I.S.N. 134692

MAP NO.	**ASSESSMENT REPORT**	X	**DOCUMENT NO.:** 092044
	PROSPECTUS		**MINING DISTRICT:** WATSON LAKE
	CONFIDENTIAL	X	**TYPE OF WORK:** GEOLOGICAL, GEOPHYSICAL, GEOCHEMICAL
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REPORT FILED UNDER: Du Pont of Canada Exploration Ltd.

DATE PERFORMED: July - September 1977 **DATE FILED:** October 1977

LOCATION: **LAT.:** 61°31'N **AREA:** Seagull Creek

LONG.: 132°33'W **VALUE $:**

CLAIM NAME & NO.: SUN 1-16 Y93793-808; DM 1-12 Y93809-820; S 1-7, 9-12 (1); D 1-8 (1); MAT 1-4 Y83159-162; MAT 5-16 Y93734-745; MAT 18-24 Y93701-707; MAT 25-44 YA339-358; MAT 46-64 YA360-378; M 1-20 (1); GULL 1-4 Y83155-158; GULL 5-16 Y93746-757; GULL 17-22 YA695-700; GULL 24 YA702

(1) Grant numbers not returned as of writing.

WORK DONE BY: G.M. Ditson, L.K. Eccles, G.P. McLaren, F.M. Smith

WORK DONE FOR: DuPont of Canada Exploration Limited

DATE TO GOOD STANDING | **REMARKS:** #75 GULL

DU PONT OF CANADA EXPLORATION LIMITED

SEAGULL JOINT VENTURE

FINAL REPORT

GEOLOGICAL, GEOPHYSICAL, GEOCHEMICAL SURVEYS AND DIAMOND DRILLING

by

G.M. Ditson, B.Sc.
L.K. Eccles, B.Sc.
G.P. McLaren, B.Sc.
F.M. Smith, B.Sc, P.Eng.

on the

SUN, DM, MAT, GULL, S, D and M Mineral Claims

at

SEAGULL CREEK AREA

105-F-7,10

092011

WATSON LAKE M.D., YT

October 1977

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SUMMARY

The Seagull project started with the road reconstruction and virtual simultaneous camp move in during the first week of July, 1977. The line cutting was completed while the geochemistry programme was in progress. Geology and geochemistry were completed in August with EM-16 starting in early August and completed in September. Diamond drilling was started and completed in September.

The geochemistry defined several anomalous zones and a pattern related to sedimentary units. The EM-16 indicated the graphite rich zones. MAX-MIN II further defined graphite sheets in the MAT Creek area and diamond drilling intersected only weak sulphide zones on the geological, geochemical or geophysical targets.

The geology programme was the most effective at determining zones of interest including the nature and time position of all sulphide and graphite horizons. There is a large calc-alkaline rhyolite dome on the east central portion of the property with related distal and proximal sediments. The graphite-rich zone with the MAT sulphide pod lies in the distal rhyolite sediments.

No targets remain untested that show any potential for economic mineralization.

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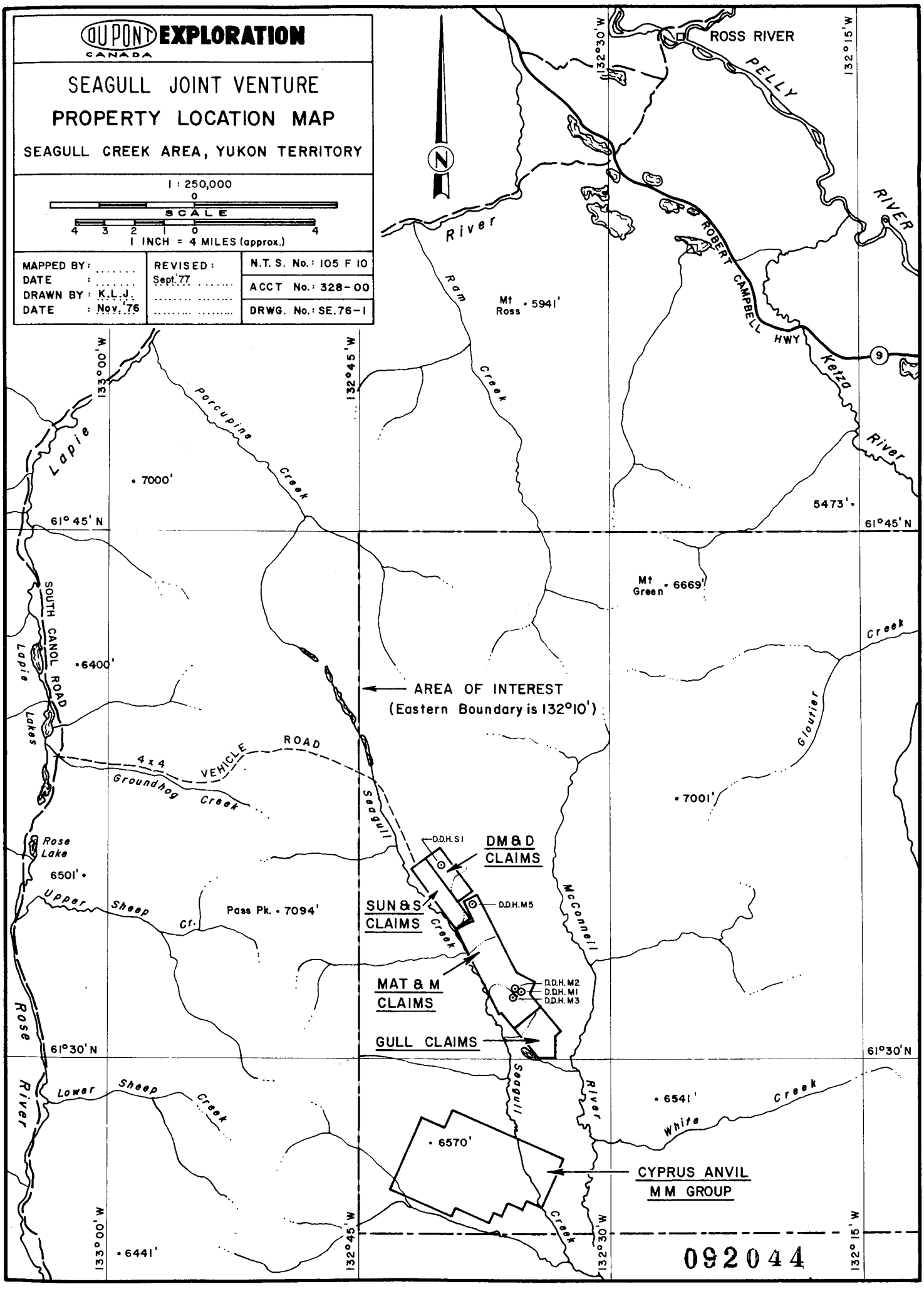
DUPONT EXPLORATION
CANADA
SEAGULL JOINT VENTURE
PROPERTY LOCATION MAP
SEAGULL CREEK AREA, YUKON TERRITORY
1 : 250,000
SCALE
4 3 2 1 0 1 2 3 4
1 INCH = 4 MILES (approx.)
MAPPED BY:
DATE :
DRAWN BY : K.L.J.
DATE : Nov. '76
REVISED :
Sept '77
N.T.S. No.: 105 F 10
ACCT No.: 328-00
DRWG. No.: SE.76-1
N
ROSS RIVER
PELLY
RIVER
River
Ram
Creek
Mt Ross • 5941'
ROBERT CAMPBELL HWY
9
Ketza River
5473'
Porcupine Creek
Lapie
• 7000'
133°00'W
132°45'W
132°30'W
132°15'W
61°45'N
61°30'N
SOUTH CANOL ROAD
Lapie Lakes
• 6400'
Mt Green • 6669'
Glourier Creek
• 7001'
AREA OF INTEREST
(Eastern Boundary is 132°10')
4 x 4 VEHICLE ROAD
Groundhog Creek
Seagull
Rose Lake
6501' •
Upper Sheep Cr.
Pass Pk. • 7094'
D.D.H. S1
DM & D CLAIMS
D.D.H. M5
SUN & S CLAIMS
Creek
McConnell
MAT & M CLAIMS
D.D.H. M2
D.D.H. M1
D.D.H. M3
GULL CLAIMS
Rose River
Lower Sheep Creek
Seagull River
• 6541'
White Creek
• 6570'
CYPRUS ANVIL
MM GROUP
Creek
• 6441'
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TOPOGRAPHY

The project area covers the southwest facing flank of a complex ridge with many steep creeks incising deep gullies in their headwaters but with gentle slopes closer to Seagull Creek. Seagull Creek is a sediment charged sluggish creek with portions of its stream bed on flat lying chert and dolomite members of the Mississippian suite.

To the north of camp the dolomite forms many sharp cliffs and buttresses. South of camp only the steep hillsides (due to glacial features) have occasional cliffs or ledges due to differential weathering. No area was inaccessible to foot traverse within the project region.

VEGETATION

The commonest vegetation is ground birch from 25 cm to 2 m high. Willows occur in wetter zones with buckbrush making some portions particular agony to traverse with large packs, mattocks, etc. There is a diffuse rim of large diameter balsam and spruce above the Seagull Valley and to a height of 1500 m. The balsam also occurs in scattered patches without or,with very little,buckbrush (ground birch) especially above 1200 m. Above tree line are many patches of sedges with wild flowers. This sort of cover also occurs in a few large patches on Seagull Creek, on the SUN/DM area near Camp Creek and near Grayling Lake.

CLAIMS

The following list comprises all claims now held by the Seagull Joint Venture:

Claims	Grant Nos.	Anniversary Date
SUN 1-16	Y93793 - 93808	January 1, 1980
DM 1-12	Y93809 - 93820	January 1, 1980
S 1-7, 9-12	(1)	January 1, 1980
D 1-8	(1)	January 1, 1980
MAT 1-4	Y83159 - 83162	(2)
MAT 5-16	Y93734 - 93745	(2)
MAT 18-24	Y93701 - 93707	(2)
MAT 25-44	YA339 - YA358	(2)
MAT 46-64	YA360 - YA378	(2)
M 1-20	(1)	(2)
GULL 1-4	Y83155 - 83158	(2)
GULL 5-16	Y93746 - 93757	(2)
GULL 17-22	YA695 - YA700	(2)
GULL 24	YA702	(2)

(1) Grant numbers not returned as of writing.

(2) Work applied to January 1, 1980 but not yet accepted.

Note S8 not recorded; MAT 45 and GULL 23 abandoned with vendors' permission.

ROADS - Map SE-77-24 and 76-1

The road reconstruction from the south end of the property (near the GULL claims) to the South Canol Road resulted in considerable savings. Even though we were unable to use the road from Seagull Valley to Ross River very often in July, during August we were able to bring in many loads of fuel, food, equipment and demobilize people, geochem samples and empty barrels to Ross River. Also, the road allowed us to do considerable transportation to and from the extremes of the property and camp. Without this access, diamond drilling and all incoming supplies would have been dependent on helicopter support resulting in virtual doubling of the programme costs.

Roads were of two types

(a) where previous routes were usable by widening and clearing, and

(b) where new routes were needed because of access requirements (MAT Creek road) or the old route was in poor shape.

Eighteen "tree culvert" bridges were made along Seagull Creek and several detours were necessary, especially with the very heavy rainfall during July. MAT Creek road was built expecting we would drill in 1978. About one-eighth of its length (approx 500 m) was unusable due to thawing permafrost of a gleysol area. The resultant liquid grey clay was disastrous to move on even with foot traffic.

LINE CUTTING

Roger Voisine and one helper cut the base line at near record speed (approx 2.0 line-km / day) through some of the worst area to cut this type of base line. The line is 12.9 km long from just even with #1 Post of SUN #1 and #2 in the north to the little creek draining Grayling Lake in the south. Also, 5.2 km of line were cut for detail geophysics (MAX-MIN II) on the MAT Creek area.

LAND USE REGULATIONS

The project both on and off the claims was carried out to the letter of the Land Use Act. We returned the trench at MAT Creek to its original contours and seeded the cleared sites. We burned and buried the garbage and cleaned up the camp leaving only wood at the camp site. All drums were backhauled to Ross River and we will receive from the Land Use personnel a final report terminating the Land Use Permit.

GEOLOGICAL SURVEYS

Regional Geology - Map SE-77-8

From the regional map progressing from north to south through the property, we can explain the geological history of the area.

We feel the Mississippian sediment package on the SUN/DM with the lack of volcanics indicates a shelf to continental marginal zone with minimal influences from the Mississippian volcanic centres to the east and south. We expect the shelving was to the west and sea-ward was both east and south. From the intercalated nature of the rhyolite tuffs and sediments in the mid-MAT claims area with a lack of lapilli tuffs, fragmentals, or similar material noted to the south on the rhyolite dome flank, it is evident that the sediments were later than most of the dome units rather than the basal unit. We cannot find any unit older than the rhyolite dome rocks. This unit is well exposed between MAT Creek and Camp Creek on the ridge crests. The dome is tilted to the south or SSW with shallow to flat dips on the north and vertical to overturned dips near MAT Creek. The sediments in MAT Creek look similar to the black argillites to the north of the dome except for the abundance of rhyolite clasts. The alkali volcanics package very definitely terminates the calc-alkaline volcanic (and associated sedimentary) suite and is altered by hydrothermal interraction (quartz leaching, etc) in the contact zones.

The massive sulphide (presumed lens or pod or pencil) in MAT Creek does not have any strike continuity as seen in DDH M77-1 and 2. It lies in a biogenic trap with good proximity to a major calc-alkaline subaqueous event. The rhyolite is rich in pyrite and shows all the known characteristics to indicate it could have a proximal to distal massive sulphide associated with its history. There is no surface or float indication that massive sulphide zones exist on the property other than the previously known presumed uneconomic zone at MAT Creek.

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Units

(a) Carbonates - Unit 2

For the most part, the carbonaceous rocks are found at the north eastern end of the property, mostly throughout the SUN/DM claims. These rocks can be divided into two groups; dolostones (unit 2a) and limestones (unit 2b).

These "shelf-type" carbonates range from massive rocks (unit 2a) through to banded argillaceous dolostones and limestones with phyllitic layers (unit 2b).

The massive dolostone forms buff to brown weathered cliffs with coarse angular rubble at their base. This rock is often siliceous and slightly foliate with lamellae altered to wollastonite crystals. Due to the foliation, thin lamellae can often be observed on the weathered surface due to differential weathering.

The fresh surface of these rocks is light to medium grey and they are usually fine to medium grained. Sometimes the rock is brecciated with fragments up to 5 cm across.

Unit 2b, the argillaceous limestone, usually has a dominantly limey composition, often with interbeds of black phyllites from about 1 cm to many metres thick.

These rocks are dark grey to banded on the fresh surface. The weathered surface is usually medium grey in colour. In places this rock outcrops in distinct cliffs but at other times it retains a "low profile", showing mostly float and little outcrop, depending on the amount of limestone versus phyllite in the outcrop.

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The proportions of phyllite versus limestone increases moving towards the northeast, accounting for the decrease in cliff forming material. In the more limey areas towards the southwest, where there are no, or very few interbeds of phyllite, the rocks appear to contain silicified crinoidal debris.

(b) Arenaceous Rocks - Unit 3

The SUN/DM claim area has the most, if not all of the arenaceous units which are present on the property. These rocks are few and far between and outcrop only in several places. They are believed to interfinger, or to be interbedded with the much more abundant carbonate rocks of Unit 2.

