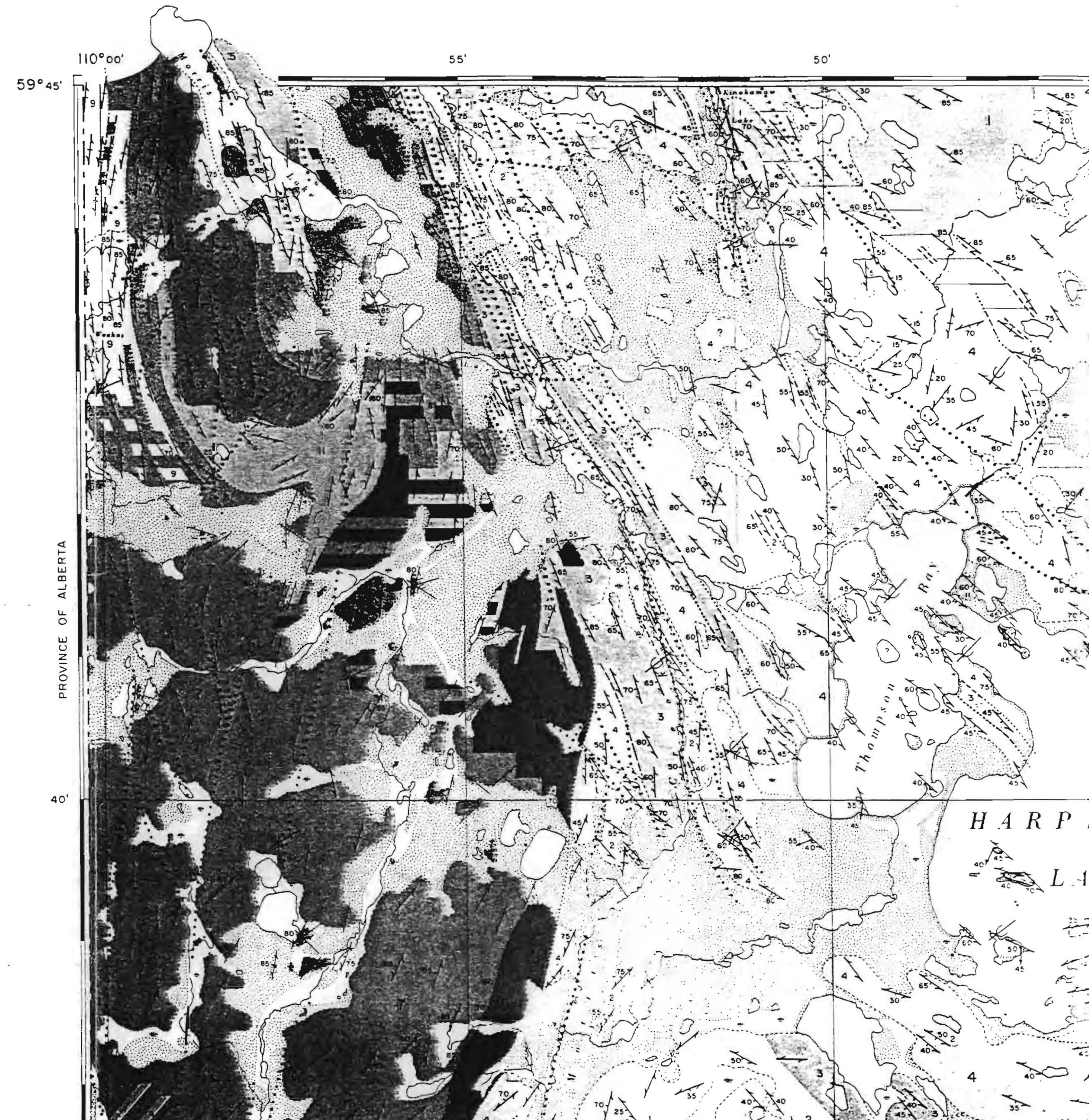
4 — Red Gneisses; layered, pink to rusty, red, fine to coarse-grained, chloritic, biotitic, or amphibolitic quartzo-feldspathic gneisses; locally garnetiferous; feldspar megacrysts of less than one-half inch; drawn out and mylonitized phases common. Minor pegmatite

White Lake Meta-sedimentary Rocks: grey to rusty,

PROVINCE OF SASKATCHEWAN

DEPARTMENT OF MINERAL RESOURCES

MINES BRANCH GEOLOGY DIVISION
1964



26JUN74 C N59-49 W108-41 N N59-44 W108-34 MSS- -D SUN EL51 A2148 198-9803-P-2-A-P-1L CCRS E-1703-17521-

NOT PRECISION PROCESSED

POSITION ERROR 10.00KM

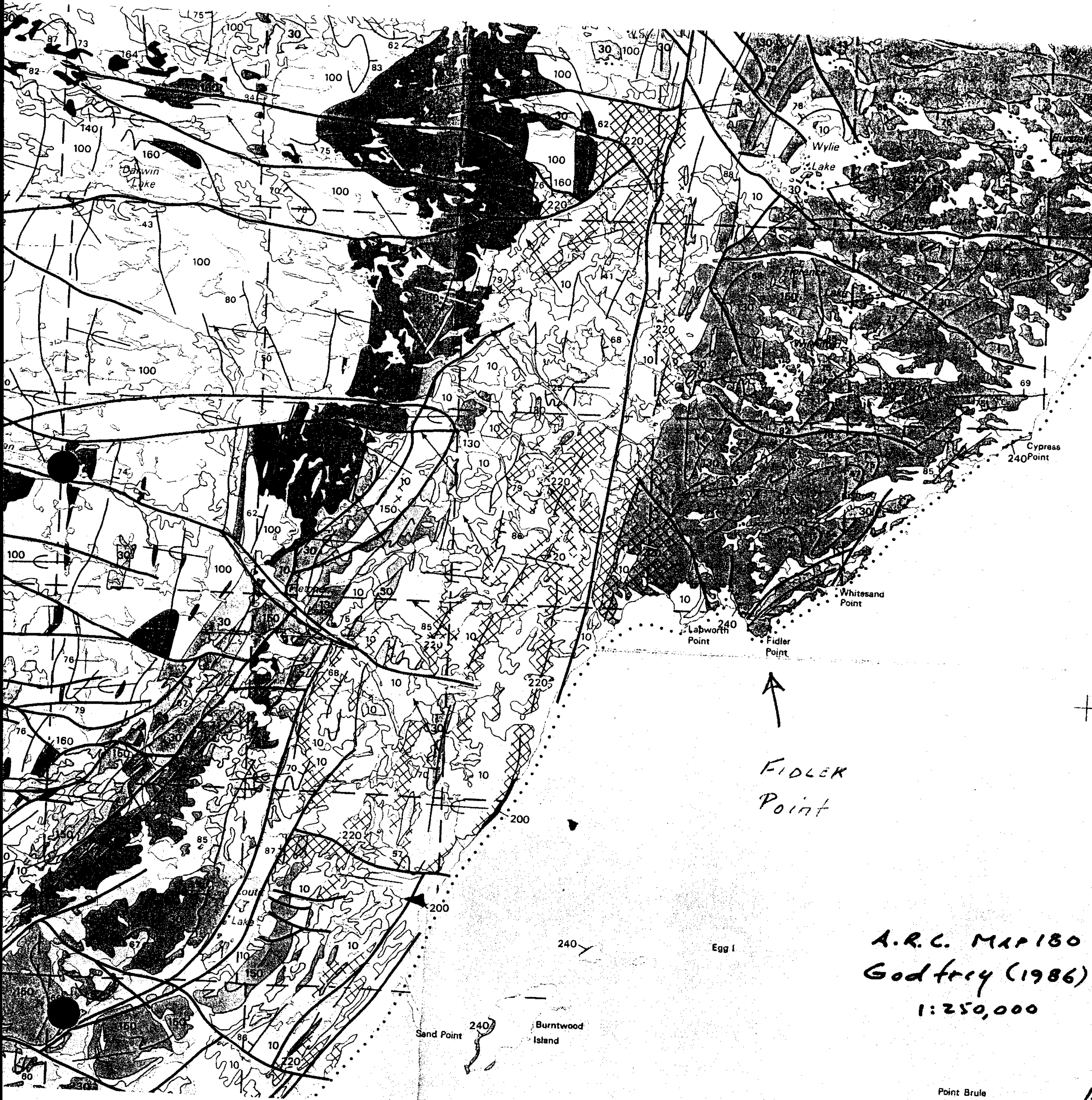
TRACK 17C FC 4518 NTS 74N
IMAGE DATA CREATED 02JUL74

129-45 7

Figure 1.11A

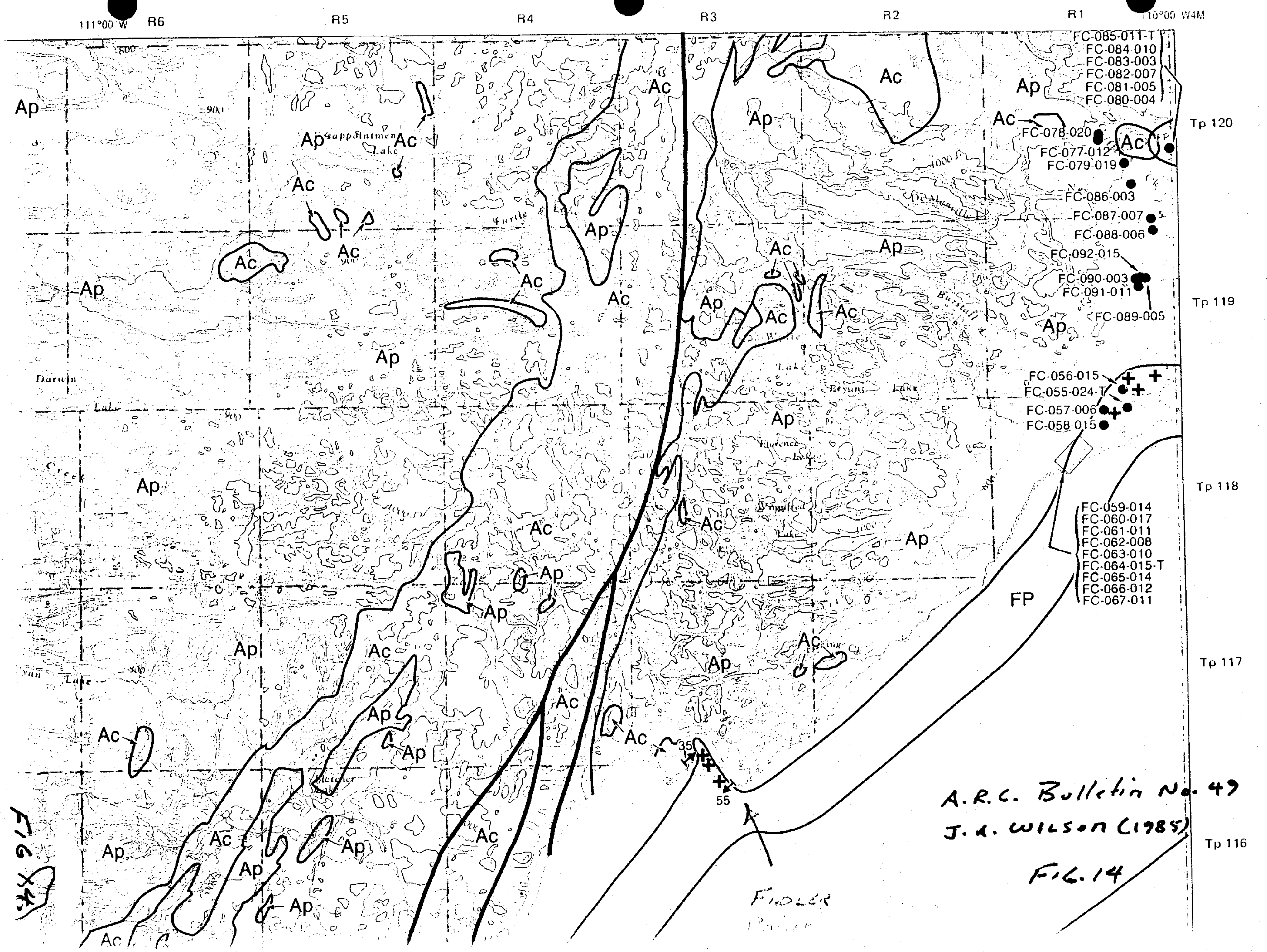
G.S.C. Paper 80-15

Fig. 12

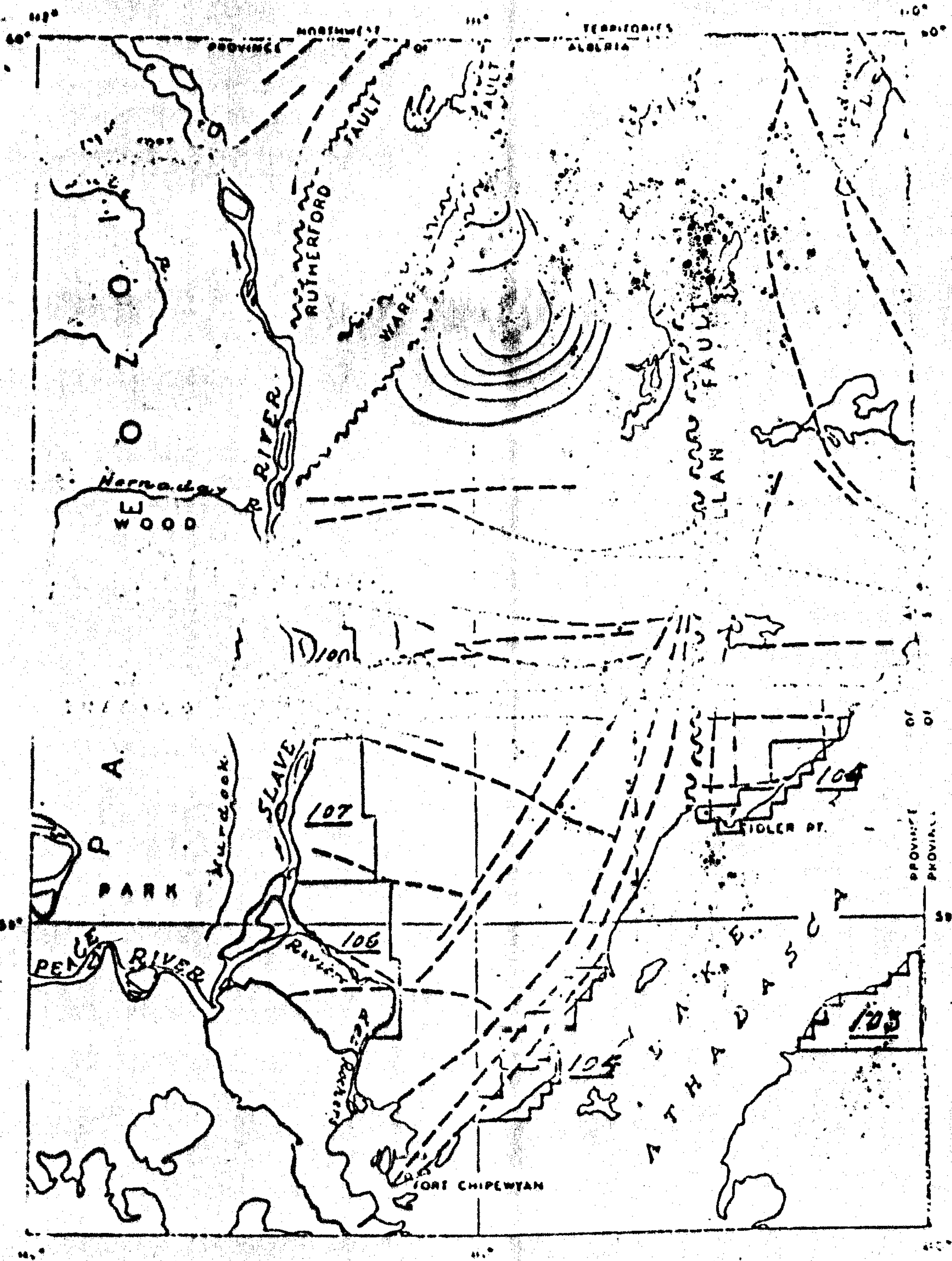


A.R.C. Map 180
Godfrey (1986)
1:250,000

Fig. 13



A.R.C. Bulletin No. 49
J.R. Wilson (1985)
FIG. 14



PRINCIPAL STRUCTURAL ELEMENTS OF THE PRECAMBRIAN
NORTH OF LAKE ATHABASCA

SCALE IN MILES

LEGEND

Faults, major

Faults, minor

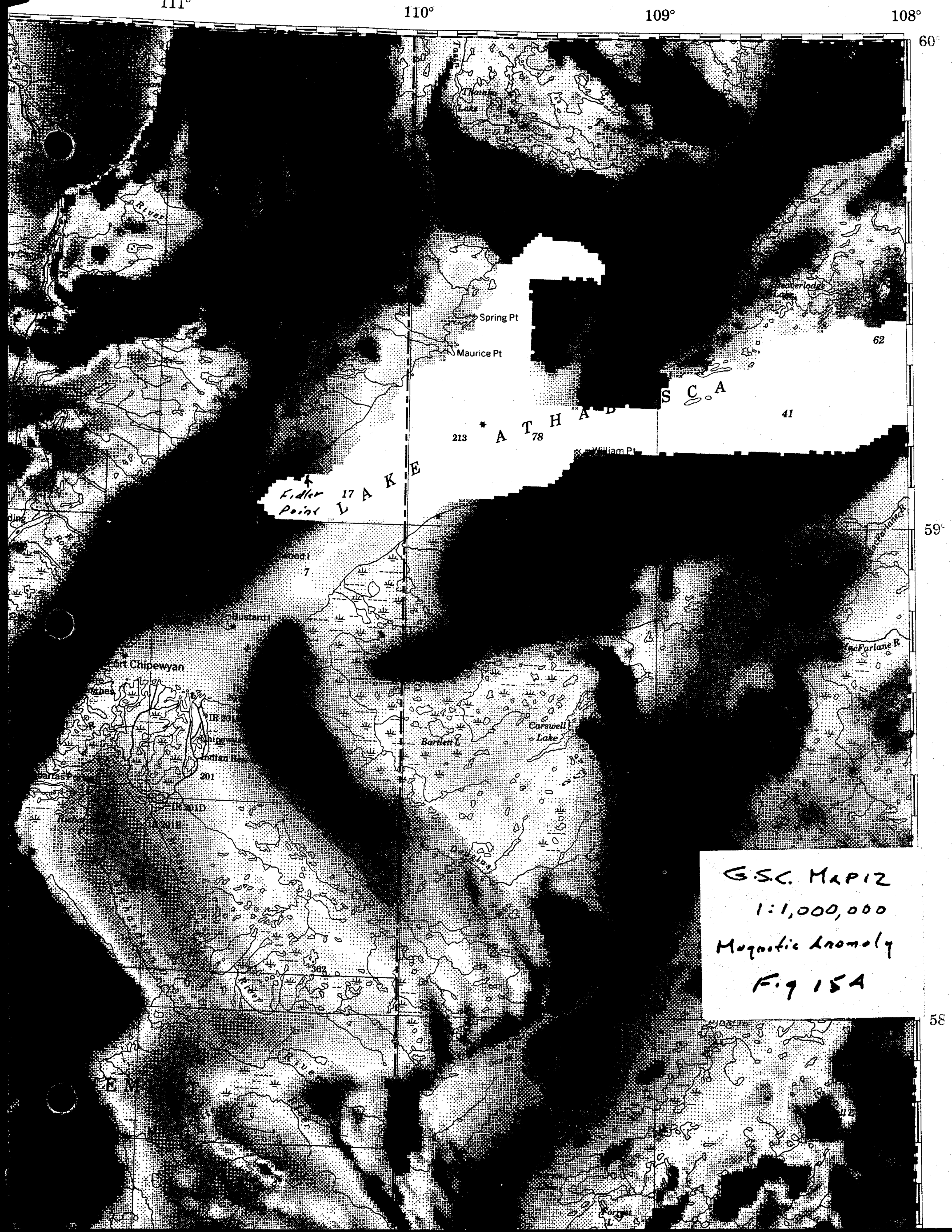
Sedimentary and Metamorphic Structures

INDEX MAP
[illegible] CANADIAN OILS LI[illegible]
[illegible]RTZ MINERAL P[illegible]
[illegible]3, 104, 105, 106, 107.

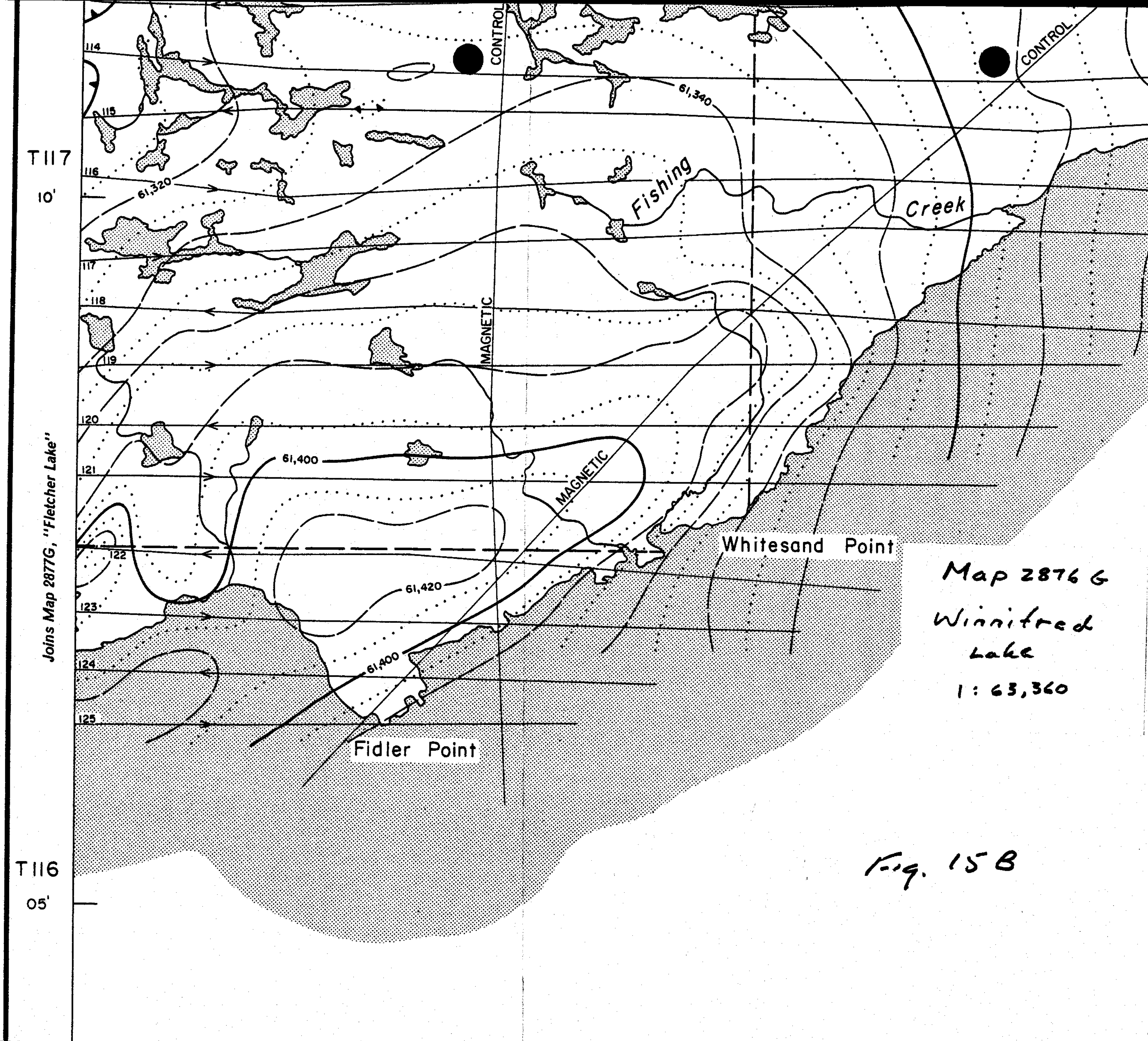
FIGURE:

After John D. Godfrey,
[illegible]

Fig. 15



111°
110°
109°
108°
60°
59°
58°
Thainka Lake
River
Spring Pt
Maurice Pt
Beaverlodge Lake
62
LAKE ATHABASCA
41
213
78
William Pt
Fidler Point
17
7
Bustard I
Fort Chipewyan
MacFarlane R
Carswell Lake
Bartlett L
201
IR 201D
Douglas
362
River
G.S.C. MAP12
1:1,000,000
Magnetic Anomaly
Fig 15A



Map 2876 G
Winnifred Lake
1 : 63,360

Fig. 15 B

Fig. 15 B

CORE LABORATORIES - CANADA LTD.
Petroleum Reservoir Engineering

P.O. BOX 5670 POSTAL STATION "A"
CALGARY 9, ALBERTA
TELEPHONE 253 331[illegible]

Company: North Canadian Oils Limited
Q.M.E. Permit 104
Lake Athabasca, Northeast Alberta, Canada

File: CAL-2-2465-C
Date: September 11/70

Sample	Uranium (U_3O_8%)	Thorium (ThO_2%)
38	0.001	*-0.01
39	0.001	*-0.01
40	0.002	*-0.01
41	0.007	*-0.01
42	0.006	*-0.01
43	ND	*-0.01
44	0.006	*-0.01
45	0.041	*-0.01
46	0.002	*-0.01
47	0.011	*-0.01
48	0.041	*-0.01
49	0.086	*-0.01
50	0.007	*-0.01
51	0.004	*-0.01
52	0.051	*-0.01
53	0.016	*-0.01
54	0.001	*-0.01

Note: Uranium - ND - Less than 0.001%
Thorium *- = Less than

Hale's Rock Samples
(permit 104 - 1970)
U/Th ratio

FIG. 34

ASSAYERS
CHEMISTS
GEOCHEMISTS

CORE LAB

CORE LABORATORIES - CANADA LTD.

Certificate of Analysis

SEMIQUANTITATIVE SPECTROGRAPHIC

REPORT NO. CAL-2-2465-C

Sample(s) From North Canadian Oils Limited D.M.E. Permit 104, Lake Athabasca, Northeast Alberta, Canada

Sample(s) Of Assay Samples

	Sample Group 1 38,40,41,42, 43	Sample	Sample		Sample Group 1 38,40,41,42, 43	Sample	Sample
Antimony	–			Phosphorus	–		
Arsenic	–			Platinum	–		
Barium	.2%			Rhenium	X		
Beryllium (BeO)	–.0002%			Rhodium	–		
Bismuth	–			Rubidium	X		
Boron	.002%			Ruthenium	–		
Cadmium	–			Silver	–.1oz:t		
Cerium (CeO2)	–			Strontium	.05%		
Caesium	X			Tantalum (Ta2O5)	–		
[illegible]	[illegible]			[illegible]			
Cobalt	[illegible]			[illegible]	–		
Columbium (Cb2O5)	–			Thorium (ThO2)	–		
Copper	.001%			Tin	–		
Gallium	.002%			Titanium	.1%		
Germanium	–			Tungsten	–		
Gold	PT			Uranium (U3O8)	–		
Hafnium	–			Vanadium	.01%		
Indium	–			Yttrium (Y2O3)	.007%		
Iridium	–			Zinc	–		
Lanthanum La2O3)	–			Zirconium ZrO2)	.01%		
Lead	.03%			ROCK FORMING METALS			
Lithium (Li2O)	–			Aluminum (Al2O3)	MH		
Manganese	.02%			Calcium (CaO)	.4%		
Mercury	–			Iron (Fe)	LM		
Molybdenum	–			Magnesium(MgO)	LM		
Neodymium Nd2O3)	–			Silica (SiO2)	H		
Nickel	.001%			Sodium Na2O)	LM		
Palladium	–			Potassium (K2O)	M		

Figures are approximate:

CODE

H	– High	– 10 – 100% approx.	LM	– Low Medium	– .5 – 5% approx.	FT	– Faint Trace	– approx. less than .01%.
MH	– Medium High	– 5 – 50% approx.	L	– Low	– .1 – 1% approx.	PT	– Possible Trace	– Presence not certain
M	– Medium	– 1 – 10% approx.	TL	– Trace Low	– .05 – .5% approx.	–	– Not Detected	– Elements looked for but not found
			T	– Trace	– .01 – .1% approx.	X	– Not looked for	

DATE September 11, 1970 SIGNED [redacted]

Hale (1970)
Spectral analysis
Rock Samples
General Folder

FIG 35

ASSAYERS
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GEOCHEMISTS

CORE LAB

CORE LABORATORIES - CANADA LTD.

P. O. BOX 6670, POSTAL STATION "A", CALGARY 2, ALBERTA TELEPHONE 253 1391

Certificate of Analysis

SEMIQUANTITATIVE SPECTROGRAPHIC

REPORT NO. CAL-2-2465-C

Sample(s) From North Canadian Oils Limited N.E. Permit 104
Lake Athabasca
Sample(s) Of Assay Samples Northeast Alberta, Canada

	Sample Group 2 39, 46,47	Sample	Sample		Sample Group 2 39, 46, 47	Sample	Sample
Antimony	–			Phosphorus	–		
Arsenic	–			Platinum	–		
Barium	.3%			Rhenium	X		
Beryllium (BeO)	-.0001%			Rhodium	–		
Bismuth	–			Rubidium	X		
Boron	.002%			Ruthenium	–		
Cadmium	–			Silver	-.1oz:t		
Cerium (CeO_2)	–			Strontium	.07%		
Caesium	X			Tantalum (Ta_2O_5)	–		
Chromium	-.01%			Tellurium	–		
Cobalt	-.01%			Thallium	–		
Columbium (Cb_2O_5)	–			Thorium (ThO_2)	–		
Copper	-.001%			Tin	–		
Gallium	.003%			Titanium	.5%		
Germanium	–			Tungsten	–		
Gold	PT			Uranium (U_3O_8)	–		
Hafnium	–			Vanadium	.01%		
Indium	–			Yttrium (Y_2O_3)	.004%		
Iridium	–			Zinc	–		
Lanthanum La_2O_3)	–			Zirconium ZrO_2)	-.01%		
Lead	.04%			ROCK FORMING METALS			
Lithium (Li_2O)	–			Aluminum (Al_2O_3)	MH		
Manganese	.03%			Calcium (CaO)	.5%		
Mercury	–			Iron (Fe)	M		
Molybdenum	–			Magnesium(MgO)	LM		
Neodymium Nd_2O_3)	–			Silica (SiO_2)	H		
Nickel	.002%			Sodium Na_2O)	M		
Palladium	–			Potassium (K_2O)	M		

Figures are approximate:

CODE

H	– High	– 10 – 100% approx.	LM	– Low Medium	.5 – 5% approx.	FT	– Faint Trace	– approx. less than .01%.
MH	– Medium High	– 5 – 50% approx.	L	– Low	– .1 – 1% approx.	PT	– Possible Trace	– Presence not certain.
M	– Medium	– 1 – 10% approx.	TL	– Trace Low	.05 – .5% approx.	--	– Not Detected	– Elements looked for–not found
			T	– Trace	-- .01 – .1% approx.	X	– Not looked for	

DATE September 11, 1970 SIGNED [redacted]

Form 14

ASSAYERS
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CORE LAB

CORE LABORATORIES - CANADA LTD.

