REPORT ON DIAMOND DRILLING

SHAG CLAIMS
GOLDEN MINING DIVISION

N.T.S. 82-J-11 & 12
Latitude: 50° 38' N.; Longitude: 115° 30' W.

Owner: Chris Graf
Vancouver, British Columbia

Operator: Esso Resources Canada Limited
237 - 4th Avenue, S.W.
Calgary, Alberta

Martin H. Lenters
January 15, 1982

ESSO MINERALS CANADA
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TABLE OF CONTENTS

LIST OF APPENDICES

LIST OF FIGURES

SHAG CLAIMS

Golden Mining Division

N.T.S. 82 - J - 11 and 12

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M.H. Lenters

January, 1981

SUMMARY

Seventeen small sphalerite - galena occurrences are known to exist within Middle Cambrian carbonates, along a five kilometre length of Shag Creek Valley, in the front ranges of southeastern British Columbia. Fourteen of these showings occur along three separate stratigraphic horizons as discontinuous, elongate lenses, or thin zones of mineralization, in the upper part of two dolostone units, at or near a limestone contact. The mineralization is basically similar to that of Mississippi Valley type deposits, and appears to have accumulated in dolomitized and early brecciated portions of a carbonate shoal complex, along the edge of a shale basin.

The lead-zinc showings associated with two of the three mineralized horizons occur as small discontinuous lenses and replacement veins that warrant no further work. However, the thin zone of mineralization associated with the Red Bed horizon, within Waterfowl Formation dolostone along the contact with Sullivan Formation limestone, has provided indications that it may be an expression of a larger lead-zinc deposit. The Red Bed mineralized horizon has been enhanced by the fact that a number of new shows and two new showings have been uncovered along a main zone of continuous mineralization that now extends for 600 metres. Four diamond drill holes, totalling 152 metres, were drilled behind this main mineralized trend to test the extent of this zone. Only one of these holes (DDH 81-2), intersected "ore grade" mineralization (10.25% Zn and 1 oz./ton Ag over 3.3 metres).

A heavy mineral sampling, geological mapping and prospecting program concentrating on the Red Bed horizon (Waterfowl - Sullivan Formation contact), within and beyond the Shag Claim group, is recommended as further work. This should include an examination of the area along No Name Fault, as well as any other large structures that could act as a host to mineralization.

In addition, a seven hole diamond drilling program of approximately 500 metres, along the main part of the Red Bed horizon within the Shag Claims, is warranted. These holes are necessary to evaluate the significance of the mineralized intersection that was encountered in hole 81-2, and to test for additional mineralization along this trend. The best potential for better mineralization lies to the northeast of the main Red Bed mineralized horizon, downdip or behind DDH 81-2.