Unit 3a - Fine grained grits

Much of this so-called "grit" unit is a light coloured, mica phyllite with thin lamellae of quartz, often boudinaged, running parallel to the foliation. The mica, quartz combination is probably a result of a fine, sandy-mud undergoing the pressures of metamorphism. These rocks commonly have some calcareous interbeds. The weathered surface of this rock is usually rusty. Rusty, quartz veins in outcrop and as float are often found with or in close proximity to these light coloured, rusty phyllites. On several occasions, large chunks of rusted massive pyrite were found very near the quartz vein.

Unit 3b - Quartzite

This is a coarse version of the above rock except that it seems to lack the high iron content which causes the rusty weathering. These rocks are fine to medium grained quartzites which have many quartz stringers and/or boudins running through them. Some banding and slight foliation can be observed when there are thin phyllitic layers and/or boudins present.

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(c) Argillites - Unit 4

4a Dome-related sediments

These sediments are close enough to the dome that they contain fragments of dome-related material, specifically chert and pyrite. Basically they are dark grey to black, often very graphitic, foliated argillites deposited in areas around the dome where a deep, quiet, biogenic, reducing environment would produce black, carbonaceous shales. Down stream from the massive sulphide occurrence, samples from this unit proved to contain considerable graphite when tested with a potentiometer. Chert fragments are not uncommon, but pyrite is, both as disseminations and as bedded layers. More details are included in the MAT Creek detail grid discussion.

4b Siliceous argillites

This unit represents those medium grey well-foliated sediments which occur northwest of the main rhyolite dome.

The most common texture is aphanitic, but often a small-scale siliceous (?) banding may be seen to be penetrated by foliations transecting the major foliation direction (see log of DDH S77-1). This penetrative disruption may be on the same scale as banding and proceed so far as to give the appearance of aligned, flattened oolites. Disseminated pyrite is not uncommon in the more siliceous members.

Dusty grey rhyolitic tuffs (see 5b4) appear interbedded with them, suggesting proximity to the dome. These siliceous argillites reflect times when the argillite component was accumulating so slowly that the amount of rhyolite equalled or exceeded the amount of basin sediment, producing this cherty or rhyolitic sediment.

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4c Phyllitic (graphitic) argillites

As one moves further from the dome, or into areas which are not affected by contributions from the dome (e.g. pre-dome?), this unit becomes dominant. It represents quiet, perhaps rather deep basins where a black shaley mud has accumulated. The inferred presence of graphite in most areas indicates biogenic activity and a probable reducing environment. Foliations as very thin laminations are always visible in hand specimens, and outcrops are clearly foliated, weathering to shingles.

The northern end of the MAT claims (see location of samples D-7-8-3+4) contains dark grey graphitic phyllites with light grey, gritty bands transecting foliations. These lighter bands vary from fine cross-bedded laminations to clearly turbidic ones up to 0.3 cm thick.

(d) Rhyolites and associated units - Unit 5

5a Rhyolite dome core

The rhyolite dome core is composed of rocks with two different compositions. First there is a dark to medium grey-green porphyritic rock which, upon initial examination, does not look rhyolitic but which, under the binocular microscope, looks quite siliceous. These rocks have yellow-buff coloured, rounded feldspars (probably sodic) and quartz grains (?) up to 2 mm in diameter. In places the rock is slightly foliated and these phenocrysts act as augens with the rest of the matrix bending around them. These dark coloured rocks seem to have a more mafic composition than the lighter coloured rocks with which they are interlayered.

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The lighter coloured core rocks have large white pumice fragments up to 1 cm across and rounded remnants of feldspar laths surrounded by a siliceous, sericitic and/or chloritic, fine-grained often porous groundmass. On the fresh surface these rocks are usually white or light grey, commonly with rusty banding. The weathered surface is usually gossanous, if not light grey. These rocks are rhyolitic in composition and are probably more closely related to the dome flank rocks of Unit 5b than are the more mafic rocks of the core.

Although the more mafic rocks of the "dome core" area are not considered to be rhyolites, the acidic rocks with which they are interlayered are, or closely approach the rhyolitic composition. It is common for volcanic rocks to alternate in composition within the duration of vent activity so this dome is considered to be a rhyolite dome due to the greater percentage of rhyolites versus mafic rocks. The two rock types are possibly alternating basic and acidic flows or are high level intrusive "pulses" of alternating composition.

5b Dome flank zones

The rocks labelled as 5b have been grouped into four major categories; proximal lapilli rhyolite (5b1), mill rock (5b2), distal lapilli rhyolite (5b3), and distal rhyolite tuff (5b4), according to the typical dome to flank facies changes.

5b1 Proximal lapilli rhyolite

The first group, the proximal lapilli rhyolite, has an appearance ranging from a rusty, pitted, polka-dotted, foliated, white rock, through to a sugary, light grey, massive rhyolite, rich in unoxidized pyrite.

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Pyrite usually occurs in distinct, rounded blebs up to 2 mm diameter with little of it occurring in the white sericite/ quartz matrix. Some copper staining was observed in a hand specimen. Due to the pyrite oxidizing, the rock has a rusty brown weathered surface.

5b2 Mill rock

The "mill rock" is a coarse fragmental of multiple composition, however most often the fragments are of felsic composition. Rock fragments of chert, pink-grey rhyolite(?), black chlorite and quartz are highly angular and range from 2 mm to several cm across. Some of the fragments are rimmed with fine-grained chlorite. A fine-grained, sericite, chlorite rhyolite matrix "cements" the fragments together.

5b3 Distal lapilli rhyolite

The distal lapilli rhyolite has a cherty to dusty rhyolitic matrix surrounding cherty, rhyolite tuff fragments up to 1 cm across. Only one outcrop of this was observed on the hillside near the intrusive plug contact (to the east above the MAT Creek showing). No pyrite was observed and the rock weathers to a light grey or white colour.

A small outcrop in MAT Creek, directly above the massive sulphide and draped over Unit 5b4z, represents the only recognized occurrence of this unit. It is mainly a well-foliated, fine-grained, medium grey tuff, but contains cherty fragments and lenses rimmed by pyrite, and pyrite cubes disseminated throughout.

5b4 Distal rhyolite tuff

The last group, a distal rhyolite tuff, is widespread and often shows slightly different characteristics from one outcrop to another. Basically this "rhyolite" is chalky to talcose, massive to foliate, and ranges from dark grey to light grey on the fresh surfaces. All of it weathers to the characteristic light grey colour of rhyolite.

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The light grey, chalky, more massive variety of this rhyolite (5b4y) often shows cross bedding and graded bedding with alternating dark and light layers. Often this material is interbedded with either the more talcose, foliate rhyolite tuff (5b4x), or the dark grey, phyllitic sediments of unit 5c and shows differential weathering as it stands out in higher relief against the last two. Closer to the dome core, the chalky or dusty rhyolite (5b4y) is found in more abundance than the talcy, more foliate member (5b4x).

The talcy member, however, is the most widespread unit of any of the rhyolites. It is often interlayered with the more distal phyllitic sediments (5c) and is found the farthest from the dome core. Well-rounded quartz eyes, ranging from 1 mm to 3 mm in diameter, often occur in this unit and upon compaction they act as small augens. The amount of talc varies in different areas and sometimes this rhyolite almost takes on the appearance of chert (being less foliated with less talc). (See also MAT Creek detail grid).

5b4v Massive sulphide

Along MAT Creek where black rhyolites and dome-related sediments outcrop is the only known exposure of massive sulphide. Bedded, fragmental sulphides include pyrite, galena and chalcopyrite, in order of abundance. Light green arsenic bloom is abundant on specimens of what appears to be boulangerite, and is probably related to a crackle zone which transects bedded mineralization. (Previously this massive dark grey/silver mineral had been identified as arsenopyrite.) A more thorough discussion appears in the MAT Creek detail grid write-up.

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5b4z Black (graphitic) rhyolite

Around the perimter of the dome where reducing, biogenic conditions prevail, rhyolites will be black due to the presence of graphite (or black chloritoids?). Quartz eyes may be present in varying amounts and foliations are characteristic. A more detailed discussion is included with the MAT Creek detail grid write-up.

5b5 Distal rhyolite flows

This unit was only noted for a distance of 100 m along line 2600N, a considerable distance from the main rhyolite dome. Two distinct types of rhyolite occur, both quite massive. One is pale-medium grey felsitic, the other is medium-dark grey quartz eye rhyolite. The latter is composed of about 70% quartz eyes in a dark grey matrix.

These rhyolites are assumed to be flows either from the main dome (which have moved, or slumped off the dome), or from a small "hot spot" parasitic or distal to the main dome.

5c Dome sediments

As in 5b4z (and 5b3), this unit is only exposed in MAT Creek, so a more detailed account is included in the MAT Creek detail grid write-up.

This category represents those black, shaly, graphitic sediments so close to the perimeter of the dome that they contain fragments of dome material such as rhyolite, chert, and sulphides (mainly pyrite).

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(e) Intrusives - Unit 6

6a Syenitic intrusives

One large, syenitic intrusive plug exists in the southeast, central portion of the property on the MAT claims. Fine to medium grained, dark green-grey, feeder dykes, from several metres to about 20 m wide extend from the intrusive into the "distal rhyolite dome flank" rocks.

The rocks of the main intrusive plug are generally medium to coarse grained, rich in Na feldspar and feldspathoid (?). They weather light to medium grey depending on amount of mafic minerals present. The dominant mafic mineral is probably a chloritized hornblende which occupies the areas between the radiating grey to white feldspar crystals. Small amounts of pyrite are finely disseminated through most of the intrusive plug, except in one location on the ridge where it (the intrusive) outcrops nearest the core rocks of the rhyolite dome. Here, there is a dark, orange brown gossan, staining the intrusive rocks. Rusty siderite and milky quartz veins, up to a metre wide are also noted in this area. Quartz is never seen in the intrusive rocks except where xenoliths of rhyolite are included within them. Here, not only milky quartz veins occur, but also grains of quartz occur cyrstallized with the other minerals in the rock's matrix.

Dykes from the intrusive are usually dark green and finer grained than the intrusive. Where they intrude the distal rhyolite tuffs, usually there is a bleached zone along the contacts up to several metres wide.

All of the intrusive rocks generally lack strong foliation and usually fracture into large blocky chunks.

The intrusive rocks may be related to extrusive members of units 8 and 9.

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6b Lamprophyre dykes

Several lamprophyre dykes, from 30 cm to 2 m wide were noted cutting through the syenite of unit 6a and the andesite and basalt of units 8 and 9. These biotite rich rocks sometimes have large quartz eyes up to 1 cm in diameter and occasionally coarse grained clots of feldspar (calcite?) and biotite are seen. The dyke rock is usually fine to medium grained, dark grey on the fresh surface and weathers to a grey brown colour. Sometimes the rocks are slightly magnetic.

(f) Basalt - Unit 7

Basalt constitutes about one-third of the exposed volcanic pile above the rhyolites, the remainder of which is composed of andesite and related tuffs (Units 9 and 8, respectively). Its relation to said andesites is not entirely clear, as contacts between the two are gradational, and spatially they appear inseparable on a small scale (i.e. Talus Ridge detail map). However, the larger scale regional map does show a concentration of basalt south of the syenite plug and a few minor occurrences throughout the andesites. These conditions are perhaps indicative of a magma whose composition varies between basalt and andesite. The absence of vesicles, pillows, columnar jointing or other surface flow indications should be noted, although possible columns were noted on the far (GULL) ridge where andesites are strongly vesicular. These basalts are alkalic, so they produced a yellow (potassic) colour when stained.

Characteristics of the basalt include homogenous, fine-grained texture, black to dark grey colour, massive, well-jointed appearance, weathered surfaces which are black and various shades of brown, and strong magnetism. Said magnetism is attributed to the presence of iron in the form of magnetite and is rarely absent. In an area of nearly omnipresent siderite it is interesting to note that none occurs in basalt.

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Occasionally a medium to coarse-grained equivalent resembling gabbro can be seen, hornblende crystals growing to 8 mm lengths, and one instance of a 1.3 cm long feldspar crystal was noted.

(g) Tuffs - Unit 8

Tuffs are recognized by their clastic, banded, fine-grained, well-foliated nature. Some are grouped with Unit 9 andesite because they tend to be similar in colour (but are not well-foliated), but other varieties are numerous. It should be stated that all gradations between each of the three tuff categories may be seen, so that in many instances it becomes difficult to label an outcrop as one type in particular.

Unit 8c is probably the closest, compositionally, to andesite, as it is usually dark shades of brown, purple and/or green. The main distinction is that this unit is much finer grained, and is therefore so well foliated that samples greater than 1.3 cm thick are difficult to obtain. It often takes on the appearance of a purple phyllite.

Unit 8b is ideally very pale shades of green, yellow, purple and white, and may be a bleached equivalent of 8c. It can be dull and chalky or shiny as a result of chlorite, talc and/or serpentine layers. These tuffs are often similar to Unit 8c in colour when fresh, but weathered surfaces have a bleached appearance, and green talcose layers are much more evident. A very fine-grained red-brown mineral may be seen in layers and streaks or as augens usually only 8 mm in diameter (one occasion of 4 cm diameter augens was noted on Talus Ridge).

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Banding is usually assumed to be metamorphically enhanced, as it normally parallels foliations, but on the north cliff of the far (GULL) ridge banding may be seen to be almost horizontal, while foliations are nearly vertical.

Lapilli tuff, Unit 8a, is the coarse fragmental equivalent of Unit 8b. When augened clasts over 1.3 cm in diameter appear, the tuff is included with this unit. Clasts are normally sideritic, but may also be chalky or of a cherty breccia or as one instance of a purple vesicular lava. Augens may or may not be flattened.

Siderite is another common denominator for all tuffs. It is always present as disseminations, but it also common as clasts. The usual appearance of the siderite clasts is a bright orange powder but rare creamy crystalline shards were noted.

(h) Andesites - Unit 9

Unlike the basalts whose homogeneity is easily recognized, the andesites are extremely variable in colour perhaps as a result of an apparent wide compositional range. Quartz is absent, but feldspars are usually sodic; potassic and calcic feldspars were also observed through staining. (Potassic stains were produced on samples directly west of the small rhyolite dome on the GULL ridge and on the south side of the basalt ridge.) Common colours are red-brown and purple, although the addition of chlorite will produce shades of green, and hematite may produce red or pink shades. A frequent, but not always widespread occurrence is a bleached andesite which is almost chalky white on fresh surfaces and appears to be riddled with micro-veinlets of an unidentified red-brown material. Some of the "bleached" units are intercalated with small sodic trachytic sheets or domes.

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Siderite is always present, but varies from fine disseminations, to orange clasts of varying size, to crystals precipitated in the magma. When vesicles are seen, they are filled with siderite which weathers out on the surface. Serpentine was also seen to fill vesicles on the far (GULL) ridge. Fluorite is not uncommon on fracture surfaces, usually associated with quartz. Quartz/siderite stockworks and veins were especially noted on the ridge directly south of the MAT Creek showing and on the far (GULL) ridge directly east of the rhyolite, but veinlets of either are common throughout the andesite.

Texturally, blocky - jointed massive andesites dominate, but foliations often become evident, and in several instances a massive andesite can be seen to become progressively more foliated until it becomes a finely foliated unmistakable tuff of Unit 8. The intermediate "massively foliated" members are assumed to be somewhat tuffaceous and are grouped as unit 9f.