P. O. BOX 5670, POSTAL STATION ... TELEPHONE 253-3391

Certificate of Analysis

SEMIQUANTITATIVE SPECTROGRAPHIC

REPORT NO. CAL-2-2465-C

Sample(s) From North Canadian Oils Limited — Q.M.E. Permit 104, Lake Athabasca, Northeast Alberta, Canada

Sample(s) Of Assay Samples

Antimony	Sample Group 3 44,45,48, 49,50,51, 52,53	Sample	Sample	Phosphorus	Sample Group 3 44,45,48, 49,50,51, 52,53	Sample	Sample
Arsenic	–			Platinum	–		
Barium	.1%			Rhenium	X		
Beryllium (BeO)	-.0001%			Rhodium	–		
Bismuth	–			Rubidium	X		
Boron	.002%			Ruthenium	–		
Cadmium	–			Silver	-.1oz:t		
Cerium (CeO_2)	–			Strontium	.05%		
Caesium	X			Tantalum (Ta_2O_5)	–		
Chromium	–			Tellurium	–		
Cobalt	–			Thallium	–		
Columbium (Cb_2O_5)	–			Thorium (ThO_2)	.01%		
Copper	-.001%			Tin	–		
Gallium	.002%			Titanium	.07%		
Germanium	–			Tungsten	–		
Gold	PT			Uranium (U_3O_8)	.03%		
Hafnium	–			Vanadium	-.01%		
Indium	–			Yttrium (Y_2O_3)	.05%		
Iridium	–			Zinc	–		
Lanthanum La_2O_3)	T			Zirconium ZrO_2)	-.02%		
Lead	.03%			ROCK FORMING METALS			
Lithium (Li_2O)				Aluminum (Al_2O_3)	MH		
Manganese	.03%			Calcium (CaO)	.5%		
Mercury	–			Iron (Fe)	LM		
Molybdenum	–			Magnesium (MgO)	LM		
Neodymium Nd_2O_3)	–			Silica (SiO_2)	H		
Nickel	.001%			Sodium Na_2O)	M		
Palladium	–			Potassium (K_2O)	M		

Figures are approximate:

CODE

H	– High	– 10 – 100% approx.	LM	– Low Medium	– .5 – 5% approx.	FT	– Faint Trace	– approx. less than .01%.
MH	– Medium High	– 5 – 50% approx.	L	– Low	– .1 – 1% approx.	PT	– Possible Trace	– Presence not certain
M	– Medium	– 1 – 10% approx.	TL	– Trace Low	– .05 – .5% approx.	–	– Not Detected	– Elements looked for not found
			T	– Trace	– .01 – .1% approx.	X	– Not looked for	

DATE September 11, 1970 SIGNED [redacted]

Form 14

ASSAYERS
CHEMISTS
GEOCHEMISTS

CORE LABORATORIES - CANADA LTD.

P. O. BOX 5670, POSTAL STATION "A" ... ALBERTA, TELEPHONE 253 3391

Certificate of Analysis

SEMIQUANTITATIVE SPECTROGRAPHIC

REPORT NO. CAL-2-2465-C

Sample(s) From North Canadian Oils Limited — Q.M.E. Permit 104, Lake Athabasca, Northeast Alberta, Canada

Sample(s) Of Assay Samples

	Sample Group 4 54	Sample	Sample		Sample Group 4 54	Sample	Sample
Antimony	–			Phosphorus	–		
Arsenic	–			Platinum	–		
Barium	.07%			Rhenium	X		
Beryllium (BeO)	-.0001%			Rhodium	–		
Bismuth	–			Rubidium	X		
Boron	.003%			Ruthenium	–		
Cadmium	–			Silver	-.1oz:t		
Cerium (CeO_2)	–			Strontium	.02%		
Caesium	X			Tantalum (Ta_2O_5)	–		
Chromium	-.01%			Tellurium	–		
Cobalt	-.01%			Thallium	–		
Columbium (Cb_2O_5)	–			Thorium (ThO_2)	–		
Copper	.002%			Tin	–		
Gallium	.001%			Titanium	.2%		
Germanium	–			Tungsten	–		
Gold	PT			Uranium (U_3O_8)	–		
Hafnium	–			Vanadium	-.01%		
Indium	–			Yttrium (Y_2O_3)	.002%		
Iridium	–			Zinc	–		
Lanthanum (La_2O_3)	–			Zirconium (ZrO_2)	.005%		
Lead	-.01%			ROCK FORMING METALS			
Lithium (Li_2O)	–			Aluminum (Al_2O_3)	MH		
Manganese	.01%			Calcium (CaO)	.7%		
Mercury	–			Iron (Fe)	LM		
Molybdenum	–			Magnesium (MgO)	M		
[illegible]	–			Silica (SiO_2)	H		
Nickel	.002%			Sodium (Na_2O)	M		
Palladium	–			Potassium (K_2O)	LM		

Figures are approximate:

CODE

H – High	– 10 – 1[illegible]0% approx.	LM – Low Medium	– .5 – 5% approx.	FT – Faint Trace	– approx. less than .01%.
MH – Medium High	– 5 – [illegible]% approx.	L – Low	– .1 – 1% approx.	PT – Possible Trace	– Presence not certain.
M – Medium	– 1 – 10% approx.	TL – Trace Low	– .05 – .5% approx.	– – Not Detected	– Elements looked for – not found
		T – Trace	– .01 – .1% approx.	X – Not looked for	

DATE September 11, 197[illegible] SIGNED [redacted]

LAKE ATHABASCA, Northeast Alberta, Canada —
Quartz Mineral Exploration Permit No. 104:

Sample No. 38 - SW Sec. 34-116-3W4 (Photo No. 2);
[illegible]
part [illegible] activity at [illegible] Point;
[illegible]
background [illegible] 500-1,000 max. cpm; Syenite pegmatite very coarse crystalline, large euhedral crystal clusters of black biotite and brown red feldspars; country rock is pegmatitic granite, locally gradational to a pegmatite, occasional relics of gneissic rock.

Sample No. 39 - SE Sec. 19-118-1W4 (Photo No. 8);
only sample collected from traverse of four airborne gamma ray anomalies located north of Cypress Point and west of Fallingsand Point; isolated spot with 3,000 cpm, immediate background 1,000 max. cpm, low regional background (B.G.) 300-400 cpm due to muskeg and glacial outwash; airborne anomalies are given in radiation above background; an area with a low background should contain more airborne radiation anomalies even when relatively low radiation granitic rocks outcrop; pink red granite, speckled and mottled with black biotite, fine to medium crystalline, resembles a granitized sediment.

Sample No. 40 - NE Sec. 33-116-3W4 (Photo No. 2);
located north and west along coast from camp, atop high hill just north of fault zone; airborne gamma ray anomaly 104E; 2,800-3,000 cpm (B.G. = 1,000 cpm max.); dull grey syenite, medium [illegible]
little quartz, vague streaky laminae of black biotite.

Sample No. 41 - NW Sec. 33-116-3W4 (Photo No. 2);
Airborne gamma ray anomaly 104E; 4,000 cpm max.,

2,000-3,000 cpm common over small area (B.G. 1,000 cpm); reddish pink granite, fine to medium crystalline with local very coarse quartz, very fine to micro-fine grained black biotite, very hard, resembles a granitized sediment (pebbly arkosic sandstone).

Sample No. 42 - NW Sec. 33-116-3W4 (Photo No. 2); near to Sample No. [illegible]; 104E anomaly; 10,000 cpm max., (B.G. = 1,000 cpm); dull grey syenite, somewhat pegmatitic, black biotite, fine to very coarse grained crystalline, single small (¼") red octahedron garnet crystal noted, extremely hard.

Sample No. 43 - SE Sec. 33-116-3W4 (Photo No. 2); near lake shore and faulting; 3,000 cpm; 104E gamma ray anomaly; red euhedral feldspar pegmatite, feldspar crystals to 2", very little biotite, some anhedral quartz, broken and somewhat crumbly; immediately west of this Sample No. 43 is a fault zone, badly gouged and crushed mylonite fault zone; one old prospecting trench in fault zone, outcrop shows no mineral and no quartz.

Sample No. 44 - NE Sec. 2-117-3W4 (Photo No. 3); located north-northwest of Whitesand Point; airborne gamma ray anomalies 104A-D (relatively the highest airborne anomalies over Q.M.E. 104), anomaly 104A; 10,000 cpm (B.G. 1,000 cpm); very local radiation area; pegmatitic granite syenite, quartz, reddish feldspar, black biotite, fine to very coarse grained crystalline, hard.

Sample No. 45 - SW Sec. 11-117-3W4 (Photo No. 3); anomaly 104A; 8,000-10,000 cpm (B.G. 1,000 cpm); composite sample over an area about 100 feet by 100 feet; feldspathic pegmatitic syenite, dull grey with dull yellow splotchy stainings on very coarse euhedral feldspars (up to 2" crystals),(about 40% feldspars show dull yellow coloration), very little biotite, some quartz, hard, difficult to break, chemical etched weathering on feldspar surfaces, also some apple green coloration associated with yellow staining.

Note: necessary to leave area account heavy smoke and rain.

Sample No. 46 - NE Sec. 26-117-2W4 (Photo No. 6);
located south along coast from Cypress Point; airborne gamma ray anomaly 104H along coast line; 4,600 cpm on weathered surface and 5,000 cpm on fresh broken surface (B.G. 600-800 cpm), low background radiation due to much muskeg and glacial outwash over area; a local syenite pegmatite within granitic gneiss and granitized sediments, large euhedral feldspar crystals with associated radiation, only little black biotite, chemical etched weathering on surface and some internal, no yellow color as in Sample No. 45 but some scattered greenish coloration.

Sample No. 47 - NE Sec. 28-117-2W4 (Photo No. 6);
located north-northeast of the mouth of Fishing Creek; airborne gamma ray anomaly 104G; radiation to 10,000 cpm max. in a localized area (B.G. 1,000 cpm); white grey syenite pegmatite within granitized sediments, quite small and local area, no yellow staining or chemical weathering as previously noted, feldspar crystal faces give a somewhat diabasic texture, fine to very coarse grained crystalline, relict of sedimentary structure and contortions with pegmatite seams.

Sample No. 48 - SW Sec. 11-117-3W4 (Photo No. 3);
located at same locality as Sample No. 45; anomaly 104A; composite sample over radiation area; 8,000-10,000 cpm (B.G. 1,000 cpm); used 2,000 cpm with yellow staining as limits of area, 200 feet north-south and 170 feet NE-SW; same rock lithology as Sample No. 45 (feldspathic pegmatitic syenite); much yellow staining with green staining just below the feldspar surface grading from the yellow staining within 1/32" to 1/16" thickness, all staining

associated with the feldspars and not biotite; rather difficult to break off sample material except at sealed [illegible] sediments (apparently from arkosic [illegible]) and occasional biotite gneiss (apparently from sandy [illegible]), sedimentary structure relics.

Sample No. 49 – SW Sec. 11-117-3W4 (Photo No. 3); composite sample; ditto Sample No. 48.

Sample No. 50 – SW Sec. 11-117-3W4 (Photo No. 3); same locality as Sample Nos. 45, 48, and 49, located on westerly edge of anomalous radiation and yellow stain area, sampled from roots of a fallen tree; no yellow or greenish staining noted but more biotite present than over most of anomalous area.

Sample No. 51 – SW Sec. 11-117-3W4 (Photo No. 3); sample located on about airborne gamma ray anomaly 104B, north-northwest of Sample No. 45 area; 4,600 cpm max. (B.G. 800-1,000 cpm); rather small area; granitic syenite, medium to coarse grained, quartz, some biotite, not too feldspathic, scattered black biotite, no yellow or greenish staining.

Sample No. 52 – NE Sec. 11-117-3W4 (Photo No. 3); sample located on about airborne gamma ray anomaly 104C, north-northeast of Sample 45 area; 20,000 cpm max. (B.G. 1,000 cpm); relatively small area (50' X 50' ±); similar rock conditions to Sample No. 45 and Sample No. 51; feldspathic pegmatitic syenite with granitic syenite, hard, yellow and green staining, some chemical etched weathering; sampled on fracture joint where had high radiation count.

Sample No. 53 – NW Sec. 12-117-3W4 (Photo No. 3); sample located on about airborne gamma ray anomaly 104C (north part); 10,000 cpm (B.G. 1,000 cpm); same feldspathic pegmatitic syenite with yellow and greenish staining on feldspars and heavily coated in spots.

Sample No. 54 - NW Sec. 13-117-3W4 (Photo No. 3); composite sample of cores (1,100'±) from old diamond drill hole located north of airborne gamma ray anomaly 104C on Fishing Creek along the Fishing Creek fault; all of cores check as barren with the hand scintillometer (only 400-600 cpm); cores are of various lithologies including medium-dark brick red quartzite and granitized sediments, spally mylonite fault zone and pegmatitic injected gneiss; brick red granitized sediments outcrop to north of drill hole; the drill hole apparently penetrated pegmatitic injected and contorted gneiss and metasediments, then cored through a mylonized fault zone and into brick red granitized sediments (based on the first cores taken as being at the bottom of the old broken core rack and the bottom drill cores being at the top of the rack; no evidence of mineral showings, quartz stringers or yellow staining.

Notes: Quartz Mineral Exploration Permit No. 104 is characterized by a number of airborne gamma ray spectrometer radiation anomalies, which anomalies are based on the gamma ray radiation above background. Considerable portions of the area are covered by muskeg and glacial outwash with sparse jack-pine growth that has a very low background (300-600 max.cpm). Such a low background may account for some of the anomalies (I.E. degree of radiation above a very low background).

The gamma ray radiation is directly associated with the syenite pegmatite facies with yellow and greenish staining and not with biotite. No particular radiation occurs from the granitized sediments, metasediments granitic gneiss or lit-par-lit injection gneiss. The pegmatitic facies showing radiation and yellow-greenish staining are apparently associated with only the granitized sediments as country rock.

The yellow staining is tentatively determined by the writer as — Autunite, a hydrous phosphate of uranium and calcium (same as present at Q.M.E. 105 surface blast area, Sample No. [illegible]). The green coloration existing [illegible] from the yellow surface coloration is tentatively [illegible] by the writer as — — [illegible], a hydrated uranyl phosphate.

It may be that the uranium content of the syenite pegmatites is derived from the old Archean sediments that were granitized and then injected and redigested of uranium and phosphorus from the host rocks by the syenite pegmatites.

The granitic rocks of Q.M.E. 104 may be colloquially referred to as "hot granites".

The diamond drill prospecting conducted at the Sample No. 54 locality was probably performed by Goldfields Uranium Ltd., as reported on the G.S.C. Map 1045A-M1 ("Uranium in Canada"), Locality 42, Fidler Point (pitchblende). Local residents report several other diamond drill holes west of the Sample No. 54 locality. It is estimated and reported that most of this diamond drilling occurred during 1954. There are also reports that prospectors and/or geologists have entered the Fidler Point bush area with pack-sack drills. No evidence of recent entry was observed.

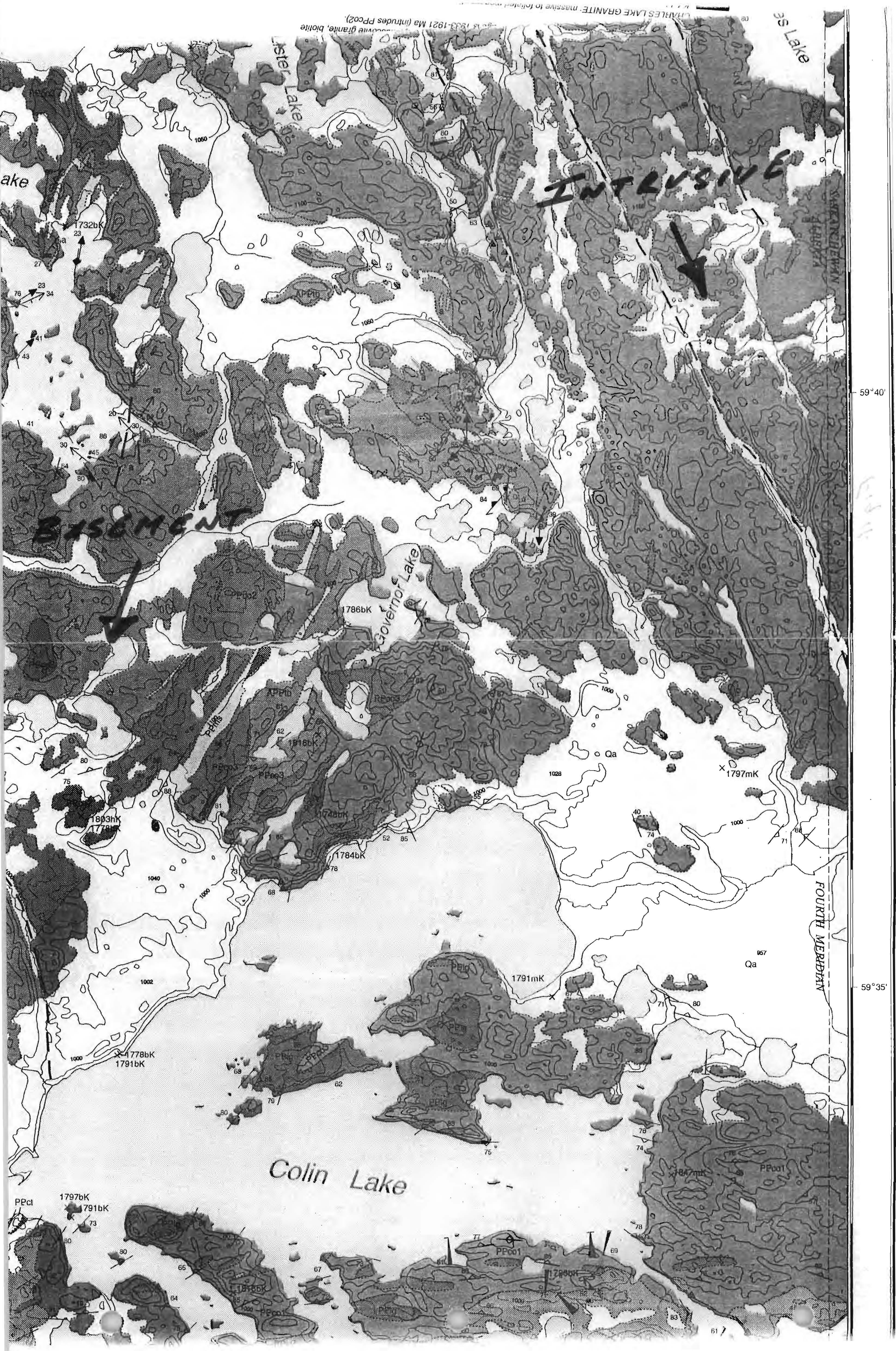
JOHN D. HALE, P. Geol. (Alta.)

THE ASSOCIATION OF PROFESSIONAL ENGINEERS OF ALBERTA
PERMIT NUMBER
P 120
JOHN D. HALE CONSULTING LTD.

AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS
CERTIFIED PETROLEUM GEOLOGIST
JOHN D. HALE
1027
1917

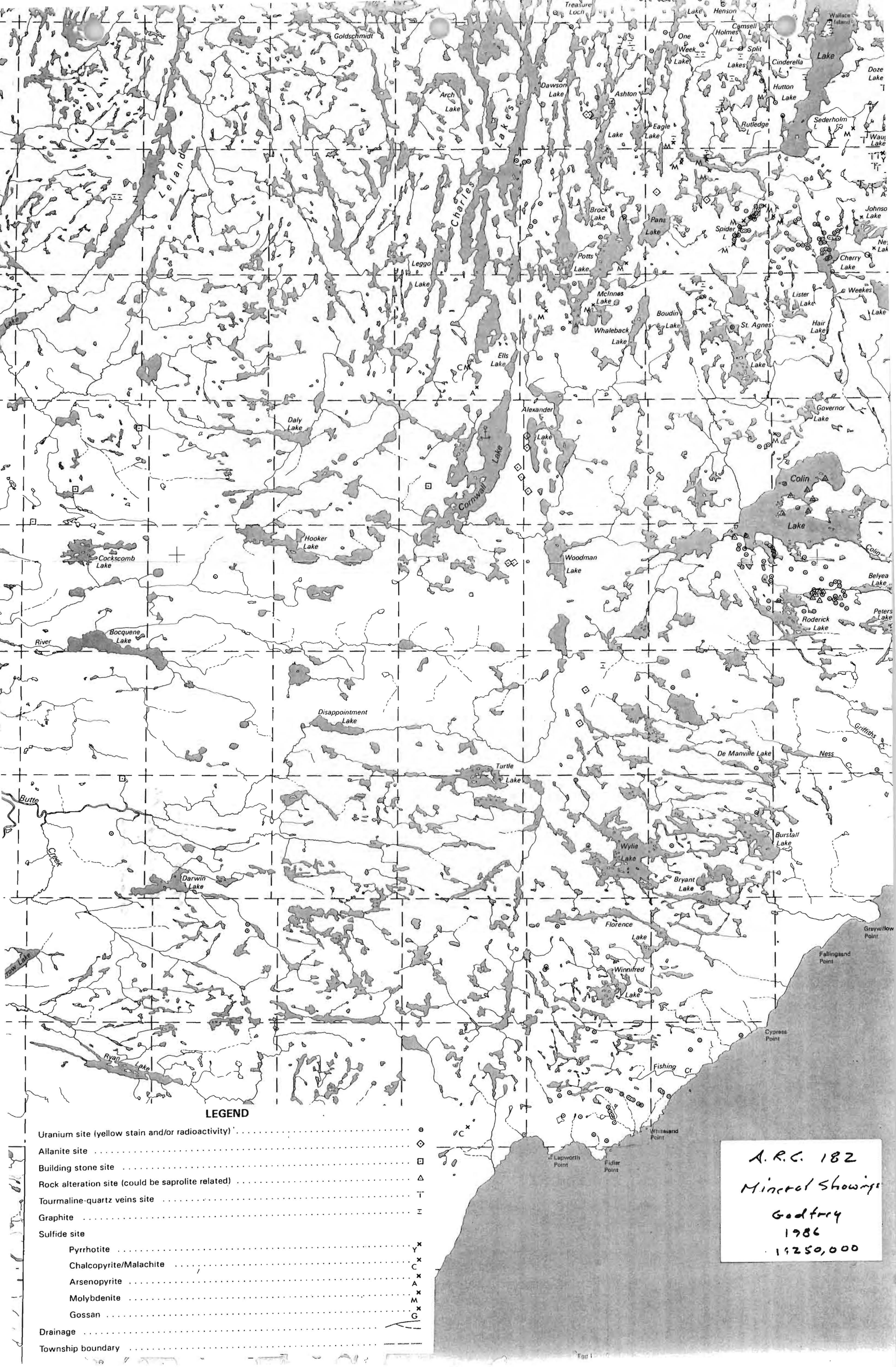
G.S.C. O.F. 3047
Colin Lake
McDonough et al
(1994)

Fig 11.


INTRUSIVE
BASEMENT
Governor Lake
Colin Lake
FOURTH MERIDIAN
59°40'
59°35'
1732bK
1786bK
1916bK
1803hK
1778hK
1784bK
1797mK
1791mK
1778bK
1791bK
1797bK
1791bK
1847mK
APPfb
PPco1
PPct
Qa

Map 182
Showings N.E. Alta.
Godfrey

Fig. 15C

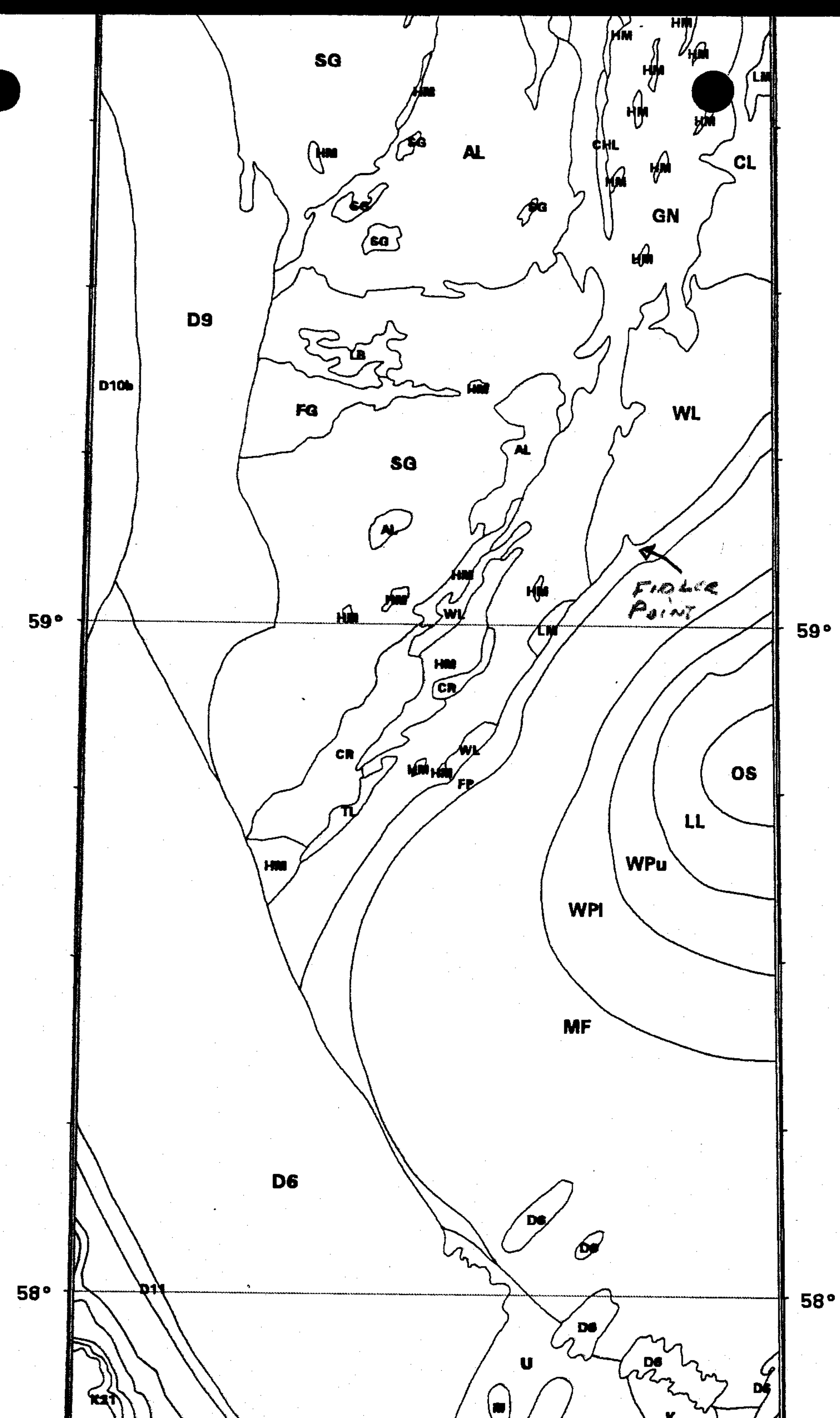

LEGEND
Uranium site (yellow stain and/or radioactivity)
Allanite site
Building stone site
Rock alteration site (could be saprolite related)
Tourmaline-quartz veins site
Graphite
Sulfide site
Pyrrhotite
Chalcopyrite/Malachite
Arsenopyrite
Molybdenite
Gossan
Drainage
Township boundary
Y
C
A
M
G
A.R.C. 182
Mineral Showings
Godfrey
1986
1:250,000
Treasure Loch
Goldschmidt
Henson
One Week Lake
Holmes L
Camsell Lakes
Split
Wallace Island
Lake
Cinderella L
Hutton Lake
Doze Lake
Dawson Lake
Arch Lake
Ashton
Sederholm L
Rutledge
Eagle Lake
Lake
Leland
Charles Lakes
Brock Lake
Pans Lake
Spider L
Johnson Lake
Potts Lake
Cherry Lake
Leggo Lake
McInnes Lake
Weekes
Lister Lake
Boudin Lake
Whaleback Lake
St. Agnes
Hair Lake
Ells Lake
Lake
Alexander
Governor Lake
Daly Lake
Lake
Cornwall
Colin
Lake
Hooker Lake
Woodman Lake
Cockscomb Lake
Belyea Lake
Peters Lake
Roderick Lake
Bocquene Lake
River
Disappointment Lake
Griffiths Cr
De Manville Lake
Ness Cr
Turtle Lake
Butte
Creek
Burstall Lake
Wylie Lake
Darwin Lake
Bryant Lake
Florence Lake
Greywillow Point
Fallingsand Point
Winnifred Lake
Cypress Point
Ryan Lake
Fishing Cr
Whitesand Point
Lapworth Point
Fidler Point

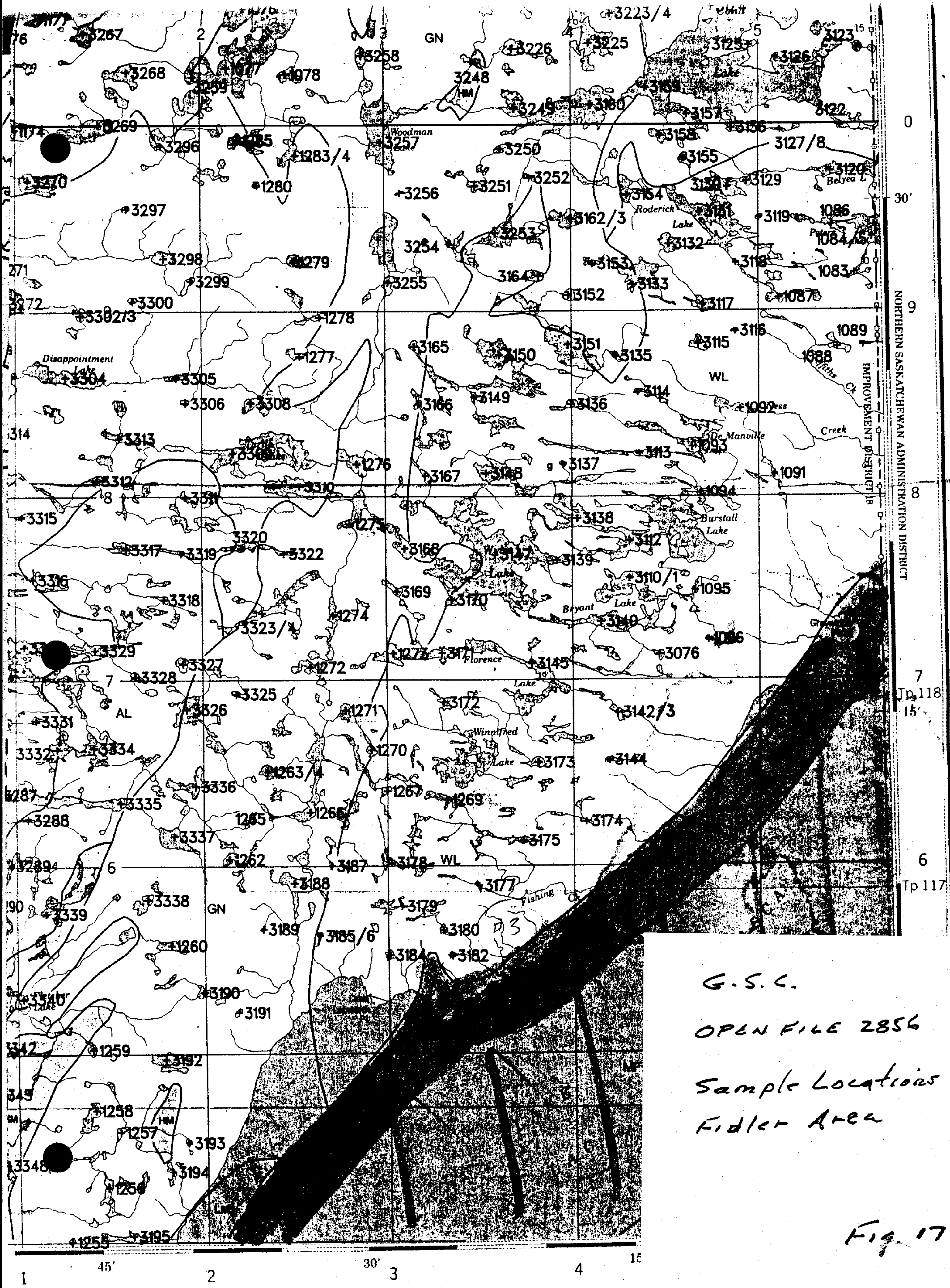
G.S.C. Open File 2856
N.T.S. 74E, 74L, 74M
Alberta, 1994

1993

Geology Overlay

Fig. 1B





G.S.C.