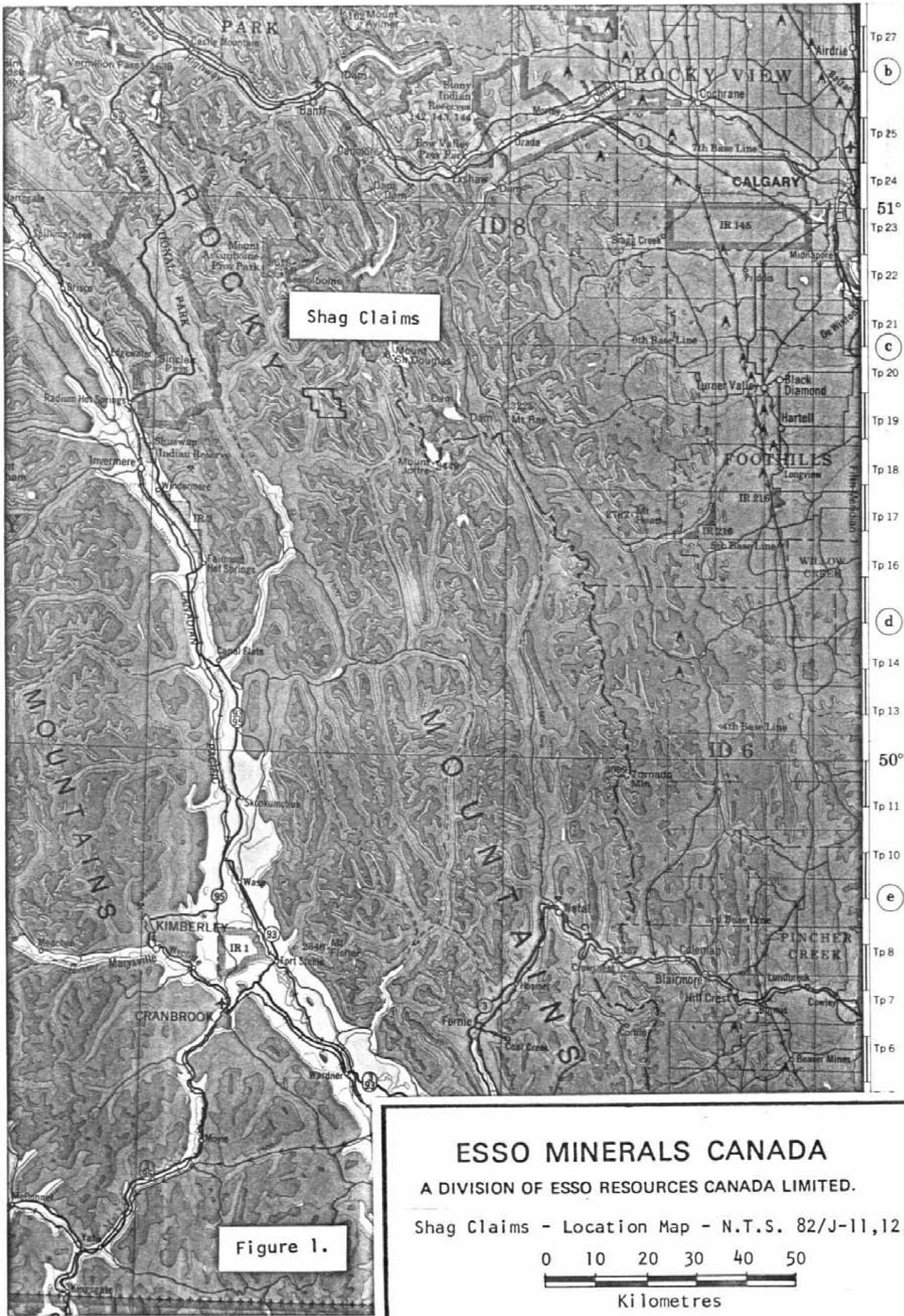
1. INTRODUCTION

In 1977, Rio Tinto Canada Exploration Limited sponsored the Graf Lead-Zinc Reconnaissance Program in the southeastern Rocky Mountains. One result of that work was the discovery of two small lead-zinc showings, within Middle to Upper Cambrian carbonate strata, near a major carbonate - shale facies front. These showings together with some associated stream silt anomalies, led to the staking of the Shag Claims.

1.1 LOCATION AND ACCESS (Figures 1 and 2)

The Shag Claims are located at latitude 50° 38' N and longitude 115° 30' W, in Albert River drainage, about 35 kilometres east of Radium Hot Springs, B.C. The western and northern parts of the claims are accessible via well maintained logging roads originating from Radium Hot Springs (60 km) and Canal Flats (65 km) B.C., both of which are on a branch line of the Canadian Pacific Railway. The southeastern parts, the higher elevations, and the main showings are best approached by helicopter, available through Shirley Helicopters based at Fairmont Hot Springs, B.C., situated 40 kilometres to the southwest of the claim group.

The terrain is rugged with surrounding peaks reaching 2,500 to 3,000 metres (8,000 to 10,000 feet) and valley floors at between 1,250 and 1,550 metres (4,000 to 5,000 feet). Snow cover between the peaks of the Royal Ranges, which occur along the eastern side of the claim group, remains throughout the summer. Shag Valley has very steep slopes that are heavily wooded below 2,150 metres (7,000 feet). Vertical cliffs are common and numerous deforested avalanche zones occur along sections of the steeper valley slopes. Above 2,150 metres, vegetation is scarce with outcrop peaks and cliffs, rock debris and talus predominating. The topography of the claims area is included on N.T.S. map sheets 82-J-11W and 12E.