(i) Ferricrete - Unit 10a

Ferricrete occurs in two localities on either side of MAT Creek, as can be seen on the MAT Creek detail grid map. It has the appearance of an igneous breccia on first glance, but contains fragments of all sizes and shapes of all rock types seen in the area to date (plus exotics). The matrix is composed of a mixture of limonite and jarosite, and is dark, glossy brown. Twigs and organic matter present during formation have left voids resembling vesicles and lava tubes. On the north side of MAT Creek the major occurrences are along a stream, whereas the south side occurrences are along a break in slope where groundwater also may be expected to reach the surface.

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Detailed Grids

(a) SUN/DM - Anomalous Area - Map SE-77-20

This area was detailed in both geology and geochem due to a very high Pb/Zn anomaly found in the soil sampling surveys of 1976 and 1977.

Two distinct rock types, both from the Unit 2 carbonates, were mapped over the SUN/DM anomalous area. An area covering 400 m x 600 m between stations 550E and 1150E and lines 4630N and 5040N, was mapped on a detailed scale of 1:2000.

The first rocks encountered beyond station 550E, walking NE up the hill, are the massive dolostones of Unit 2A. These rocks have formed a cliff, contouring the slope at about elevation 1417 m. The cliff rises vertically by no more than 10 m before the ground starts to level out again. Outcrop and float of the massive dolomite were found for about 100 m along a line above the cliff.

Beyond the 100 m point the rock type suddenly changes to Unit 2B. The rocks outcrop and occur as float for about 300 m along the line and up the hill. Unit 2B rocks are generally less resistant than the more massive dolostones as they usually do not outcrop to form cliffs.

There is a sharp contact at the top of the hill with another layer of massive dolostone. It is not known whether the massive dolostone is a Silurian thrust sheet of whether it represents a massive shelf carbonate, but probably the latter based on DDH M77-4. All the rocks in this area generally strike in a northeast direction and their westerly dips vary from being practically horizontal to 51°. Many of the attitudes are unreliable due to the large amount of

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slump on the hillside.

It still is not known why the large Pb/Zn anomaly exists in the area, however, it is thought that the shaly, phyllitic limestones of Unit 2B may carry slightly higher concentrations of Pb and Zn than do the surrounding rocks. Massive dolostone may act as an impermeable trap for those minerals and hence, soils just above Unit 2A would carry high concentrations. Also, there is a small "gut" or gully at the base of the hill just below the highest anomaly. This depression may also act as a kind of trap. The fact that the rocks are carbonates may cause the soil horizons above them to be less acid, which may have an increased effect on the precipitation of metals such as Pb and Zn. No showings of Pb and/or Zn were found in the area.

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(b) Rhyolite Dome Area - MAT Claims - Map SE-77-18

This detailed grid runs between lines 1500S and 2000S and stations 775E and 1400E. All the rocks found in the area are dome related except for a few syenitic dykes for Unit 6A.

The dome core rocks occupy the bulk of the area with the poorly defined boundaries between them and the flank rocks existing in the arc which curves around to the southwest at the bottom of the hill, from the extreme northeast portion of the area, at the top of the hill. Boundaries between core and flank rocks are undefined due to lack of outcrop.

The so-called "extrusive" phase of the core rocks seems to be interlayered with the dome flank rocks to a small extent around the core/flank contact area. Moving up the hill towards the east, the extrusive and intrusive phases of the rhyolite dome core alternate less and less with the intrusive phase of the rhyolite dome becoming the main one near the top. This suggests that the core of the rhyolite dome exists near or at the top of the hill (not shown on the detailed Map SE-77-18) and that the flank facies become progressively more distal (and younger) in the north, west and south directions downslope.

The dome-flank, facies rocks, in closest proximity to the core zone are mostly fine grained, sugary to white rhyolites, loaded with pyrite. Next to these rocks are usually dusty, light grey rhyolites which often show sedimentary structures such as cross bedding and graded bedding. Coarse grained "mill rock" is seen, in one instance about the same distance from the core as these dusty rhyolites. More distal yet, but interlayered with the above rocks are the talcose rhyolite tuffs. Black to grey argillaceous layers, getting progressively thicker and more frequent moving further from the dome

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core, are often found interbedded with the dome flank rocks.

The attitude of the rocks in the southwest portion of the area strike southeast and dip southwest, unlike the rocks in the north of the detailed area, which strike northeast and dip towards north. This suggests that the flank rocks are wrapped around the core rocks of the dome.

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(c) Ridge east of Mat Creek Showing - Map SE-77-19

This area was detailed primarily to find the relationships that exist between the syenitic intrusions of Unit 6 and distal dome flank rocks of Unit 5. It was hoped that through examination of the rhyolite flank units that "tops" could be determined. An area between lines 2600S and 3200S and stations 1300E and 1800E was detailed on a scale of 1:2000. Unfortunately, insufficient evidence was gained to determine which direction is "up" in the flank rocks. These rocks are primarily talcose, rhyolite tuffs, often with quartz eyes. No bedding structures were observed except on a moderately large scale, where black argillaceous layers (now phyllite) interfinger with the rhyolites, and these were only found in spotty outcrop.

The syenitic intrusive rocks of Unit 6 occur both as dykes and as a plug in this area. Absolute contacts are hard to trace due to so much float and downhill creep but usually where a dyke intrudes the rhyolite tuffs there is a zone of bleached dyke-rock, one on either side of the dyke. This phenomenon is not observed along the contacts of the plug with the rhyolites.

Accurate attitudes were hard to determine because of so much slumpage and downhill creep. Generally, though, the rocks strike in a southeast direction and dip steeply to the south west.

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(d) Mat Creek - Map SE-77-14

The extent of this grid was governed by results of the regional geochemical sampling programme, which produced several high zinc values within the area. The geologic environment is that of the outermost reaches of the dome, where dusty rhyolite tuffs alternate with black biogenic muds, and the andesite pile begins to interfinger and eventually smother the rhyolite/sediment package.

Massive andesite commonly occurs as the bleached variety. All samples from the two large outcrops crossing line 2600S are highly potassic (also minor basalt was noted near D-8-2-24), but samples from the 2750S outcrop did not react when stained. It seems as though bleaching does not depend on original composition, but appears to be random. Outcrops of massive, sideritic andesite in the southeastern corner amongst the tuffs are riddled with small (8 mm - 6 cm) quartz and siderite veins in stockwork fashion.

Tuffs are generaly dark purple (brown and well-foliated, although pale green and white bleached tuffs also appear in a semi-circular pattern of outcrops). All tuffs (save one outcrop) dip toward Mat Creek, becoming steeper closer to the creek. In view of the fact that foliations in the creek dip in an opposite direction, faulting, folding or even over-turning of the andesites all become possibilities that cannot be proved one way or the other solely by the results of this programme.

Along Mat Creek is a series of outcrops reflecting the changing environment of the far edge of the dome. The dominant condition downstream is that of fine distal rhyolite tuff (5b4x) alternating with black highly graphitic shales (4a) that frequently contain up to 5% disseminated (often banded) pyrite and are still receiving cherty material from

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the dome. Moving upstream, and up sequence, the depositional environment becomes more chaotic, as the dominant unit is a breccia (5c) containing fragments of rhyolite and chert and frequent disseminated pyrite in the matrix. Although breccia dominates, it is intimately associated with black graphitic shales within the unit. Bedded, fragmental, massive sulphides (5b4v) occur in this environment. It is presumed that events producing solutions which helped warm the area to induce biogenic activity (i.e. graphite) also caused disruption of Unit 5c and deposition of sulphides.

A little further upstream foliated, black (i.e. graphitic) rhyolite appears to grade into massive andesite. This rhyolite may have quartz eyes, but most commonly consists of fine (1 mm) siliceous layers alternating with fine black graphitic mud. The same unit occurs on Gull Creek at elevation 1356 m, the major difference being that banding and foliations are parallel in Mat Creek and normal to each other in Gull Creek. Black rhyolites temporal relation to the Mat Creek sulphide occurrence is probably subsequent, although the possibility that Mat Creek is fault-controlled cannot be ignored.

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(e) Talus Ridge - Map SE-77-17

During reconnaissance mapping of the Talus Ridge area it was noted that a considerable amount of basalt occurs whose spatial and genetic relation to the andesite is not discernable. A detail grid map was produced in hopes of deciding whether or not the basalt is intrusive to andesite or part of the volcanic sequence overlying the rhyolites.

As can be seen on the detail map, basalt is concentrated in the eastern, or upper portion of the map, but also occurs sporadically throughout the area. With this in mind, plus the fact that no contacts were seen, it was concluded that the basalts are a phase of the volcanic pile.

Tuffs do not occur as marker horizons in the andesite, but are well-dispersed throughout the area, indicating rapid changes from flow to tuff.

All forms of andesite and tuff are well represented except hematitic andesite, which is rare. Very little medium-coarse basalt occurs, 98% being fine-grained. Although sampling (and subsequent staining) was not consistent, many samples scattered over the area yielded potassic stains.

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(f) Far Ridge - GULL Claims - Map SE-77-10

This area is of some interest as not only is there a small Pb showing on the ridge (in "sweats" in the sub-aerial andesite), but there is also a chance that a rhyolite dome may be partially buried under the more recent andesite flows. A small, rectangular area between lines 5400S and 5700S and stations 700E and 850E was detailed for geology.

A rhyolite dome does exist in the area but the problem was to determine whether the dome existed before the andesites covered it and whether the observed rhyolite is the nose of the dome sticking up through the andesite or whether its just a small dome which formed on top of the andesite and therefore is younger than the more basic flows.

Both rhyolite dome core rocks (Unit 5a) and flank rocks (Unit 5b) were observed in the area. The rhyolite exists in mounds of small sized rubble fragments with only three outcrops showing up. This gravelly float covers the contact between rhyolite and andesite so that it is generally impossible to see the character of the contacts, however, the contacts in one instance are closely approached. The andesite, in one outcrop on the west of the dome, is brecciated and silicified. In another nearby outcrop the andesite has visible quartz eyes in it. On the east side of the dome a small gully marks the contact between the rhyolite core rocks and the andesitic tuff.

Rhyolite dome core rocks are more frothy textured and pumice-like compared to those on the large dome on the MAT claims. The more distal rhyolite tuffs are typically well foliated and usually talcose, just as at the MAT dome. The rhyolite "core" rocks are deposited further to the east than are the rhyolite tuffs.

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There is a good possibility that the rhyolite dome existed before the andesite flows. The fact that quartz eyes appear along the contact in the andesite could possibly indicate this - the quartz having been pirated from the rhyolite when the hot flow covered it.

GEOCHEMICAL SURVEYS - Maps SE-77-26 Pb/Zn
-27 Cu

Maps - Detail SE-77-21 Pb
-22 Zn
-23 Cu

Approximately 1800 soil samples were collected on the grid from "break of slope" on the west to just beyond the claim boundary on the east. Lines were run spaced between the old SUN/DM lines and elsewhere at 200 metre intervals along the baseline with 50 m stations. All samples were analyzed for copper, lead and zinc by Acme Labs at Ross River. The planned multi-element evaluation work terminated with the fire at Acme Labs and resultant loss of all our pulps.

Soil Profile

The following table divides the typical soil horizons encountered in the grid area.

Soil Type	Definition	Thickness & Type
AL	Leafy undecomposed	Variable to 0.6 m in willow areas.
AH	Decomposed plant material and soil	Variable but 1.0 cm and usually 0.5 cm.
Ash (Cx)	Ash layer exotic	1 to 2 cm throughout true soil areas not evident on steep hillsides.
Bh	Soil with roots + minor humus usually oxidized in part.	Nil to very thin 2 cm (most roots in AH).
Be	Oxidized soil horizon.	Nil (gleysols) to 50 cm thick in sandy well-drained areas.
C	Residum or glacial till outwash moraines, kame terraces, glacial leucustrine deposits.	Unknown (variable to + 7 m on MAT Creek)

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pH

Random lines and areas were pH'd to determine the variability with changes in subcrop, detritus content and soil types. From the geology and other field work, we determined that either detritus derived from important areas or the outcrop of the same units were the main control over pH.

(1)	Sediment subcrop	range 6.0-8.0 usually 7 to 7.5
(2)	Felsic volcanics	range 2.5-7.0 usually 5.5 to 6.0
(3)	Mafic volcanics	range 6.5-8.0 usually 7.0 to 7.5

Statistics

All three elements show lognormal distribution of the values. Lead and copper values tend to be more peaked (higher kurtosis) than zinc with a typical broad skew to the higher values (almost bimodal).

The following table was used to evaluate the distribution of the values on the map:

	Pb (ppm)	Zn (ppm)	Cu (ppm)
Mean	37.45	84.53	21.85
Mean + .33 standard deviations	46.24	109.66	26.57
Mean + .67 standard deviations	57.10	142.28	32.31
Mean + 1.0 standard deviations	70.52	184.59	39.29
Mean + 1.33 standard deviations	87.08	239.48	47.79
Mean + 1.67 standard deviations	107.54	310.69	58.10
Mean + 2.0 standard deviations	132.80	403.09	70.60

Rank correlation coefficients

r (Pb/Zn) = 0.7078 r (Pb/Cu) = 0.5308

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Anomaly Areas

(a) Lead and Zinc - Map SE-77-26

The large intense anomaly west of Mat Creek near the exposed massive sulphide extends northwest down the west side of the creek (parallel to the bedding trace) and turns to parallel but lies above the baseline in a narrow arc. This zone then swings easterly to a broader open zone over the sediments on the north and west flank of the rhyolite dome. No mineralization in place or float was discovered in the northern area (or west of the MAT sulphide zone) to explain the anomaly intensity or pattern. The zone over the sediments could be due to two types of mineralization. We feel the sediments could have been contemporaneous with the sulphide zone at Mat Creek and would thus have a high background in lead, zinc and copper or they could be younger and masking a potential high sulphide zone. The distal phases of the rhyolite package at or near Mat Creek are not exposed in the sediment package. No fractures, veins or similar reworking of sulphide zones was noted in any of the diamond drill holes. Weak geochemical values, but in most cases too weak to explain soil geochemical values, were encountered in the black argillite portions of the drilling.

The diamond drilling did not explain the "ferricrete" and associated intense lead and zinc values west of Mat Creek above the showing.

(b) Copper - Map SE-77-27

This element clearly defines the sedimentary shaley zones on the west and northwest flanks of the rhyolite dome. There are very few values on the volcanics or near Mat Creek of any magnitude. The rhyolite dome apex is also high in copper. We also noted some malachite and azurite in small dots in the pyrite-rich siliceous core zone of the dome but no zone

of chalcopyrite as a massive sulphide was discovered. One possibility for the copper zone is the weathering of the dome to produce the sediment package and trapping of the weak copper leached from the pyritic zone in the carbonaceous shale units. It should be noted that the small discontinuous chalcopyrite zone that occurs in the near basal portion of the Mat Creek massive sulphide zone may represent the equivalent of a basal copper rich portion of the sulphide sheet whereas the broad diffuse copper geochemical zone may represent the weathering (or remobilized from a masked sulphide zone) product of the rhyolite dome into younger sediments.

There appears to be no copper sulphides in any of the units encountered during the drilling.