OPEN FILE 2856

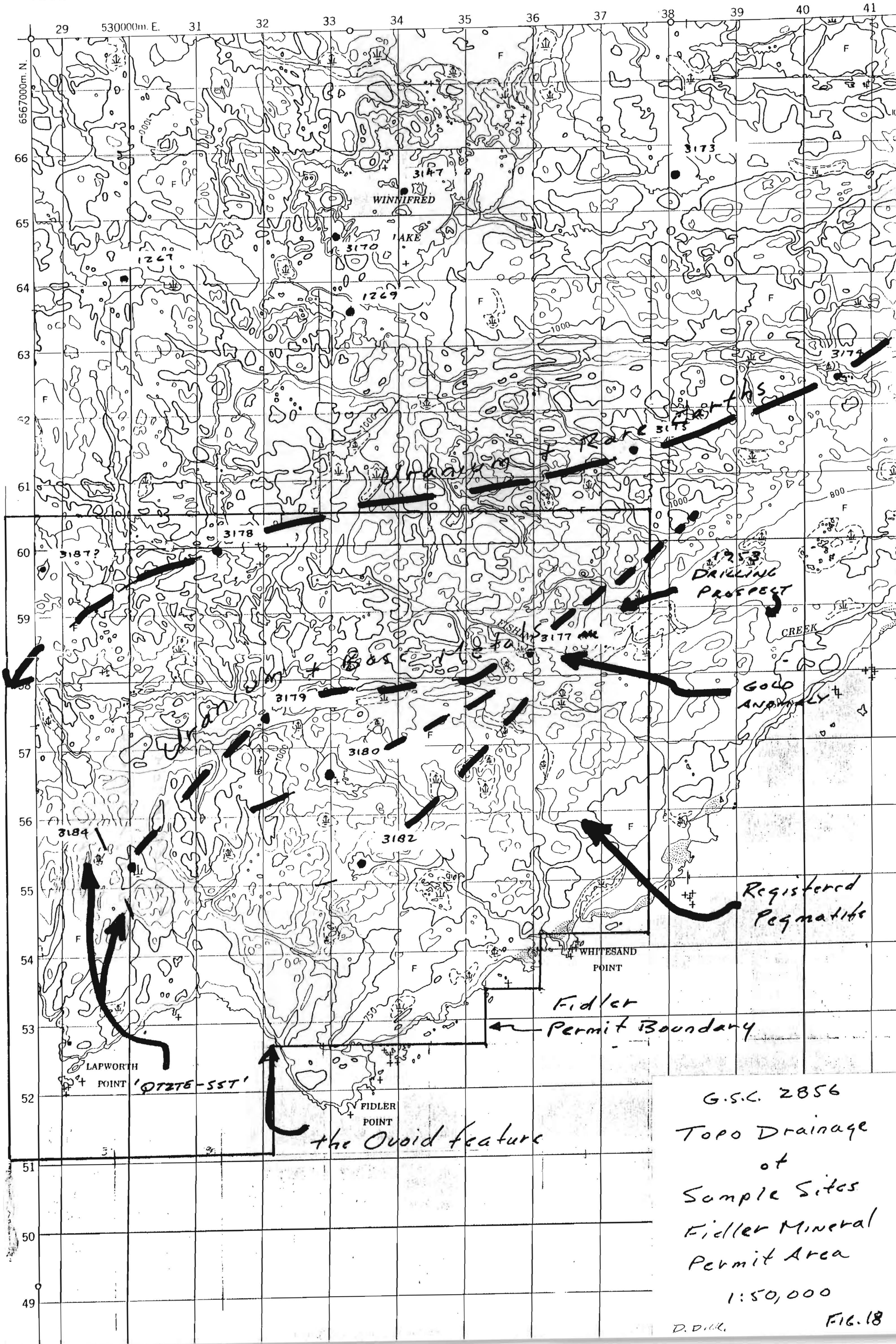
Sample Locations
Fidler Area

Fig. 17

FIDLER AREA
TOPO DRAINAGE
Sample Sites
1:50,000

Fig 18(A)

74 M/1 EDITION 2



G.S.C. 2856
Topo Drainage of Sample Sites
Fidler Mineral Permit Area
1:50,000

D. DICK.

FIG. 18

Fidler Area

Topo Drainage

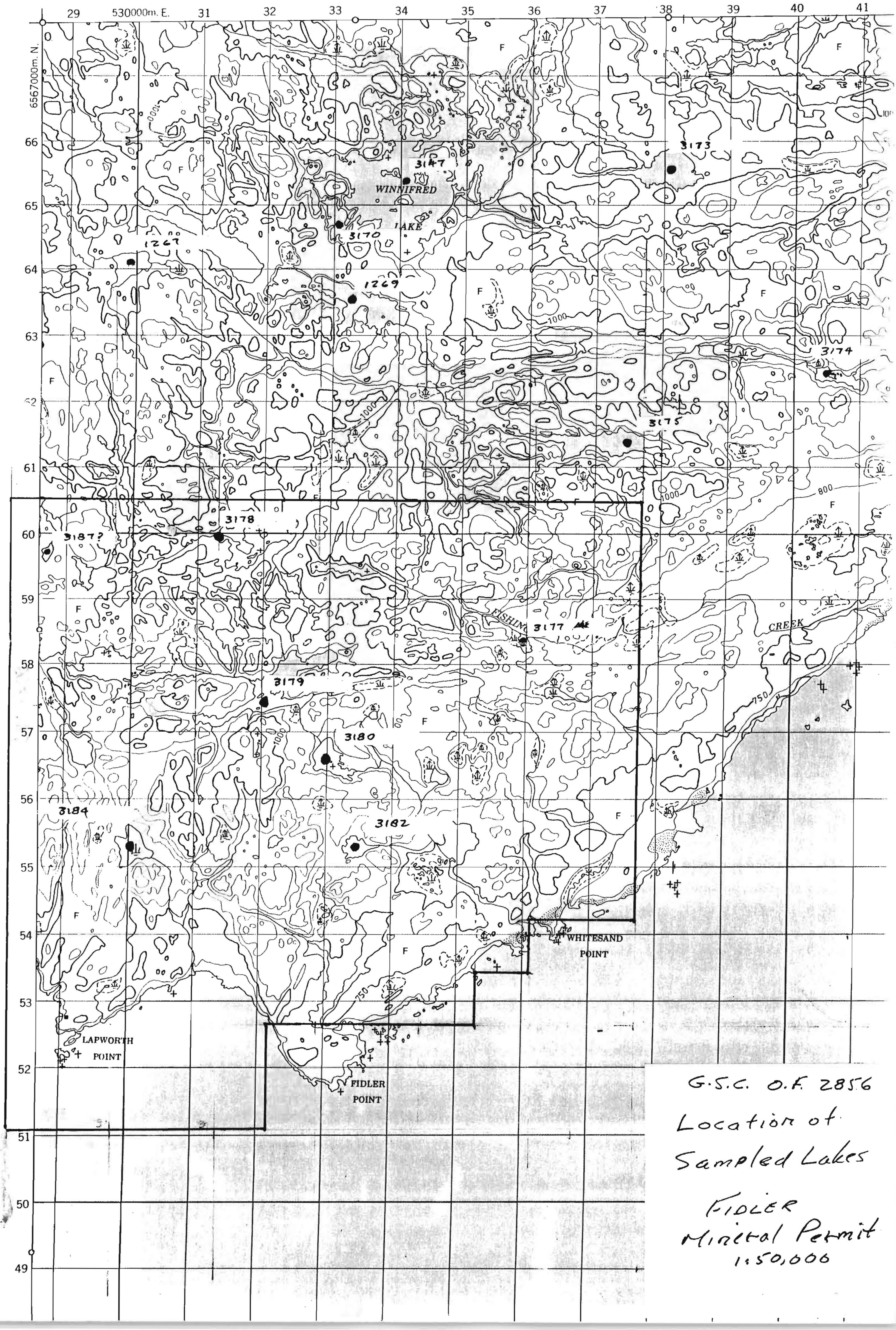
Sample Sites

1:50,000

WORKSHEET

Fig. 18(B)

74 M/1 EDITION 2



G.S.C. O.F. 2856

Location of Sampled Lakes

FIDLER Mineral Permit

1:50,000

Geochemical Reconnaissance Lake Sediment and Water Geochemical Data, Alberta, 1994. GSC OF 2856. NTS 074E, 074L, 074M

Field Data

Map	Sample ID	Rep Stat	Zone	UTM Easting	UTM Northing	Rock Unit Age	Lake Area	Lake Depth	Terrain Relief	Sample Cont	Sample Colour	Suspend Mat'l
074M	933172	00	12	533093	6568834	WL 05	.25-1	2	Med	-	Brown	-
074M	933173	00	12	538111	6565577	WL 05	.25-1	5	Med	-	Brown	-
074M	933174	00	12	540648	6562381	WL 05	.25-1	3	Med	-	Brown	-
074M	933175	00	12	537295	6561374	WL 05	1-5	19	Hi	-	Grey	-
074M	933177	00	12	534914	6558995	WL 05	.25-1	5	Hi	-	Brown	-
074M	933178	00	12	530182	6560214	WL 05	1-5	8	Hi	-	Brown	-
074M	933179	00	12	530735	6557911	WL 05	.25-1	10	Hi	-	Brown	-
074M	933180	00	12	532970	6556626	WL 05	.25-1	2	Med	-	Brown	-
074M	933182	00	12	533439	6555270	WL 05	.25-1	2	Med	-	Brown	-
074M	933184	00	12	530071	6555318	WL 05	.25-1	2	Med	-	Brown	-
074M	933185	10	12	526205	6556341	WL 05	.25-1	7	Hi	-	Brown	-
074M	933186	20	12	526205	6556341	WL 05	.25-1	7	Hi	-	Brown	-
074M	933187	00	12	526879	6560059	GN 02	.25-1	7	Hi	-	Brown	-
074M	933188	00	12	524802	6559145	GN 02	1-5	9	Med	-	GreyBrown	-
074M	933189	00	12	523114	6556696	GN 02	Pond	3	Hi	-	Brown	-

O.F. 2856

Geo-chem Data

Fidler Area

Fig. 19

Fig. 19

National Geochemical Reconnaissance Lake Sediment and Water Geochemical Data, Alberta, 1994. GSC OF 2856. NTS 074E, 074L, 074M
Analytical Data

Variable:			Ag	As	Au	AuWt	Ba	Br	Cd	Ce	Co	Co	Cr	Cs	Cu	Eu	F	Fe	Fe	Hf	Hg	La	Lu	LOI
Units:			ppm	ppm	ppb	gram	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	pct	pct	ppm	ppb	ppm	ppm	pct
Detection Limit:			0.2	.5	2		50	.5	0.2	5	2	5	20	.5	2	1	40	0.02	.2	1	5	2	.2	1.0
Analytical Method:			AAS	INAA	INAA		INAA	INAA	AAS	INAA	AAS	INAA	INAA	INAA	AAS	INAA	ISE	AAS	INAA	INAA	CV_AAS	INAA	INAA	GRAV
074M	933172	00	<	1.8	<	20.91	150	56.8	0.4	43	5	<	<	.6	11	<	81	1.00	1.1	2	18	17	<	64.03
074M	933173	00	<	1.5	<	22.37	130	47.0	0.2	39	5	5	34	<	12	<	77	1.67	1.7	3	37	22	<	49.51
074M	933174	00	<	1.8	<	18.04	140	51.2	0.2	44	7	6	26	.7	14	<	132	1.69	1.6	2	49	27	<	41.10
074M	933175	00	<	2.6	<	24.21	730	69.1	0.4	70	8	11	30	1.2	16	1	123	4.23	4.8	8	24	37	<	16.73
074M	933177	00	<	1.1	3	11.45	79	49.0	0.3	33	7	5	28	.5	18	<	91	1.73	1.5	1	77	17	<	48.02
074M	933178	00	<	2.3	<	25.62	210	84.3	0.3	75	9	9	57	1.1	22	<	132	3.04	3.6	4	49	39	<	43.47
074M	933179	00	<	1.8	<	18.26	160	91.8	0.5	25	11	12	34	<	30	<	98	2.20	2.4	1	65	18	<	57.31
074M	933180	00	<	2.4	<	18.27	85	158.0	0.3	39	8	5	46	<	24	<	98	1.24	1.3	<	71	15	<	63.58
074M	933182	00	<	2.8	<	19.01	190	61.7	0.2	30	8	<	27	<	14	<	82	1.10	1.2	1	57	12	.3	62.95
074M	933184	00	<	2.7	<	19.21	150	55.7	0.2	32	8	5	30	.6	19	<	90	0.82	.9	1	57	15	<	54.80
074M	933185	10	<	3.2	<	18.45	140	97.1	0.3	92	10	11	39	<	22	1	106	2.40	3.0	2	73	42	<	54.99
074M	933186	20	<	2.4	<	21.64	130	93.5	0.5	90	10	8	61	1.1	21	<	90	2.46	2.8	2	75	41	.3	55.32
074M	933187	00	<	2.1	<	19.05	120	109.0	0.3	41	7	<	26	1.1	19	<	105	1.64	2.1	2	59	24	.2	49.43
074M	933188	00	0.2	2.0	<	15.57	170	52.4	0.3	58	7	<	<	.9	16	<	146	1.92	2.0	4	51	27	.2	31.76
074M	933189	00	<	1.8	<	16.67	160	119.0	<	51	5	<	26	1.1	16	1	77	1.68	1.8	2	57	24	.2	52.75

National Geochemical Reconnaissance Lake Sediment and Water Geochemical Data, Alberta, 1994. GSC OF 2856. NTS 074E, 074L, 074M
Analytical Data

Variable:			Mn	Mo	Na	Ni	Pb	Rb	Sb	Sc	Sm	Ta	Tb	Th	U	V	W	Yb	Zn	pH	F_W	U_W
Units:			ppm	ppm	pct	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm		ppb	ppb
Detection Limit:			5	2	.02	2	2	5	.1	.2	.1	.5	.5	.2	.2	5	1	1	2		20	.05
Analytical Method:			AAS	AAS	INAA	AAS	AAS	INAA	INAA	INAA	INAA	INAA	INAA	INAA	INAA	AAS	INAA	INAA	AAS	GCM	ISE	LIF
074M	933172	00	82	2	.15	8	4	10	.1	3.1	2.6	<	<	3.5	60.1	16	<	1	106	6.9	52.0	0.18
074M	933173	00	162	2	.16	6	3	<	.1	3.6	2.5	<	<	4.5	20.6	13	<	1	91	7.1	50.0	0.11
074M	933174	00	126	<	.20	13	4	17	.1	4.8	3.6	<	<	6.8	39.2	19	<	1	68	7.0	52.0	0.2
074M	933175	00	3758	3	.46	10	5	34	.2	5.7	5.1	.5	.6	9.1	70.6	17	<	2	103	7.3	48.0	0.32
074M	933177	00	214	3	.11	13	5	9	<	3.7	2.6	<	<	4.9	27.9	20	<	1	103	6.9	46.0	0.26
074M	933178	00	361	2	.24	14	6	18	<	8.3	4.9	<	.7	12.0	41.3	24	<	2	93	7.2	64.0	0.22
074M	933179	00	436	3	.12	16	6	11	.1	4.5	2.4	<	<	4.6	32.3	14	<	<	126	7.5	58.0	0.07
074M	933180	00	111	<	.10	21	4	9	.2	3.8	2.6	<	<	5.4	43.9	15	<	<	104	6.9	58.0	0.3
074M	933182	00	185	2	.10	16	3	6	.1	3.1	1.9	<	<	4.7	139.0	11	<	1	75	7.4	40.0	0.95
074M	933184	00	113	4	.11	18	<	5	.2	3.4	2.1	<	<	5.4	88.5	13	<	1	82	7.1	46.0	0.94
074M	933185	10	326	2	.14	12	4	10	.2	6.9	5.0	<	.6	10.0	37.3	21	<	1	108	7.0	52.0	0.2
074M	933186	20	342	2	.13	13	5	<	.2	6.7	4.8	<	<	10.0	35.8	19	<	1	101	7.0	52.0	0.24
074M	933187	00	301	<	.17	11	4	18	.1	5.4	3.2	<	<	7.0	16.0	16	<	1	87	7.7	44.0	<
074M	933188	00	375	2	.26	12	4	21	.1	4.4	3.3	<	<	7.7	5.3	18	<	1	67	7.3	58.0	<
074M	933189	00	192	<	.12	10	3	10	.1	4.0	2.7	<	<	5.7	2.6	16	<	<	57	7.4	64.0	<

Fig. 20

O.F. 2856
Geo-chem Data
Fidler Area
Fig. 20

G.S.C. O.F. 2856

U-INAA & U-LIF
N.E. ALTA.

Fig. 21

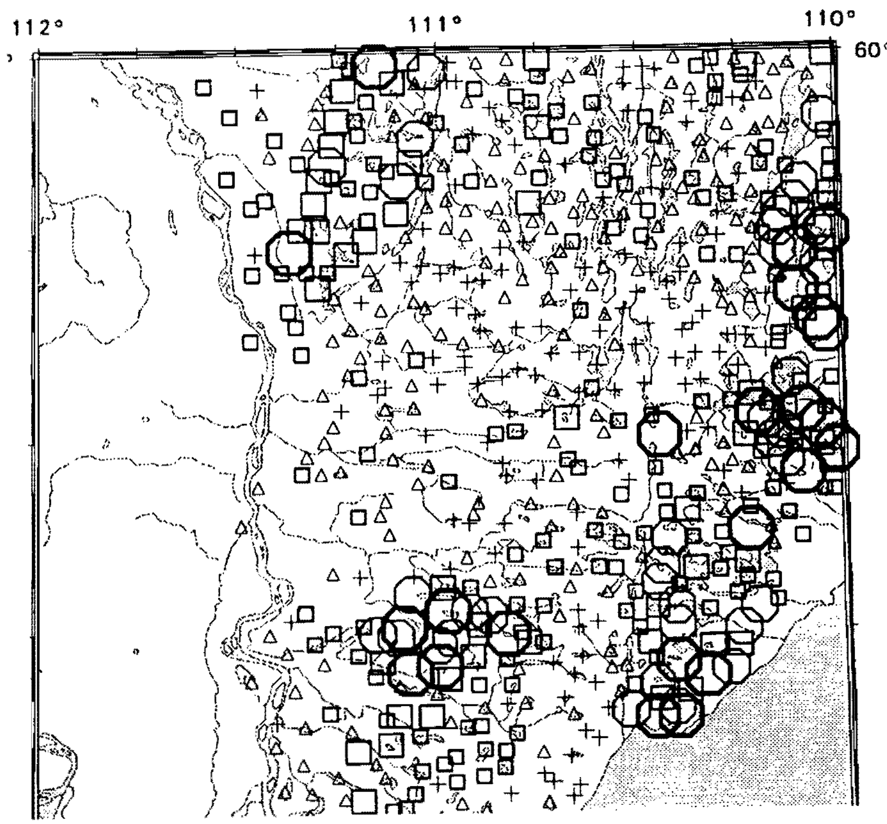
Uranium-INAA

in

Lake Sediment

ppm	percen
153.0	Max
66.2	98
36.0	95
19.0	90
5.9	75
3.1	50
'etection	Min

1160 Samples



Uranium-LIF

in

Lake Water

ppb	percen
1.20	Max
0.43	98
0.26	95
0.17	90
0.07	80
0.05	70
detection	Min

1160 Samples

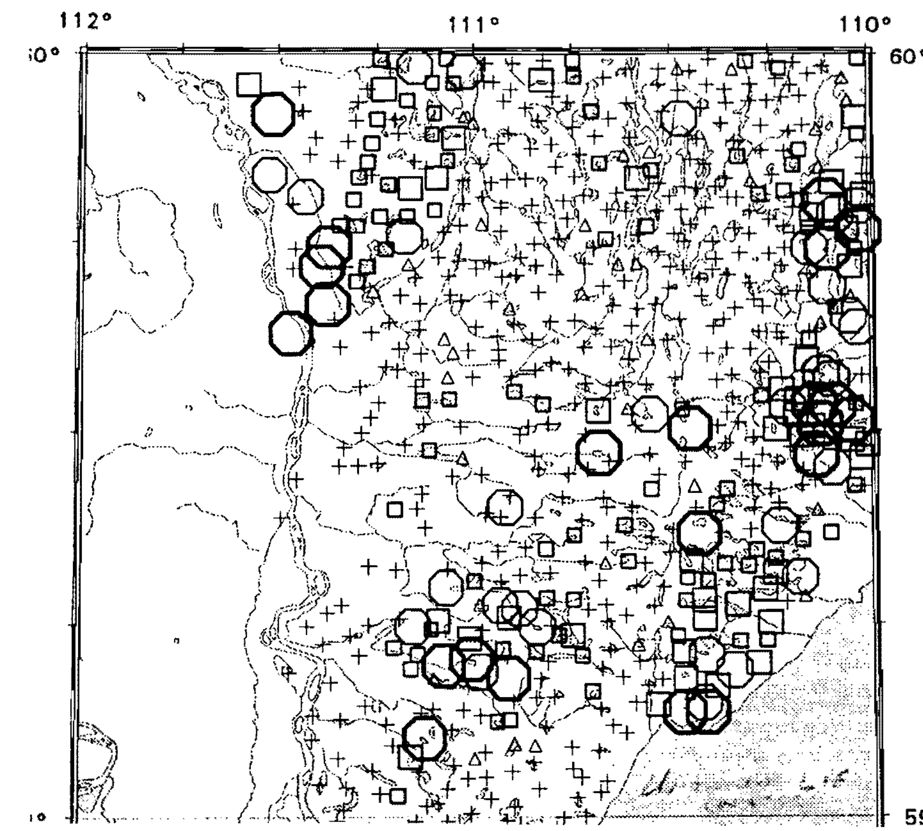


Fig 22

Uranium-INAA
in
Lake Sediment

ppm		percentile
153.0 -		- Max
66.2 -		- 98
36.0 -		- 95
19.0 -		- 90
5.9 -		- 75
3.1 -		- 50
< detection -		- Min

1160 Samples

GEOLOGICAL SURVEY OF CANADA — COMMISSION GÉOLOGIQUE DU CANADA

NATIONAL GEOCHEMICAL RECONNAISSANCE

G.S.C. Open File 2858 & 2856

Saskatchewan, 1994

NTS 74N and 74O

COMPOSITE

O.F. 2858 & O.F. 2856

U-INAA

D. Dick.

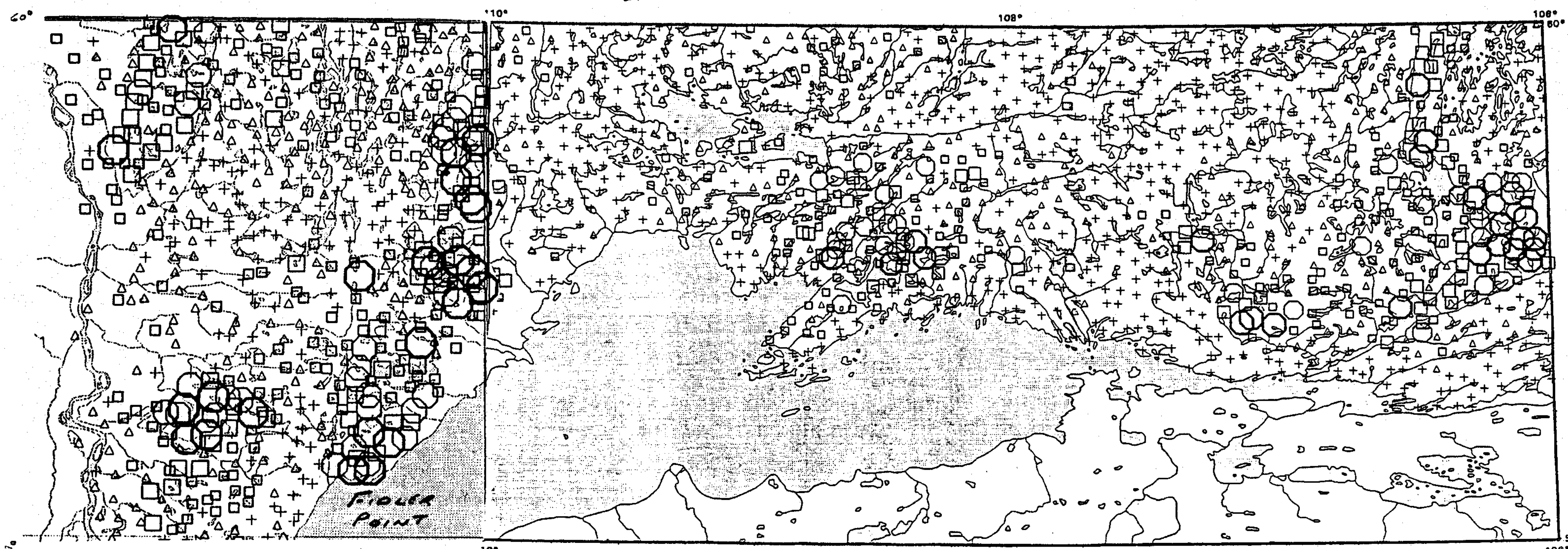
Uranium-INAA
in
Lake Sediment

ppm		percentile
989.0 -		- Max
273.0 -		- 98
146.0 -		- 95
79.3 -		- 90
29.1 -		- 75
10.0 -		- 50
0.8 -		- Min

1139 Samples

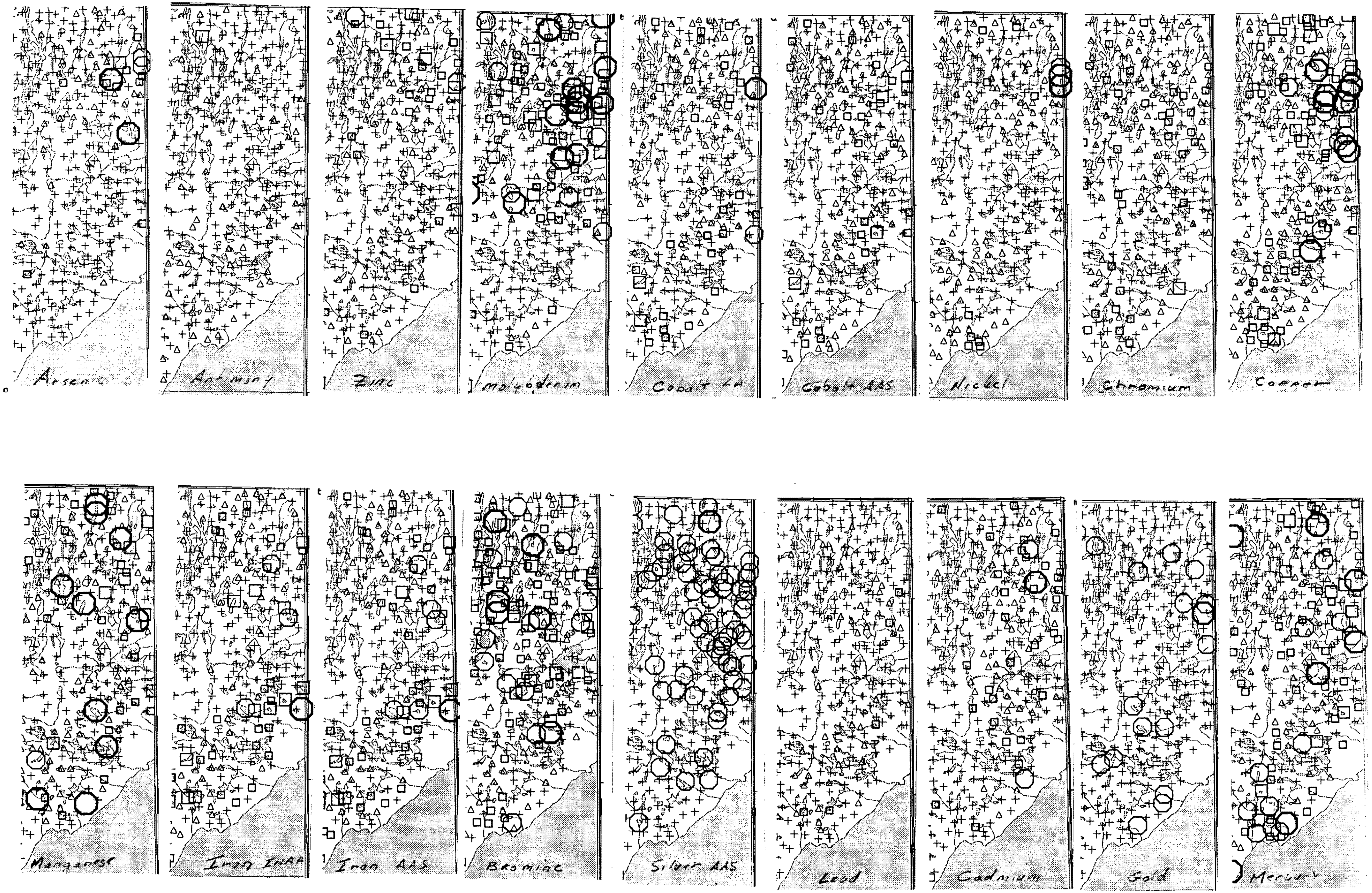
UTM Projection, Zones 12 and 13

Kilometres 20 0 20 Kilo



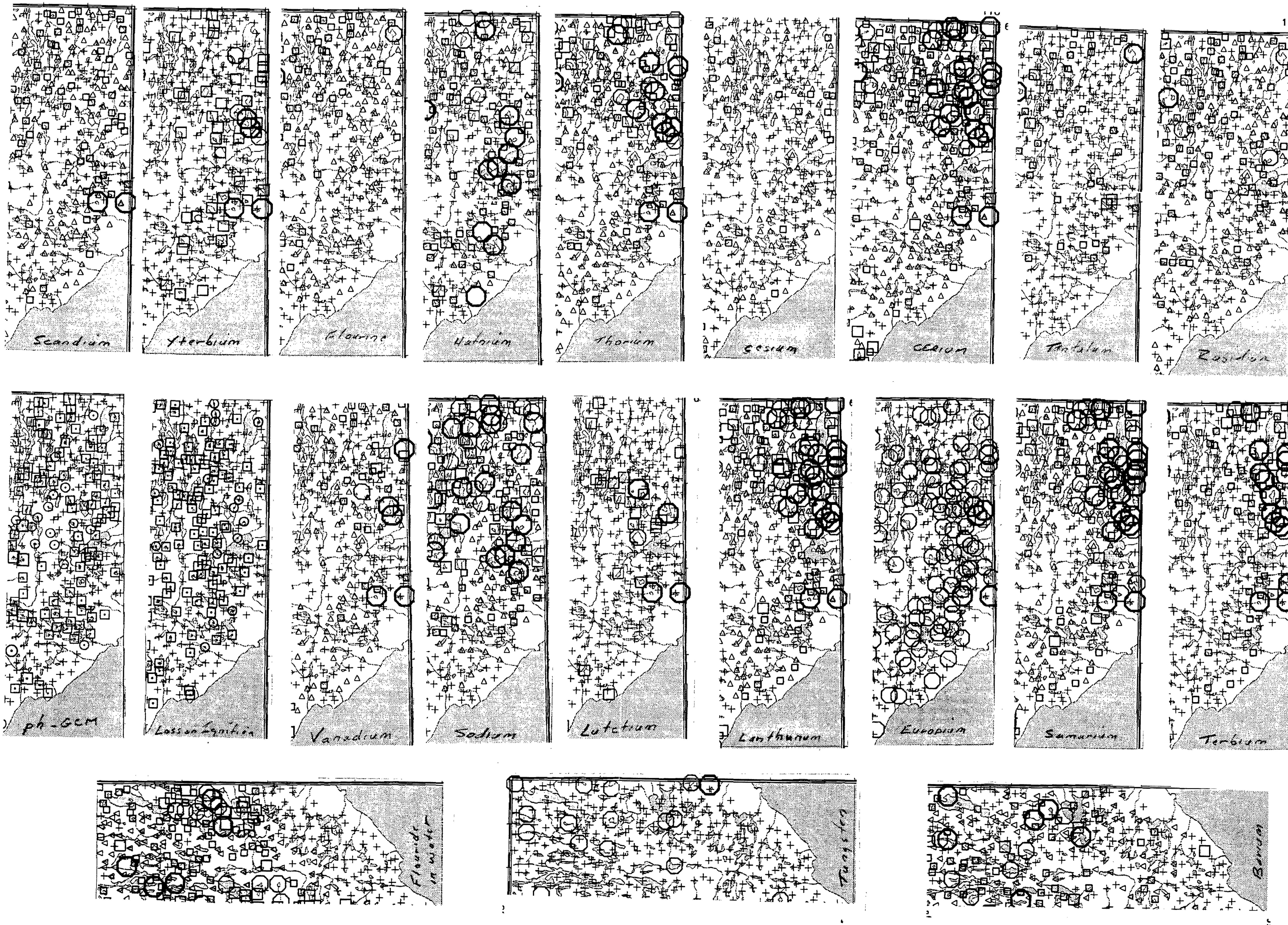
G.S.C. O.F. 2856
Composite of Anomalies
N.E. Alta.

Fig. 23


Arsen
Antimony
Zinc
Molybdenum
Cobalt AA
Cobalt AAS
Nickel
Chromium
Copper
Manganese
Iron INAA
Iron AAS
Bromine
Silver AAS
Lead
Cadmium
Gold
Mercury

G.S.C. O.F. 2856
Composite of Anomalies
N.E. Alta.