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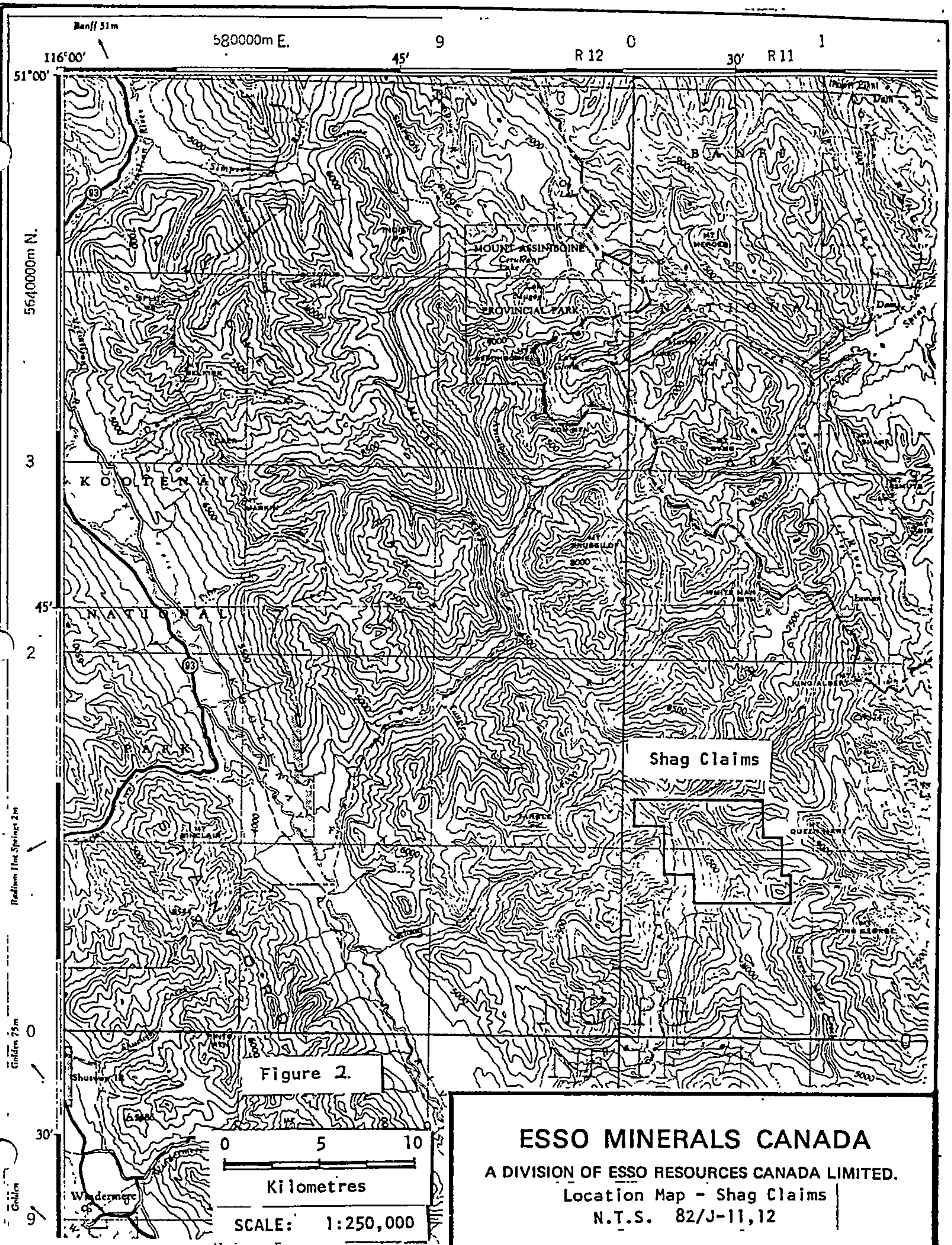
Shag Claims - Location Map - N.T.S. 82/J-11,12.

0 10 20 30 40 50

Kilometres



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Location Map - Shag Claims

N.T.S. 82/J-11,12

1.2 DESCRIPTION OF THE SHAG CLAIMS

The Shag Claims consist of eight claim blocks comprising 127 claim units. They were staked in the summer of 1977 and recorded on August 15, 1977 as follows:

Claim Name	No.of Units	Record No.	Recording Date
Shag 1	20	158	August 15, 1977
Shag 2	12	159	August 15, 1977
Shag 3	20	160	August 15, 1977
Shag 4	20	161	August 15, 1977
Shag 5	12	162	August 15, 1977
Shag 6	18	163	August 15, 1977
Shag 7	15	164	August 15, 1977
Shag 8	10	165	August 15, 1977

Shag Claims 1, 2, 4, 7 and 8 are grouped together as Shag Claim Group 636, and Shag Claims 3, 5 and 6 comprise Shag Claim Group 637 (recorded April 1980, with supplement dated August 1981). For this report, the Shag Claims have been regrouped into two new groups in a Notice to Group form accompanying this report. The two new groups consist of Shag Claims 1 and 2, and Shag Claims 3, 4, 5, 6, 7 and 8.

1.3 PREVIOUS EXPLORATION WORK

In the summer of 1978, Rio Tinto utilized a crew of five men for six weeks to perform prospecting, soil sampling and 1:10,000 scale geological mapping. This work located eight Pb-Zn showings, in addition to the two original showings discovered in 1977. It was noted that eight of the ten showings occurred along two main stratigraphic horizons. Six showings occurred discontinuously along the C-4 horizon, while two lower grade, 1.3 PREVIOUS EXPLORATION WORK (Continued)

but a more extensive showing lay along the B.M. horizon. The soil sampling survey dectected several zinc anomalies and smaller lead anomalies associated with known showings, and one significant lead anomaly that has not been associated with any known mineralization to date.