(c) MAT Detail Grid - Maps SE-77-21, 22, 23

The lead and zinc anomaly west of and on the slope above the small massive sulphide sheet is correlative with the EM-16 and (in part) the MAX-MIN II anomaly in this area. No float or exposure of rocks or sulphides has been found in this area. The closest to float is an extensive patch of ferrocrete on the hillside near the west edge of the geochemical anomaly. The intensity and linearity of the zone indicates there are probably one or more lead and zinc sulphide zones on the west side of Mat Creek within the sample grid area. Drilling on the west side (M77-3) of the southern geochemical anomaly did not encounter any visible lead or zinc sulphides.

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GEOPHYSICAL SURVEYS - Map SE-77-7, 77-28

The writer professes a lack of expertise in the evaluation of the EM-16 and MAX-MIN II results. Our field work consisted of using the EM-16 with the new Hawaii frequency (about dead normal to the grid lines) and using an "on-the-job" trained operator to accomplish the attached results. We used the "Frazer Filter" in the field to evaluate the "anomalies" and define contacts, graphite zones and faults. The coincidence of EM-16 results in MAT Creek and the sulphide lens must be due to the extreme graphite zone the sulphide are hosted in. No explanation was seen for the EM-16 response near M77-4 and the lack of any zone of graphite and/or sulphides. All other results were in keeping with known geology encountered in nearby outcrops.

For comments on MAX-MIN II results, see Appendix B.

TRENCHING - Map SE-77-11

The two trenches on MAT Creek did not encounter bedrock. The deepest portion, on the E/W trench was 6 m below the original surface. We attempted to get to bedrock by drilling and blasting in the trench floor but did not encounter any material we would have considered "bedrock". Based on the drilling to the SW of this site it is possible the grey black graphite mud with some clunks and shards of pyrite, chert and rhyolite may have been similar to the "broken ground" black rhyolitic material encountered in DDH M77-1.

Geochemical samples taken from the trench soil horizons have yet to be analyzed due to:

(a) the fire ruining the original pulps, and
(b) the disappointing drill results.

After the particularly discouraging trenching results we decided to cease this type of work on the project area. We noted later that Cyprus Anvil had equally discouraging results to the north on the ANISE claims.

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DIAMOND DRILLING - Map SE-77-24

The following is a breakdown of the reasons for the site selection for each of the DDH's and the results. Drill logs are located in Appendix A attached.

Hole	Site Selection
M77-1	Maximum EM-16 response near MAT Creek sulphide zone along with ease of access near original trenches; no zone over 2 cm of massive sulphide and no visible galena or sphalerite.
M77-2	Due to no sulphides in M77-1 check down dip extension of MAT Creek zone with a hole to cut plane of sulphide zone; no galena, sphalerite or massive pyrite.
M77-3	To test two conductors defined with MAX-MIN II near coincident with EM-16 anomalies and geochemical anomalies; only graphitic argillite or rhyolite.
M77-4	To test near coincident EM-16 "anomaly" and soil lead and zinc anomalous values; mainly shelf dolomite with minor pyrite.
M77-5	To test near coincident EM-16 "anomaly" and soil lead and zinc anomalous values, no massive sulphides.

The diamond drilling programme failed to encounter any mineralization of interest in any of the holes. The conclusions and recommendations section analyzes the results of this programme.

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CONCLUSIONS

The following list of conclusions summarizes the work completed and problems left unanswered:

1. Drilling at MAT Creek precludes a "sheet" type massive sulphide. As no barite zones nor similar features are known to occur on the property, this is not a "Kuroko" zone by the type of suite. There is no resemblance of the MAT zone to the MM zone of Cyprus Anvil.

2. Geochemical soil surveys are not an effective tool for exploring for these pod or sheet structures due to the complex and variable pH in associated sediments with enhanced anomalies appearing to be sulphide zones.

3. There is as yet no explanation for either the ferricrete zones at or near MAT Creek or the source of the sphalerite and galena sweats on the GULL claims.

4. EM-16 and MAX-MIN II are not effective at delineating sulphide zones due to the extensive and thick zones of graphite in dome related and distal sediments. Gravity surveys may be effective if the target is of sufficient size to cause a mass contrast.

RECOMMENDATION

Return the GULL claims to Marvin Sherman and the SUN/DM and MAT claims to Welcome North Mines as soon as assessment work has been accepted.

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PERSONNEL

Name	Address	Position	Education	Seasons Experience
Burnham, P.J.	Vancouver, BC	Geological Tech. Geochemical Sampler	UBC 2nd yr	0
Carlson, M.R.	Islington, Ont	Geological Tech. Geochemical Sampler EM-16 operator	Univ. of Toronto 2nd year	0
Ditson, G.M.	Vancouver, BC	Senior Field Geologist	B.Sc. M.Sc. pending	3
Eccles, L. K.	Vancouver, BC	Senior Field Geologist	B.Sc.	4
Florence, D.	Atlin, BC	Geochemical Sampler EM-16 operator	High School	0
Higden, N.	Montreal, Que	Cook	High School	4
Lewis, J.	Whitehorse, YT	Geochemical Sampler	High School	0
McLaren, G.P.	Vancouver, BC	Crew Chief Senior Field Geologist	B.Sc. M.Sc. pending	5
Smith, F.M.	Vancouver, BC	Senior Geologist Project supervisor	B.Sc.	14
Strain, D.M.	Sudbury, Ont	Geochem Crew Chief Geological Tech.	Laurentian 3rd year	2

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DUPONT EXPLORATION
CANADA

SEAGULL JOINT VENTURE

DETAIL EM16 PROFILES

MAT CLAIMS

SEAGULL CREEK AREA, YUKON TERRITORY

m 30 20 10 0 30 60 m
1:1,000
SCALE
1 INCH = FEET

DATA BY : D.F.	REVISED :	N.T.S. No.: 105 F 10	
DRAWN BY : K.L.J.	ACCT No.: 328-00		
DATE : AUG. '77	OCT'77		
DATE : AUG. '77	DWG No.: SE 77-7		

LEGEND

+10°
0°
-10°
IN PHASE
APPARENT QUAD

E-M HORIZ. COPLANAR LOOP MAX-MIN II CONDUCTOR
PLOTTED FROM SEPT.'77 SURVEY BY AQUITAINE CO. OF CAN LTD.

N

L 3400 S
L 3350 S
L 3300 S
L 3250 S
L 3200 S
L 3150 S
L 3100 S
L 3050 S
L 3000 S
L 2950 S
L 2900 S
L 2850 S
L 2800 S
L 2750 S
L 2700 S
L 2650 S
L 2600 S
L 2550 S
L 2500 S
L 2450 S
L 2400 S
L 2350 S
L 2300 S

TIE LINE 900 E — 850 E — 800 E — 750 E — 700 E — 650 E — 600 E — 550 E — 500 E — 450 E — 400 E — 350 E — 300 E

— 1100 E — 1050 E — 1000 E — 950 E

OUTLINE OF TRENCH

AVERAGE DEPTH OF TRENCH	2.0 m
TOTAL AREA OF TRENCH	721.5 m^2
OR	7763.34 ft^2
TOTAL VOLUME OF TRENCH	1443.0 m^3
OR	1887.4 yds^3

LINE 2800 S

850 E ON LINE 2800 S

N

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DUPONT CANADA EXPLORATION

TRENCH DETAIL

MAT No.4 CLAIM

WATSON LAKE MINING DISTRICT

SEAGULL CREEK AREA, YUKON TERRITORY

1 : 200

m 6 4 2 0 6 m

SCALE

1 0

1 INCH = 16.67 FEET

MAPPED BY: D.M.S.	REVISED:	N.T.S. No.: 105 F 10
DATE: 12 Aug 77	29 Sept 77	ACCT No.: 328-02
DRAWN BY: K.L.J.		DRWG. No.: SE.77-11
DATE: 9 Sept 77		

L 2300 S
L 2400 S
L 2500 S
L 2600 S
L 2700 S
L 2800 S
L 2900 S
L 3000 S
900 E
800 E
700 E
600 E
500 E
400 E
MAT CREEK
TRENCH
Sphalerite vein
10a
9b
9bde
9be
8c
8b
5b4x?
5b4x
5b4z
4a with minor 5b4z
5b4w
5b3
6cd
9bc

NOTE: FOR GEOLOGICAL LEGEND SEE
REGIONAL GEOLOGY, DRWG No. SE.77-8

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DUPONT CANADA EXPLORATION

SEAGULL JOINT VENTURE

DETAIL GEOLOGY
MAT CREEK
SEAGULL CREEK AREA, YUKON TERRITORY

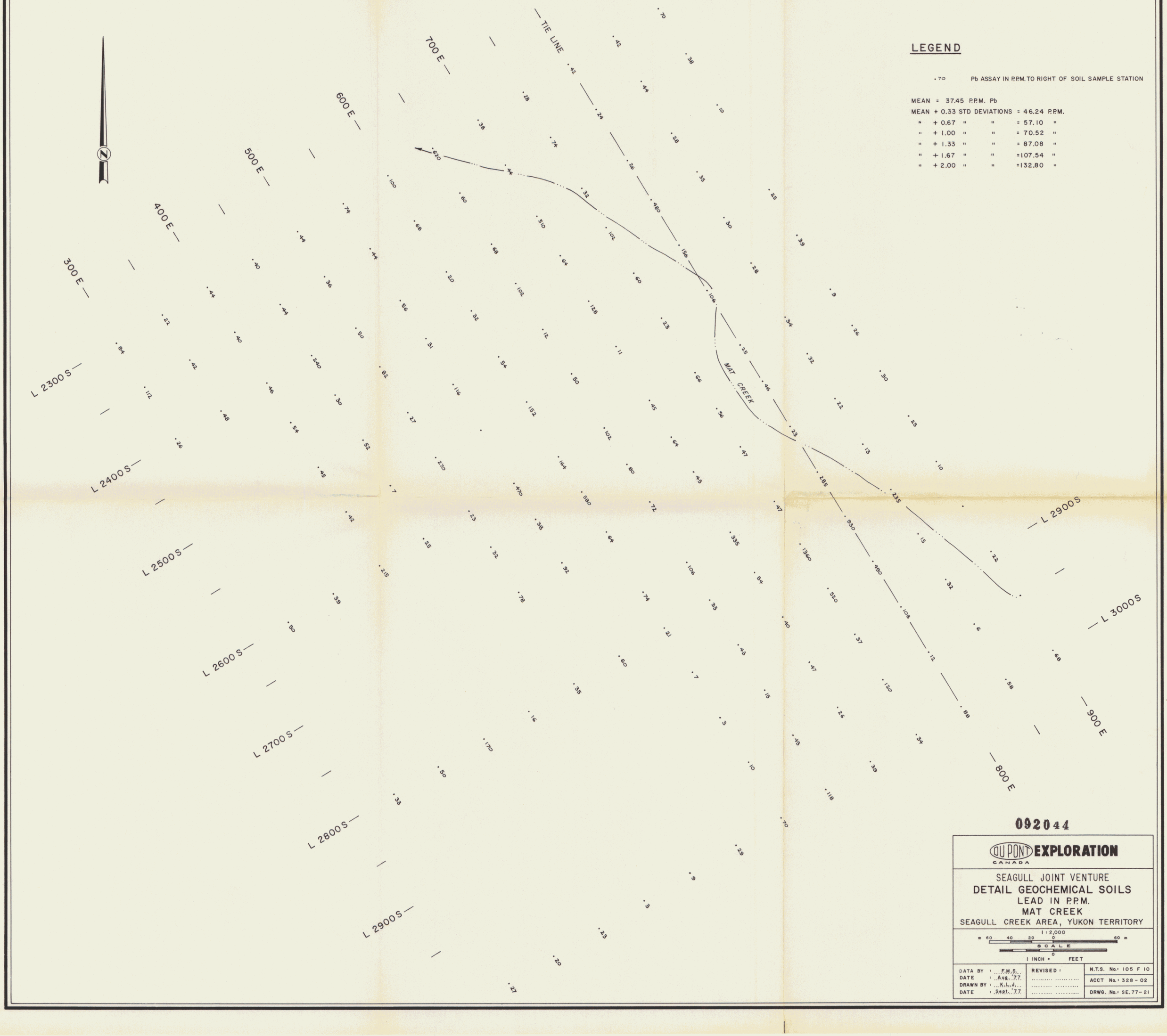
1 : 2,000

m 60 40 20 0 60 m

SCALE

1 INCH = FEET

MAPPED BY : G.D.	REVISED :	N.T.S. No.: 105 F 10
DATE : 3 Aug.'77		ACCT No.: 328 – 02
DRAWN BY : K.L.J.		DRWG. No.: SE.77-14
DATE : 24 Aug'77		



LEGEND

·70 Pb ASSAY IN P.P.M. TO RIGHT OF SOIL SAMPLE STATION

MEAN = 37.45 P.P.M. Pb
MEAN + 0.33 STD DEVIATIONS = 46.24 P.P.M.
" + 0.67 " " = 57.10 "
" + 1.00 " " = 70.52 "
" + 1.33 " " = 87.08 "
" + 1.67 " " =107.54 "
" + 2.00 " " =132.80 "

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DUPONT CANADA **EXPLORATION**

SEAGULL JOINT VENTURE
DETAIL GEOCHEMICAL SOILS
LEAD IN P.P.M.
MAT CREEK
SEAGULL CREEK AREA, YUKON TERRITORY

1:2,000
m 60 40 20 0 60 m
SCALE
0
1 INCH = FEET

DATA BY : F.M.S.	REVISED :	N.T.S. No.: 105 F 10
DATE : Aug. '77	....	ACCT No.: 328-02
DRAWN BY : K.L.V.	....	DRWG. No.: SE.77-21
DATE : Sept. '77	....	