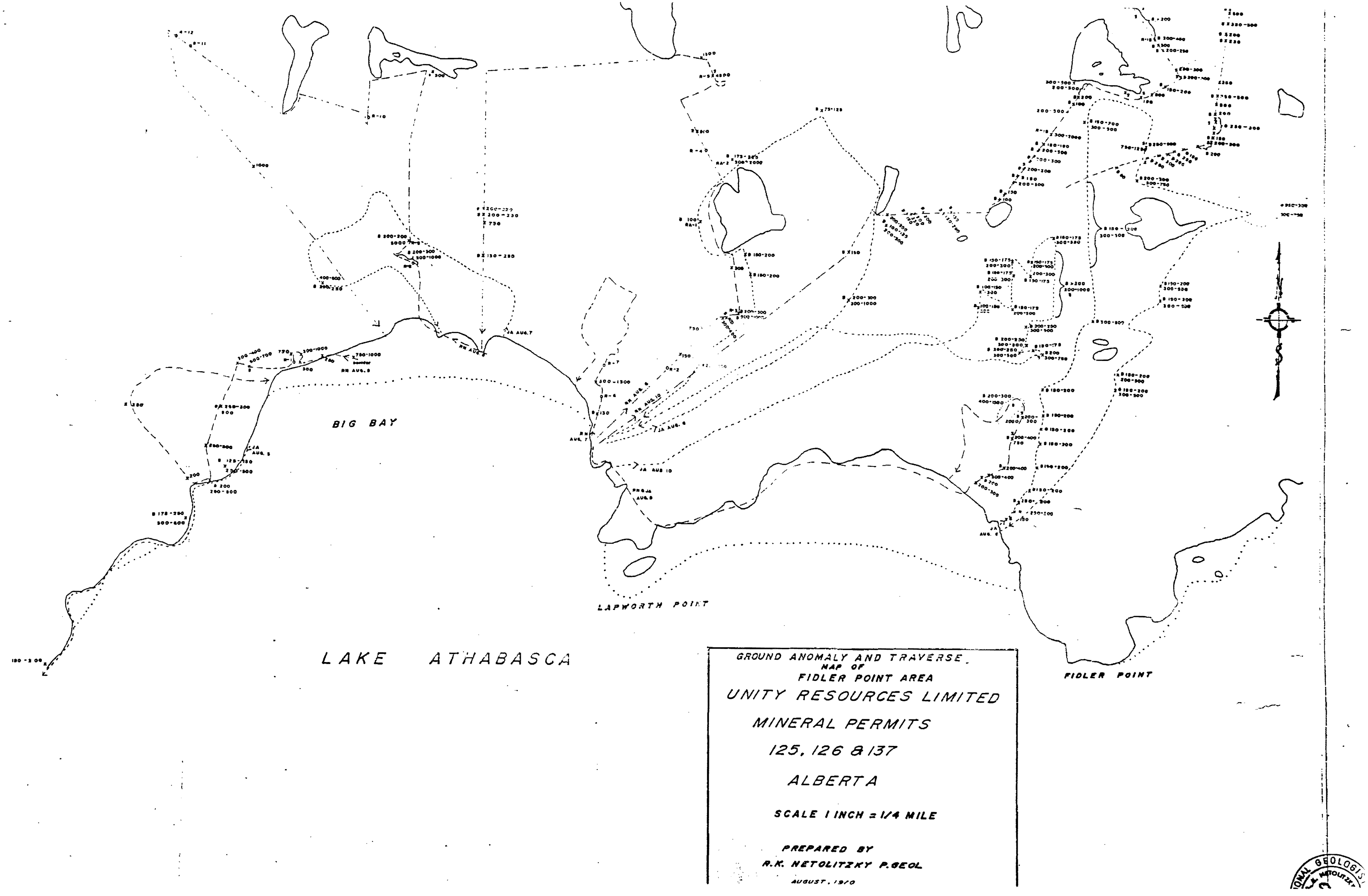
Fig. 24



110°
60°
60
Scandium
Yterbium
Flourine
Natrium
Thorium
Cesium
CERIUM
Tantalum
ph-GCM
Loss on Ignition
Vanadium
Sodium
Lutetium
Lanthanum
Europium
Samarium
Terbium
Flouride in water
Tungsten
Boron

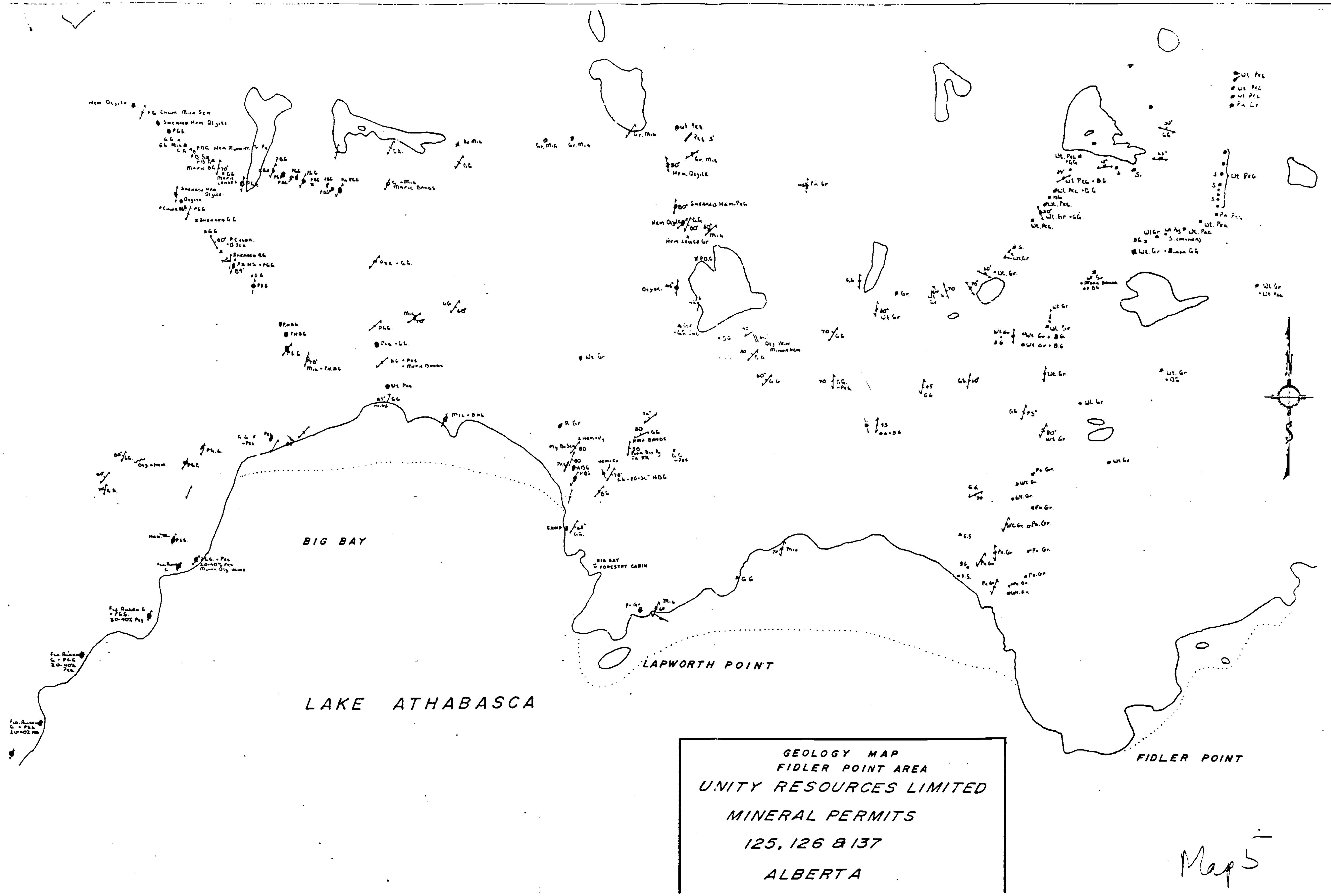
Netolitsky (1970)
Radiometric Traverses
Fidler Area

Fig. 25


GROUND ANOMALY AND TRAVERSE
MAP OF
FIDLER POINT AREA
UNITY RESOURCES LIMITED
MINERAL PERMITS
125, 126 & 137
ALBERTA
SCALE 1 INCH = 1/4 MILE
PREPARED BY
R.K. NETOLITZKY P.GEOL
AUGUST, 1970
LAKE ATHABASCA
BIG BAY
LAPWORTH POINT
FIDLER POINT

Netolitsky (1970)
Geological Traverses
Fidler Area

Fig. 26



BIG BAY
LAKE ATHABASCA
LAPWORTH POINT
FIDLER POINT
CAMP
BIG BAY FORESTRY CABIN
N
S
GEOLOGY MAP
FIDLER POINT AREA
UNITY RESOURCES LIMITED
MINERAL PERMITS
125, 126 & 137
ALBERTA
Map 5

SAMPLE LOG - J. R. ALLAN

RA-1 Fine to medium grained, leucocratic, light cream colored biotite granite.

JR-10 Pink, medium grained biotite granite; slightly sheared appearance.

JR-11 Strongly sheared, chlorite-quartz-feldspar schist (granite gneiss).

JR-12 Strongly sheared, foliated, quartzo-feldspathic biotite schist.

JR-13 Medium grained, banded, pink and gray biotite gneiss.

JR-14 Porphyroblastic gray, chlorite-biotite schist.

JR-15 Porphyroblastic chlorite-biotite gneiss. Pink feldspar porphyroblasts with a gray-green, fine grained matrix.

JR-16 White colored, quartz-plagioclase granite.

JR-17 Porphyroblastic gray-green biotite gneiss. Cream colored feldspar porphyroblasts.

JR-18 Pink, weakly foliated biotite granite.

* JR-19 Dark red, slightly hematitic, moderately welded, quartz sandstone. Individual quartz grains discernible, and the rock still displays a tendency to fracture along the grain boundaries. Portions of the boulder are moderately to intensely leached. These areas display a cream color. Cavities in the leached portions contain considerable incrustations of secondary uranium minerals on the quartz grains. Assay: 0.43% U_3O_8, nil ThO_2 (chemical). Reading of greater than 15,000 c/s. *

This is the only assay given.

Netolitsky's quartzite see: Recommendations P. 3

JR-20 Light brown, porphyroblastic biotite schist. White feldspar porphyroblasts.

JR-21 Biotite granulite with pink leucocratic granite veins. Porphyroblastic biotite granite with quartz veins.

JR-22 Fine grained, mafic biotite schist.

JR-23 Medium grained, poikiloblastic biotite gneiss. Pink feldspars weather red. Mafic matrix.

JR-24 Porphyroblastic coarse grained biotite gneiss.

Netolitsky Sample Log

File 27

CREST LABORATORIES LTD.
7911 ARGYLL ROAD
EDMONTON 82, ALBERTA
PHONE 469-2391

CREST LABORATORIES (B.C.) LTD.
VANCOUVER, B.C.

CERTIFICATE OF ASSAY

TO Mr. R.K. Netolitsky, P. Geol.
8358 - 80 Avenue
EDMONTON, Alberta

September 23, 1970

Lab No. 1000

cc: Dr. J. Godfrey, P. Geol.
8208 - 139 Street, Edmonton

I hereby certify THAT THE FOLLOWING ARE THE RESULTS OF ASSAYS MADE BY US UPON THE HEREIN DESCRIBED SAMPLES.

MARKED		GOLD		SILVER	U_3O_8	ThO_2						TOTAL VALUE PER TON (2000 LBS.)
		Ounces per Ton	Value per Ton	Ounces per Ton	Chemical Percent	Percent	Percent	Percent	Percent	Percent	Percent	
#1	JR - 19				0.43	Nil						

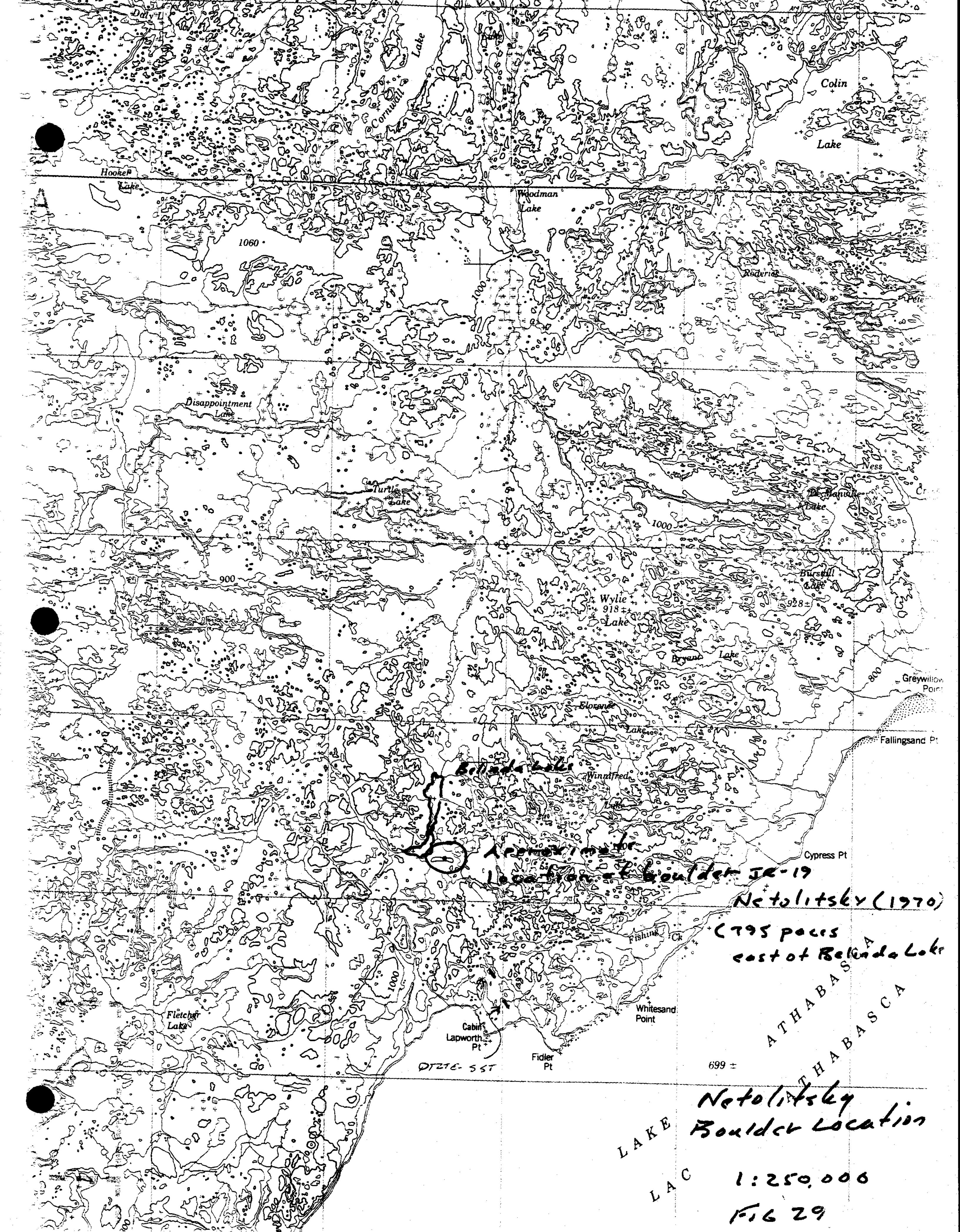
Netolitsky
Boulder Assay

Fig. 28

NOTE:
Rejects retained one month.
Pulps retained three months unless otherwise arranged.

Gold calculated at $.............. per ounce

[redacted]
Registered Assayer, Province of British Columbia



Netolitsky Boulder Location
1:250,000
Fig 29

Hale & Cook (19

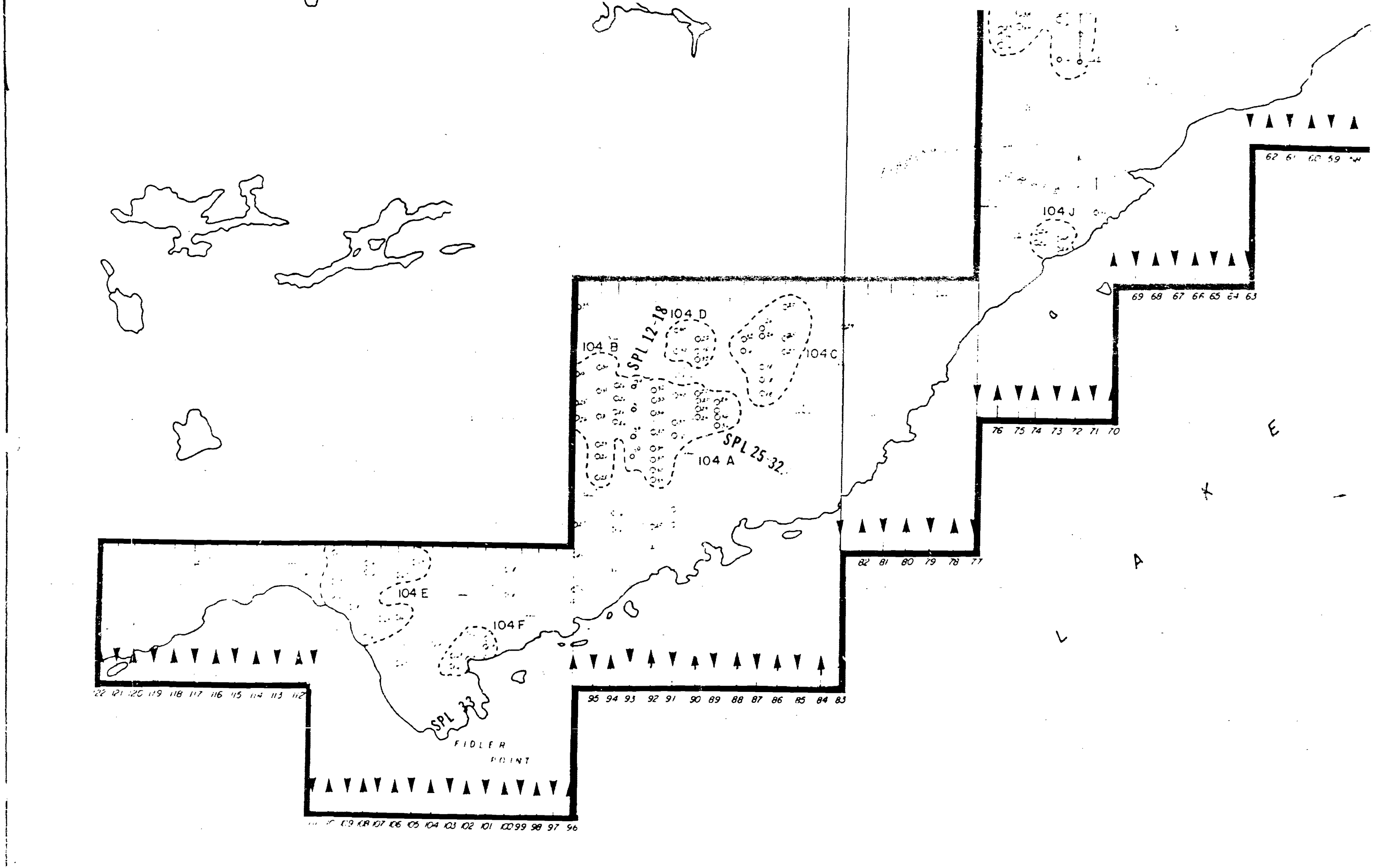
Airborne Radiometric

Anomalies

(Roving Exploration)

Fidler Area

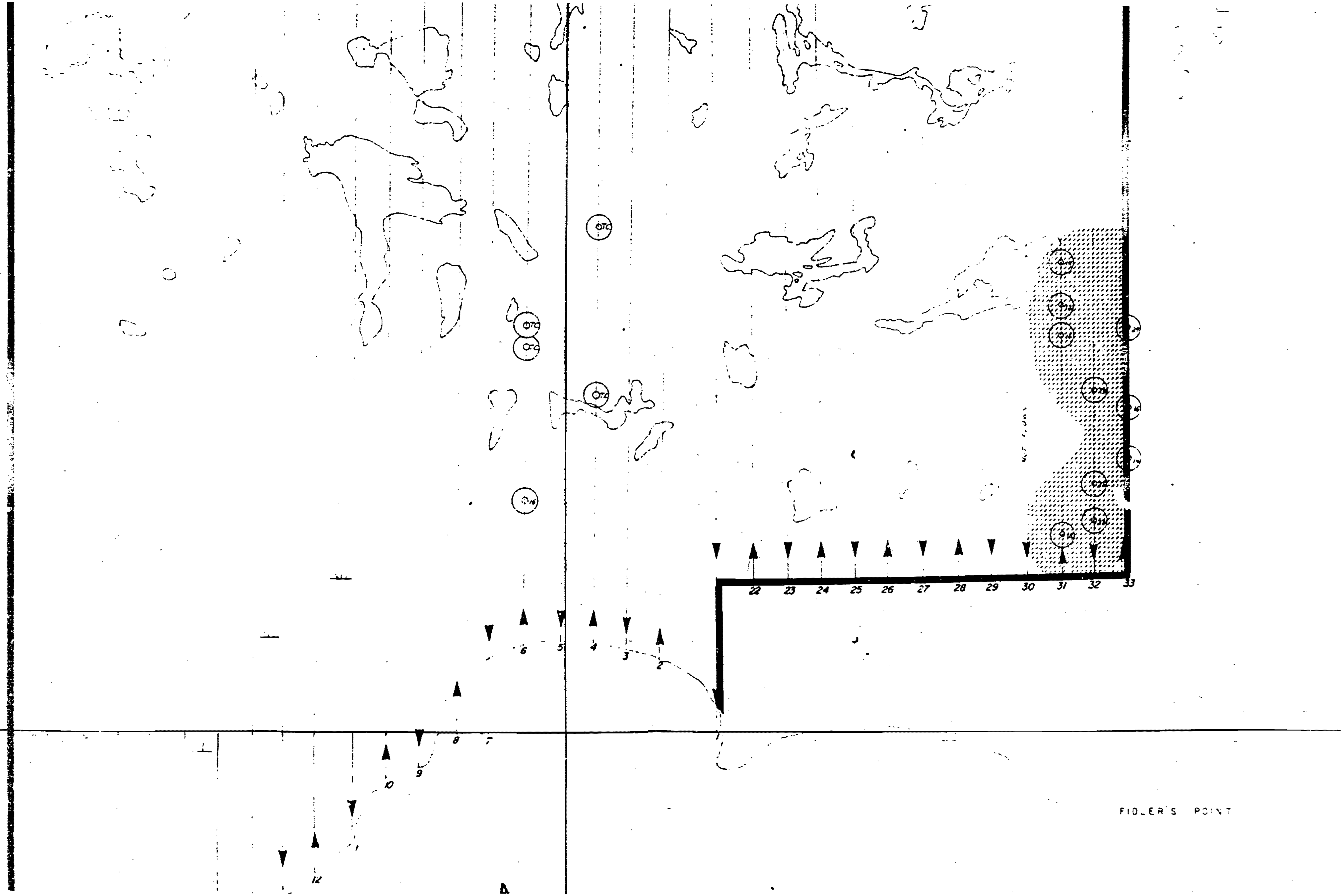
FIG. 30



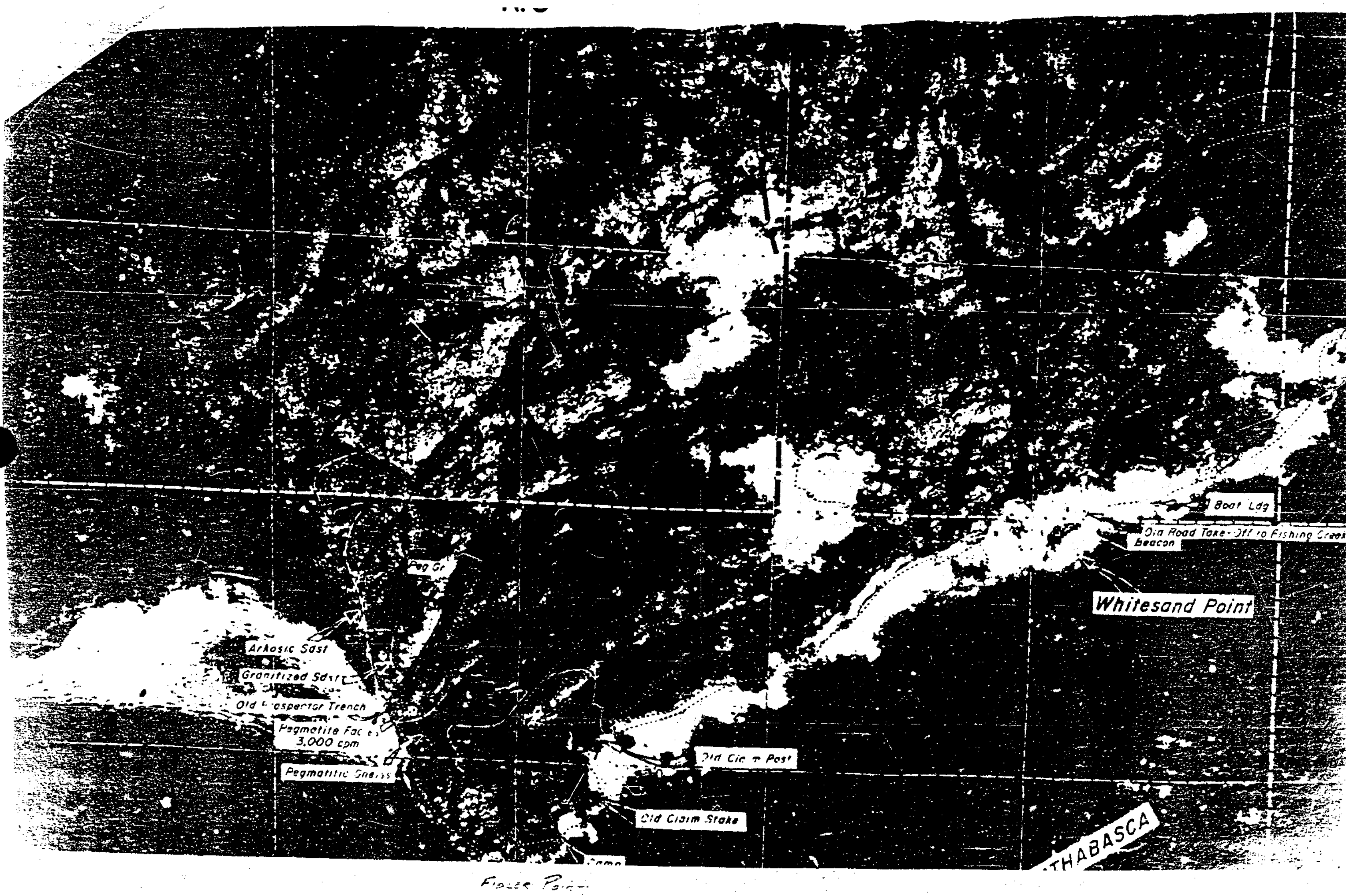
104 D
SPL 12-18
104 B
104 C
104 J
SPL 25-32
104 A
104 E
104 F
SPL 33
FIDLER
POINT
L A K E
62 61 60 59
69 68 67 66 65 64 63
76 75 74 73 72 71 70
82 81 80 79 78 77
95 94 93 92 91 90 89 88 87 86 85 84 83
122 121 120 119 118 117 116 115 114 113 112
109 108 107 106 105 104 103 102 101 100 99 98 97 96

Hale & Cook (1969-70)
Airborne Radiometric
Anomalies
(Roving Exploration)
Fidler Area

FIG 31



FIDLER'S POINT

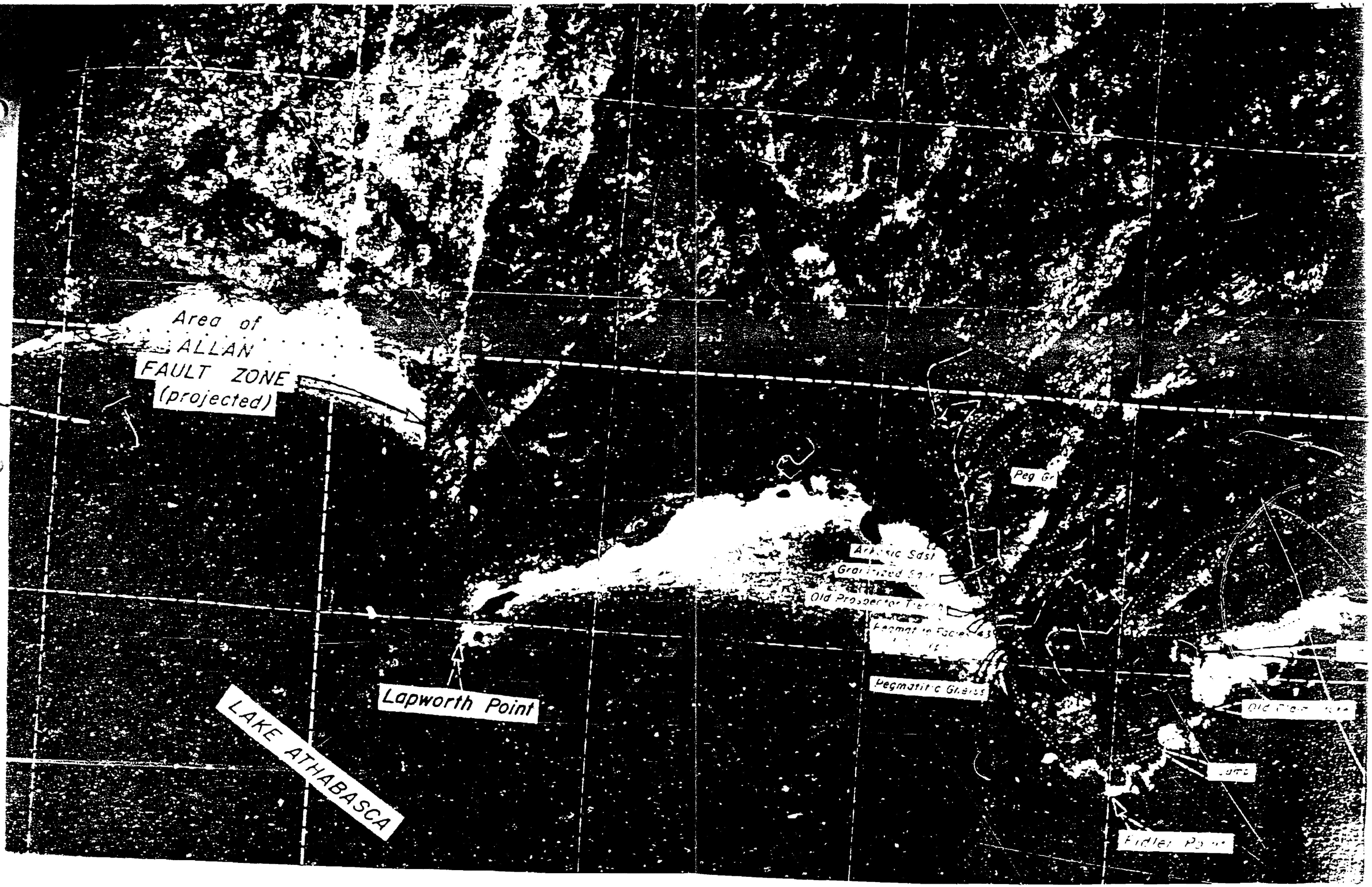


Hole & Cooke
Geological Traverses
Fidler Point.

Fig 32

Hale (1970)
Geological Traverse
map
Fidler Area

FIG. 33


Area of
ALLAN
FAULT ZONE
(projected)
LAKE ATHABASCA
Lapworth Point
Peg Gr
Pegmatitic Gneiss

FIDLER POINT GOLD-URANIUM PROPERTY

N.E. Alberta

D.L.DICK B.Sc.

Mine-Geo Research Inc.