In September of 1978, three diamond drill holes totalling 160 metres (520 feet) were drilled to test the main B.M. showing. Each hole was spotted directly behind exposed mineralization and intersected mineralization that was as low grade and spotty in occurrence as that of the outcrop exposures. Diamond drill hole 78-1 had the best mineralized intersection, yielding an assay showing 4% Zn over 0.5 metres.

During the summer of 1979, two Rio Tinto geologists spent ten days remapping a number of mineralized horizon contacts, mapping the main C-4 showing, and performing followup prospecting on a number of soil anomalies not yet associated with known mineralization. They located three new sphalerite occurrences; one on the B.M. and two along the C-4 mineralized horizon.

In the fall of 1979, six diamond drill holes totalling 460 metres (1,497 feet) were drilled to test the two major mineralized horizons. The first four holes were designed to intersect the C-4 mineralized horizon. These holes were spotted at different locations within 200 metres of known showings. Though each of these holes intersected the contact that should have been mineralized, only DDH 79-4 encountered weak mineralization. The other two diamond drill holes tested the B.M. mineralized horizon with DDH 79-5 encountering no mineralization and DDH 79-6 having to be abandoned due to extreme freezing at a point where it was beginning to enter weak mineralization. Two

1.3 PREVIOUS EXPLORATION WORK (Continued)

additional showings were discovered during the course of spotting and prospecting around these holes, bringing the total number of showings along Shag Creek to fifteen.

In 1980, Rio Tinto became disinterested in the Shag property and relinquished interest in it to Chris Graf. In the spring of 1981, Esso Resources Canada Limited optioned the Shag property from Chris Graf.

During the summer of 1981, the writer together with a second geologist spent four weeks collecting heavy mineral samples, mapping contacts near the known lead-zinc showings and mapping reported facies changes, structural complexities and stratigraphic horizons that appeared favourable for hosting additional mineralization. This work suggested that the lead-zinc mineralization had accumulated in dolomitized and early brecciated portions of a carbonate shoal complex along the edge of a shale basin. The dominant control over mineralization appeared to be stratigraphic as the known lead-zinc showings occurred within the upper sections of two dolomite horizons in close proximity to overlying argillaceous limestone. The known showings proved to be small, low grade, discontinuous lenses and pods, each of which had a limited lateral extent. However, the number of showings and their persistance along two similar stratigraphic horizons suggested that there is some potential that these are an expression of a "completely" blind ore body. This work concluded that the best potential for better mineralization lay behind the Red Bed mineralized horizon on the east side of Shag Valley. A short geological investigation of the Red Bed horizon, followed by a few short diamond drill holes behind the best showings were recommended as further work.

1.4 1981 DIAMOND DRILLING PROGRAM

In October of 1981, the writer together with a geological technologist spent three weeks investigating the Red Bed mineralized horizon and supervising a short diamond drill program. Four diamond drill holes, from three drilling platforms, with a total length of 152 metres (493 feet), were drilled to intersect the Red Bed mineralized horizon. The drilling work was contracted to Globe Drilling (1981) Ltd., of Vancouver, B.C., who utilized 4 men in two shifts to complete job in 12 days. A Bell 206B helicopter from Fairmont Hot Springs, B.C., was utilized for daily access to the drilling platforms and for all drill moves. Drill moves required a 130 foot long line to out-distance the numberous large trees along Shag Valley. Drilling was done with a lightweight Hydro-Core 28 drill that yielded BQ core. Water for drilling was pumped up more than 250 vertical metres, along a hose that had a length of up to 1 kilometre, from Shag Creek to the drilling sites. Due to the short length of the job, the freezing weather conditions and the fact that the helicopter was based in Fairmont, B.C., all personnel were accommodated in Fairmont Hot Sprints, B.C.

2. GEOLOGY

2.1 REGIONAL GEOLOGY (Figures 3A, 3B, 4 and G.S.C. Open File 634)

The Shag Claims lie near the southern end of the Main Ranges Subprovince of the Rocky Mountain Fold and Thrust Belt, along a line that separates gently dipping resistant Cambrian carbonates from recessive, cleaved and locally contorted Cambrian slates and argillaceous carbonates (Figures 3A and B).

These two packages of Middle to Upper Cambrian strata comprise two laterally equivalent facies that underly most of the Shag Claims. The eastern facies consists of alternating thick-bedded or massive carbonate formations, and thin-bedded, argillaceous carbonates and shales. These alternating units are given a number of formational names as shown in the stratigraphic column of Figure 4. The western facies, comprising thin-bedded, cleaved, argillaceous carbonates and thick sections of calcareous shale and slate, are grouped together as the Chancellor Formation.