LEGEND

.60 Zn ASSAY IN P.P.M. TO RIGHT OF SOIL SAMPLE STATION

MEAN = 84.53 P.P.M. Zn
MEAN + 0.33 STD DEVIATIONS = 109.66 P.P.M.
" + 0.67 " " = 142.28 "
" + 1.00 " " = 184.59 "
" + 1.33 " " = 239.48 "
" + 1.67 " " = 310.69 "
" + 2.00 " " = 403.09 "

TIE LINE

700 E
600 E
500 E
400 E
300 E

L 2300 S
L 2400 S
L 2500 S
L 2600 S
L 2700 S
L 2800 S
L 2900 S
L 3000 S

900 E
800 E

MAT CREEK

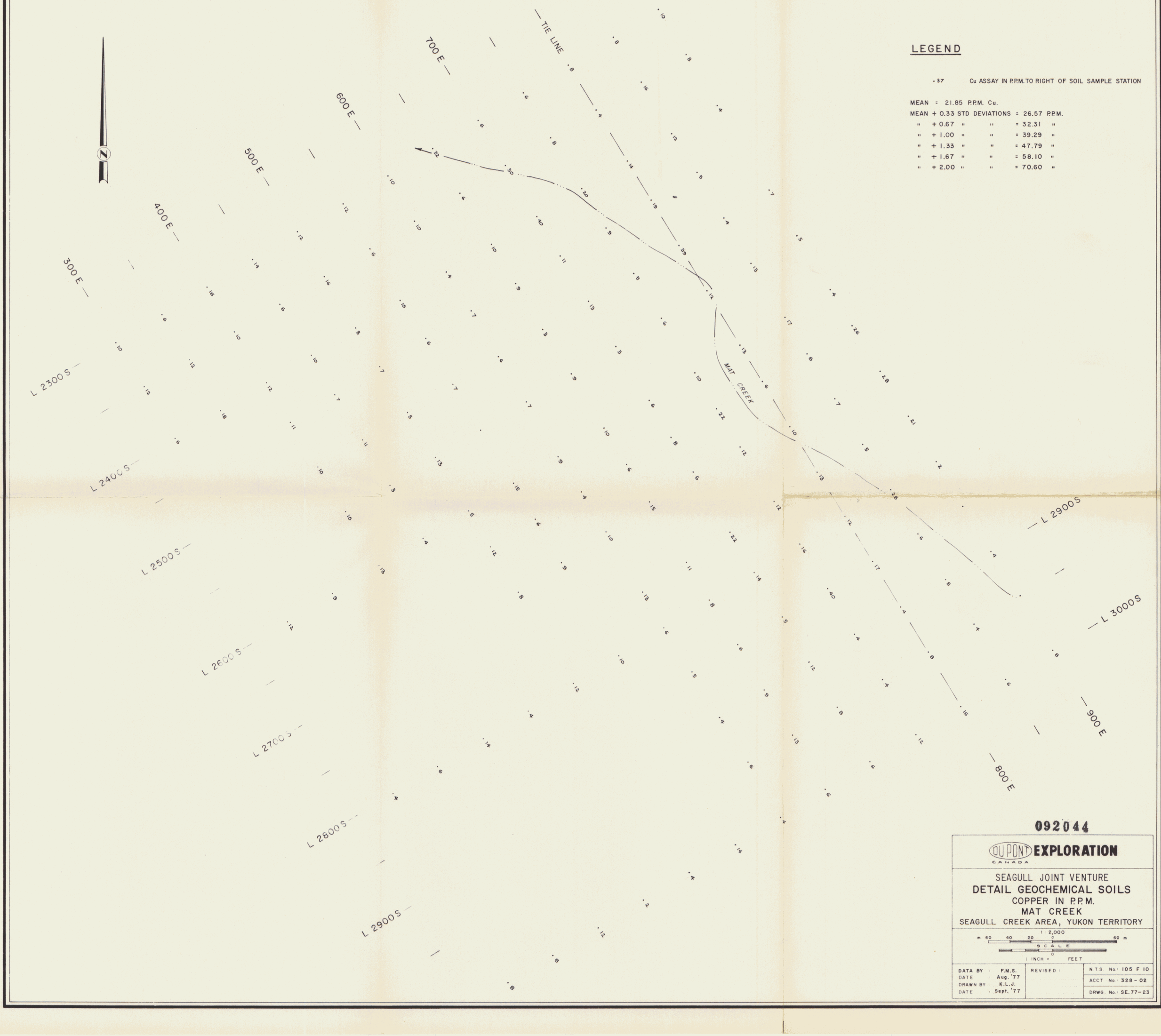
092044

DUPONT CANADA **EXPLORATION**

SEAGULL JOINT VENTURE
DETAIL GEOCHEMICAL SOILS
ZINC IN P.P.M.
MAT CREEK
SEAGULL CREEK AREA, YUKON TERRITORY

1:2,000
m 60 40 20 0 60 m
SCALE
1 INCH = 0 FEET

DATA BY	F.M.S.	REVISED	N.T.S. No: 105 F 10
DATE	Aug. '77		ACCT No: 328 - 02
DRAWN BY	K.L.J.		DRWG. No: SE. 77 - 22
DATE	Sept. '77		



LEGEND

.37 Cu ASSAY IN P.P.M. TO RIGHT OF SOIL SAMPLE STATION

MEAN = 21.85 P.P.M. Cu.
MEAN + 0.33 STD DEVIATIONS = 26.57 P.P.M.
" + 0.67 " " = 32.31 "
" + 1.00 " " = 39.29 "
" + 1.33 " " = 47.79 "
" + 1.67 " " = 58.10 "
" + 2.00 " " = 70.60 "

092044

DUPONT CANADA **EXPLORATION**

SEAGULL JOINT VENTURE
DETAIL GEOCHEMICAL SOILS
COPPER IN P.P.M.
MAT CREEK
SEAGULL CREEK AREA, YUKON TERRITORY

1:2,000
m 60 40 20 0 60 m
SCALE
1 INCH = 0 FEET

DATA BY	F.M.S.	REVISED	N.T.S. No. 105 F 10
DATE	Aug. '77		ACCT No. 328-02
DRAWN BY	K.L.J.		DRWG. No. SE.77-23
DATE	Sept. '77		

700 E | 750 E | 800 E | 850 E | 900 E

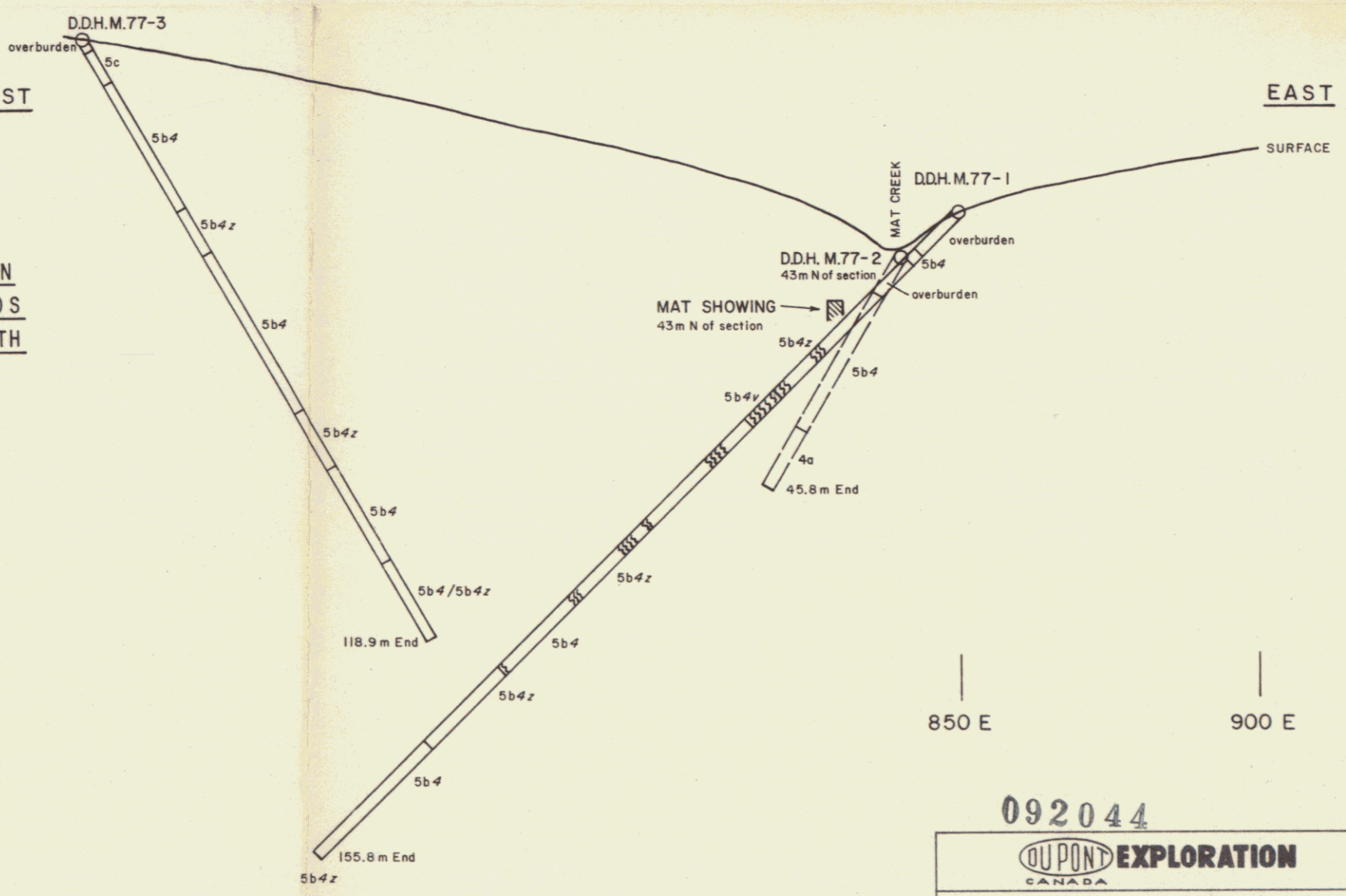
GEOCHEMICAL SOILS
IN P.P.M.

	700 E	750 E	800 E	850 E	900 E
Pb • Zn	54 • 58	1360 • 650	930 • 215	235 • 610	10 • 28
Cu	14	16	12	28	2

DETAIL EM16 SURVEY

E-M HORIZ. COPLANAR LOOP MAX-MIN II SURVEY

D.D.H. SECTION ON LINE 2800 S LOOKING NORTH



NOTE: FOR GEOLOGICAL LEGEND SEE REGIONAL GEOLOGY, DRWG No. SE.77-8

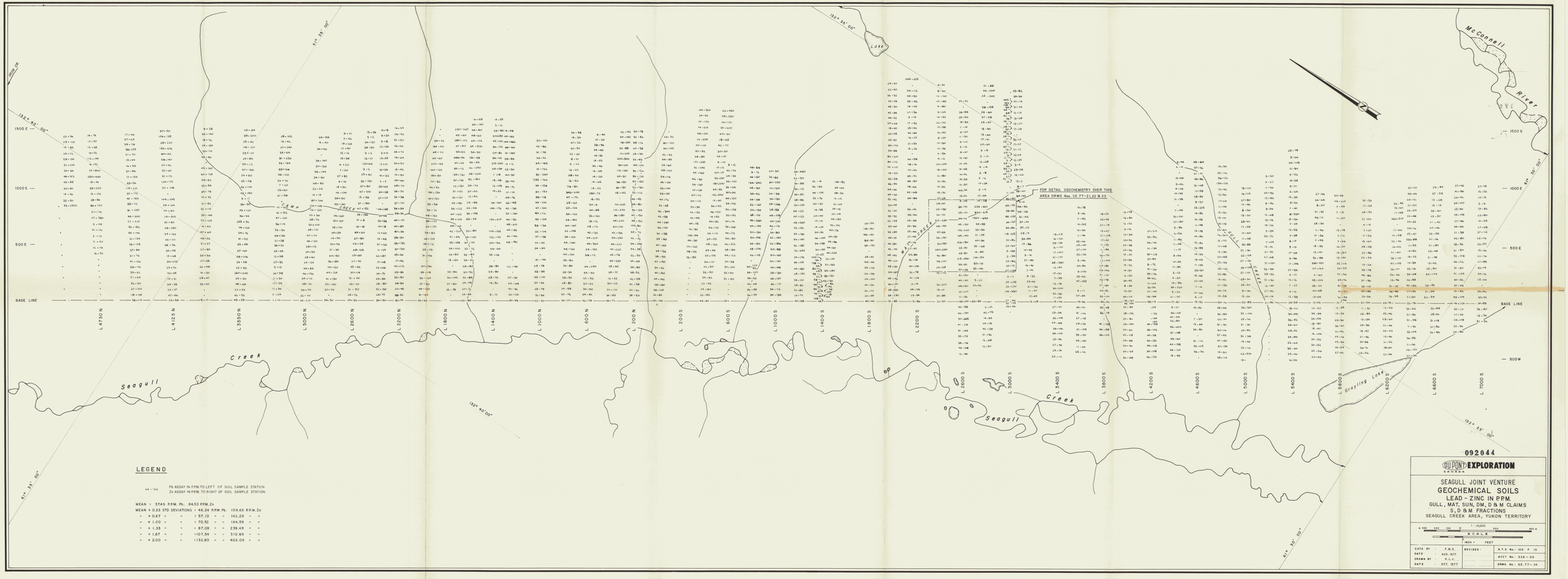
092044

DUPONT CANADA EXPLORATION

SEAGULL JOINT VENTURE
COMPOSITE D.D.H. SECTION
LINE 2800 S
MAT CREEK SHOWING
SEAGULL CREEK AREA, YUKON TERRITORY

1:1000
m 30 20 10 0 30 m
SCALE
0
1 INCH = FEET

DATA BY : F.M.S.	REVISED :	N.T.S. No. : 105 F 10
DATE : Oct. '77	....	ACCT No. : 328-02
DRAWN BY : K.L.J.	....	DRWG. No. : SE.77-25
DATE : Oct. '77	....	



LEGEND

Pb ASSAY IN P.P.M. TO LEFT OF SOIL SAMPLE STATION
Zn ASSAY IN P.P.M. TO RIGHT OF SOIL SAMPLE STATION

MEAN	=	37.45 P.P.M. Pb.		=	84.53 P.P.M. Zn		
MEAN + 0.33 STD DEVIATIONS	=	46.24 P.P.M. Pb.		=	109.66 P.P.M. Zn		
+ 0.67	=	=	57.10	=	=	142.23	= =
+ 1.00	=	=	70.52	=	=	184.59	= =
+ 1.33	=	=	87.08	=	=	239.48	= =
+ 1.67	=	=	107.54	=	=	310.69	= =
+ 2.00	=	=	132.80	=	=	403.09	= =

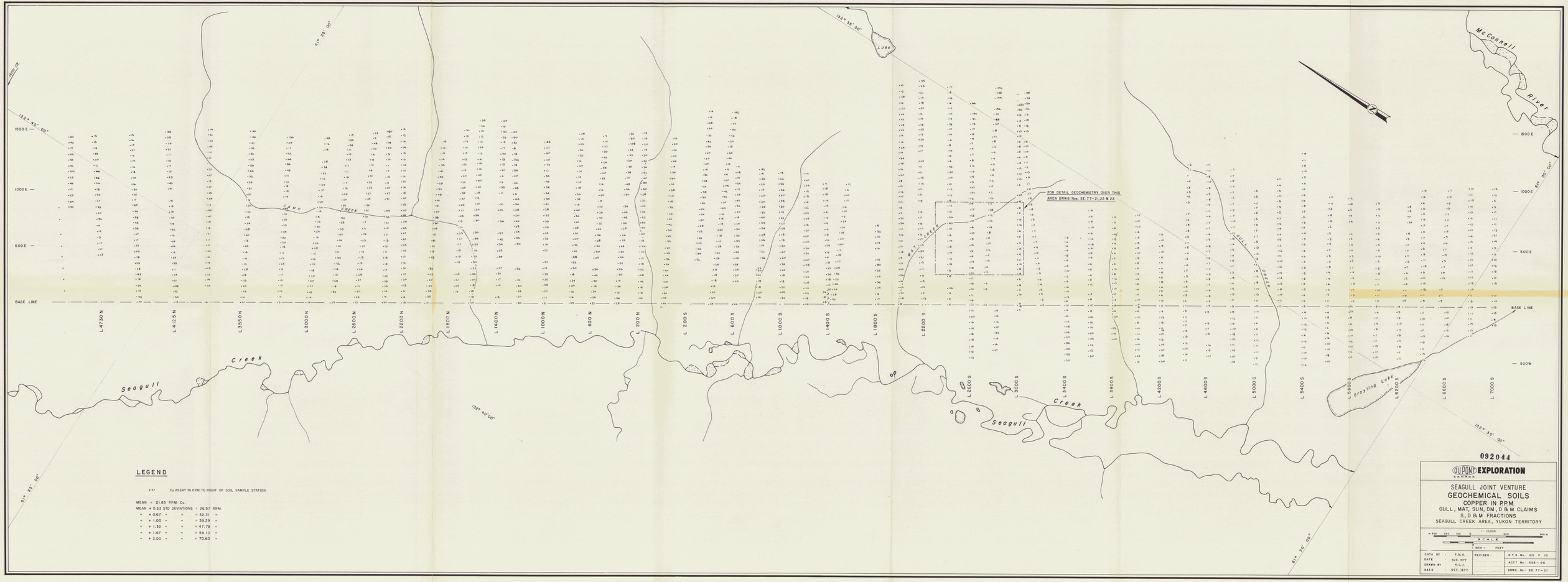
092044

DUPONT EXPLORATION
CANADA

SEAGULL JOINT VENTURE
GEOCHEMICAL SOILS
LEAD - ZINC IN P.P.M.
GULL, MAT, SUN, DM, D & M CLAIMS
S, D & M FRACTIONS
SEAGULL CREEK AREA, YUKON TERRITORY

1" = 10,000
SCALE
INCH = FEET

DATA BY	F.M.S.	REVISED	N.T.S. No. 105 F 10
DATE	AUG. 1977		ACCT. No. 328 - 00
DRAWN BY	K.L.J.		DRWG. No. SE 77 - 26
DATE	OCT. 1977		



LEGEND

• 37 Cu ASSAY IN P.P.M. TO RIGHT OF SOIL SAMPLE STATION

MEAN = 21.85 P.P.M. Cu.