August 1.1997

PRIVATE AND CONFIDENTIAL

TABLE OF CONTENTS

TO ACCOMPANY;FIDLER POINT URANIUM-GOLD PROPERTY
D.L.DICK B.Sc. Mine-Geo Research Inc.
August 1,1997

APPENDIX 2 ..separate attatched folder

Figures

INTRODUCTION

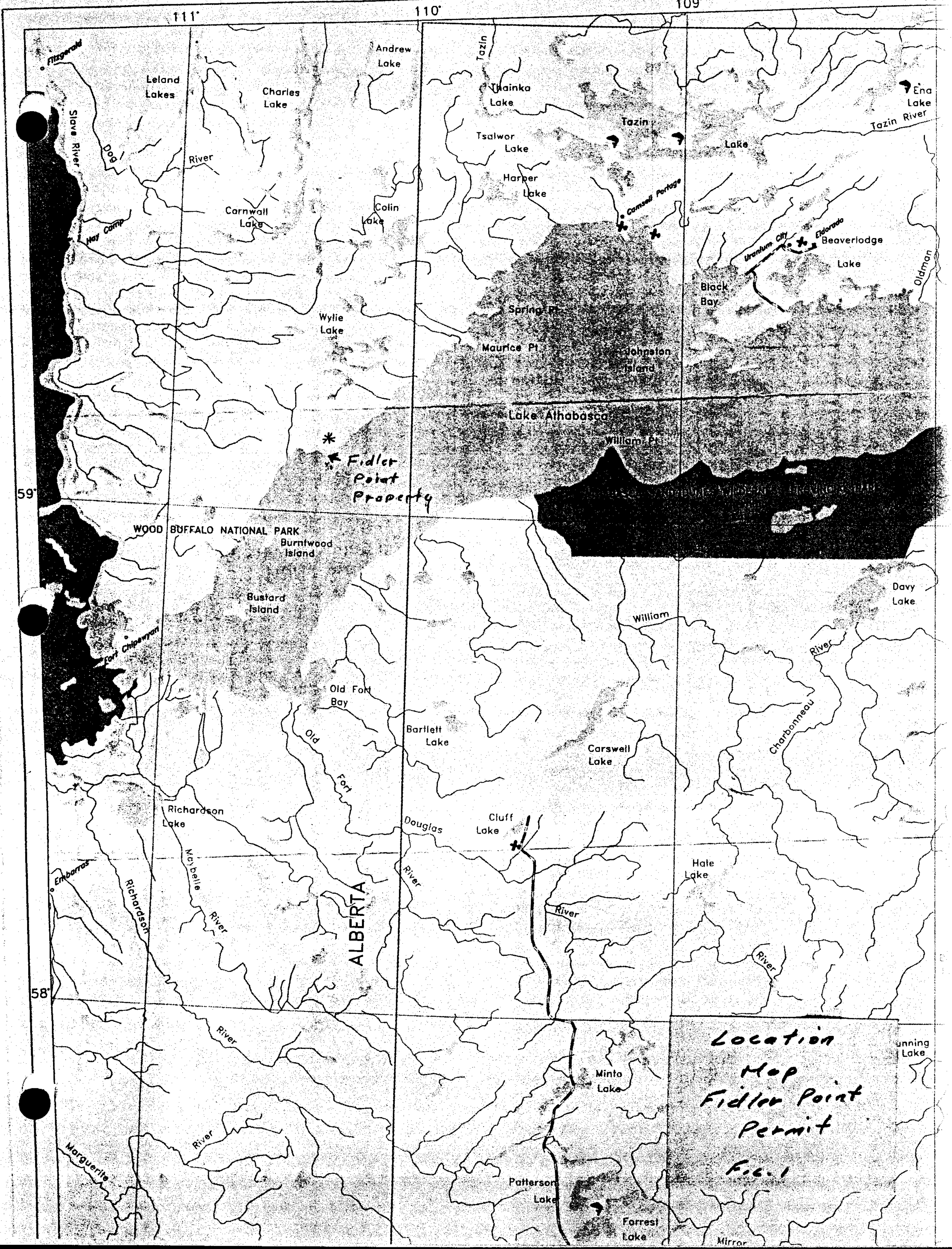
The purpose of this exercise is to bring the Fidler Point Mineral Property to your attention and to advise you that the property is available for option.

I am the registered permit holder of the property. The ownership of the permit is held by a private syndicate of which I am the Managing Partner.

I am an independent research geologist based in Abernethy, SK.and operate my company,Mine-Geo Research Inc.from an office there. I am familiar with the general region having acted as Eldorado Nuclear's Uranium City District Chief Geologist responsible for mines from 1973 to 1980 and regional exploration from 1977 to 1980.

LOCATION and ACCESS

The property, which comprises 8009 hectares, lies on the immediate north shore of Lake Athabasca. It is approximately 60 air miles west southwest of Uranium City,some 18 miles inside the Alberta border. The property could be accessed by scheduled flights into Uranium City or Fort Chipeywan, and thence by a short charter flight. For logistical support the area is readily accessible by boat and barge. On the property itself, at least two main cat roads,of undetermined origin or condition, are indicated.A forestry cabin is


111°
110°
109°
59°
58°
Fitzgerald
Leland Lakes
Charles Lake
Andrew Lake
Tazin
Thainka Lake
Ena Lake
Tazin River
Tazin Lake
Tsalwor Lake
Slave River
Dog
River
Harper Lake
Camsell Portage
Carnwall Lake
Colin Lake
Hay Camp
Uranium City
Eldorado
Beaverlodge Lake
Oldman
Black Bay
Spring Pt
Wylie Lake
Maurice Pt
Johnston Island
Lake Athabasca
William Pt
Fidler Point Property
WOOD BUFFALO NATIONAL PARK
Burntwood Island
Bustard Island
Davy Lake
William
River
Fort Chipewyan
Old Fort Bay
Old Fort
Bartlett Lake
Carswell Lake
Charbonneau
Richardson Lake
Cluff Lake
Douglas
River
Maybelle
River
Embarras
Richardson
ALBERTA
Hale Lake
River
River
River
River
Manning Lake
Minto Lake
River
Marguerite
Patterson Lake
Forrest Lake
Mirror
Location Map Fidler Point Permit
Fig. 1

reported to be located within the property, 2 miles west of Fidler Point on the lakeshore. The physiography is quite rugged with second growth,floating muskeg,glacial outwash and moderate to steep relief. Outcrop exposure is reported to vary from 5 to 40 per cent.

PROPERTY WORK HISTORY

The property work history is discussed at some length in Appendix 1, following Permit Documentation.Copies of the relevant assessment reports are attatched.References to the property history are included in the following summary.

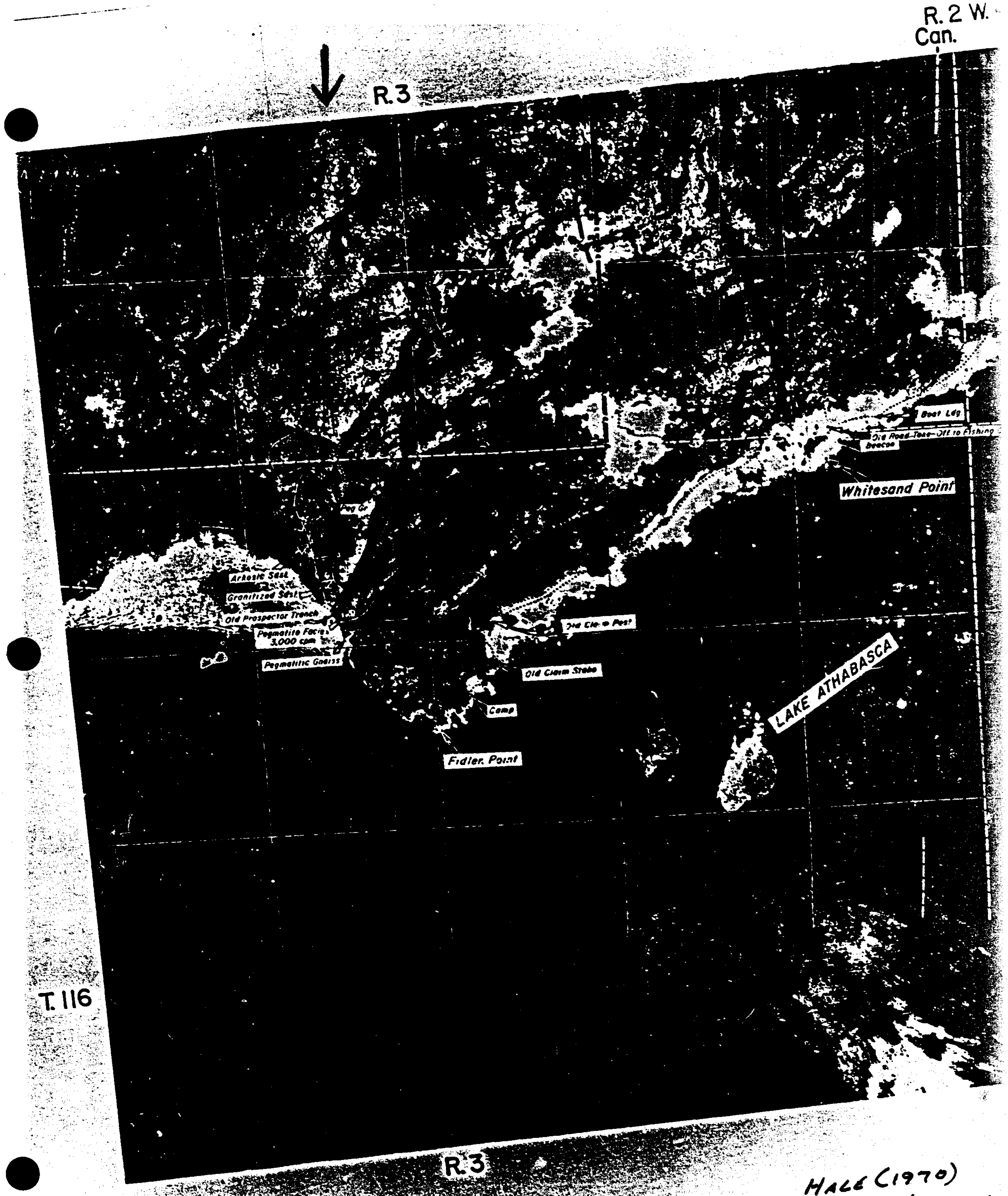
SUMMARY OF AVAILABLE INFORMATION

Note to the Reader; Because there are a number of references to figures within the text of this summary , the reader is referred to the accompanying folder, Appendix 2. It contains the majority of the figures referred to. The folder is designed to be opened readily. Most of the figures are simple empirical perspectives.

The property overlies the southwest limit of a regional, structure-bound complex of Archean-Aphebian rocks which have been intruded, metamorphosed, poly-metamorphosed, granitized and metasomatized. The assemblage occurs within northeast Alberta,overlaps into Saskatchewan to the east and extends north into the N.W.T.[see figs.6 to 16 and the Development of the Regional Perspective].

The eastern and southern margin of the rock assemblage is defined by a warped regional N.E. structure. The western margin is defined by a N-S structure, the Allan Thrust. Coincidental to these margins are regional, relatively continuous mineralized belts [up to 100km.] carrying values of uranium and other metals. Within the property boundaries, these two mineral trends converge and intersect in the immediate vicinity of the Athabasca sandstone-basement interface [see figs.21&22]. On a more local scale, a strong set of uraniferous and auriferous E.-W.lineaments traverse the juncture. Also,traversing this conjunction of mineral belts, is a zone of regional N.W. faults, described by Ramaekers [1990] as the Fidler Fault Zone. The fault zone extends at least N.W. of Fidler and S.E. of the vicinity of Cluff Lake, disrupting stratigraphic boundaries and outcrop patterns along it's course, indicating that a multiple movement characteristic is associated with the fault zone. Immediately to the west of the Fidler Fault Zone, the Allan Thrust Zone [Godfrey 1959/1986] swings or warps onto a northerly course.

Within the property boundaries, the conjunction of these regional fault-fracture intersections is resolved by a N-S elongated feature of ovoid form. It is approximately



HALE (1970)
RECONNAISSANCE
MAP. Fig. 2

LAKE ATHABASCA
Northeast Alberta, Canada
Exploration Permit No. 104

3000m.long N-S and 750M. wide E-W. [see Fig.2]. The northern 'point' appears to abutt against the intersection of E-W,N.E.and N.W. lineaments. The southern 'point',also, appears to abutt against an intersection of E-W,N.E. and N.W. lineaments. The structure tends to stand normal to the local E.N.E. to E-W fabric trend, that is the E.N.E. mineral trend.The ovoid feature is partially dis-membered or 'loosened' by faults and fractures striking N.E.,N.W.,E-W and N-S, with local variations and/or local deflections in these simple strike directions. A late sinusoidal fault [Godfrey 1986],possibly with related dilatatant anastomosing fractures,strikes N-S up the centre of the feature.Note Godfrey's N-S sinusoidal fault in figure 13.This fault is coincidental with a trend of enhanced uranium values and mapped showings striking north of the feature.

The relative movements of these intersecting and bounding faults together with the character of associated folding are not known and will have to be determined in the field.

Along the plane of the N.W. fault is a 'dragged' or 'bent-down' apophyses of Athabasca sandstone. The configuration suggests a local offset in the Athabasca boundary. The apophyses is regionally visible and leads into the ovoid feature. It is indicated by the mapping of Wilson [1985] and Godfrey [1986], with the N.W.fault zone later being interpreted by Ramaekers in 1990. The sandstone lies along a N.W. strike across the southern third of the N-S ovoid structure and appears to be contained by the structure [Hale 1970 fig.2].

The sandstone 'type' was first recognized as distinct by Gravenor on Fidler Point in 1959. The sandstone was classified as the Fair Point Formation by Ramaekers [1979]. Because the outcrops are scattered and isolated at Fidler Point, the more extensive and drill defined outcrops at Fair Point were chosen as the type outcrop. It is generally described as coarse-grained sandstone with red members,clay rich,pebbly and conglomeratic at the base. The basal conglomerate is not apparent at Fidler [Wilson]. A well-developed regolith,estimated to be in the order of 10 meters,is described by Wilson [1985 see photo fig. 3].Wilson mentions an areal extent for the sandstone of approximately 1.5 km. by 200m. which in the absence of methodical, detailed mapping, in this rugged terraine, may be conservative. The sandstone dips at 30 to 50 degrees with local opposite dips reported relative to the basement. Wilson refers to zones of 'off-colour' friable sandstone which he attributes to surficial exposure.

The sandstone occurence does not appear to be simple. Godfrey mapped the apophyses into the upper S.W. shore of Fidler Point in 1986, changing his offshore interpretation of the sandstone margin from 1959,probably following the

Wilson (1985) A.R.C. Bul. 49

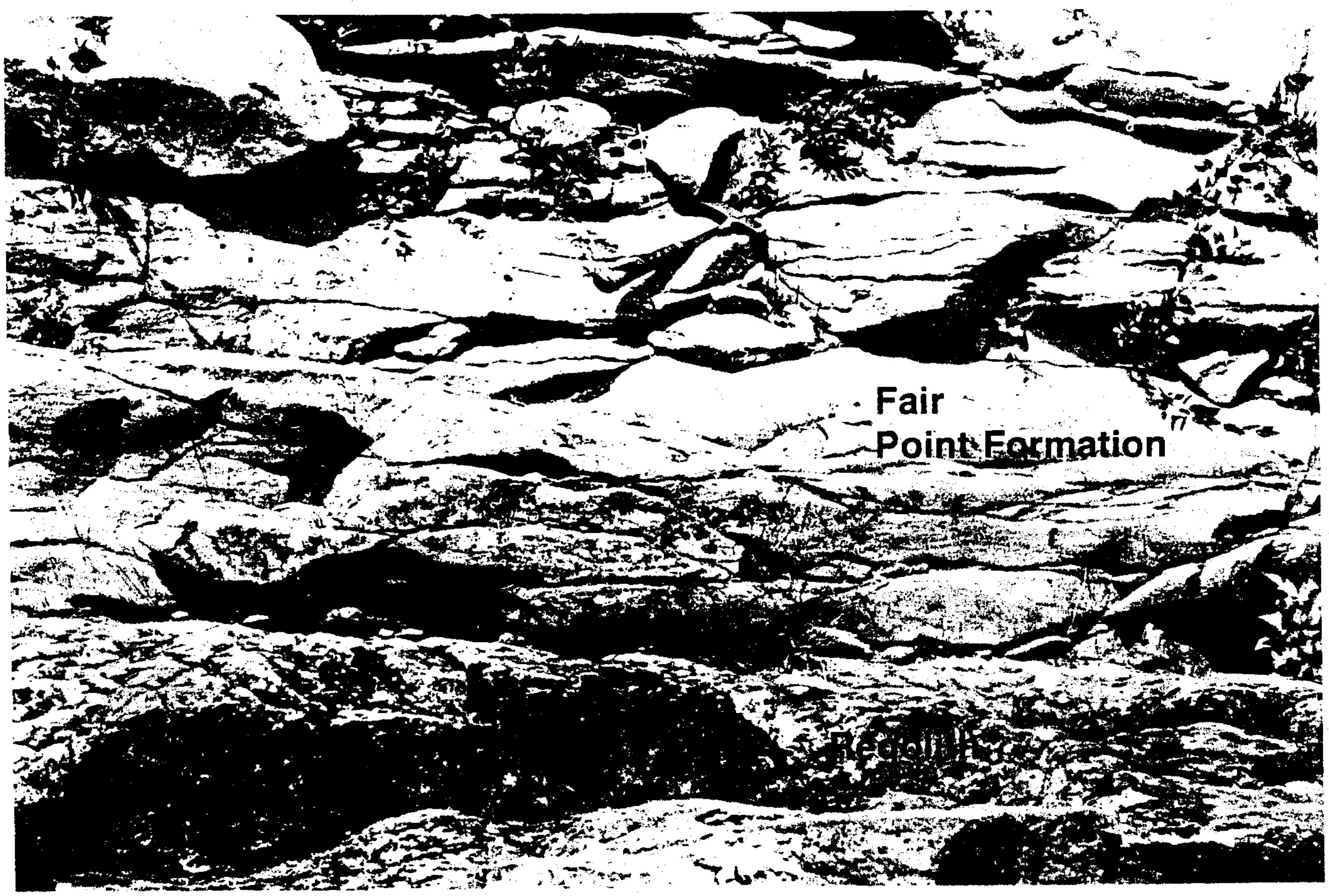


Figure 12. Contact between the Fair Point Formation and the underlying regolith at Fidler Point.

Fidler Point
Sandstone/Regolith
Wilson (1985)

Fig. 3

lead of the sedimentologists, Ramaekers [1979] and Wilson [1985].Looking at the reconnaissance traverse maps [figures 26,32,and 33] of Hale and Netolitsky, who encountered the sandstones independently in 1970, a serious inconsistency is obvious.

Near the southeastern extent of the ovoid form, along the sandstone apophyses, Hale [pg 13,articles 5,6,7 of his report and see airphoto Fig.2] describes a curious 100 m. section in the vicinity of a gouge-mylonite fault where arkose grades to red 'baked' iron-stone to granitized arkose. He mapped arkosic sandstone covering the southern third, i.e. the southwestern 'point' of the ovoid structure, but did not recognize the regolith. Hale placed the age of the sandstone unit as either earlier or later than the Athabasca Formation.

Netolistky [fig.26] mapped sandstone up the western flank of the southern 'point' of the ovoid structure, as Hale did, but recognized the regolith, as Hale didn't. On the eastern flank,in the vicinity of Hale's transitional 'granitized arkose', he mapped pink granite. He mapped the balance of the feature as massive, coarse to very coarse grained leucocratic granite with local faint foliation. The coarser grained phases were mapped as pegmatites. Netolitsky also mapped slivered occurences of altered 'quartzite-sandstones' along the the trend of the N.W. Fidler fault zone. He indicated a hematized quartz vein nearby. On the upper northeast side of Lapworth Point he mapped an extensive pyrite occurence. These will be referred to again in the course of the text.

Locally, the property is underlain by Aphebian Wylie Lake Granitoids [after Godfrey] consisting of transitional granite-gneiss-pegmatite with local occurences of schist,phyllite and amphibolite. The regional metamorphic grade is described by Netolitsky as epidote-amphibolite with retrograde and metasomatic effects common, including the replacement of biotite by chlorite in the gneisses, epidotization and albitization of the granite rocks related to fracture and shear zones, and local hematization, also, related to shearing and fracturing.

The area was radiometrically flown in 1969 and a number of anomalies were identified within the present property area. Some were dismissed as background anomalies associated with 'hot' granites but most of them were found to correlate with transitional occurences of granites,granite gneisses, amphibolites,migmatites and various pegmatites. Radiometric anomaly 104E in Cook-Hale's report corresponds to the ovoid feature [see Figs.30&31]. An extensive pegmatite,just north of Whitesand Point, graded better than 0.10 % U308 in test pit sampling. It was consequently registered with the Atomic Energy Commission.

In 1953 'pithchblende in vein' was reported from a major drilling program in hematized albite granites,trending along the northerly E-W fault [i.e. the Fishing Creek prospect, see Fig. 8].

An altered boulder of 'quartzite-sandstone', containing abundant secondary mineral staining and grading 0.43% U308 [see Figs.27,28&29], was found just off the northwestern limit of the property. Netolitsky estimated the regional glacial trend at 265 degrees from east to west.He speculated that it might have come from Maurice Bay 'where low grade conglomerate boulders had been found'. But in his recommendations he suggests that a follow-up, to check for a more local source be carried out.A local source may be the N.W. trending occurences of 'slivered' intensely altered 'quartzite- sandstone'mapped by Netolitsky himself. These are apparently associated with the N.W.fault zone and were mapped immediately downtrend on reconnaissance traverses [see Netolitsky 1970 pgs.3&15]. There is a suggestion that a regional E-W uranium trend to the north and west may be related to step-fault offsets of the main E.N.E. trend,along this same fault zone.

The geochemical signature of the property, as indicated by regional lake sediment sampling, is complex. For comparison purposes, the spectral analysis of rock specimens gathered from the area by Hale, primarily from pegmatites, are also contained in Appendix 2 [see Figs.34&35].

A cluster of major uranium lake sediment anomalies, which occur with complex elemental associations,surrounds the central ovoid feature and/or are diffused west over the N.W. faults and along a northern trend for some 30 Km.[G.S.C. O.F. 2856 1993].Allowing for the generalized and regional nature of the sampling technique,a transitional tendency is apparent [see Figs.16 to 24].

Low to moderately anomalous values of uranium,vanadium, scandium,hafnium, flourine,sodium thorium,manganese,iron, cesium and cerium tend to follow a sinuous trend, E.N.E. to E.W.,across the northern boundary,dropping southwest as it crosses the centre of the property. There is some general diffusion and local enrichments of the elements as it intersects the northerly mineral trend.

A second trend, devoid of anomalous rare earths and which may be a 'simple' vein suite, tails into the south and displays enrichments on the flanks and along the northerly trend of the sandstone apophyses and the N-S axis of the ovoid feature. This trend includes uranium,mercury, copper, nickel,cobalt,chromium,zinc,molybdenum,antimony,lead and cadmium,bromine [and one spot, lutetium].

The upper E.N.E. trend is not particularily specific, except for local enrichments coincidental with intersections of the northerly trend. It is not specific in the sense that the faint anomalies occur along an extended district trend.

The lower E.N.E. trend is more specific to the 5 southerly lake sample sites contained within the property [see fig. 18A&B]. Lake sample 3182 appears to occur downslope from the N.E. upper flank of the ovoid,but a creek is not indicated. It is apparently the only sample on the drainage of this structure, except, possibly, the more distant samples,3179 and 3180. Sample 3182 returned 139 ppm and .95 ppb/w Uranium which are the third highest of 1160 samples taken in the N.E.Alberta survey. Sample 3184 was taken from a lake just west of the structure in the immediate vicinity of Netolitsky's 'quartzite-sandstone' and hematitic quartz vein occurences. The sample returned 88.5 ppm and .94 ppb/w Uranium. This is the fourth highest U/w in the N.E. Alberta survey. The anomalies of associated metals are not spectacular but they are specifically located and tend to display a local zonation.

A moderate gold anomaly occurs west of the Fishing Creek drilling prospect. The uranium association in the anomaly is minimal. It is one of three anomalies occuring locally along the regional E.N.E.trend.

These trends, two apparently zoned sub-parallels and an extended northerly cross-cut with a spotty diffusion to the west, require concentration to see, particularily as there appears to be sub-parallel stranding in all fault and fracture directions.The transitional change in anomalous elements associated with the sub-parallel E.N.E. trends and the local tendency towards zoning of metals to the south may be quite signifigant in the vein hydrothermal sense. The results, given the scale and nature of the sampling technique and the less than ideal location of sample sites, may or may not reflect a crude approximation of the relative abundance of the elements in the source hosts, but they do reflect a complex structural i.e.dilatational and geochemically intense environment.

General Comments

1.The overall geology and style of mineralization typical of this N.E. Alberta lineament is quite different from Beaverlodge. The ovoid structure is quite distinct from the fluid, sinuous compression-related ore structures associated with the St. Louis fault. Yet on a smaller scale there are indications in the aerial photographs of late sinuous faulting impressed on the ovoid and the occurence of possible fault deflections. The combination of faults playing differerent interacting roles appears similar. The ovoid may or may not be similar to the Archean 'swells' reported from other unconformity deposits. Pegmatites are a local common occurence in the vicinity of several of these deposits,as they are in Fidler. In fact,Lang's Uranium Metallogeny Map of 1957 [Fig.8] indicates the southern and eastern margins of the Athabasca as potential ground for 'economic' pegmatites.

2. Looking at the Composite figure 22., it appears that the Fidler area lies, primarily, along the main N.E. mineral belt, whereas Maurice Bay appears to be secondary to it. The most obvious geochemical trend leading into the Maurice Bay deposit is the distinct N.W.alignment of lake geo-chem anomalies and mapped showings [after Godfrey], sub-parallel to the Griffith's Creek lineaments. This N.W. trend is interpreted by the writer as a local interuption [i.e. a tie-in] in the regional N.E.Trend which extends from the Fidler area to the Great Slave area. There are stastical geo-chemical differences between the N.E. Alberta and N.W. Sask. surveys, nevertheless, along the extent of the north shore of Lake Athbasca, only two geochemical sandstone targets are obvious by extended geo-chemical lineaments, Fidler Point and Maurice Point.[Note the sample sites.]

Within the Beaverlodge area the major ore zones favour the N.E.control.

3. It may be that the Athabasca Formation boundary is tectonically fragmented along the western north shore of Lake Athabasca. This fragmentation may involve distal outliers, steep fault 'captures' and other features which could extend several kilometers inland.

4. The latter part of this presentation involves the brief development of a regional perspective tentatively exploring the role of continental fracturing and faulting in the localization of potential uranium deposits. There is a suggestion that there is a structural uranium domain where uranium and other metals are worked into mineral belts and that that these domains are not independent but may be linked by common continental features. The selection of this property is considered an application of this theory.

5. The property geology is not known beyond the cursory reconnaissance level as it seems to have been subjected to numerous day visits or 'fly-bys' by many people without any detailed programs or in-depth genetic consideration. During the mid to late 1970's, programs were conducted in the general region by a number of companies. But the Fidler area was overlooked, probably because this exploration period

pre-dated the later work of the sedimentologists, Wilson and Ramaekers.

6. Nevertheless, the property is exposed and the preliminary exploration targets have been roughed out, so the resolution of the property's potential should be relatively straight forward.

7. The central ovoid feature with its bland granite and limited exposed sandstone outcrops is the structural nucleus of regional uraniferous fracture belts and favourable ore controlling faults. It may prove to be a genuine geological anomaly,the study of which may yield major insights into the nature and style of mineralization in this region of the Shield. The structure is of sufficient areal extent and structural complexity to host major deposits of blind down plunge uranium ore at,under and near the unconformity. Buried deposits could be occuring within and surrounding the feature. It has the aspect suggestive of a shear extended sedimentary lithosome or a sharp local cross-folded basement dome. Since both rock types are bound in the same form,a complex structural,metasomatic and/or hydrothermal interaction may exist.

CONCLUSIONS

The potential for economic uranium ore includes a number of possibilities.

An exploration program of the ovoid structure would have to address buried and/or blind ore occurences. This would include; the potential for breccia structure related to fault intersections, vein structure related to compressive movement along sinuous local faults and/or deflection zones and open arcs related to the intersection of conjugate faults, local in situ zones of metasomatism related to late hydrothermal activity, and the possible 'capture'of altered sandstones and/or the development of channel ways related to complex fault and fold development.

The occurence of altered 'quartzite-sandstone' as slivers within the multi-stranded N.W. fault zone associated with favourable geo-chem and the discovery, a short distance down trend, of a similar altered ore bearing 'quartzite-sandstone' boulder bodes well for a potential ore horizon. Whether the recessive unit is Archean quartzite or Helikian sandstone should be resolved in the field. Either unit could make ore but it would be genetically signifigant to know. Westbury [1969] makes reference to quartzite 'slivers' in S.W. Fidler and describes them as ' lithologically they may be gneissose,garnetiferous, chloritic,or biotitic'. Godfrey mapped quartzites [unit 30] on the eastern limit of the property near old Lease 44 closer to this description and it may be that the geologist is 'extrapolating' these into this area. The crude field map that is his reference does not cover the Fidler Point. The mapping geologist, Netolitsky [pg.15,his report] described them as 'recessive,contain abundant hematite and are locally chloritic....also exhibits a strongly sheared aspect...aside from the shear foliation, little other criteria are present to differentiate it from the Athabasca Formation'. In his text,Netolitsky tends to use the two terms,sandstone / quartzite, interchangeably.On pages 15 and 16 of his report, Netolitsky mentions Athabasca outcropping on the N.E. shore of Big Bay, which would be Lapworth Point. He indicates a zone of hematization associated with a biotite schist on the Point, otherwise, he means these quartzite/sandstone slivers north of the Point. In 1970, the idea of thrusted slivers at the unconformity would have seemed unorthodox to the relatively naive 'unconformity vein' model of the time. Harper[1978] mentions thrust slivers of sandstone within sandstone at Maurice Bay. The occurence here of slivers of altered high grade sandstone ore thrust into basement rock would be the reverse of the Collins 'B' occurence of high grade ore in slivers of basement rock thrust into sandstone [Heine 1981]. An area of some square kilometers exists for exploring this potential.

The hematized albite granites [Hale], drilled to the immediate east along Fishing Creek, should be reviewed. The highest grade ore zone in the Beaverlodge ore complex [0.52 % U308] occurred in an albite ' pitchblende in vein' granite. In a single discrete lense it contained more uranium than Maurice Bay is reporting in total. It was so pervasively mineralized that it could have been taken in a single, relatively inexpensive blast.

The gold anomaly should be taken seriously. The correlation of lake sediment data with known gold showings in N.E. Alberta is very good in this survey. Boyle in G.S.C. Bul.280 considers proximity to an albite granite a favourable environment.

Netolitsky's map indicates a pyrite occurence, [that is aeromagnetically responsive], on the north east side of Lapworth Point, that should be checked as a possible saprolite occurence.

Godfrey's unit 30, high grade metasediments, should be checked for the occurence of 'hybrid migmatitic' banding that is known to carry local very high grade uranium and sulphide values in some parts of N.E. Alberta.

I chose this property from a list of possible properties, generated from a number of study areas.

I believe that based on its merits, the property warrants further work.

[redacted]

Donald Laurence Dick B.Sc.

President

Mine-Geo Research Inc.

THE DEVELOPMENT OF THE REGIONAL PERSPECTIVE

Because of the the proximity of the provincial border and the differing geological jurisdictions and academic styles, the regional geology is, perhaps best described through a hisorical overview to gain a better sense of the overall setting.

R.Green, of the Alberta Research Council, published a one inch to twenty mile geological map of Alberta in 1972 [see Fig. 9]. The map shows a discrete Archean assemblage occurring along the eastern limit of the Alberta border. It is simplistically grouped into 4 rock units; an early Archean Porphyroblastic Granite [Ap], a mid to late Archean Granite Gneiss [Agg], late Archean Metasedimentary

Rocks [Am] and undifferentiated Archean Granite Plutonic Rocks [A]. This latter group, which occurs as isolated blebs within the assemblage, forms the balance of the shield map with occasional limited elongated occurences of the other units. The basement complex [Ap] follows the border on a N.N.E. strike rolling out on a E.N.E. trend north of Lake Athabasca and terminates against the multi-stranded Allan Thrust [Godfrey 1959] which strikes N-S and occurs witnin the vicinity of the mineral property mentioned in the summary. A S.W. lobe of the mid to late Archean granite flanks this unit on the west and the Allan Thrust forms the western structural boundary of the granite [Agg] to the north.Metasedimentary sequences [Am] occur on various scales throughout the Ap and Agg assemblage, as well as the regional A. The map was revised in 1994 by the Alberta Research Council.