These two facies form part of the lower section of a Paleozoic miogeocline - platform sedimentary assemblage that accumulated as a continental terrace wedge, prograding into a transgressing ocean basin. The eastern facies strata accumulated on the outer edge of the platformal shelf along a raised bank margin or hinge line of carbonate deposition that was interrupted by cyclical incursions of muddy sediments. Inside the carbonate bank margin, the interior platformal shelf featured a sag or interior basin in which clastics and fine grained carbonates were deposited. The western facies (Chancellor Formation shales) accumulated in a deeper water shale basin adjacent to the platformal shelf.

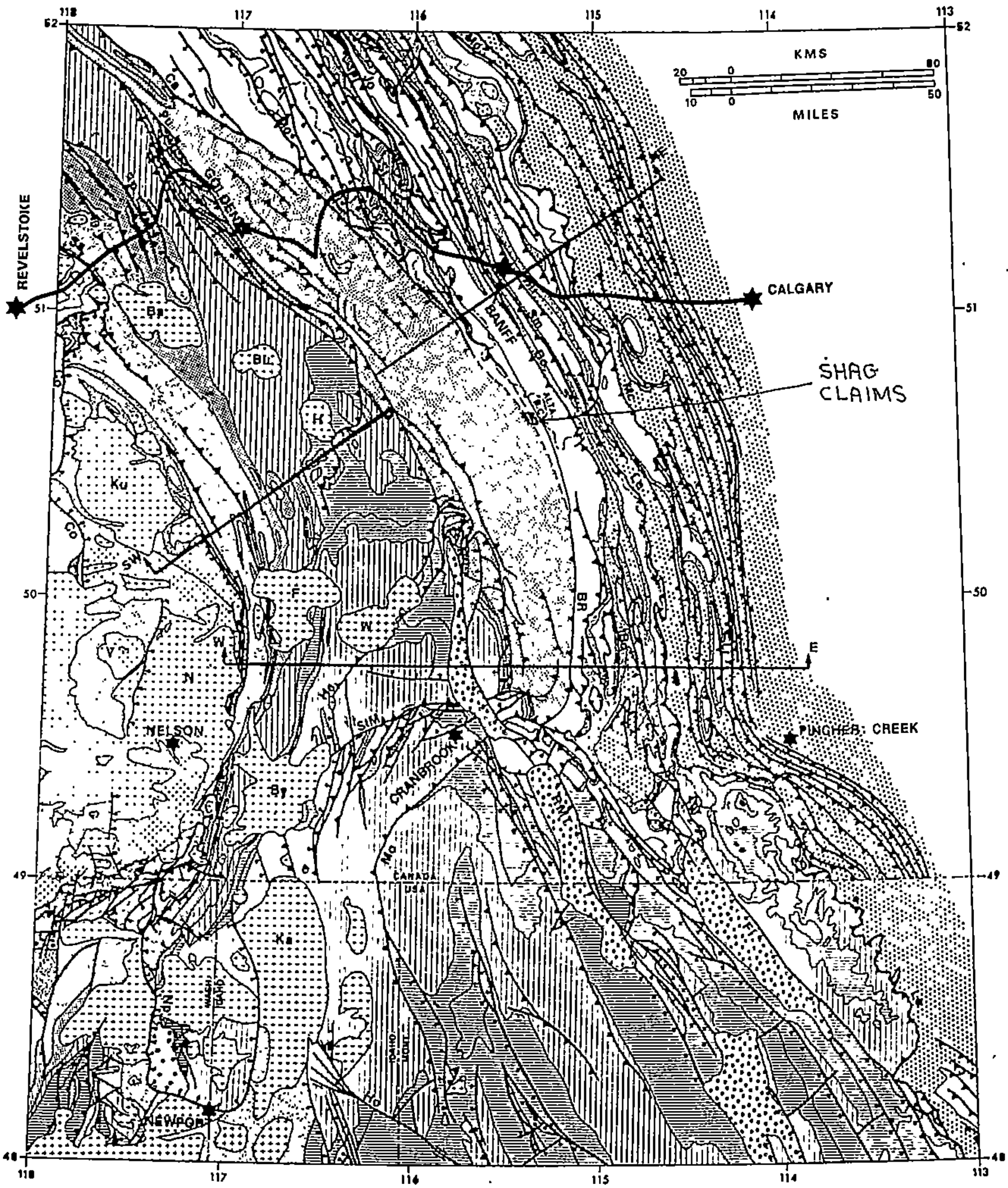
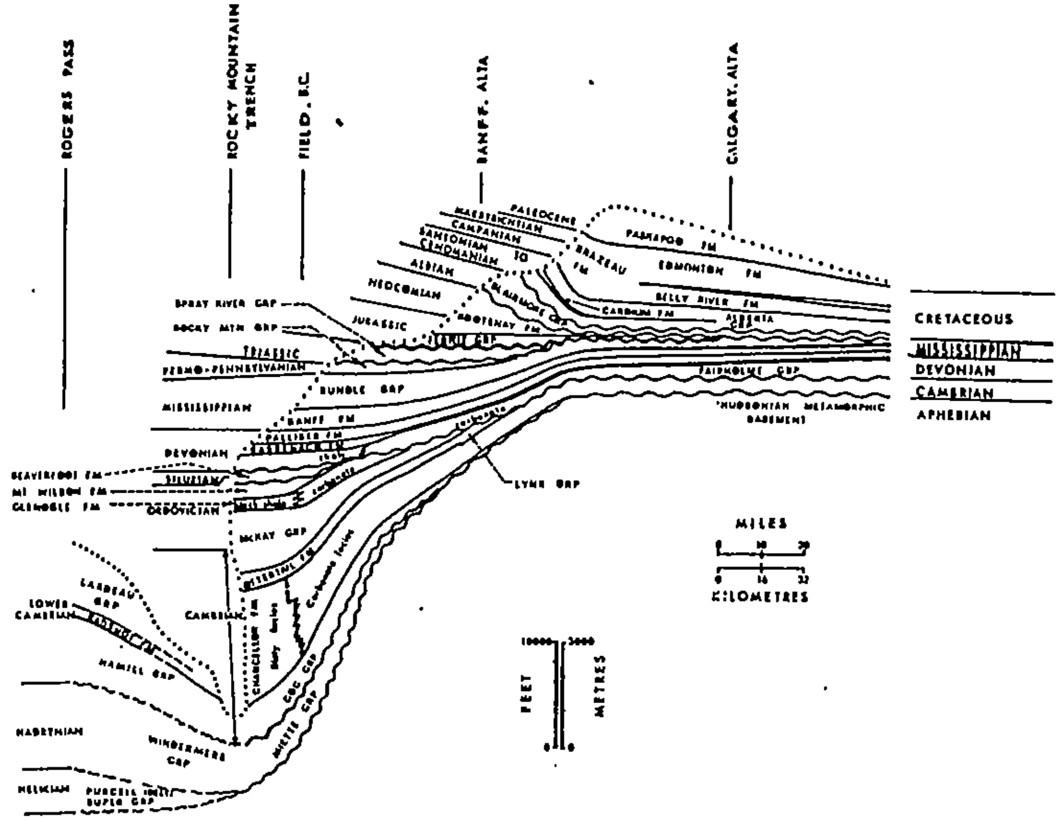