MEAN + 0.33 STD DEVIATIONS	=	26.57 P.P.M.		
=	+ 0.67 =	=	+ 32.31	=
=	+ 1.00 =	=	+ 39.29	=
=	+ 1.33 =	=	+ 47.79	=
=	+ 1.67 =	=	+ 58.10	=
=	+ 2.00 =	=	+ 70.60	=

092044

DUPONT CANADA **EXPLORATION**

SEAGULL JOINT VENTURE

GEOCHEMICAL SOILS

COPPER IN P.P.M.

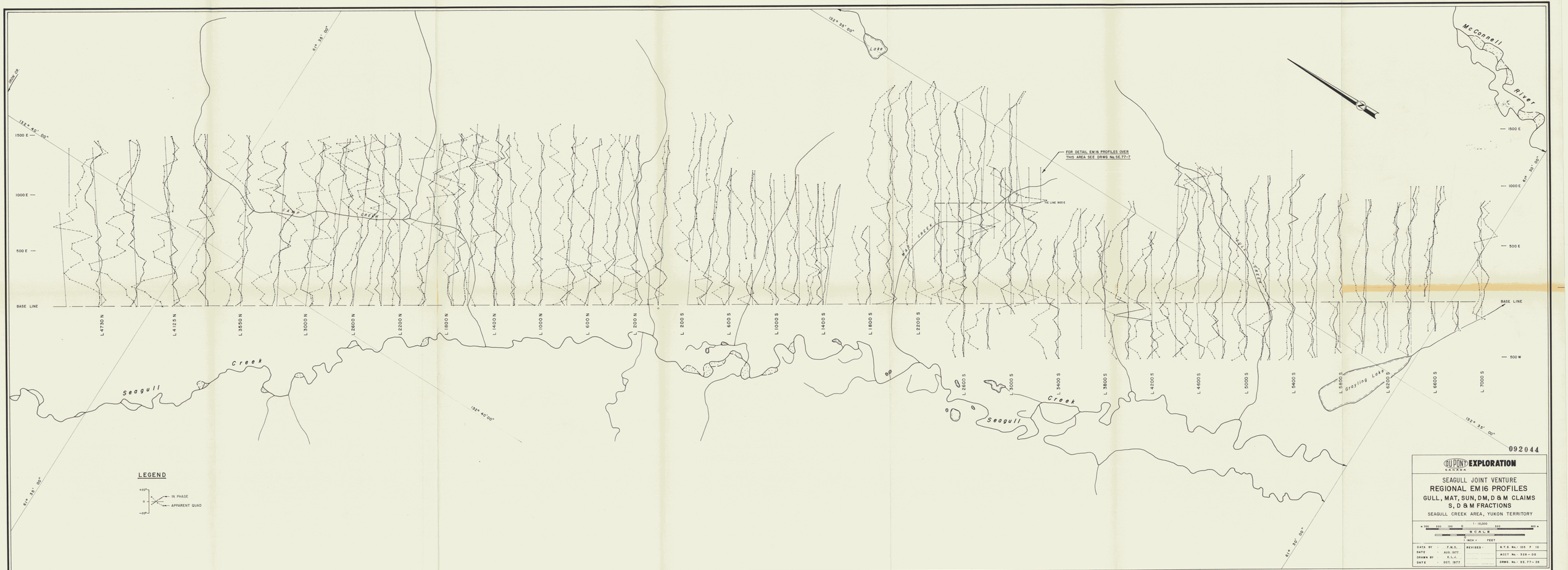
GULL, MAT, SUN, DM, D & M CLAIMS

S, D & M FRACTIONS

SEAGULL CREEK AREA, YUKON TERRITORY

SCALE 1" = 1,000 FEET

DATA BY	F.M.S.	REVISED	N.T.S. No.: 105 F 10
DATE	AUG. 1977		ACCT. No.: 328-00
DRAWN BY	R.L.I.		DRWG. No.: SE 77-27
DATE	OCT. 1977		



092044

DUPONT CANADA **EXPLORATION**

SEAGULL JOINT VENTURE

REGIONAL EM16 PROFILES

GULL, MAT, SUN, DM, D & M CLAIMS
S, D & M FRACTIONS

SEAGULL CREEK AREA, YUKON TERRITORY

SCALE 1 : 10,000

1 INCH = FEET

DATA BY	F.M.S.	REVISED	N.T.S. No.: 105 F 10
DATE	AUG. 1977		ACCT No.: 328 - 00
DRAWN BY	K.L.C.		DRWG. No.: SE.77 - 28
DATE	OCT. 1977		

APPENDIX A

DIAMOND DRILL LOGS

012044

DIAMOND DRILL HOLE RECORD

DRILLED BY: Arctic Diamond Drilling

HOLE NUMBER: M-77-1 LENGTH: 155.8 m

LOCATION: Mat Creek DIP: -45°

LATITUDE: 2810S DEPARTURE: 850E

ELEVATION: AZIMUTH: 270°Grid West

HOLE STARTED: Sept.2/77 HOLE COMPLETED: Sept.7/77

ACID &/OR TRO-PARI TESTS					
FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH

SHEET No.1 OF: 3

HOLE NUMBER: M-77-1

PROPERTY: Seagull, Mat Creek

ACCOUNT No.: 328-03-16

CORE SIZE: BQ Wireline

% CORE RECOVERY: 90

LOGGED BY: F.M. Smith

INTERVALS METRES				DESCRIPTION		SAMPLE						ASSAYS				
FROM	TO	WIDTH	RCVRY	UNIT		NUMBER	% SULFIDES	FOOTAGE FROM	FOOTAGE TO	WIDTH	RCVRY					
0	9.8	9.8	0	Overburden												
9.8	11.3	1.5	100%	5b4	Talcose green brecciated pyritic rhyolite? minor quartz											
					veining calcite veins.		5									
11.3	12.5	1.2	10%	5b4Z	Muddy, quartz lean graphite zone. 43° angle to core											
					at top 1.2 m in part as above.											
12.5	16.0	3.5	20%	5b4Z	Rubble of siliceous graphitic unit as above and											
					below. Minor green talcose rhyolitic unit.											
16.0	94.2				Major graphite/quartz unit with minor lentils as below											
					unit +10 graphite throughout becoming predominantly											
					graphite with calcite lentils plus minor talcose											
					rhyolite shards, lentils and blebs. Foliation											
					parallel to 45° to diamond drill hole but predominantly											
					48°, pyrite nil to 1% .											
27.1	27.2				Grey green lapilli rhyolite.											
31.3	31.5				Quartz vein											
33.5	34.5		80%		Siliceous talcose rhyolite.											
34.8	36.0		90%		Siliceous talcose pyritic rhyolites.		10									
49.1	49.7				Siliceous talcose pyritic rhyolites.		5									

DGL 3.74

DIAMOND DRILL HOLE RECORD

HOLE NUMBER: M-77-3 SHEET NUMBER 2 OF 3

INTERVALS METRES FROM	TO	WIDTH	RCVRY	DESCRIPTION	SAMPLE NUMBER	% SULFIDES	FOOTAGE FROM	TO	WIDTH	RCVRY	ASSAYS
51.8	52.1			Quartz vein angle 35° bottom							
51.0	51.5			Siliceous talcose rhyolite							
53.2	55.5			Siliceous talcose rhyolite							
51.95	58.0			Massive pyrite, soft fine grained sulphide		95					
60.1	61.6			Green-siliceous rhyolite							
67.3	74.9			Siliceous pyrite rhyolite, bedding parallel predominantly		0.2					
				with minor 45-60°.							
16.6	16.8		80%								
27.1	27.3		80%								
32.5	34.0		60%								
41.8	44.8		10%								
44.0	50.9		25%								
52.2	52.5		95%	Fault gouge footwall of quartz vein							
55.7	60.1		50%								
75.3	76.2		90%	Brokenground							
78.4	81.6		80%	Brokenground							
89.6	90.2		90%	Brokenground							
92.5	94.2		90%	Brokenground							
94.2	111.9		90%	5b4 Grey-green rhyolite (brown to yellow mottled)							
				serpentine/talc faces, looks agglomeratic or							
				fragmental in part, rest fine grained minor pyrite at							
				base angle 45°.		<0.5					
110.0	111.9		30%	Fault							

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DIAMOND DRILL HOLE RECORD

HOLE NUMBER: M-77-1 SHEET NUMBER 3 OF 3

INTERVAL (METRES) FROM	TO	WIDTH	RCVRY	DESCRIPTION		SAMPLE NUMBER	% SULFIDES	FOOTAGE FROM	TO	WIDTH	RCVRY	ASSAYS
111.9	129.3			5b4Z	Graphitic zone, minor rhyolite lentils with calcite,							
					chert, pyrite both coalish zones and white/black							
					phylitic zones. Angle 0^{o}							
111.9	118.3		27%		Fault.							
114.9	115.0			5b4	Minor rhyolite lentil.							
118.3	118.7			5b4	Minor rhyolite lentil.							
119.1	119.6			5b4	Minor rhyolite lentil, pyrite weak.							
129.3	154.7			5b4	Rhyolite - bedded, core angles top 10-20^{o} middle							
					(141,2) angle 45^{o} basal 11 to 5^{o}.							
					Talcose, grey white with carbon leaders often as							
					thin zones with carbon on parting planes basal							
					rhyolite interbeds with pyrite common in whole							
					unit but concentrated to 1-2% in graphitic zones.		.5-1%					
					Silvery grey partings in lower sections.							
135.4	136.0				Fault							
154.7	155.8			5b4Z	Graphitic zone: argillaceous foliated							
155.5	155.6				Fault							
	155.8				END OF HOLE							

002044

DIAMOND DRILL HOLE RECORD

DRILLED BY: Arctic Diamond Drilling
HOLE NUMBER: M-77-2 LENGTH: 45.8 m
LOCATION: Mat Creek - MAT 4 DIP: - 60°
LATITUDE: 2757 S DEPARTURE: 840E
ELEVATION: AZIMUTH: 270° Grid West
HOLE STARTED: Sept.8/77 HOLE COMPLETED: Sept.9/77

ACID &/OR TRO-PARI TESTS

FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH

SHEET No.1 OF: 1
HOLE NUMBER: M-77-2
PROPERTY: MAT
ACCOUNT No.: 328-03-16
CORE SIZE: BQ Wireline
% CORE RECOVERY: 90
LOGGED BY: F.M. Smith

INTERVAL (METRES) FROM	TO	WIDTH	RCVRY	DESCRIPTION	SAMPLE NUMBER	% SULFIDES	FOOTAGE FROM	TO	WIDTH	RCVRY	ASSAYS Pb ppm	Zn ppm	Ag ppm
0.7	6.7			OVERBURDEN									
6.7	33.6			5b4 Rhyolite tuff - grey talcose banding 11 to 90° to diamond drill hole. Minor clastic zones (18.6), minor carbon at 26.7 becoming argillaceous to base with pyrite interbeds.			18.6				7	35	0.4
				Quartz vein 28.90-28.95, 30.4-31.7	3954		28.0	28.9			0.02%	0.17%	2.2 ppm
							33.0				23	111	2.5
53.6	45.8			4a Argillite with some rhyolite lentils, weakly carbonaceous banding 20° to diamond drill hole common at top becoming 45° to 60° to diamond drill hole. Pyrite 2-20% in minor zones very rich - no other sulphides visible.			43.25				54	73	2.2
					3955		43.3	43.8			0.01%	0.12%	0.31 ppm
							44.8				30	59	1.6
	45.8			END OF HOLE									

092044

DOX. 3.74

DIAMOND DRILL HOLE RECORD

DRILLED BY: Arctic Diamond Drilling Ltd.
HOLE NUMBER: M-77-3 LENGTH: 118.9 m
LOCATION: Mat Creek - MAT 4 DIP: - 60°E
LATITUDE: 2800S DEPARTURE: 700E
ELEVATION: AZIMUTH: 90° Grid East
HOLE STARTED: Sept.11/77 HOLE COMPLETED: Sept.12/77

ACID &/OR TRO-PARI TESTS					
FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH

SHEET No.1 OF: 2
HOLE NUMBER: M-77-3
PROPERTY: MAT
ACCOUNT No.: 328-03-16
CORE SIZE: BQ Wireline
% CORE RECOVERY: 90
LOGGED BY: F.M. Smith

INTERVALS (METRES)				DESCRIPTION		SAMPLE						ASSAYS				
FROM	TO	WIDTH	RCVRY			NUMBER	% SULFIDES	FOOTAGE FROM	TO	WIDTH	RCVRY	Pb	Zn	Ag		
												ppm	ppm	ppm		
0.0	1.9	1.9	0	OVERBURDEN												
1.9	8.5	6.6		5c	Graphitic argillaceous phyllite, iron stain, banding		2-5									
					normal to 60° to diamond drill hole, pyrite chert			10.1				29	182	1.8		
					blebs ubiqutous			18.0				73	96	1.6		
6.6	73.8	67.2	95%	5b4	Talc, grey white siliceous rhyolite (tuff?) with thin											
					lamellae of green (andesitic) tuff intercalated.											
					Banding parallel to normal to diamond drill hole,											
					much folding of beds.											
					Graded and truncated bedding at 10.2 m becoming			41.4				184	1050	3.7		
					graphitic 23.4-33.7	3956		39.4	40.4	1.0	95%	0.01%	0.22%	0.62	ppm	
33.7	42.5				Graphitic rich unit of above with 5-10% pyrite	3957		46.3	47.3			0.01%	0.08%	0.31	ppm	
					angle 80°.			50.7				220	940	1.4		
73.8	84.8	11.0		5b42	Graphitic rich rhyolitic, cherty, pyrite broken	3958		73.8	75.3			0.01%	0.02%	2.2	ppm	
					ground often-muddy seams occasionally garnet zones			73.9				66	1160	1.4		
					76.3-76.4, 83.6-84.1 angle 65-90°			83.6				90	192	1.3		
								94.7				163	330	1.4		
84.8	103.1			5b4	Talcose rhyolitic zone with variable 5b4Z zones											
					heavily folded 11 - 90° predominantly 60° 5b4V											