On the Saskatchewan side of the border, F.Koster of Saskatchewan D.M.R. mapped the Thainka Lake and Harper Lake North and South map sheets through the period 1960 to 1963. On the western limits of his map sheets [see Fig.10] he encountered an intrusive complex 'flowing' over the border from Alberta. He noted the structurally bound character of the intrusive margin and labelled the intrusive the Western Granodiorite Complex. He placed it's age as Proterzoic 'younger granites'. This complex is also known in

Saskatchewan geology as late Hudsonian granites within the Forcie Segment. Koster and Godfrey were in communication as Godfrey was mapping the same unit, at that time, on the Alberta side. Godfrey preferred an older metamorphic origin and Koster preferred a younger magmatic origin.

During 1993-4 the G.S.C.Calgary geologists, McDonough et al mapped the Colin Lake sheet [see Fig.11] which is immediately adjacent to Koster's Harper Lake North sheet. They show the intrusive unit, which is called the Colin Lake Granite, occuring within the N.E. quadrant of the sheet.To the south, it passes S.E.into Saskatchewan and by Koster's mapping displays a structure bound curvilinear tendency to pass back into Alberta on a S.W.trend. The G.S.C. place the unit as early to mid Proterzoic. The basement amphibolites and layered gneisses on the Alberta sheet are given as Archean ? or Proterozoic or Mesoarchean ? or Paleoproterzoic age. The metamorphosed basement complex follows a steady N.E.trend through the sheet.

As part of their lake sediment sampling program in 1992, the G.S.C. produced a geological map of the region based on the work of J.Godfrey's 'Geology of North-Eastern Alberta' [A.R.C.Map 180 1986] and J.A. Wilson's 'Geology of the Athabasca Group in Alberta [A.R.C.Bul.49 1985].

Godfrey [see Fig.13] maintains the overall geometry of Green's original structural bound Archean assemblage [which may have been influenced by Godfrey's own earlier work] but generally restricts the Archean component as granites and metasediments in the upper western flank, adjacent to the northern extension of the Allan Thrust.The curving centre area, along the border, is described as Aphebian [Wylie Lake] granitoids which 'pinch out' just past Fidler Point against the same above-mentioned thrust. In terms of relative age, he essentially reverses Green's age format of older in the centre and younger on the flank. In the vicinity of Fidler Point, Godfrey shows the margin of the Athabasca unconformity as being just offshore but indicates an apophyses onto the western bayshore of Fidler Point where the sedimentologist, Wilson had extended the margin of the Athabasca Formation a year before [A.R.C. Bul.49]. When Hale and Netolistky, independently, mapped altered and unaltered sandstone in the Fidler Point area in 1970, the Athabasca Formation boundary line is shown off-shore on their data base maps. This boundary line may have been indicated by Godfrey in his mapping of the Fort Chipeywan and District map sheet in 1959.

The G.S.C. group overprinted Wilson's Athabasca map on Godfrey's interpretation of the same area, to complete their operating base map [see Fig.16].

Early workers such as Bateman [1949],Jollife [1950], Lang,Griffith and Steacy [1962 G.S.C. Economic Geology Series No. 16, pp78,79] stressed the importance of northeast structural belts for the occurence of hydrothermal uranium deposits in 'younger Pre-Cambrian rock', though older Pre-Cambrian rocks may outcrop in the belts. They cite Great Bear Lake and Beaverlodge, among others, as examples of this phenomena.

The overall geological configuration described here suggests a N.E. belt which is probably of the same order as others, but like each belt, it is as different in detail, as the other belts are from one another. Referring to Douglas' map 1250A [1967], fig.6 , the belt can be seen as an elongated S-shaped assemblage of Archean-Aphebian units extending some hundred of kilometers into the N.W.T. For comparative purposes, Stockton's [1962] interpretation of the same assemblage is given in fig.7. From the landsat photo a series of N.E. lineaments can be seen crossing the assemblage. These tend to converge to the N.E. with a northerly splay off the Black Bay Fault. Isolated,elongated occurences of units similar to the main assemblage are indicated by Douglas and Stockwell which appear to be associated with these other N.E. lineaments. The main assemblage is discernible in the photo in the N.E. Alberta area, particularily the prominent E-W 'ribbing'. Within

Alberta the belt displays a distinct regional warp from a N.N.E.trend to a E.N.E. trend.

The environment of uranium mineralization associated with this belt, at least within the N.E.Alberta section is quite different from the Beaverlodge style. It seems to be generally and conventionally considered as pegmatite related, with some blurring, into migmatites,'hot' granites, gneisses and amphibolites.To the exploring economic geologist the term 'pegmatite environment'has a negative sub-economic connatation. Looking at the region in closer detail, it may be more functional to relegate the term,'pegmatite', to 'a level' of a complex multilevel magmatic differentiation/metasomatic event, and to concentrate on the intuitive economic possibilities of a 'transitional intrusive environment'.

Local and larger scale differential movement and adjustment, along a curvilinear feature of this scale would have a devastating impact on the regional geology,generating and augmenting an environment for multiple deformation, metasomatism, anatexis and intrusion. Wherein, uranium and other metals could be mobilized and/or concentrated along favourable stranded conjugate fracture zones in transitional host rocks and hydrothermal traps.

The results of the G.S.C. Lake Sediment and Water sampling program substantiates a trend of mineralization [see Figs.21&22]. The warp carries essentially continuous anomalous values of uranium for 100 km., beginning at least at the N.W.T.border and terminating at Fidler Point. The highest values occur in 3 elongated clusters with related, variously zoned elements.

The first is a elongated sinuous cluster following the Andrew-Waugh-Johnson Lakes to the south. Gold and uranium veining ,fault breccias,migmatite and pegmatite development is pervasive in the area.The gold occurences along with possible massive sulphides targets have been and are being actively pursued.

Coming further south there is a low anomalous to barren zone associated with the Colin Lake Granite-Western Granodiorite Complex which was discussed previously.

South of Colin Lake, coincidental with the N.E. Trend being cross-cut by a strong set of N.W.lineaments, the second cluster forms a distinct N.W. orientation some 30 km.long. One of these lineaments coincides with Griffith's Creek which transects the main Maurice Bay deposit, 10 km. to the S.E., inside the Saskatchewan border.

Continuing to the south, there is another low anomalous zone related to a N.W.- S.E. exposure of Archean granite [from Godfrey's Map 180].

The third cluster forms as the warp comes around to the west. The uranium values are apparently related to a transitional group of granites,gneisses, pegmatites, and amphibolites. Secondary uranium mineralization is locally prevalent and sulphide showings are reported to the N.E.

The uranium values increase to the S.W. where the highest values on the warp occur in conjunction with the major intersection of a complex set of fault-fracture structures between Fidler and Lapworth Points and the margin of the Athabasca Sandstone. This involves 4 prominent lineaments.

The first,the E.N.E.trend, has just been discussed. The second is indicated by lineaments carrying enhanced anomalous values of uranium which trend due north from the intersection point for 30 plus km. This trend follows a line of mapped uranium showings [Godfrey Map 182] and ultimately ties into the Allan Thrust zone in the north.

These two mineral lineaments form a regional apical feature of enhanced uranium values, one limb being 100 km. to the N.E. and the other limb being 30 plus km. due north, with minor values in between.

A third uranium lineament indirectly ties into the intersection area of the other two. It is related to an east-west trending regional uranium anomaly,which occurs approximately 20 km. to the W.N.W. The anomaly is about 30 km. long and 5 to10 km. wide. At its eastern limit, a set of N.W. lineaments, as evidenced by drainage, draw down into the apex area. And/or there may be a complex offset or drag ..[related to the Fidler Point Fault Zone]..Locally,the Fishing Creek granite-pitchblende prospect occurs on a strong set of uraniferous east-west structure in east Fidler...[which blurs with the E.N.E.belt].

The fourth intersecting structure is the N.W.trending Fidler Fault Zone interpreted by Ramaeker [S.G.S.Report 195-1990 pg.43] . He describes it as the controlling fault along the N.E.edge of the N.W. trending Jackfish Sub-Basin. The trend of the fault extends north west of Fidler Point to southeast of Cluff Lake,with the southwestern side downthrown. The structure was most active at Manitou Falls time and 'at least sporadically thereafter', causing deflection in the Tuma Lake outcrop,in the Carswell dolomites and in the Locker Lake/Otherside Formation boundaries. In the vicinity of Cluff Lake it caused 'marked changes' in outcrop pattern of the Carswell and Douglas Formations. Presumably it passes with multiple strands,as Ramaeker refers to 'the N.W. faults', between Fidler and

Lapworth Points in immediate juxtaposition with the warping Allan Thrust.

Summary of the Regional Perspective

It is always important to place a given mineral property in a regional context. Other potential properties may emerge related to a common regional feature as the understanding of the regional features are evolved in the evolution of the understanding of the property. As well, if ore is discovered, the logistical limits of haulage have to be explored to assess the potential for additional ore occurences that may effect the overall economics of the discovery.

The Fidler Mineral Permit was chosen because it overlies a major zone of intersection of regional faults and uraniferous mineral fracture belts in the immediate vicinity of the Athabasca sandstone - basement interface. The structural resolution of this multiple intersection will, I believe, prove to be a major uranium ore complex.

ERRATA

page 4 - to avoid any confusion, it is the writer's assumption that the sandstone apophyses is faulted into place by one of the N.W. faults in Ramaeker's Fidler Fault Zone.

page 5 and 21 - the writer has since found a refererence that Godfrey recognized the sandstone apophyses in 1971 on work published in 1978.This predates the work of Wilson in 1985. In this reference Godfrey recommends the Fidler sandstone occurrence as a potential uranium unconformity situation.

page 22 - ....' along the N.E. edge of the N.W. trending Jackfish Basin' .. should read 'along the N.E.edge of the N.E. trending Jackfish Basin'.This may be an original typo error by Ramaekers.

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G.S.C. Map 2876G Winnifred Lake Aeromag

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G.S.C. Map 1045-M1 Uranium Metallogeny..Lang 1957

APPENDIX 1

Permit Documents

Plats

Resume

Terms

Summary of Property Work History

Netolitsky Unity Resources Ltd.1970

Cook Gamma Ray Spectrometer Survey 1969

Hale North Canadian Oils Limited 1970

Westbury Athabasca Exploration and Mining Ltd. 1969-70

Dibblee Athabasca Exploration and Mining Ltd. 1969

Figures

4.Property Plat
5.Key Map..Historical Permits

Alberta
ENERGY

MA-1

Mineral Operations Division

METALLIC AND INDUSTRIAL MINERALS PERMIT NO. **9397020001**

Date of Issue: **February 19, 1997**

Term Commencement Date: **February 18, 1997**

In this Permit:

(a) "Date of Issue" means the date shown above as the Date of Issue;

(b) "Location" means the tract or tracts of land described under the heading "Description of Location" in the Appendix to this Permit;

(c) "Metallic and Industrial Minerals" means the minerals described under the heading "Permitted Substances" in the Appendix to this Permit;

(d) "Permit Holder means

DONALD LAWRENCE DICK

(e) "Term Commencement Date" means the date shown above as the Term Commencement Date.

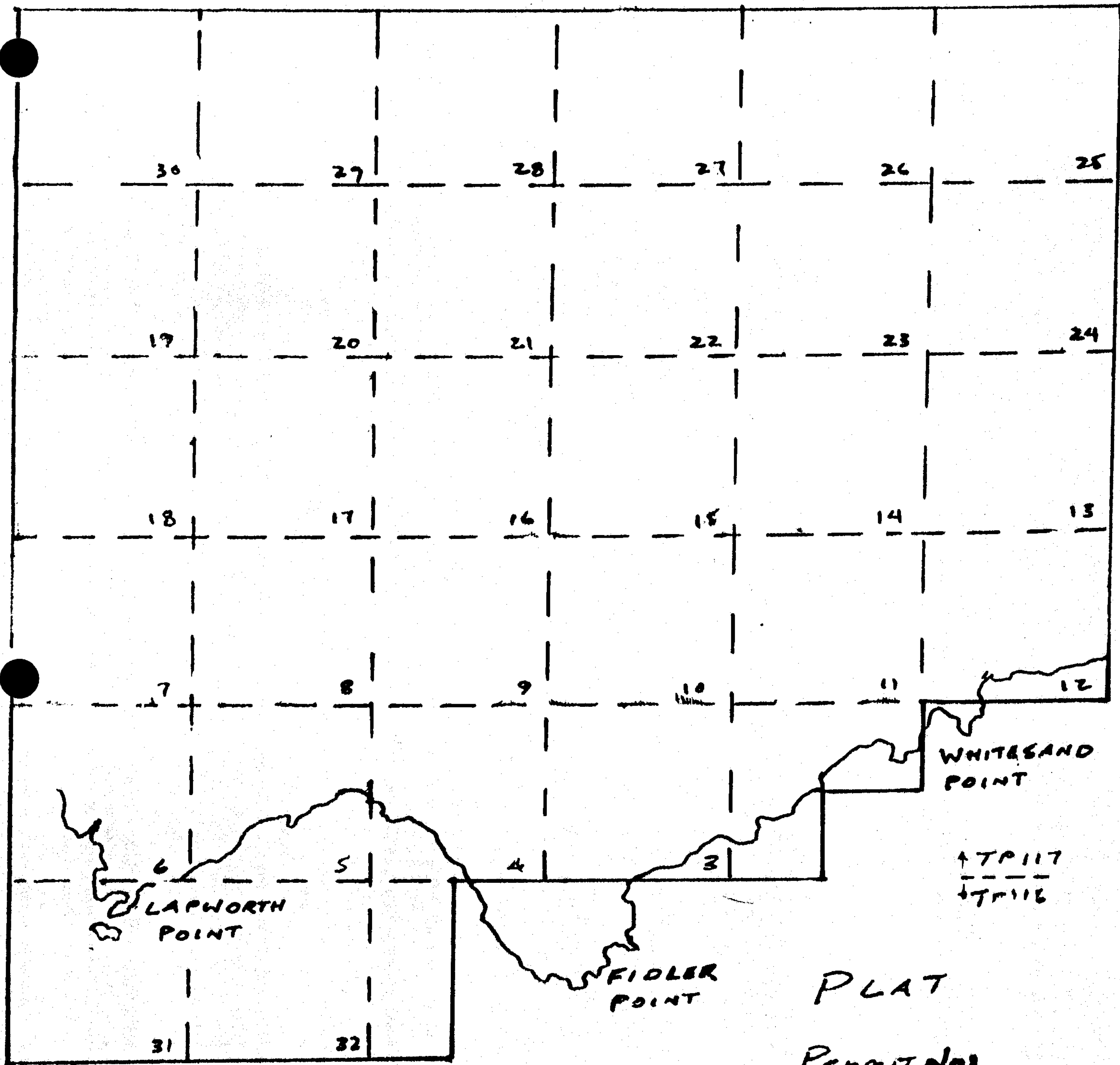
(f) a reference in this Permit to the Mines and Minerals Act or to any other Act of the Legislature of Alberta shall be construed as a reference to

(i) that Act, as amended from time to time,

(ii) any replacement of all or part of that Act from time to time enacted by the Legislature, as amended from time to time, and

(iii) any regulations, orders, directives, by-laws or subordinate legislation from time to time made under any enactment referred to in clause (a) or (b), as amended from time to time.

This Permit grants to the Permit Holder the right to explore for Metallic and Industrial Minerals that are the property of the Crown in right of Alberta in the Location subject to the following terms and conditions:



PLAT

Permit No.
939702001

1:100,000

4-03-116 31; 32; 33W SEP
4-03-117 2N, SW; 3-30

FIG. 4

1. The Permit Holder shall comply with all provisions of the Mines and Minerals Act that pertain or relate to Metallic and Industrial Minerals Permits and those provisions shall be deemed to be incorporated into and to form part of this Permit.

2. Nothing in this Permit shall be construed as removing the necessity to obtain, in relation to the conduct of exploration on the Location, a right of entry, user and taking of the surface of the Location or an exploration approval for the conduct of the exploration, if such a right of entry or exploration approval is required by the Mines and Minerals Act or by any other Act of the Legislature of Alberta.

3. (1) The Permit Holder shall comply with

   (a) the provisions of the Mines and Minerals Act that relate to, apply to or affect the rights and obligations of a holder of metallic and industrial minerals rights that are the property of Her Majesty, or that relate to, apply or affect the Permit Holder in the conduct of its operations or activities under this Permit, and

   (b) the provisions of any other Act of the Legislature of Alberta relating to, applying to or affecting the rights and obligations of holders of metallic and industrial minerals rights that are the property of Her Majesty, or relating to, applying to or affecting the Permit Holder in the conduct of its operations or activities under this Permit.

   (2) The provisions of the Acts and regulations referred to in section 3(1) of this Agreement shall be deemed to be incorporated into and to form part of this Permit.

   (3) In the event of conflict between a provision of this Permit and a provision of an Act referred to in section 3(1) of this Agreement, the provision of the Act prevails.

4. This Permit is subject to the special provisions, if any, contained in the Appendix to this Permit.

FOR THE MINISTER OF ENERGY
ON BEHALF OF HER MAJESTY

APPENDIX

TO

METALLIC AND INDUSTRIAL MINERALS PERMIT NO. 9397020001

COMMENCEMENT OF TERM:

1997 FEBRUARY 18

AGGREGATE AREA:

8 009 HECTARES

DESCRIPTION OF LOCATION:

4-03-116: 31;32;33W,SEP
PORTION(S) LYING SOUTH AND WEST OF THE BANK OF LAKE ATHABASCA.
4-03-117: 2N,SW;3-30

PERMITTED SUBSTANCES:

METALLIC AND INDUSTRIAL MINERALS

SPECIAL PROVISIONS:

NIL

My resume encompasses approximately 30 years of diverse geological experience including several years of senior staff responsibility in both mining and exploration geology, from grass-roots to production.

Overall, my tendency has been to seek new areas of geological endeavor, carrying the experience from one area to another. This has enabled me to develop unique and original analytic approaches to the problems inherent in economic geology.

My academic specialization involves the definition and evaluation of vein fracture systems as they relate to regional structure and have guest lectured in graduate studies on the subject at McGill University and the University of Saskatchewan.

My professional expertise has developed and evolved from my extensive industrial experience and through intensive personal research into the controls of ore deposition and the related economics. Because this subject involves fundamental aspects of mining, exploration and corporate geology, my expertise includes;

Mining Geology - (1) Complex ore zone interpretation at the production, development or exploration stage, (2) Ore reserve analysis, (3) MIne and property evaluation, (4) Grade control theory, (5) Underground and surface drill strategy and (6) Management consultation of development, exploration and re-activation programs.

Exploration Geology - (1) Integrated regional OEX programs, (2) Target selection and (3) District exploration models of mining camp ore inter-relationships involving hydrothermal, economic and geological models.

Corporate Geology - (1) Underground and surface feasibility studies including ramp, adit, raise and shaft sinking activities (2) Establishment of mine geological standards (3) Staff development, (4) Production trouble shooting, (5) Conceptual corporate planning and (6) Innovative unit cost analysis.

BACKGROUND

Consulting Geologist Based in Vancouver area, BC, September 1983 to present.
President Vancouver-based Mining Subsidiary of an International Oil and Gas Consulting Group - The D & S Group of Calgary - November 1981 to September 1983.

Chief Geologist and Manager Bema Geological Group, Langley, BC, March 1981 to November 1981.

Senior Staff Geologist Pan Ocean-Marathon Oil Co. Ltd., Calagary, AB, April 1980 to March 1981.

District Chief Geologist Eldorado Nuclear Ltd., Eldorado, SK, May 1973 to April 1980.

Project Geologist Giant Mascot Mines Ltd., Vancouver, BC, June 1972 to January 1973.

Junior Geologist Giant Mascot Mines Ltd., Vancouver, BC, May 1968 to March 1970.

Field Draftsman Anvil Mining Corp., Faro, Yukon, June 1967 to December 1967.

Field Expeditor Anvil Mining Corp., Faro, Yukon, April 1966 to September 1967.

Geologist Assistant Noranda Mines, Manitouwadge, ON, April 1964 to September 1963.

University of Saskatchewan, B.Sc. 1972 Night School: Spanish

124 Main Street, P.O. Box 136, ABERNETHY, SK SOA OAO TEL:- (306) 333-4447

TERMS

A package involving ;

1. Cash on signing and annual cash payments
2. Work Commitments for up to 3 years
3. Participation of Optionee in the Management Committee

PROPERTY WORK HISTORY

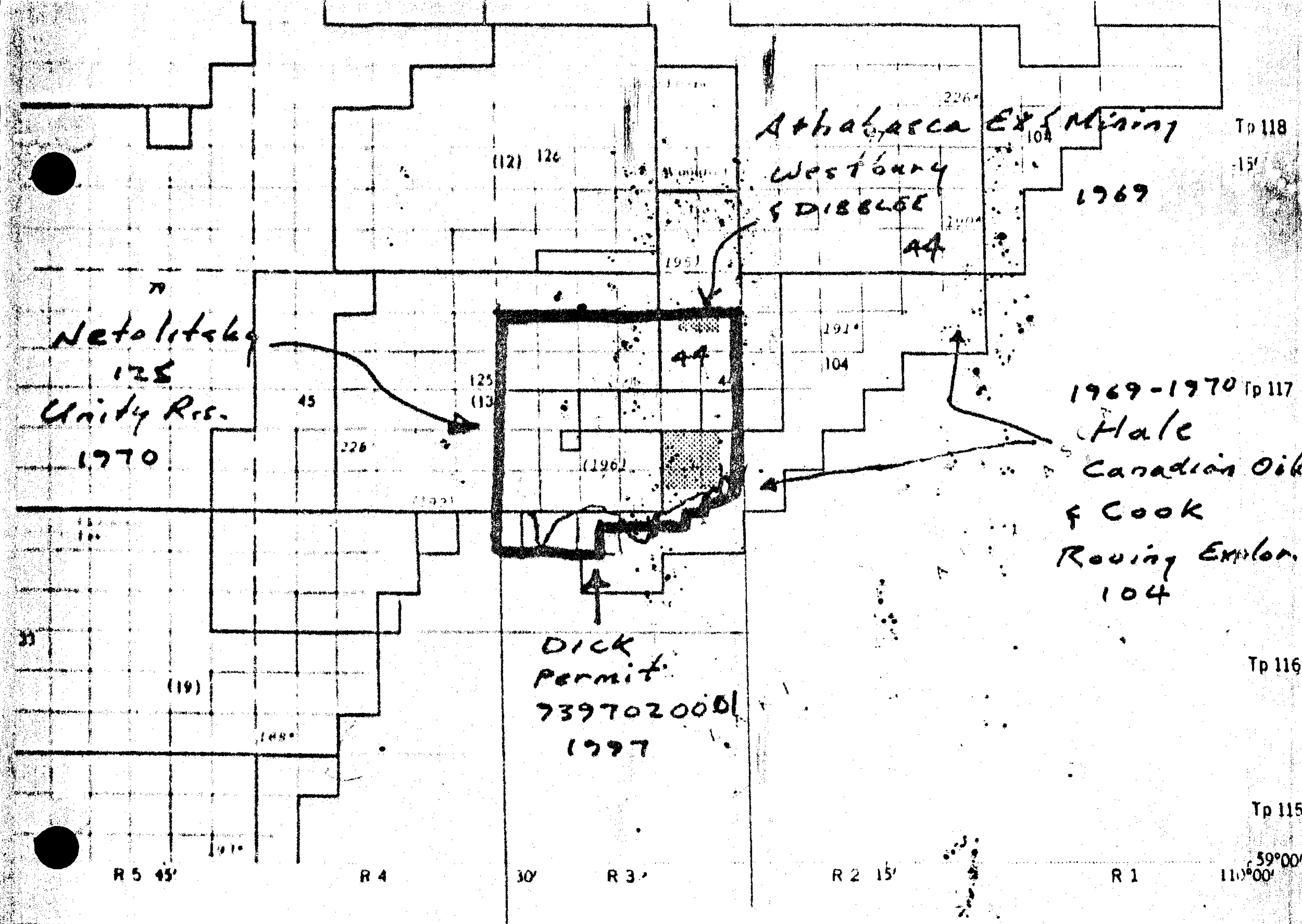
I was able to extract 5 partially complete microfiche recorded assessment reports from the 1968-70 period. The 'histories' noted in these reports are included in this summary. The reports overlap the present property boundaries.

1953 - Goldfields Uranium conducted an extensive drilling program on 'hot' granites along the northern limit of the property in the vicinity of Fishing Creek. References are Lang, Griffith and Steacy G.S.C Series No. 16, p.229 who classify it as 'pitchblende in vein'.

1953 to 1968 - Local rumours of prospecting activity by companies and individuals.

1968 - Athabasca Mining and Exploration conducted a reconnaisance compass and aerial photograph program utilizing a geiger counter and two scintilometers. The survey covered an area,Permit 44, basically north of the present property with an overlap of the northeast quadrant. Thirty rock samples were taken but a record of results is not given.

1969 - Athabasca mining returned and conducted a brief follow-up program involving a helicopter grid survey at tree



NTS 74M, ALBERTA

Published 1977
Data compilation by M. ?gruks, 19
Drafting by L. Lehner

15 — 20 Miles
25 — 30 Kilometres

NOTE: The shorelines of Lake Athabasca and adjacent lakes differ in position with respect to the township grid in the federal and provincial basemaps for NTS sheet 74M. This part of the area is unsurveyed; thus it is not known which is more correct. Mineral dispositions are defined by township-range locations as determined from the provincial map.

MARGINAL NOTES

(1) To accompany Alberta Research Council Report 76-6

(2) Although these maps are based on official records of Alberta Energy and Natural Resources, they should not be used as a legal basis for defining mineral dispositions. Users are advised to consult the Director - Mineral Agreements for the official legal descriptions of any mineral dispositions.

(3) Active dispositions are those active as of September, 1976.

Alberta
RESEARCH COUNCIL

Historical Mineral Permit Boundaries Fidler Area

Fig. 5

top level with ground checks of anomalies. As well,in the east quadrant, nine pits were blasted and sampled on five granite-pegmatite outcrops.Limited assay results indicated four pits averaging 0.017 to 0.32 % U308 content. The average was 'likely' 0.10 to 0.115 % U308 with some difficulty in assay processes [see appendix - Westbury report]. The area was taken to lease [designated Lease 44] and apparently optioned to North Canadian Oils whose consultant, Hale registered the radioactive occurence in 1970 with the Atomic Energy Commission because the average grade of the deposit exceeded 0.05 % U308.

1969 - North Canadian Oils obtained, among other permits, Permit 104. This permit extended along the north shore of Lake Athabasca from Lapworth Point, west of Fidler Point,and then east to the Saskatchewan border. It overlapped the southern half and northeast quarter of the present property. A helicopter Gamma Ray Spectrometer Survey was flown over the area by Rover Exploration Services of Calgary under the direction of J.T.Cooke P.Geol. Numerous radioactive anomalies were indicated within the present property area. The anomalies, which tended to occur as 'clusters',were assumed to be attributed primarily to pegmatitic granite grading to gneissic granite and pegmatitic gneiss outcroppings. One anomaly, 104a, was found to be associated with an inlier remnant of schist or phyllite within a pegmatitic granite [J. Cooke 1969].In places, rock sampling was carried out on the ground by Cooke and the

Northern Canadian geological consultant, J.D. Hale. The relevant property assays are attatched in the appendix [1969-70]. In the last statement of his conclusions Cooke doesn't rule out the possibility of recessive and non-radiometrically responsive veins being present in the area.

1970 - J.D. Hale returned for a brief compass traverse follow-up on Permit 104 on behalf of North Canadian Oils. He did not make any formal recommendations or conclusions on the Fidler area other than general comments in his text and to identify it as one of two signifigant areas of radioactivity within a very large area of investigation.

1970 - in the same year Unity Resources conducted a brief ground 'follow up' program on Permit 125 which overlaps the northwest quadrant of the present property. Their geologist, R.X. Netolitsky P.Geol., refers to a lost report by Rich and Creig [April 14,1969] which recommends that Summit Oils Ltd. conduct an airborne scintillometer survey of their mineral permits. The Rich and Creig reports cover an area west and south of the Fidler area. The survey was done by Geo-X Surveys Limited of Vancouver and a 'follow-up' program was recommended by K.W. Campbell which for some reason was carried out by Unity Resources. The survey results for Permit 125 are missing except that it is referred to in Netolitsky's summary report which is included in the appendix. In his sixth conclusion, Netolitsky refers to the amount of anomalous radioactivity in the area being favourable but there was a lack of obvious defining structure [except north of Big Bay in the Fidler Area]. However, in his fifth and seventh conclusions he, like Cooke, doesn't rule out the possibility of recessive ore structure.

1970 to 1994 - no record of activity.

1994 - As part of the Canada-Alberta Agreement on Mineral Development (1992-1995) the Geological Survey of Canada conducted a comprehensive lake sediment and water geochemical reconnaissance program over the N.E. segment of the Canadian Shield. It was primarily on the basis of an in-depth analysis of this program, Open File 2856, that the writer chose this area for permitting.

1997 - the writer obtained the permit, Metallic and Industrial Minerals Permit No. 9397020001, that covers the present property. I have not yet had the opportunity to visit the property.

The Immediate Regional Work History

1978 - Uranerz Exploration and Mining Ltd. conducted an extensive exploration and drilling program in the vicinities of Greywillow and Fallingsand Points just inside the Alberta border, north of Fidler Point.

1978 - Flin-Flon Mines Limited conducted a limited drilling program on Burntwood Island, south of Fidler Point.

1978 - On the south shore, Golden Eagle Oil and Gas conducted programs at Stone Point and Jackfish Creek. Further to the south, Esso Minerals Canada Limited conducted a program near Old Fort Bay.

1978 - Chevron Oil and Gas Limited conducted a program around Agar Lake.

1981 - Norcen Energy Resources Limited conducted a program on the Alberta-Sask. border,exploring a sandstone outlier south of Griffith Creek and east of Burstall Lake, back up the N.E.belt from Fidler.

1984 - Uranerz Exploration and Mining Ltd. commenced a program in the Barber Lake area within the Athabasca Formation to the south.

At the present time a number of companies hold dispositions in the general region.

RECONNAISSANCE PROPERTY EXAMINATION

OF

MINERAL PERMITS NOS. 125, 126 & 137

NORTHEASTERN ALBERTA

UNITY RESOURCES LIMITED

R. K. Netolitzky, M.Sc., P.Geol.

CONCLUSIONS

1. Approximately 30% of the total permit area received at least a cursory examination during the course of this survey. However, less than 10 of the airborne anomalies of greater than three standard deviations were not ground checked.
2. Greater than 80% of the airborne anomalies selected for follow-up examination (i.e., those greater than three standard deviations) were accurately located on the ground.
3. The vast majority of airborne anomalies were found to be associated with areas of high background radioactivity, in pegmatites or massive granite.
4. Similarly, the majority of ground anomalies were also associated with pegmatite bodies or massive granites. In addition, a significant number were related to narrow bands of porphyroblastic gneiss and granite gneiss.
5. A basic disadvantage of the airborne radiometric survey is its tendency to emphasize the high background granite areas. These areas appear further enhanced by their resistance to erosion. This results in prominent outcrop areas and ridges. Vein occurrences, on the other hand, tend to be present in tectonically weak areas (poor resistance to erosional effects). The veins themselves, if present, will also exhibit a poor resistance to erosion. The possibility of encountering vein structures which are exposed to surface over an extensive enough strike length to be

discernible by the flight spacing utilized in airborne surveys is poor.

6. The amount of anomalous radioactivity present in those areas examined may be considered as an indication of the presence of a favorable environment. However, the lack of concentrated radioactivity in or associated with defining structures is definitely detrimental to the potential of the area.

7. [illegible] permit areas with respect to the Beaverlodge uranium province indicate a potential for an economic discovery of radioactive mineralization.

8. Trace amounts of sulphides (pyrite), predominantly in the more mafic gneisses, were observed throughout the permit areas. In the vicinity of Block Lake, pyrite is present in [illegible] leucocratic phases. No economic sulphides were observed, and the possibility of such a discovery is considered remote.

RECOMMENDATIONS

In the opinion of the writer, three areas warrant further consideration. In decreasing order of priority, these are:

(a) Southwest of Belinda Lake (Permit No. 125). The presence of interesting radioactivity in association with quartz veins and pegmatites requires further examination. If more ground work is undertaken in this area, the location of the radioactive quartzite boulder (southeast of the lake) should be examined in detail to ensure that the source of the boulder is not local.