Figure 3A. Generalized geological map of Southeastern British Columbia, (After Price, 1981).



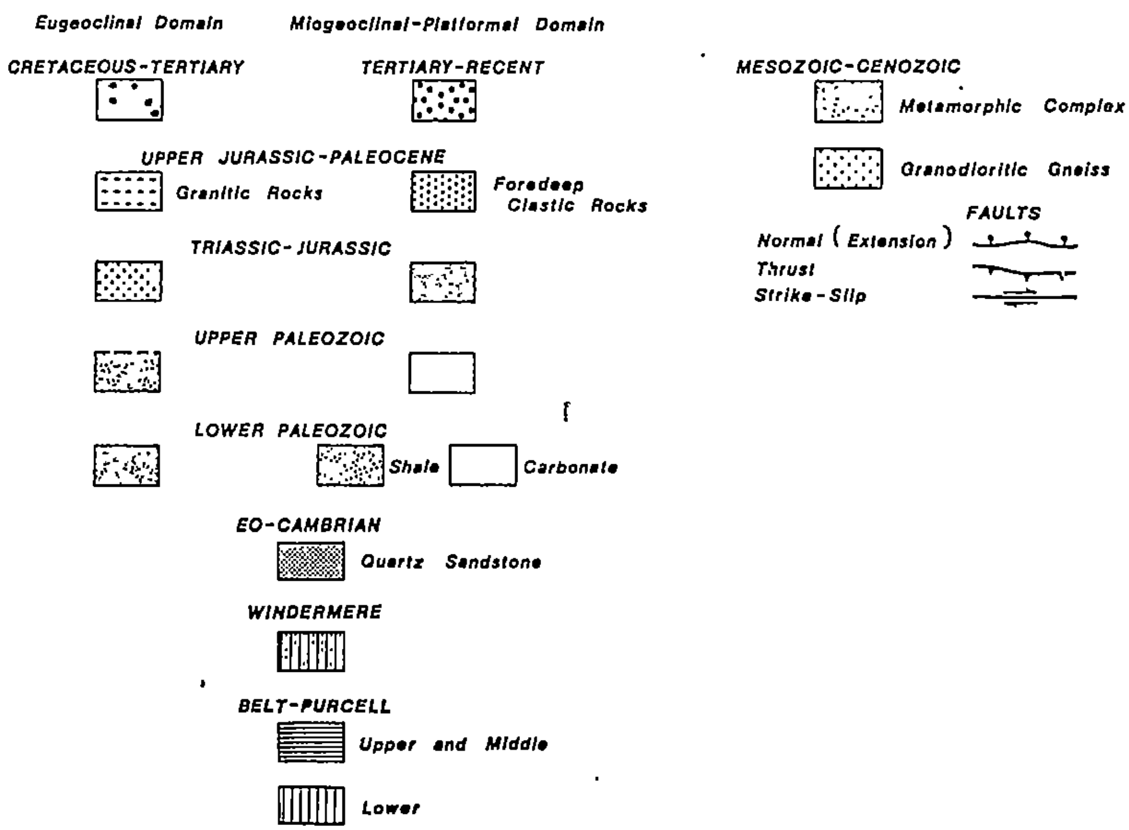
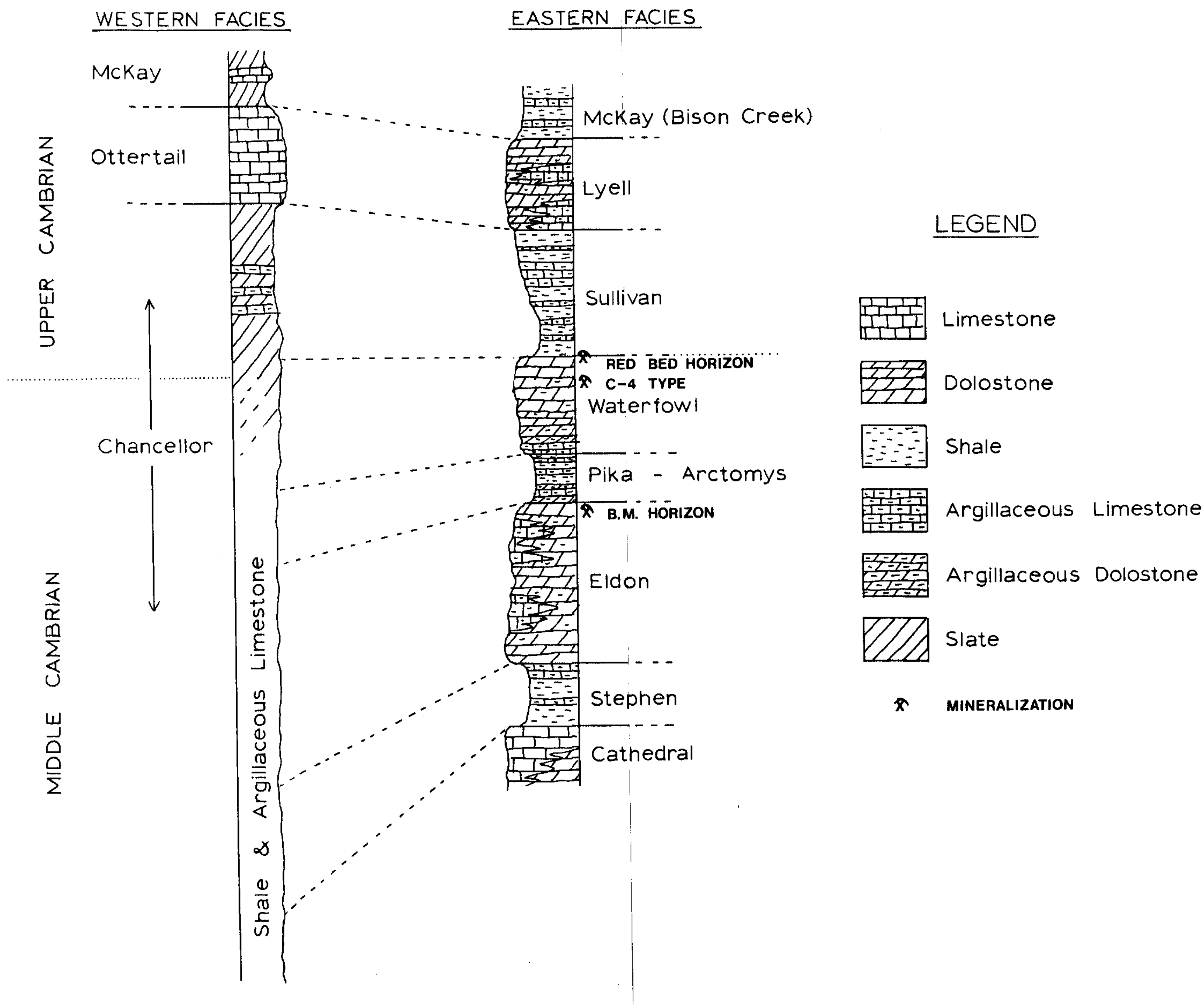


Figure 3B. Legend for Figure 3A, (After Price, 1981); and a schematic cross-section of the wedge of supracrustal rocks lying on the Hudsonian basement, along a line from just east of Calgary to just east of Revelstoke.