DGK. 3.74

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DIAMOND DRILL HOLE RECORD

HOLE NUMBER: M-77-3 SHEET NUMBER 2 OF 2

INTERVAL (METRES)				DESCRIPTION	SAMPLE						ASSAYS				
							FOOTAGE								
FROM	TO	WIDTH	RCVRY		NUMBER	% SULFIDES	FROM	TO	WIDTH	RCVRY	Pb%	Zn%	Ag		
				88.23-88.25											
				heavy pyrite 89.3-90.4	3959		89.3	90.4			0.01%	0.02%	2.2 ppm		
103.1	118.9			5b6Z-5b4 Interlayered (predominantly graphitic) rhyolitic tuff											
				and graphitic argillaceous rhyolitic zones garneti-											
				ferous occasionally, minor calcite lenses occasional.											
	118.9			END OF HOLE											

092044

BOX.4 74

DIAMOND DRILL HOLE RECORD

DRILLED BY: Arctic Diamond Drilling

HOLE NUMBER: M-77-4 LENGTH: 62.5 m

LOCATION: MAT #62 DIP: -90°

LATITUDE: 18+00N DEPARTURE: 12+50E

ELEVATION: AZIMUTH:

HOLE STARTED: Sept.15/77 HOLE COMPLETED: Sept.16/77

ACID &/OR TRO-PARI TESTS					
FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH

SHEET No.1 OF: 3

HOLE NUMBER: M-77-4

PROPERTY: MAT

ACCOUNT No.: 328-02

CORE SIZE: BQ Wireline

% CORE RECOVERY: 100%

LOGGED BY: L.K. Eccles

INTERVAL (METRES)				DESCRIPTION	SAMPLE						ASSAYS				
FROM	TO	WIDTH	RCVRY		NUMBER	% SULFIDES	FOOTAGE FROM	FOOTAGE TO	FOOTAGE WIDTH	FOOTAGE RCVRY	Pb ppm	Zn ppm	Ag ppm		
0	1.8	1.8	0	Overburden											
1.8	8.5	6.7	99%	2A Dark-medium grey dolostone showing faint laminations at											
				at times. In areas rock is fragmental with frags as large	M19	0.5	5.2	5.3			44	17	1.8		
				as 2 cm across. In fragmental portions the fragments often											
				have fuzzy boundaries probably indicating later alteration											
				and/or solution.											
				Thin stringers of calcite up to 2 mm across and quartz											
				veins, often with pink k spar envelopes up to 3 cm wide											
				cross cut the rock at many different angles.											
				Less than 0.5% py occuring in veinlets and as disseminated.											
8.5	22.4		100%	2A Dark-medium grey fine grained dolostone with lighter											
				coloured, green-grey, talcose, mud clasts and layers	M20	0.5	19	19.1			41	16	1.7		
				widely dispersed throughout.											
				About 2% py occuring in disseminated blebs and veinlets											
				and fine grained disseminations 22.25 - calcite vein 5 cm											
				wide.											

BOX. 3.74

082044

DIAMOND DRILL HOLE RECORD

HOLE NUMBER: M-77-4 SHEET NUMBER 2 OF 3

INTERVAL (METRES)				DESCRIPTION	SAMPLE						ASSAYS				
							FOOTAGE								
FROM	TO	WIDTH	RCVRY		NUMBER	% SULFIDES	FROM	TO	WIDTH	RCVRY	Pb ppm	Zn ppm	Ag ppm		
22.4	36.0		100	2A Dark-medium grey dolostone with green-grey talcose mud	M13		24	24.1			7	12	0.4		
				layers and clasts. Much more "mud" in this section than											
				above - platform high energy environment 23.6 - 25.2 =											
				altering layers of mud and dolostone - layers are 1 cm - 5											
				cm wide at 45°.											
				2A 25.2-31.7 = many grey green, talcy mudclasts set in the											
				darker grey, fine grained dolostone - mottled appearance.	M15		29.3	29.35			6	18	0.5		
				Clasts look as though they have been squeezed and often											
				their edges are ill-defined.											
				- rock is quite vuggy in places											
				- pyrite occurs in small blebs											
				31.7-36.0 - amount of mud clast material decreases rapidly											
				so that rock has a dark to medium-grey overall appearance	M14		32.9	33.0			13	12	0.5		
				with quite widely separated lighter grey frags long											
				rectangular mud clasts are oriented in many directions.											
36.0	39.3			2A Dark grey, massive, fine grained dolostone. Some narrow											
				carbonate (and/or dolostone) stringers from 1 mm to 1 cm	M16		36.6	36.7			41	17	1.8		
				wide cut the rock at widely spaced intervals. Some of the											
				wider veins are vuggy.											
				Py (0.5-1%) occurs in coloform patches. Rock seems quite											
				rich in carbon.											

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DIAMOND DRILL HOLE RECORD

HOLE NUMBER: M-77-4 SHEET NUMBER 3 OF 3

INTERVAL (METRES) FROM	TO	WIDTH	RCVRY	DESCRIPTION	SAMPLE NUMBER	% SULFIDES	FOOTAGE FROM	TO	WIDTH	RCVRY	ASSAYS Pb ppm	Zn ppm	Ag ppm		
39.3	43.4			2A Dark grey fine grained dolostone cut by a stockwork of	M12		41	41.1			46	19	1.9		
				carbonate stringers. In areas rock looks brecciated with	M18	2	41.5	41.6			13	10	0.7		
				black carbonate rich groundmass surrounding the lighter											
				coloured dolostone frags. Py occurs disseminated around											
				veinlets 41.6-41.7 - grey green "mud" layers.											
43.4	62.5			2A Medium grey, fine grained, massive dolostone	M17		44.6	44.7			9	10	0.5		
				45.0-46.3 - a fair amount of fine grained colloform pyrite.											
				Widely spaced stringers of white, vuggy carbonate from 1 mm			45.0	46.3			0.1%	0.1%	0.62	ppm	
				to 1 cm wide - sometimes contains brecciated fragments of											
				dolostone.											
				- some fractures filled with talc											
				- rock is argillaceous = muddy dolostone											
				- rock gets less argillaceous, finegrained and lighter											
				grey with more talcy layers in last 12 metres of hole											
				(61.3-62.5)	M21		62.4	62.5			39	14	1.5		
	62.5			END OF HOLE											

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DIAMOND DRILL HOLE RECORD

DRILLED BY: Arctic Diamond Drilling

HOLE NUMBER: S 77-1 LENGTH: 61.0 m

LOCATION: DM #4 DIP: -90°

LATITUDE: 481ON DEPARTURE: 785E

ELEVATION: AZIMUTH:

HOLE STARTED: Sept.19/77 HOLE COMPLETED: Sept.21/77

ACID &/OR TRO-PARI TESTS					
FOOTAGE	DIP	AZIMUTH	FOOTAGE	DIP	AZIMUTH

SHEET No.1 OF: 2

HOLE NUMBER: S-77-1

PROPERTY: SUN/DM

ACCOUNT No.: 328-03

CORE SIZE: BQ-wire line

% CORE RECOVERY: 95

LOGGED BY: F.M. Smith

INTERVAL (METRES)				DESCRIPTION	SAMPLE						ASSAYS				
FROM	TO	WIDTH	RCVRY		NUMBER	% SULFIDES	FOOTAGE FROM	FOOTAGE TO	FOOTAGE WIDTH	FOOTAGE RCVRY	Pb	Zn	Ag		
											ppm	ppm	ppm		
0	1.83	1.83	Ø	Overburden											
1.83	61.0			4cb Black graphitic argillite with lentils of quartz (1 mm											
				- 2 cm). There are 3° of folding visible in core but											
				overall angle of beds/lentils is 90° to diamond drill											
				hole. Dark colour varies to grey zones where pyrite											
				and quartz increase. Pyrite (visible to eye) only											
				as accumulations on bedding planes. There are											
				three phases of quartz veining (a) bull quartz (white											
				to grey) parallel to bedding but pinched and swelled											
				but no visible folding at the same site as variable											
				thickness. (b) transective veins of bull quartz											
				that are flexed by folding. (c) bull quartz veins											
				at 60° to diamond drill hole with no pyrite on kinks.											
1.83	5.2			Quartz content + 20%											
5.2	9.5			Quartz content to 5%											
9.5	10.4			Fault with quartz vein at base (unknown width)											
10.4	11.5			Pyrite 2-5%	M24		10.5				44	43	2.3		
11.5	12.2			Pyrite 1-2%											

BOX 3.74

DIAMOND DRILL HOLE RECORD

HOLE NUMBER: S-77-1 SHEET NUMBER 2 OF 2

INTERVAL (METRES)				DESCRIPTION	SAMPLE						ASSAYS				
							FOOTAGE								
FROM	TO	WIDTH	RCVRY		NUMBER	% SULFIDES	FROM	TO	WIDTH	RCVRY	Pb ppm	Zn ppm	Ag ppm		
12.2	13.0			Quartz vein with heavy pyrite in places											
13.0	14.6			Tuffaceous or diopsite after calcareous material	M26		13.3				25	27	1.5		
14.6	23.8			Quartz content very low, minor lentils of pyrite, occasional	M23		15.9				12	13	0.7		
				penetrative ((b) type) quartz veins.	M22		16.8				16	14	1.0		
23.8	26.8			Much folding, (?) fault induced											
26.8	30.8	.91		Fault zone											
30.8	33.8		50%	Fault zone											
33.7	35.1			2a Dolomite, platform type (as in hole M-77-4) with diopsite	M30		34.5				27	105	2.0		
				+ garnet after dolomite, minor quartz throughout, banded yellow	M27		34.8				22	49	1.5		
				brown and creamy yellow in unaltered central portion.	M28						36	300	2.4		
35.1	39.0			Brokenground	2857		52.0	54.0	2.0	100	0.01%	0.01%	0.94	ppm	
38.9	61.0			High quartz content bedding 5-10 to diamond drill hole with much	M25		54.4				34	182	2.2		
				folding.	M29		59.5				101	270	2.7		
	61.0			END OF HOLE.											

DOE 4 74

092044

APPENDIX B

AQUITAINE COMPANY OF CANADA

MAX-MIN II PROFILES

092044

SEP 27 1977

→ F.M.S. please note -
What about the dip ?

AQUITAINE COMPANY OF CANADA LTD.

2000 AQUITAINE TOWER 540 - 5th AVENUE S.W.
PHONE: 267-9111 AREA CODE 403 TELEX 038-22649 PETRAK CGY CABLES: PETRAK CALGARY
CALGARY, ALBERTA, CANADA
T2P 0M4

September 23rd, 1977

Dupont Exploration of Canada Limited
Suite 102, 1550 Alberni Street
Vancouver, B.C.
V6G 1A5

Attention: Mr. D. Barr

Rosario Resources
Suite 310, 55 Yonge Street
Toronto, Ontario
MJE 1J4 ✓

Attention: Mr. R. Middleton

Dear Sirs:

Please find enclosed the Horizontal Coplanar EM profiles surveyed by our geophysicist Mr. G. Hendrickson, on and near the MAT showing.

On line 28 South, a good to moderate conductor (or a series of) is detected between stations 150E and 200E (800E to 750E Dupont chainage) and dipping to the west; consequently the diamond drill hole planned at 2850S-750E was requested to be moved to 2850S-700E with a 60^0 dip and eastern azimuth. This conductor is also evident on line 27S and 29S but to a lesser degree.

With a similar dip, a weaker conductor coincides with the MAT showing itself and can be traced from line 27 to 29, however towards the west, near the edge of line 27S and 26S and on the other side of the hill, a conductive zone starts to show up which should be investigated.

Sincerely yours,

AQUITAINE COMPANY OF CANADA LTD.