(b) North of Block Lake (Permit No. 137). Anomalous radioactivity recorded in overburden is primarily interesting because it is higher than that of the surrounding outcrops and increases with depth. The source of the radioactivity should be ascertained.

(c) North of Big Bay (Fidler Point area, Permit No. 125). In this case, radioactivity may be associated with a lineament. The valley floor should be prospected in detail (probably by radon sampling) to check for anomalous zones.

Reconnaissance prospecting of other areas within the permits, in addition to a more extensive examination of the non-resistive quartzites, would provide a more lucid picture of the potential of the area.

A re-examination of the airborne data and a subsequent plot of all values above two standard deviations is suggested for those anomalies which occur isolated from high background areas.

In summary, selected samples from the eastern portion of Permit No. 125 should be assayed for niobium, tantalum, and rare earth content. If significant amounts of these elements are present, a reappraisal of the permit areas would be in order. Positive data in this field could present a most interesting exploration target.

METHOD OF SURVEY

An Otter aircraft was employed to facilitate camp moves during the course of the property examination. In all, four camp locations were used to cover the target areas. These were:

1. two miles west of Fidler Point, on the north shore of Lake Athabasca (permit no. 125);
2. the southwest corner of Belinda Lake (permit no. 126);
3. the west end of Florence Lake (permit no. 128); and
4. the southwest corner of Block Lake (permit no. 137).

A semi-freighter canoe with a motor was used to facilitate shoreline geology traverses and to permit access to some of the remote airborne anomalies.

Traverses were conducted by two-man parties consisting of a geologist and an assistant. Ground radiometric examinations were performed with SRAT SPP2-NF scintillometers (a non-differentiating gamma-ray spectrometer). The SPP2 is a lightweight instrument carried on a belt and shoulder strap and operated by one man. A five scale recording device with sensitivities of 150, 500, 1500, 5000, and 15000 counts per second is connected to a dial for a visual record of the incident radiation. The instrument is also equipped with a built-in sound alarm which is manually adjusted to each of the sensitivity scales and emits a sound proportional to the radiation encountered. This enables the operator to constantly record radioactivity between sampling stations. During all traverses the scintillometer was on and set at a scale reading which would draw attention to any anomalous radioactivity passed over.

Traverses were planned to cover as many of the airborne anomalies as possible and to gather structural and lithological information pertinent to each area. Shoreline geology traverses at Block and Florence Lakes were utilized to gather lithological data because both lakes are oriented perpendicular to the regional strike of the country rocks. The shorelines provided a near continual exposure whereas outcrop in these vicinities amounted to less than 20 per cent.

All pertinent data has been plotted on the appropriate base maps. The main base map was prepared by tracing an uncontrolled photomosaic previously utilized in the airborne radiometric survey. An interpretation of the general geology and airborne radiometric anomalies selected by the computer program has been plotted separately on this base map.

The detailed geological and radiometric observations have been plotted on separate maps for the areas examined at a scale of 1/4 mile to the inch. These maps were produced in the field by enlarging by hand appropriate portions of the 1 mile to the inch base map.

In addition to standard distortion present in all aerial photographs, a number of joins between photographs in the mosaics were not good fits and have caused occasional inconsistencies in the base map. These inconsistencies have not put in doubt the location of recorded observations with regard to local topographic features. In light of the reconnaissance prospecting program conducted, the accuracy of the maps is considered adequate.

HISTORY

Published geological data on the area in the immediate vicinity of the permits are limited and are of a reconnaissance nature. The most recent G. S. C. map available is a preliminary series by G. C. Riley, 1959 (Map 12-196[illegible], Fort Fitzgerald: 1" = 4 miles). Considerable detailed work has been done in the Andrew Lake area north of the permits and for a bibliography of this data the reader is referred to the "Report on Quartz Mineral Permits 125, 126, and 137 . . . for SUMMIT OILS LIMITED, by J. A. Greig and A. Rich, April 14, 1969."

During the past ten years, extensive research has been undertaken on uranium mineralization in the [illegible] area of Northwestern Saskatchewan. A systematic and comprehensive study of the genesis, controls and geochronology of uranium deposits, plus a detailed description of all of the known radiometric occurrences, is presented by L. S. Beck of the Saskatchewan Department of Mineral Resources in his paper, "Uranium Deposits of the Athabasca Region" (Report no. 126, 1969). The reader is also referred to papers by L. P. Tremblay, particularly the advance edition of Memoir 367 (1968) for information pertinent to uranium exploration in the Precambrian Shield.

An aeromagnetic survey, which covers all three permit areas, was flown as a joint Federal and Alberta Government project in 1962. The data are represented on maps at a scale of one mile to one inch (refer to the Appendix, this report). Aerial photographic coverage is also available at a scale of 1" to approximately 3300 feet (refer to Appendix, this report).

Three radioactive occurrences have been previously reported within or adjacent to the permit areas (Rich and Greig, 1969). These are:

1. Fishing Lake discovery; held under a group of 13 claims adjacent to the east side of permit no. 125. Reportedly, uranium mineralization is associated with an east-west trending fault. The fault is assumed to strike through permit 125.

2. The second occurrence is reportedly located about one-half mile inland from Lake Athabasca within the boundaries of permit 125 (Sec. 35, Twp. 116, Rge. 4, W3M). Unfortunately, the writer was not provided with a more accurate location. Nevertheless, one airborne anomaly and one ground anomaly were discovered in this vicinity.

3. A third occurrence has been reported on the west shore of Winnifred Lake, in permit no. 126.

   Scheduled camp moves during the course of the property examination and a pre-set budget prevented the writer from visiting this location.

RECENT EXPLORATION AND PROPERTY EVALUATION

The reader is referred to a previous evaluation report by Rich and Greig (April 14, 1969). No records of detailed field work by Rich and Greig or other persons are known to be available.

Subsequent to recommendations by Rich and Greig, SUMMIT OILS LIMITED undertook an airborne scintillometer survey of the three permits in 1969. The survey was performed by GEO-X SURVEYS LIMITED of Vancouver, British Columbia (refer to report by GEO-X, dated January 8, 1970.

The final report by GEO-X has since been evaluated by K. W. Campbell, P.Geol. His recommendations for a ground follow-up program were submitted to SUMMIT OILS LIMITED in correspondence dated February 27, 1970.

Because of the method of representation of the airborne radiometric data (a contoured map with no 'spot highs'), the writer undertook a re-evaluation of the GEO-X results. The method of evaluation is set out in a proposal to SUMMIT OILS LIMITED dated May 25, 1970 (R. K. Netelitzky, P.Geol.). The original data were treated statistically by computer to obtain the following:

(a) Maximum reading
(b) Minimum reading (arbitrarily set at 9 counts/second)
(c) Mean
(d) Mode
(e) One, Two and Three standard deviations
(f) Skewness
(g) Kurtosis
(h) Lambda

The final printout also contained the sequence number of each 'sample', the fiducial point, total count, bismuth reading (or uranium equivalent), the standard deviation of the 'sample', the bismuth to potassium ratio, and the bismuth to total [illegible] ratio.

Two histograms [illegible] first as a 'normal' plot, and the second as a '[illegible]' plot.

Of 13,655 'sample' readings from the three permits, [illegible] data points were in excess of two standard deviations, and 223 were in excess of three standard deviations.

Those sample data with readings greater than three standard deviations above the mode (10 counts/second) were chosen statistically, with a certainty of 99 per cent, as being significantly radioactive. That is, the radioactivity of the 'sample' [illegible] was significant with respect to the average background recorded over the permit areas.

Wherever possible, and with the assistance of the flight film strips, the bulk of the 223 anomalous readings were accurately located on the air photographs (scale: 1" = 3300'). These anomaly locations were then incorporated into the daily geological traverses.

FIDLER POINT - LAKE ATHABASCA

(Southern portion of Permit No. 125)

Field examinations in the Fidler Point area were conducted by R. Netolitzky and J. R. Allan, with R. Blanchette and R. Chrapko acting as assistants.

Personnel and field equipment were moved to Big Bay on Lake Athabasca by Otter and Cessna 180 aircraft from Uranium City on August 4.

Seven days of field work were completed with one day being lost due to poor radio communications (August 12). No time was lost due to weather.

On August 13, the camp was moved to Belinda Lake.

General Geology

The rocks encountered in this region have been grouped into six main units. A more intensive subdivision of rock types is not feasible at the scale of mapping conducted. Compositional changes noted traversing across strike are generally not correlatable between traverses.

In decreasing order of abundance, the rock units mapped are discussed below:

1. Granite gneiss

These are generally medium grained, pink, quartzo-feldspathic gneisses containing accessory biotite. The metamorphic foliation varies from fair to good. The unit is commonly equigranular-granoblastic in texture. This map unit also contains bands of porphyroblastic gneisses, migmatitic gneisses, hornblende-biotite gneisses, and amphibolites. The presence of these remnants in an essentially granitoid terrain suggests a complex metamorphic and structural history.

2. Granite

Two varieties of granitic rocks (a white granite and a red granite) are present. The granites have a massive equigranular to poorly [illegible] texture. The development of metamorphic [illegible] was the main criterion utilized in differentiating granites from granite gneisses. The contacts between these two rock units are commonly gradational.

Based on hand lense examination, the red varieties are generally richer in potassium feldspar, while the white varieties are richer in alkali feldspars. Many of the granites contain two feldspars and probably fall in the compositional field of granodiorite. The granites are also generally leucocratic, containing 3 to 5 per cent biotite as the accessory mafic.

The massive granites often have gradational contacts with irregular bodies of pegmatite. Grain size was utilized as the main criterion in differentiating [illegible] granite.

3. Porphyroblastic biotite gneiss

A north-northeast trending band, commencing on the west shore of Big Bay, forms the only mappable unit in this area.

This unit contains the most divergent rock types in the area. Compositionally and texturally, large variations are present. The common characteristic utilized in differentiating this unit is the presence of feldspar porphyroblasts and a generally cataclastic texture.

The southern portion of the unit is generally a granite gneiss compositionally, whereas northwards a biotite gneiss appearance is more common.

4. Pegmatite

Pegmatites are present within all other rock units in varying amounts, and are generally present in all outcrops. The pegmatites only form a mappable unit in the northeast portion of the area. In this region they apparently form gently dipping to horizontal sills within a highly assimilated biotite gneiss. Their prevalence, possibly partially due to higher resistance to weathering processes, has made them the predominant mappable unit of the area.

In other areas, pegmatites occur as: irregular masses, narrow lenses, dykes, and sill-like bodies (some of probably anatectic origin).

The vast majority of the anomalous radioactivity encountered was related to pegmatites and massive granite.

Both red feldspar variety and white feldspar variety pegmatites are common throughout the region. Radioactivity was noted in both types, but is apparently more common in the white varieties. Where present in red pegmatites, radioactivity may be associated with weak hematization.

No differentiation of the age of pegmatites was possible on the basis of coloration.

5. Quartzite

This rock type, although not extensive in area, is correlatable along strike in two instances. Outcrops of quartzite are generally recessive, contain abundant hematite, and are locally chloritic. The quartzite also exhibits a strongly sheared appearance, is fine to medium grained, and contains a considerable amount of impurities.

Aside from the development of shear foliation, little other criteria are present to differentiate it from the Athabasca Formation.

6. Athabasca Formation

The Athabasca Formation overlies a portion of the granitoid terrain along the northeast shore of Big Bay and the bay to the east of Fidler Point. The contact with the underlying gneisses, where exposed, forms a major unconformity. A substantial regolithic development is commonly observed (estimated to be in the order of 10 feet thick).

The Athabasca Formation is composed of a fine to medium grained leucocratic quartzite, quartz pebble horizons, and narrow conglomerate beds.

Well-developed jointing is a common feature of this unit.

> Exposures of the Athabasca Formation in the Big Bay area indicate possible faulting along the eastern contact. This would suggest that preservation of the normally highly recessive Athabasca Formation may possibly be related to local normal faulting. Insufficient time was available to further examine this possibility.

In addition to the units described above, varying amounts of other rock types have been observed throughout the gneissic terrain. In some instances these have been extensive enough to map as separate units. The more significant of these are listed below in their approximate order of relative abundance:

- Biotite gneiss
- Hornblende-biotite gneiss
- Amphibolite
- Chlorite-biotite schist
- Hornblendite

Radiometric Anomalies (refer to radioactivity log and Ground Anomaly Map)

The majority of the airborne anomalies obtained occur in this area and are especially concentrated in the eastern portion (refer to 'Airborne Radiometric and Structure Map').

The ground examination indicated that the eastern portion contains extensive areas of high background values and associated secondary uranium stain. The lack of further concentrations into significant 'spot highs', or zones of significantly higher values, does not enhance the potential for outlining an economic uranium deposit.

Small areas of pegmatite often gave good 'spot highs', with the best reading recorded being in the range of 4,500 c.p.s.

Only one ground anomaly of any significant intensity may be related to structures [illegible] and massive granites (refer to description of R.H. traverse, August 8, in radioactivity log). In this case, the development of anomalous radioactivity along the side of a northwest trending lineament may warrant further investigation.

Metamorphism

The regional metamorphic grade of the area approximates epidote-amphibolite. However, retrograde effects are quite common, especially in the porphyroblastic gneiss unit (chlorite locally replaces biotite as the prin[illegible] observed in any of the rock types [illegible] upper temperature/pressure conditions never reached the garnet-amphibolite grade.

Amphiboles are quite common locally in rocks of mafic composition. Epidote, where observed, was usually in granitic rocks and was related to shearing and fracturing; this would indicate that its presence may be due to metasomatic and retrograde effects.

The only other significant metasomatic effect was the local occurrence of hematization (especially of the feldspars). Hematization was observed to be associated with shearing, fracturing, and epidotization.

Structural Geology

Most of the prominent lineaments present in this region are readily discernible on the aerial photographs. However, the metamorphic foliation is not as pronounced and is only rarely distinguishable in the photographs. The majority of the foliation measurements indicate a general north-northeast strike with a vertical to steep dip. The main divergence from this is found in the northeast portion of the area where an east-west strike with a shallow north dipping to horizontal foliation is present.

Small-scale fold structures were not common, except just south of the camp location in a narrow belt (refer to detailed geology map for camp location).

Other structures observed in outcrop worth noting are small shear zones and jointing. Much of the shearing parallels the metamorphic foliation.

Lineaments are developed in two principal directions. The most common is a north-northeast strike, with the other trending west to north 60° west. No evidence of displacement along these lineaments was observed.

A REPORT ON A

HELICOPTER BORNE

GAMMA RAY SPECTROMETER SURVEY

QUARTZ MINERAL PERMITS

103, 104, 105, 106, 107 and 108

NORTHEASTERN ALBERTA

FOR

NORTH CANADIAN OILS LIMITED

640 - 7 AVENUE S.W.

CALGARY, ALBERTA

by

JOHN T. COOK, P. GEOL.

ROVING EXPLORATION SERVICES LTD.

1969?

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INTRODUCTION:

An airborne radiometric survey was conducted by Roving Exploration Services Ltd. over Quartz Mineral Permits 103, 104, 105, 106, 107 and 108 in Northeastern Alberta. The survey was flown between June 16 and July 8, 1969 on behalf of North Canadian Oils Limited, of Calgary, Alberta. Ground checks of the more interesting anomalies were also carried out.

PROPERTIES:

Quartz Mineral Permits 104, 105, 106, 107 and 108 are all located between Townships 113 and 119 and between Ranges 1 and 9 along the north and south shores of Lake Athabasca and along the Slave River. Total acreage included in these permits is 184,839 acres. Individual plats showing the exact areas covered by each permit are included in the report.

PERSONNEL:

The field crew was comprised of the following men:

Glen M. DuPre	Party Manager
Howard Stevens	Instrument Technician
Donald Buchanan	Helicopter Pilot

Mr. John D. Hale, consulting geologist, was present on behalf of North Canadian Oils Limited throughout the field work. Mr. Hale in company with Roving personnel examined and sampled the anomalous areas.

GENERAL GEOLOGY:

The permits on the north shore of Lake Athabasca and along the Slave River are situated near the western margin of the Precambrian Shield. The prevailing rock types are a complex of igneous and metamorphic rocks being predominantly granitic gneisses. Pegmatitic zones are frequent in some areas. The closest area covered by a detailed geological report is approximately 30 miles north. This is the Bayonet, Ashton, Potts and Charles Lakes District report (Research Council of Alberta, Preliminary Report 65-6) by John D. Godfrey.

The prevailing structural trend or "grain" of this mapped area is about N10°E and the rocks are mainly biotite and hornblende granite gneisses as well as quartzites and biotite schists and other allied metamorphic types. Amphibolite and horblendite are mapped in the Charles Lake area.

The rocks examined in the Report Area on the north shore of Lake Athabasca were exclusively granitic gneisses and pegmatitic granite gneisses.

Permit No. 103 lies on the south shore of Lake Athabasca and is underlain by Athabasca sandstone. This sandstone examined here was rather coarse, fairly uniform grained and massive.

A report "Aerial Photographic Interpretation of Precambrian Structures North of Lake Athabasca" by John D. Godfrey of the Alberta Research Council (Geological Division Bulletin No. 1, 1958) covers the Report Area. A complex of faults and fractures is interpreted traversing the region of which the predominating trend is northeast-southwest. Strongest fault feature is known as the Allan fault which strikes north-south and traverses Permit No. 104 just west of Fidler Point.

An aerial photo lineation striking N80°W crosses the south-east corner of Permit No. 108 in Section 4, Township 118, Range 8, West of the Fourth Meridian. A strong Thorium anomaly was found in this area.

THE SURVEY:

All of the permits (103, 104, 105, 106, 107 and 108) were flown at flight line spacing of 7 lines per mile or 750 feet between lines. All lines were flown in a north-south direction except for Permit No. 103 which was flown east-west.

Flying was conducted at approximately 175 feet above ground level and at air speeds of 50 to 60 miles per hour. Control of the flight lines was maintained by visual navigation with the assistance of air photo mosaics. Fiducial points were recorded during flight on the photo mosaics and simultaneously on the Spectrometer chart with a mechanical marking device. Flight lines were plotted on 2" per mile scale enlargements of the photo mosaic.

Pre-flight checks were made with samples of Potassium, Uranium and Thorium immediately prior to each take-off to verify the proper functioning of the instrumentation. These "checks" are shown on each flight chart.

No radioactive samples were carried in the Helicopter during survey and the aircraft was decontaminated with respect to radiation from luminous dials, etc.

The instrumentation was flown in a Hughes 269A Helicopter.

A Bonzer Altimeter (radar device) was used to record actual flight elevation above ground level. The Bonzer curve on the spectrometer chart shows the elevation above ground.

Ground examinations were carried out with the assistance of Helicopter, float equipped fixed wing aircraft and motor boat on Lake Athabasca and the Slave River.

SAMPLING:

Samples were collected from various localities of interest on each of the permits. Mr. John D. Hale sampled anomalies on each permit while some areas were also sampled by John T. Cook. Samples from each permit were submitted for assay to Core Laboratories Canada Limited in Calgary by Mr. John D. Hale. A copy of the assay report is included herewith.

Permit No. 103 was visited and sampled by Messrs. John D. Hale, P. Geol. and John T. Cook, P. Geol., on July 1, 1969. Access was gained by float equipped Cessna aircraft. Samples 1, 2 and 3 were collected.

Permit No. 104 was visited July 1, 1969 by Messrs. Hale and Cook and sampled along the coast near Cypress Point. Access was gained by float equipped Cessna 185. Samples 4 to 7, inclusive, were collected.

Permit No. 104 was again visited by John D. Hale on July 6 and on July 8, 1969, in the area of Fidler Point and inland from there. Access was gained by Helicopter. An old mining exploration camp site was found inland from Fidler Point near Locality 104E, which was apparently the location of activity by Goldfields Uranium Mines Ltd. Samples 12 to 19, inclusive, and 25 to 33, inclusive, were collected.

<u>Permit No. 104</u> on the north shore of Lake Athabasca near Fidler Point revealed a number of Uranium anomalies with counts per second above background ranging up to a maxium of 44 c.p.s. The anomalous areas are designated 104A to 104L, not in order of relative significance. The highest Uranium readings occur at Locality 104H. Anomalous Uranium readings appear in clusters. These clusters mainly appear to be associated with pegmatitic granite grading to gneissic granite and pegmatitic granite gneiss outcroppings. These are often manifested in topographically higher ground as shown by the altimeter curve. Each anomalous Uranium zone appears to be accompanied by increased Potassium K-40 and Thorium readings as well as total count consistent with the presence of granitic gneisses or pegmatitic granites, often termed "hot" granites.

On Permit No. 104, Locality 104A, an inlier remnant of schist or phyllite within a pegmatitic granito was noted by John D. Hale occupying the lower ground on the southeastern edge of this anomaly.

Samples were collected July 1, 1969 by Messrs. John D. Hale and John T. Cook from several localities which confirmed the presence of granitic and pegmatitic gneissic rocks. Assays of samples collected yieldod non-commercial grades of Uranium, ranging up to a maximum of 0.035% U_3O_8. This sample came from Locality 104B, about 3.5 miles northeast of Fidler Point.

<u>Permit No. 105</u> located along the north shore of Lake Athabasca yielded five areas of low intensity radioactive anomalies labeled 105A through 105E. Readings range up to a maximum of 20 c.p.s. Uranium. Locality 105A was visited July 1, 1969 by the writer and John D. Hale.

ECONOMIC MINERALS
FILE REPORT No.

U-AF-063(2)
U-AF-065(2)
U-AF-066(2)
U-AF-096(1)
U-AF-107(1)

SLAVE RIVER - LAKE ATHABASCA AREA

NORTHEASTERN ALBERTA, CANADA

QUARTZ MINERAL EXPLORATION PERMITS
Nos. 104, 105, 107, 108, 142 and 156

for

NORTH CANADIAN OILS LIMITED

by

JOHN D. HALE CONSULTING LTD.
Calgary, Alberta, Canada

JOHN D. HALE, P. Geol. (Alta.)

November 1970

THE ASSOCIATION OF PROFESSIONAL ENGINEERS OF ALBERTA
PERMIT NUMBER
1 1 2 0
JOHN D. HALE CONSULTING LTD

ASSOCIATION OF PETROLEUM GEOLOGISTS
CERTIFIED PETROLEUM GEOLOGIST
JOHN D. HALE
1917

The possibility that commercial U_3O_8 might be associated with the Thorium anomaly at depth should not be overlooked. It is suggested that a limited drilling program should be considered.

CONCLUSIONS AND RECOMMENDATION:

The most attractive U_3O_8 anomalies occur on Permits 104 and 105. The limited ground examinations, sampling and assaying carried out did not reveal commercial Uranium deposits. However, the examinations conducted were in the nature of "spot checks" only and exhaustive prospecting and mapping on the ground of each area discussed in the report should be seriously considered. This should be undertaken in the summer by experienced field crew equipped with hand scintillometer or spectrometer. Particular reference is made to the following localities 104A, B, C, D. G, H, I, J, K and L.

The Thorium anomaly (104?) is recommended for further study [illegible] limited drilling program should be considered to ascertain whether or not economically interesting U_3O_8 might be associated with the Thorium anomalies. [illegible]

In attempting to assess the true merit of the spectrometer anomalies mapped, it should be borne in mind that Gamma radiation can often be blanketed out completely, or subdued, by certain types of overburden, muskeg, swamp, water or snow.

ROVING EXPLORATION SERVICES LTD.

THE ASSOCIATION OF PROFESSIONAL ENGINEERS OF ALBERTA PERMIT NUMBER [illegible] ROVING EXPLORATION SERVICES LTD.

John F. Cook, P. Geol.

Roving Exploration Services Ltd.

The old prospecting was probably conducted by New Delhi-Mines Ltd. in about 1953 (See: Reference Item No. 7).

An Area of Interest for further Uranium prospecting by rather detailed diamond core drilling to at least one-hundred-foot depths is given as —

Township 113, Range 6, W4th Mer.:
- NE Section 8,
- NW Section 9,
- NE Section 9,
- SW Section 16,
- SE Section 17; Total 800 acres.

LAKE ATHABASCA, Northeast Alberta, Canada —

Quartz Mineral Exploration Permit No. 104

After being resupplied again the field party left Fort Chipewyan on July 25, 1970 with two boats, picked up equipment that had been cached because of high wind on the trip to Fort Chipewyan and then became wind-bound on the beach about three to four miles north of Sand Pt.. The boats were too heavily laden with fuel and all other supplies, including the diamond core drill, to proceed further in the windy cloudy weather. Camp was set up on the beach. All rocks at this camp area are meta-volcanics, tuffs and agglomerates of basaltic material mixed and intercalated with quartzite phases. All of July 26 was spent wind-bound at the beach campsite. In the early morning of July 27th the beach camp was packed and the boats proceeded to Fidler Point, and a camp for the survey operation was set up for Q.M.E. Permit No. 104 operations (NW Sec.27-115-3W4). The surface traverse survey of Q.M.E. Permit No. 104 was completed, and the field crew returned to Fort Chipewyan on August 8, 1970; total time in field 15 days, on Permit 12 days. Rain in the late afternoon prevented a full day's operation for two days. The guide returned to

Fort Chipewyan one day for supplies during the Q.M.E. Permit No. 104 survey. It was also found necessary to conserve the fuel for the outboard motors by walking along the coast to the points of entry for inland traverses over near-camp anomalous airborne radiation areas. Also near-camp radiation areas were reserved for traverse on windy days when Lake Athabasca would be in high waves and swells. Otherwise the boat was invaluable for reaching the portions of Q.M.E. Permit No. 104 that were at a distance northeast from camp toward Greywillow Pt..

Q.M.E. Permit No. 104 contains as many as 12 airborne radiation anomalies. All of these anomalies, as mapped by Roving Exploration Services Ltd., were checked in the field by surface traverses with the hand scintillometers. Some of these anomalies were actually not valid anomalies. The Roving maps are plotted on "Gamma radiation above background", and in areas where the background is extremely low over muskeg, lakes, or glacial outwash the small normal background radiation of granitic rocks becomes an anomaly. It is interesting to note that the glacial outwash areas are rather expansive and support only a sparse but evenly spaced growth of jack-pine, as though the soil nourishment is insufficient for any added growth. It would appear from this indicated low mineral content of the soil (at least for tree growth) that soil sampling for mineral prospecting would not be advisable.

The pack drill was not used the field time was spent in traversing and checking all of the several airborne radiation anomalies rather than taking drill core samples in one localized area.

The aerial photographs vary from poor to good in quality, clarity and useability, as described in the Introduction. The discrepancy between the Federal and Provincial survey map bases for Q.M.E. Permit No. 104 is also described in the Introduction and under Land Plats. It was very difficult to keep well located over this Permit because of the air photos and the lack of lakes or water fiduciary points. Frequently the traverses had to be adjusted when a good locateable landmark was encountered. Sam Moore, guide, was most helpful in traversing through thick bush, muskeg, over beaver dams and locating landmarks. As usual a zig-zag type of traverse course was followed. More evidence of wild game was noted over this Permit than in the other [illegible]

The northeast portion of Q.M.E. Permit [illegible] 104 [illegible] about Whitesand Point is a broad [illegible] mul-tiple shore-line flutings, sand ba[illegible] lagoonal remnants are present along the north shore of Lake At[illegible] rather high sand dunes ad-jacent to the beaches. The beaches [illegible] white, very fine grained, quartz Athabasca sand with localiti[illegible] very well rounded quartz cobbles. Shallow water extends out from the sh[illegible] a hundred yards. All of the Athabasca sand is of glacial or[illegible], and there is no evidence of in-place outcropping Athabasca sa[illegible].

Gneissic rocks outcrop along [illegible] portion of the coast, and these rocks are highly injected and [illegible] with [illegible]dspathic pegmatites. Such outcrops are very noticeable at Cypress Point where the rocks are highly polished from the waves and wind and sand. In general the rocks of this Permit appear somewhat more metamorphosed than the previous rock outcrops over Q.M.E. Permit No. 105 and the Slave River Area. Inland subtle evidences of sedimentary relic structures may be noted to still express the presence of granitized sediments. It is only along Fishing Creek at the Sample No. [illegible] locality that extreme reddish granitic rocks are present, possibly of more iron-rich basic volcanic derivation. Locally along the south Fidler Point coast a reddish feldspar, very coarse crystalline, pegmatite is in outcrop. At this pegmatite locality and along the coast for a relatively short distance the phenomena of transition of granitized sediments to an arkosic, pebbly, coarse grained sandstone, with boudinage lumpy stratification, may be observed and traced on outcrop (See: Photo Map Nos. 1 and 2). This section is described below.

The country rocks are essentially granites, granite gneiss, inter-preted granitized sediments with syenite phases that develop commonly to syenite pegmatites, a feldspar-rich pegmatite with some quartz but only little to nil black biotite. North and north-northwest inland from Whitesand Point these pegmatitic rocks show splotchy yellow colorations on the smooth glaciated surfaces (very slightly weathered and very hard), which color passes into an apple-green color in about one-sixteenth to one-eighth of an inch from the surface. This mineralization shows gamma ray radiation at 8,000 to 10,000 cpm and locally to 20,000 cpm maximum. The scintillometer responds very suddenly to the radiation from this mineralization and is tentatively determined by the writer as – Autunite (yellow), a hydrous phosphate of uranium and calcium, and Uranospathite (green), a hydrated uranyl phosphate. The assays show practically nil Thorium; consequently, all of the radiation is from Uranium minerals. Inasmuch as the Q.M.E. Permit No. 105 (Hammer Lake) radiation was complemented by almost half from Thorium, the 8,000 to 20,000 maximum cpm count Q.M.E. 104 compares generally to the 30,000–40,000 cpm count (Q.M.E. 105) with comparable assay quantities of Uranium.

The structural grain (faulting) of the area is a northeast-southwest trend subordinate to a dominating westerly fault system. It appears that all of the faulting structure over Q.M.E. Permit No. 104 is related directly to the Allan Fault that trends north-south and is present as a rather wide fault zone (about one mile) in the bay just west of Lapworth Point, which is the second bay west of Fidler Point. (See: Reference Item No. 5). The fault trends noted in the field and particularly on the aerial photographs portray a clockwise circular twisting motion which could involve thrusting as well as lateral motion. The Allan Fault zone was not visited in the field but is evident on the aeromagnetic maps as a low magnetic trend (from mylonized rocks) and on the aerial photograps by lineaments and photo tones.

Roving Exploration extended the airborne radiation spectrometer survey westerly across the Allan Fault zone into Range 4, West 4th Merician, as requested. However, no radiation anomalies were evidenced on any of the extended survey or associated with the Allan Fault zone.

It would appear that the Allan Fault is dominantly a right lateral fault, and is traced by Godfrey (1958) as a significant major fault zone from the north shore of Lake Athabasca northward into the Northwest Territories. The fault structure of Q.M.E. Permit No. 104 is in contrast to that of Q.M.E. Permit Nos. 107, 108 and 156 and Q.M.E. Permit Nos. 105 and 142, which are east-west and northeast-southwest, respectively. The Allan Fault is a major dividing trend of geologic provinces in the

Northeast Alberta Precambrian rocks.

There appears to be no or very little fault association with the high Uranium (by assay) radiation areas located northeast of Fidler Point and north of Whitesand Point. The yellow and green Uranium mineralization appears disseminated throughout the syenite pegmatite facies and associated intimately with the large feldspar crystals. There is no evidence of any veinlets. The main area measures 200 feet north-south and 170 feet N75°W. Several other areas in the north Whitesand Point area and along the Lake Athabasca coast measure some 50 feet by 50 feet, approximately.

Along the east side of the bay between Fidler Point and Lapworth Point the rocks outcrop and may be inspected in detail along the coast-line. (See: Photo Map Nos. 1 and 2). Going northerly from Fidler Point the following outcrops may be observed -

1. granite gneiss with pegmatitic contortions;
2. fault zone or two east-west trending minor fault lineaments (aerial photograph);
3. Pegmatite-gneiss contorted contact zone;
4. Pegmatite facies, large red feldspar crystals, 3,000 + cpm radiation, broken; Sample No. 43.
5. Mylonized fault zone, broken brecciated, crumbly, gouged; old prospector's trench, no mineral showing; no pegmatitic injections or quartz stringers; radiation westerly from fault = 800 to 1,000 cpm.
6. Granitized sediment (arkose), completely recrystallized; at about 150 feet north becomes gradational to less granitized to granitized baked to ironstone baked to baked sandstone, all within 300 feet; no faulting observed in field or on aerial photographs, only a gradational transitional change from granitized sediment to an arkosic sandstone; to north along ridge is pegmatitic granite, locally gneissic;
7. Arkosic sandstone, pinkish tan, coarse grained with scattered pebbles, boudinage and lumpy stratification, strike N30°W and 50°E dip (into shore); no contact metamorphism, no increase in biotite at transition zone; much "shingle" tabular rock debris on shore-line.