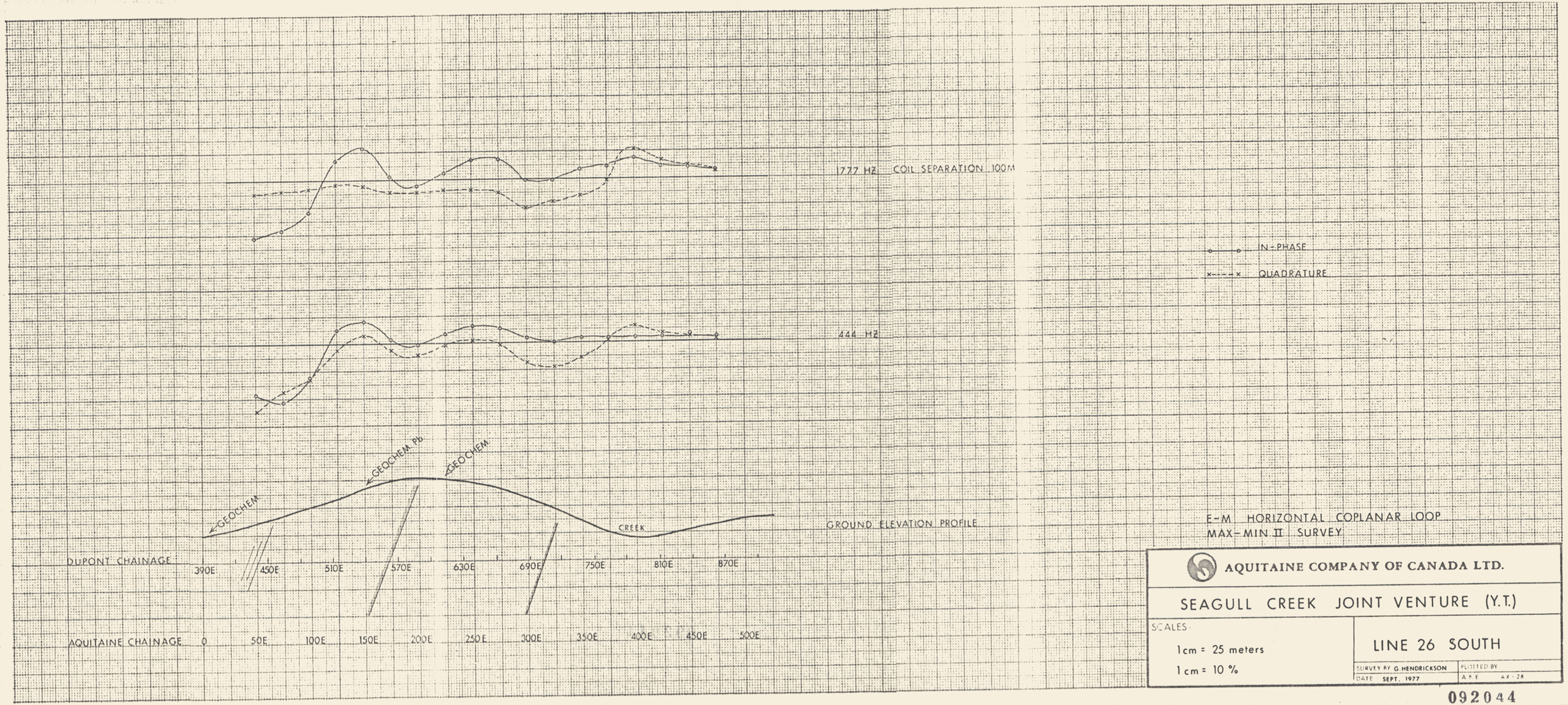
H. Salat

H. Salat
Project Geologist.

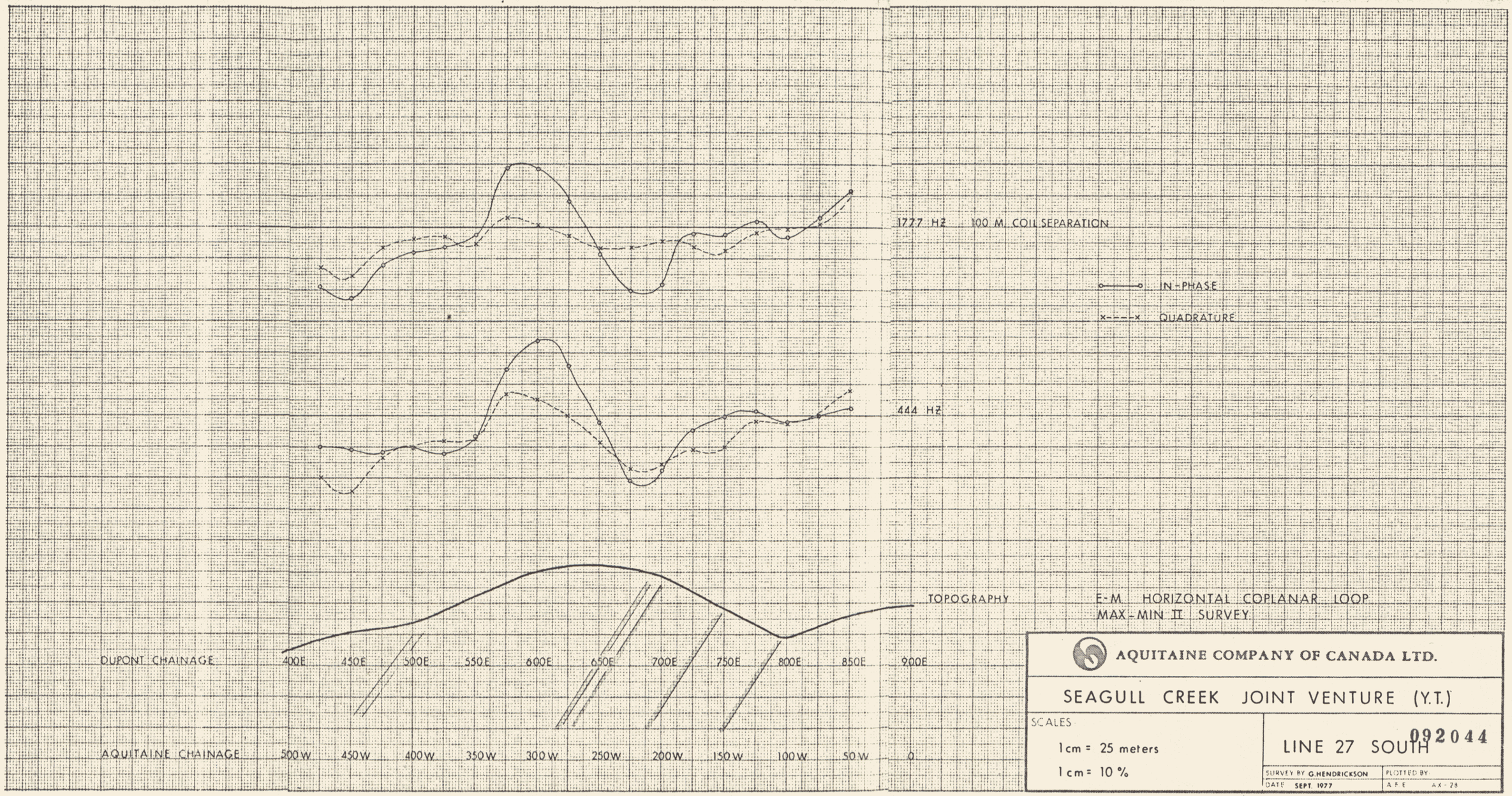
Enclosure

HS:gb

cc: G. Hendrickson


777 HZ COIL SEPARATION 100M
444 HZ
GEOCHEM
GEOCHEM Pb
GEOCHEM
CREEK
GROUND ELEVATION PROFILE
DUPONT CHAINAGE
390E
450E
510E
570E
630E
690E
750E
810E
870E
AQUITAINE CHAINAGE
0
50E
100E
150E
200E
250E
300E
350E
400E
450E
500E
IN-PHASE
QUADRATURE
E-M HORIZONTAL COPLANAR LOOP
MAX-MIN II SURVEY
AQUITAINE COMPANY OF CANADA LTD.
SEAGULL CREEK JOINT VENTURE (Y.T.)
SCALES
1 cm = 25 meters
1 cm = 10 %
LINE 26 SOUTH
SURVEY BY G. HENDRICKSON
DATE SEPT. 1977
PLOTTED BY
A.R.E. AX-28

092044



E-M HORIZONTAL COPLANAR LOOP
MAX-MIN II SURVEY

AQUITAINE COMPANY OF CANADA LTD.

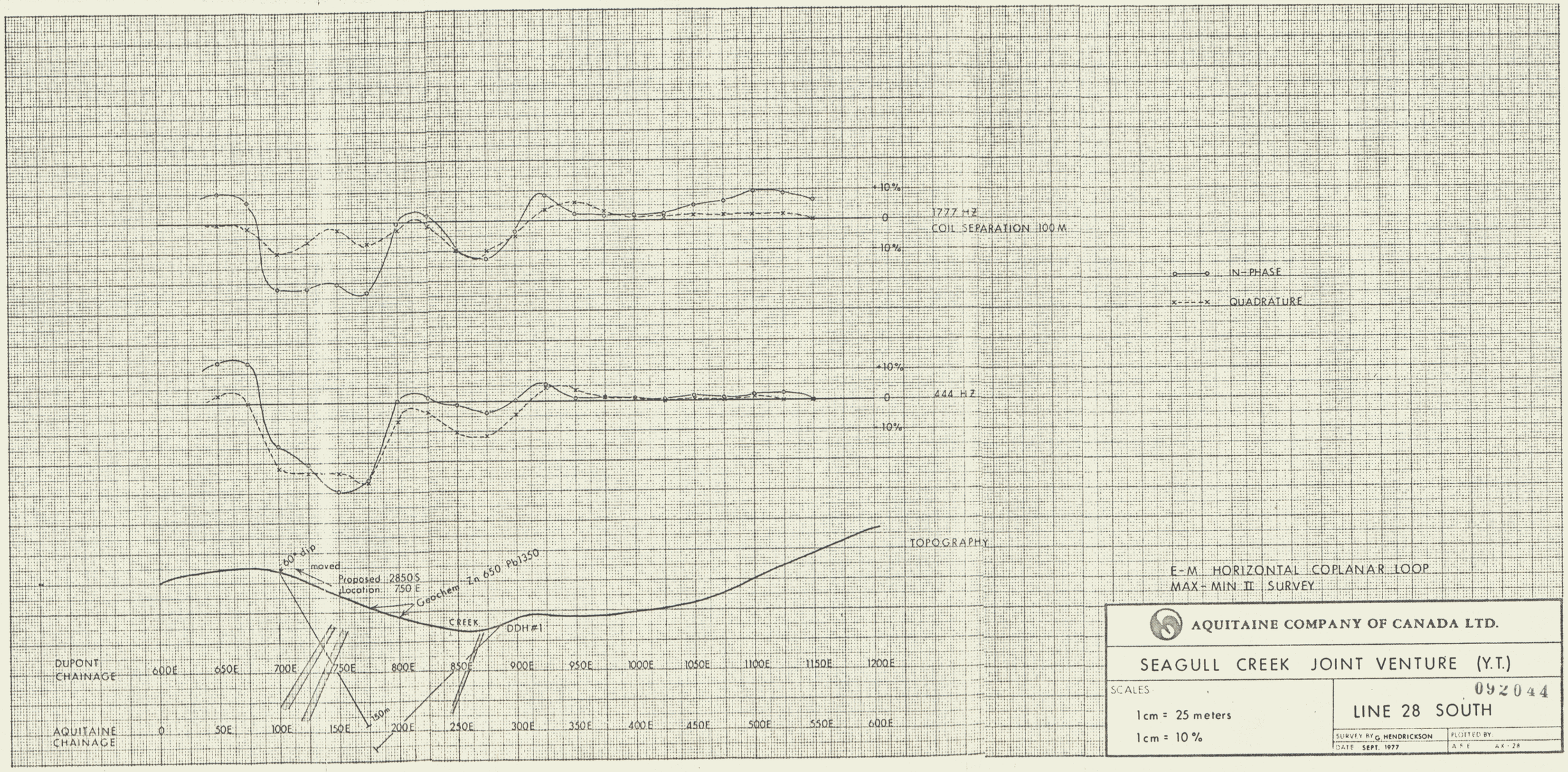
SEAGULL CREEK JOINT VENTURE (Y.T.)

SCALES
1 cm = 25 meters
1 cm = 10 %

LINE 27 SOUTH

092044

SURVEY BY G.HENDRICKSON	PLOTTED BY
DATE SEPT. 1977	A.P.E AX-28



E-M HORIZONTAL COPLANAR LOOP
MAX-MIN II SURVEY

AQUITAINE COMPANY OF CANADA LTD.

SEAGULL CREEK JOINT VENTURE (Y.T.)

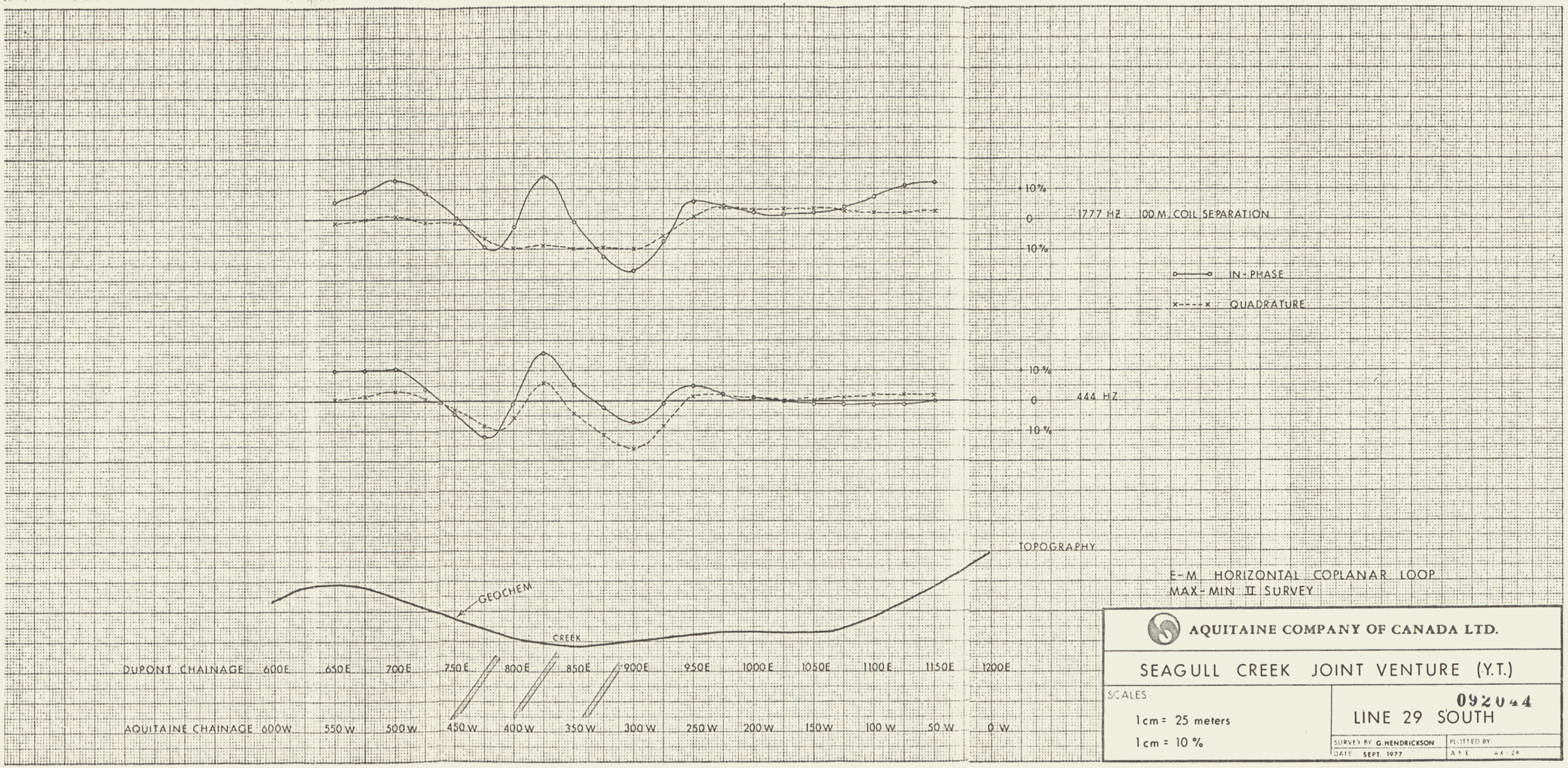
SCALES
1 cm = 25 meters
1 cm = 10 %

092044

LINE 28 SOUTH

SURVEY BY G. HENDRICKSON
DATE SEPT. 1977

PLOTTED BY
A S E AX-28



E-M HORIZONTAL COPLANAR LOOP
MAX-MIN II SURVEY

AQUITAINE COMPANY OF CANADA LTD.

SEAGULL CREEK JOINT VENTURE (Y.T.)

SCALES
1 cm = 25 meters
1 cm = 10 %

092044
LINE 29 SOUTH

SURVEY BY G. HENDRICKSON | PLOTTED BY
DATE SEPT. 1977 | A R E AK-28

H.S. BOSTOCK CORE LIBRARY — WHITEHORSE, YUKON TERRITORY — NORTHERN NATURAL RESOURCES & ENVIRONMENT BRANCH, DEPT. OF INDIAN AFFAIRS & NORTHERN DEVELOPMENT

092044

BOX NO.	N.T.S LOC.	PROPERTY	DRILLED FOR	YR.	HOLE NO.	INTERVAL FROM	INTERVAL TO	LIBRARY LOCATION	REMARKS
77370	105-F-7,10	MAT	DuPont of Can. Exp. Ltd.	77	M77-1	9.8		23	
77371									
77372									
77373									
77374									
77375									
77376									
77377									
77378									
77379									
77380									
77381									
77382									
77383									
77384									
77385							155.8		
77386					M77-2	6.7			
77387									
77388									
77389									
77390									
77391							45.8		
77392					M-77-3	1.9			
77393									
77394									

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NORTHERN NATURAL RESOURCES & ENVIRONMENT BRANCH
DEPT. OF INDIAN AFFAIRS & NORTHERN DEVELOPMENT

BOX NO.	N.T.S LOC.	PROPERTY	DRILLED FOR	YR.	HOLE NO.	INTERVAL FROM	INTERVAL TO	LIBRARY LOCATION	REMARKS
77395				77	M-77-3			23	
77396									
77397									
77398									
77399									
77400									
77401									
77402									
77403									
77404									
77405									
77406							118.9		
77407					M77-4	1.8			
77408									
77409									
77410									
77411									
77412									
77413									
77414									
77415							62.5		
77416					M77-5	6.0			? Ask J. Morin
77417									
77418									
77419									

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WHITEHORSE, YUKON TERRITORY

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BOX NO.	N.T.S LOC.	PROPERTY	DRILLED FOR	YR.	HOLE NO.	INTERVAL FROM	INTERVAL TO	LIBRARY LOCATION	REMARKS
77420				77	M77-5			23	
77421							40'		