It is proposed that this arkosic sandstone is a facies of the Tazin group or series of Archean or Proterozoic age (much younger than the Athabasca sandstone). (See: Reference Item No. [illegible]). The [illegible] sediments, including some that are very iron-rich from basaltic flows or derivation, were deeply buried and granitized by dynamic action along with syenite injections and assimulations. Pegmatites and associated lit-par-lit injections closed the syenite and granitization phase. Faulting occurred distinctly separated from the granitization and syenite phase, as no quartz veins or mineralization are associated with the mylorite zones (only thin quartz, pressure veinlets characteristic of mylonite zones). The Uranium and Thorium may have been derived from these very old sediments recycled and digested into the syenite pegmatites.

The drill hole prospecting performed along the westerly trending Fishing Creek area fault according to Reference Item No. 7 was by Goldfields Uranium Ltd. and reported pitchblende. No mineral showings or radiation are evident in the old cores sampled for Sample No. 54. Local residents report that this drilling was done in 1954 and that there are several other diamond drill holes west of the Sample No. 54 locality. The geology for the Sample No. 54 diamond drill core hole appears good, having been drilled along a significant fault trace and outcropping red-brown granitic rocks. However the faulting is apparently not related to any mineralization.

An Area of Interest for further Uranium prospecting by rather detailed surface blasting, scintillometer gridding and diamond core drilling to at least one-hundred-foot depths is given as —

Township 117, Range 3, W4th Mer:

NW Section 1,	SW Section 11,
NE Section 2,	SE Section 11,
NW Section 2,	NW Section 12,
NE Section 11,	SW Section 12,
NW Section 11	Total 1,440 acres.

SUMMARY and REMARKS

Two indicated low-grade Uranium mineralization areas have been outlined by surface traverse checks with hand scintillometers from the several airborne spectrograph radiation survey anomalies. These areas are given as —

Hammer Lake, Q.M.E. Permit No. 105;

Section 9, Twp. 113, Rge. 6, W4 Mer.; radiation 30,000 to 40,000 cpm (B.G. 1,000± cpm) locally as high as 44,000 cpm; with yellow Autunite mineralization; assays average 0.064% Uranium (U_3O_8) and 0.03% Thorium (ThO_2), as high as 0.153% Uranium in assay sample and 0.265% Uranium in a selected spot sample.

Fidler Point, Q.M.E. Permit No. 104;

Section 11, Twp. 117, Rge. 3, W4 Mer.; radiation 8,000 to 10,000 cpm and locally as high as 20,000 cpm (B.G. 1,000± cpm); with yellow Autunite and green Uranospathite mineralization; assays average 0.055% (Core Lab) and 0.065% (Loring Lab) Uranium and only a trace of Thorium.

Though this Uranium mineralization is of a low grade, there is a sufficient concentration of the Uranium (more than 0.05% by weight) to require reporting these two deposits to the Atomic Energy Control Board, P. O. Box 1046, Ottawa, Canada.

THE ASSOCIATION OF PROFESSIONAL ENGINEERS OF ALBERTA
PERMIT NUMBER P 120
JOHN D. HALE CONSULTING LTD.

JOHN D. HALE, P. Geol. (Alta.)

AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS
CERTIFIED PETROLEUM GEOLOGIST
JOHN D. HALE
1027
1917

(COPY OF REPORT ON 1969 EXPLORATION PROGRAM)

6th January 1970

A Preliminary note on the 1969 programme

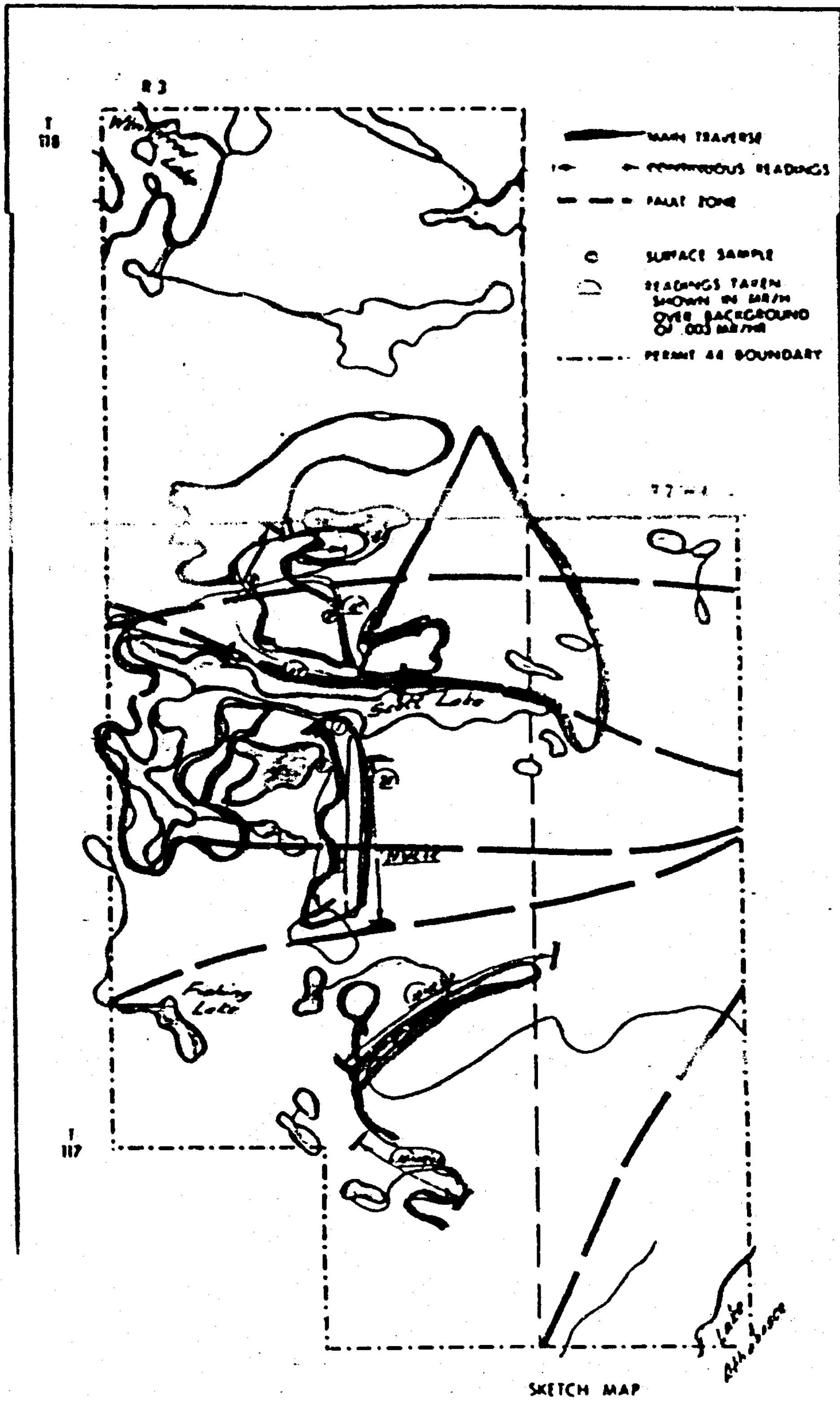
A brief exploration programme was conducted on the permit during a two week period in September 1969, under the personal field supervision of Mr. Bruce Dibblee, Professional Geophysicist.

The purpose of this programme was to re-evaluate the 1968 survey results by a helicopter grid survey at tree-top level, with ground spot checks, to drill and blast selected pit locations, and to carry out cursory ground checks of accessible locations of interest which were not covered in 1968. One helicopter was used, with fixed wing support out of Fort Chipewyan and Uranium City. A portable gasoline powered drill was used to dril. blasting holes.

A total of nine pits were opened by drilling and blasting on five outcrops in Township 117 Range 3 West 4. Fifty bags of material were collected at various pit levels from between three and six feet below ground surface. Samples from 4 pits so far assayed range in U308 content from 0.017% to 0.320%. Owing to the incomplete data it is not possible to state average grade, however it seems likely that this is between 0.10 & 0115%. Material was assayed by three separate, independent laboratories. Owing to certain discrepancies in results, beyond what could be accepted as experimental error, a number of samples are being re-assayed by other laboratories with a view of establishing a valid mean. The assay results so far received indicate only traces of Thorium and/or potassium. Fluormetric, radiometric and chemical methods have been used.

The results of this programme appear to be encouraging, however there is as yet insufficient data available to permit assumptions being made regarding the lateral or vertical extent of the material examined and sampled. Further work must be carried out to the end of providing the data now lacking by further trenching and diamond core drilling as recommended: i.e. Phases I and II must be completed, and if warranted, Phase III carried out.

Richard W. Westbury, P. Geol.
(Original Signed)



SKETCH MAP
SHOWING EXPLORATION SURVEY ON

QUARTZ MINERAL EXPLORATION PERMIT NO. 44

SCALE: 2" = 1 Mi

DATE: August 1968 - March 1969

MAP 2

SUMMARY OF REPORT OF RICHARD S. WESTBURY, P.Geol. ON ALBERTA QUARTZ MINERAL EXPLORATION PERMIT NO.44 SITUATED IN NORTHEASTERN ALBERTA NORTH OF LAKE ATHABASCA DATED AUGUST 11, 1969

The preliminary report on Alberta Quartz Mineral Permit No.44 by Mr. Westbury was written with a view to outlining the geological setting and the mineral prospects of this property. The geology of the area was considered with special reference to the area of the Permit. The published data was analysed with regard to the general geology and to economic possibilities. Although prime economic objective is the search for uranium minerals, Mr. Westbury states that regional data suggest there exist possibilities of significant deposits of sulphide minerals in the area of the Permit and that there are reports of showing of molybdenum, cobalt, arsenic and iron sulphides further north.

The following work programme was recommended by Mr. Westbury and must be regarded as flexible. As the data from each Phase become available, the operators must be prepared to make changes in the type or sequence of work to be carried out. It is implicit that each stage following the initial survey will be contingent upon favourable results deriving from the previous work.

Phase I

A scintillometer survey, on a 1/8 mile grid, using helicopters, with due allowance for ground and fixed wing support $25,000

Phase 2

If the results of Phase 1 warrant further work; a detailed ground examination of any anomolous area defined during Phase 1, this should include limited trenching and geochemical work. Some underwater work and muskeg probing may be required...$30,000.

Phase 3

If the results of Phase 1, as developed by the work carried out in Phase 2, warrant it, a programme of diamond drilling of anomolies may be required. The cost of such work cannot be forecast with precision. Between 2,000 and 4,000 ft. might be required: cost will depend on depths to be penetrated, and seasonal factors; a preliminary estimate is $45,000.

Total for the three Phases recommended...........$100,000

When the work proposed above has been completed it may be found that one or more anomolies have been shown to promise the possibility of the presence of commercial tonnages and grades of ore. Then a further programme of trenching and diamond drilling would be justifiable prior to making the decision whether or not to exploit the deposits. It is not possible to foresee what this would cost, however it is likely to involve expenditures of upwards of $100,000.

Geology

The Permit is located within the Pre-Cambrian Canadian Shield, which extends into the northeastern corner of Alberta, over an area of about 7,500 square miles. Rocks present include igneous and metasediments of Pre-Cambrian age. The region has undergone regional metamorphism, with migmatisation and granitization. Further north granites show intrusive relationships. It is assumed that the Quartzites and related rocks are the oldest rocks in the area. These rocks occur southwest of Fidler's point. They are altered and seem to survive in 'slivers'. Lithologically these quartzites may be gneissose, garn-tiferous, chloritic, or biotitic. A sample of weathered black schistose rock collected in the southeast corner of Section 36, Twp 117, Rge 3, W4thM may well belong to this group. It is to be expected that there will be some vein quartz and acid pegmatites, some of which have been shown to contain measurable amounts of uranium oxide on assay. The Permit Area has been highly folded and faulted. The major faults run generally north-south. The southern extension of the Allen fault appears to run about six miles west of the property. These major faults are fault zones with wide mylonitised traces and very extensive fracturing suggestive of a feature of Continental importance. No less than five significant faults cross the Permit; these extend across the property through Secs.35 and 36, Twp 117, Rge 3, and Sec.31, Twp 117, Rge 2, W4M. The other three faults form a zig-zag trace across the southern part of the property. Associated with these rather important faults are a number of smaller faults.

Economic Geology

In the several reports on the area to the northeast, J.D.Godfrey has mentioned occurrences of a variety of sulphide minerals, including Molybdenite (MoS_4), Smaltite ($CoAs_2$), Pyrrhotite (Fe_nS_{n+1}) and Arsenopyrite ($FeAsS$). Mineralization is often developed in association with metasediments and with faults and the associated fracturing. Interesting scintillometer readings are reported from the field work carried out on the Permit in 1968. These appear to have been well above background and were recorded along a north south traverse about one mile in length, between Sections 24 and 25, Twp 117, Rge 3, W4M and a little further north, on the north side of the lake which cuts across Sec.25, and south of the next lake to the north in Sec.36 other readings above background are recorded. In a traverse around a patch of muskeg which extends over much of Secs. 13 and 14 a further set of in[illegible]ing readings are reported. Rock samples were taken. These were assayed and five ou[illegible]x were found to contain measurable quantities of U_3O_8. Although there are indications of anomolous radio-activity, it is not yet possible to determine which areas warrant the essential ground exmination of both geology and structure. This must be done with particular reference to finding "open" type fractures and faults. Although the prime reason for selecting the Permit Area was the inferred Uranium prospects, there is evidence enough of sulphide mineralization in the region to justify a [illegible] for deposits of such minerals.

[illegible]

The area of Alberta Quartz Mineral Exploration Permit No.44 has been studied by reference to available reports with a view to evaluating the mineral prospects and making recommendations towards systematic exploration of the Permit. Upon completion of the exploration and evaluation work proposed herein further recommendations, based upon these new data, can be made with respect to additional exploratory work in this area.

USE OF PROCEEDS TO THE COMPANY

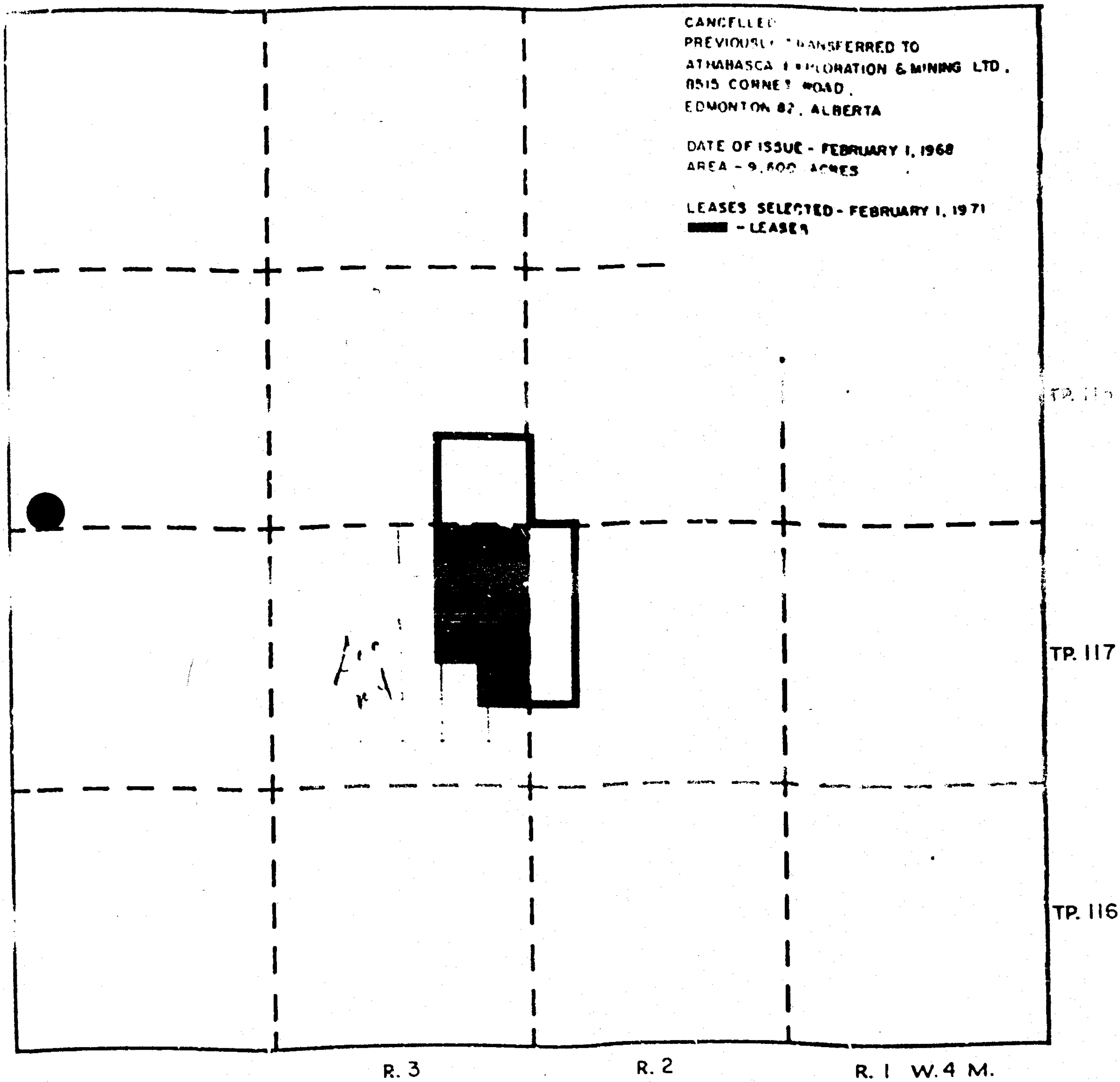
The Company proposes to use the proceeds of this issue, estimated at $150,500 after deducting the commission payable and the expenses of the offering, to carry out the recommendations of Richard S. Westbury, P.Geol., in his report dated August 11,1969 as follows:

Phase I	A scintillometer survey on a 1/8 mile grid using helicopters, with due allowance for ground and fixed wing support	$25,000
Phase II	In accordance with the recommendations of Richard S. Westbury a detailed ground examination of any anomolous areas defined during Phase I. This should include limited trenching and geochemical work. Some underwater work and muskeg probing may be required.	$30,000 (note 1)

QUARTZ MINERAL EXPLORATION PERMIT 44,

U-AF-018 (1)

QUARTZ MINERAL EXPLORATION PERMIT No. 44



ECONOMIC MINERALS
FILE REPORT No.
U-PC (15(1)

OUTLINE OF RECONNAISSANCE SURVEY
OF QUARTZ MINERAL EXPLORATION PERMIT # 44
TWP 117 - 11 Rg 2 & 3 W4M

The area that will be dealt with in this report is located in the northeast corner of Alberta. It is located in a portion of the Precambrian Shield area, north of Lake [illegible].

ACCESS

Access to the area was gained through the use of a Cessna 185 float equipped aircraft chartered from Fort Chi[illegible] Alberta. Although there are many scattered lakes in the area the [illegible] requires a great deal of portaging; therefore a great deal of [illegible] work plus the canoe and aircraft were needed to cover the area of the permit described herein.

PHYSIOGRAPHY

Taken from [illegible] Research Council of Alberta Report [illegible]-1 - "The peneplained surface of the area is typical of the Precambrian Shield where Pleistocene glacial scouring has left numerous rock-basin lakes, low rounded hills, and a locally rugged surface with a maximum relief of about 250 feet. Striae and giant glacial grooves are the most obvious ice-erosional features. The general elevation is approximately [illegible] - 1000 feet above sea level.

The distribution and shapes of lakes are controlled by factors of structure and lithology with modification by ice erosion. Narrow elongated bays are associated with the erosion of fault zones and straight shorelines suggest faultline features. Fractured [illegible] weak rocks have been plucked out by ice erosion, particularly on the west and southwest lake-shores, giving rise to irregular shorelines."

The terrain on the whole was very rough. The main fault zones were filled with very deep floating muskeg, while the rest was covered with broken rocky ground with stands of spruce, pine and poplar. In areas which had been burnt over there was considerable deadfall 1' - 4' high. In some areas the ground rose 100' - 400' high with sheer cliffs on one side. These can be clearly seen on the aerial photographs using the stereoscope.

The lakes on the whole are very clear and cold. The rocky shores and bottoms are interlaced with fine to coarse granite sand which in turn leads to small shallow beaches.

OUTLINE OF WORK PERFORMED & EQUIPMENT USED

During August, 1968 a two man crew landed by aircraft and set up camp on the north shore of an unnamed lake (Scott Lake) Sec.'s 25 & 26 TWP 117 Rg 3 W4M, located on Permit # 44. Then again at the end of September, 1968 a landing was made on an unnamed lake in Sec. 15-16 TWP 117 Rg 3 W4M.

The camping equipment included the following which had to be kept at a reasonable bulk and weight for air transportation:-
[illegible] x 12' duck tent with sewn-in floor and mosquito netting

cont.

in door and two small vent windows and complete compact self supporting aluminum frame.

Eiderdown sleeping bags although warm at the start proved worthwhile later on in the season.

Coleman lamp, stove, catalytic tent heater, the usual light weight cooking and eating utensils, axe, swede saw, 2 coils [illegible] nylon rope, miscellaneous nails, friction tape, miscellaneous small tools, 14' fibreglass canoe, and rifle.

The prospecting equipment included one Geiger counter (Model PR5A El-tronics Geiger counter) and two scintillometer models (256 Fisher Scintilliadyne and 111B Precision Scintillometer), plus geological hammers, wedges, marking pencils, compasses, bags for samples, trench shovels, maps, aerial photographs, pocket stereoscope, notebook and Nelson pack boards.

The weather throughout August was very unsettled. Average temperatures in the daytime were between 40° - 60°, and at night 30° - 40°. However during the end of September the temperature ranged between 45° - 30° during the day and down to 20° - 15° at night. There were often light snow showers.

The actual survey consisted of compass traverse using aerial photographs to locate oneself as close as possible. While traversing at the start, the compass man and his helper both carried a scintillometer each. However, it was found that the compass was greatly affected by the nearness of the scintillometer and from then on only when the crew was split up on short traverses were both used with such nearness.

It was also found that both scintillometers were very much affected by thunderstorms and also the Aurora (Northern [illegible] would take 2 - 4 hours before they would settle down.

All efforts to keep the instruments completely dry were to no avail when one was caught in the field during a shower or heavy rain. They could only be put back into service after being dried slowly over the catalytic tent heater.

The scintillometers were switched on while traversing and readings observed whenever they appeared. It was noted that the samples taken always gave a lesser reading than the outcrop. There were spots where powder could have opened up more rock but since we didn't have it this naturally was not done. [illegible]

On a few areas anomalous compass readings were noted and these could be checked with an aeromagnetic map of the Geological Survey of Canada (1958) that covers that district.

The samples that were collected were marked with black marking pencils and corresponding numbers will be found on the enclosed map.

The map that is enclosed in this report (scale 2" - 1 mile) shows the main traverses, the scintillometer reading in MR/hr - e.g. .001 and sample number. A few of the traverses have been omitted since a

cont...

negative reading was recorded on the scintillometer, but all traverses are clearly marked on the aerial photographs of the area. In some instances samples were taken by aircraft in a time saving step. There will not be any traverses shown from camp to these outcrops.

Schistosity as well as foliation are well developed in most of the area.

There are several minor faults running through this Permit 344. The strike of these are roughly east-west. These faults or strong fractures are clearly visible on the aerial photographs as are some of the glacial markings. Large granite rocks are prevalent throughout. Dykes and lenses are common and veins of quartz 1" - 2" wide were found.

After approximately eleven days a total of about 42 miles were covered and 30 samples were collected.

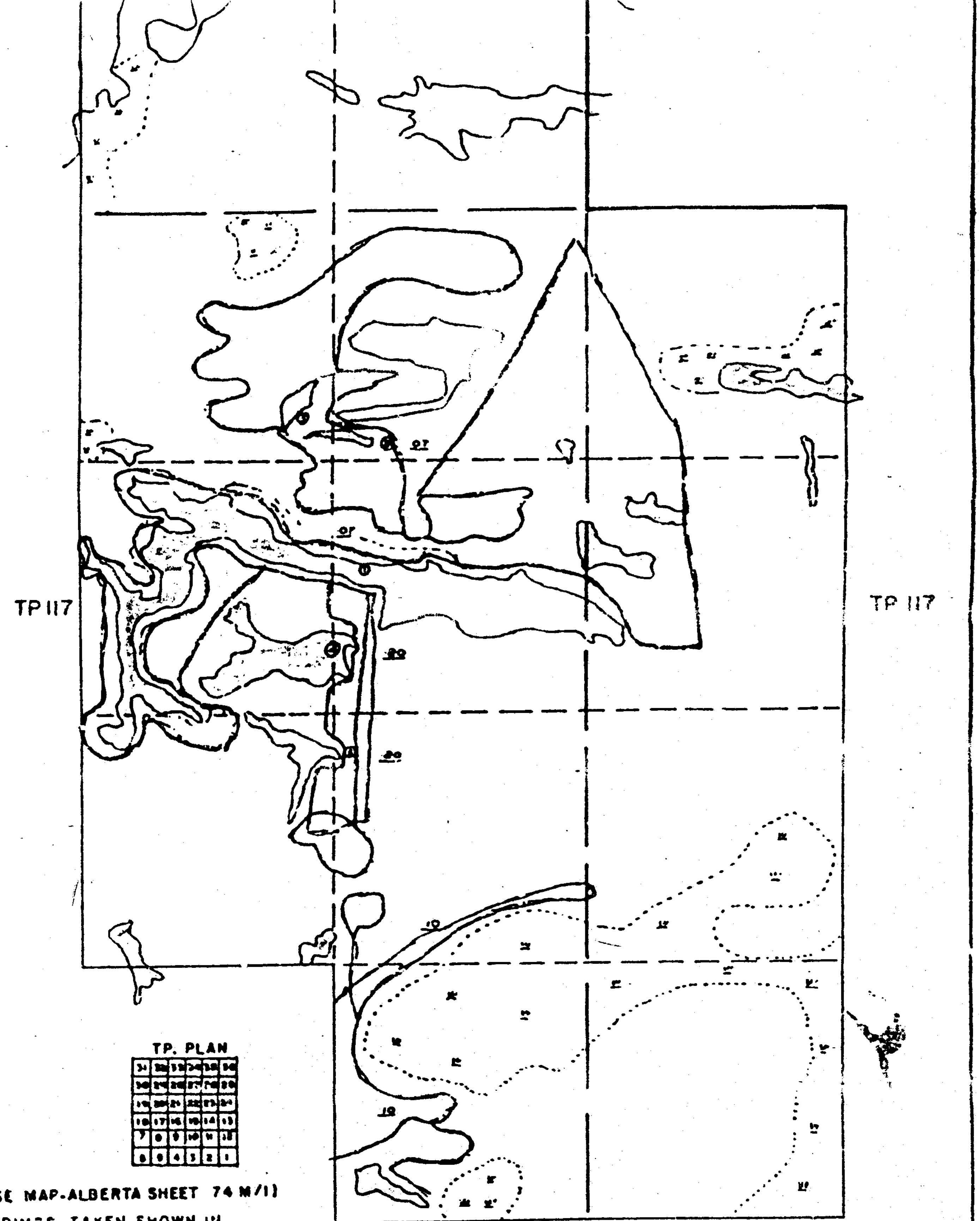
The use of the aircraft saved at least 2 days on the prospect and also many services that were supplied personally by the pilot George Hart of Fort Chipewyan helped greatly. To him many thanks.

It must be said for the time spent a very good coverage was obtained when all conditions are realized.

CONCLUSION

There is evidence that U3O8 is present, however only a small portion of the prospect was covered and further work is needed to cover the whole area.

[redacted] A.L.S. sec.



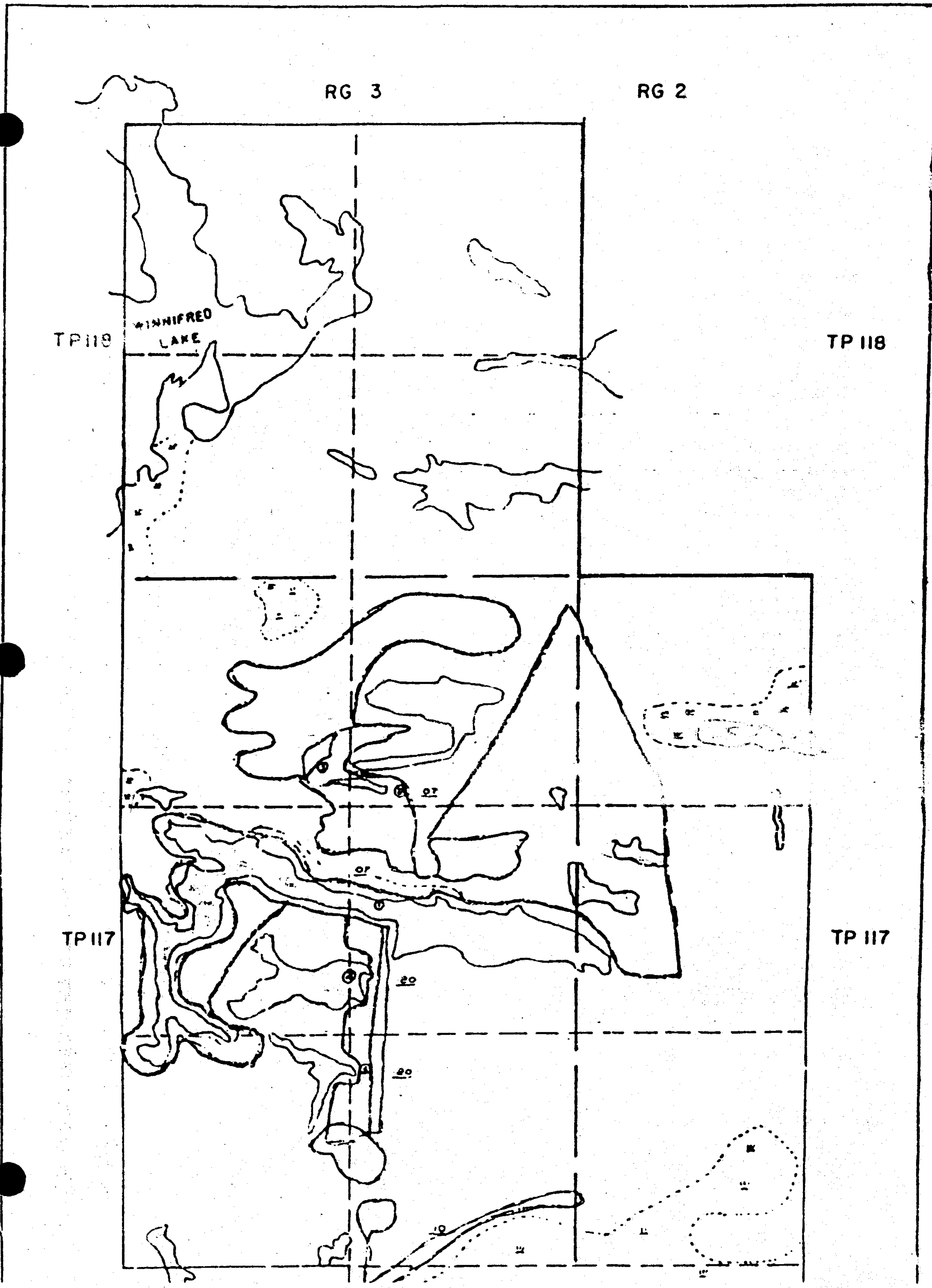
(BASE MAP-ALBERTA SHEET 74 M/1)
READINGS TAKEN SHOWN IN
MR/HR i.e. .001

PLAN SHOWING
EXPLORATION SURVEY ON

QUARTZ MINERAL EXPLORATION PERMIT No. 44

SCALE 2" = 1 MI

AUG. 1968.



RG 3
RG 2
TP 118
WINNIFRED LAKE
TP 118
TP 117
TP 117