FIGURE 4. STRATIGRAPHIC COLUMN AND CORRELATION CHART FOR GEOLOGIC FORMATIONS IN THE SHAG CLAIMS AREA



2.1 REGIONAL GEOLOGY (Continued)

Aitken (1971) named the Cambrian ridge or high along the edge of the platform shelf the "Kicking Horse Rim". It is best developed near Field, B.C., but extends north and south for a total length of at least 120 km, localizing the eastern carbonate to western shale facies change to a very narrow belt. The carbonate units of the eastern facies cannot be traced westward across the facies boundary, which is thought to represent a possible fault zone (active in late Proterozoic and earliest Paleozoic time), that formed a steep escarpment which controlled deposition within the sedimentary basin.

Overlying both the western shale and eastern carbonate facies strata are younger Cambrio - Ordovician argillaceous strata of the McKay Group.

The geology of the area surrounding the Shag Claims is shown on a recent reconnaissance (1:126,720) scale map, released by the Geological Survey of Canada as Open File Report 634 (Leech, 1980). As seen on this map, the Middle to Upper Cambrian strata exposed over the Shag Claims are now part of the southeastern end of a broad northwest - trending anticlinorium occurring between the National Parks and the White River. Further to the west, are Proterozoic sediments exposed within the Purcell Anticlinorium, and to the east lie younger Paleozoic strata, along west-dipping imbricate thrust slices, that form the front ranges of Rocky Mountains. In a general way, the axis of the Parks Ranges Anticlinorium coincides with the facies boundary that separates the Chancellor Formation shales from the eastern facies Cambrian carbonates. The shales are exposed on the west limb, while the carbonates occur along the east limb of the anticlinorium. Leech's Open File Map also suggests that distinctions between the various Middle to Upper Cambrian Formations of the eastern facies becomes increasingly difficult south

2.1 REGIONAL GEOLOGY (Continued)

of Mount Assiniboine, since adjoining formations are lumped together for mapping purposes. This is particularly true for the area south of the White Man Mountain (located 10 km north of the Shag Claims), as no distinction is made for most of the various Middle Cambrian strata. Aitken (1967), who has carried out extensive mapping in the Lower Paleozoics of the southern Rocky Mountains states that "the Upper Cambrian Formations are recognizable as far south as White Man Mountain, but immediately to the south and west of that point, the distinctive character of the Upper Cambrian sequence cannot be recognized at all. Even the easily recognizable Arctomys Formation disappears without structural cause, when traced from White Man Mountain down the Cross River". A change in the character of the sedimentary basin, possibly influenced by the Precambrian Montalta rise, inhibited the deposition of the strongly cyclic (shale to carbonate) sedimentation south of White Man Mountain. However, the main Cambrian Formations of the eastern facies can be recognized on the Shag Claims even though their relative thickness and character is different from that of the type sections to the north, and the contacts between these formations are less distinct.

In the region surrounding the Shag Claims there are several carbonate-hosted Pb-Zn mineral occurrences of Cambrian age that are generally associated with the dolomitized portions of prominent biogenetic - bioclastic carbonate complexes. Though most of these represent clearly different styles of mineralization, they demonstrate the availability of metals and potential for concentration within these rocks. In the Kicking Horse area, mines and occurrences are found in Middle Cambrian carbonates in close proximity to the carbonate - shale facies front along the Kicking Horse Rim. Along the Rocky Mountain Trench and westward, mines and showings occur in the Upper Cambrian Jubilee

2.1 REGIONAL GEOLOGY (Continued)

Formation. In the Lardeau area and south through the Salmo area into the U.S., mines occur in the Lower Cambrian Badshot Formation and its correlatives.

2.2 STRATIGRAPHY AND GEOLOGY OF THE SHAG CLAIMS (Figure 4 and 5)

A stratigraphic column of the Cambrian Formations occurring in the Shag Claims area is presented in Figure 4. The location of these formations in the Shag Claims, as mapped during the 1981 field season, together with the location of all the known showings and diamond drill holes is presented on a 1:10,000 scale geological map (Figure 5). A complete description of the Cambrian rock units, as encountered on the Shag Claims, is given in a previous report (Lenters, 1981). For the purposes of this report a brief summary follows:

Western Facies Strata

Chancellor Formation (Middle and Lower Cambrian)

Thin-bedded and strongly cleaved argillaceous limestone, calcareous shale and slate.

Eastern Facies Strata

McKay Group (Ordovician and Upper Cambrian)

Thin-bedded, red-green shale with thin interbedded calcarenite units.

Lyell Formation (Upper Cambrian)

Thick-bedded, massive, cliff-forming, light to medium grey, generally micritic dolostone with some limestone.

Sullivan Formation (Upper Cambrian)

Thin to medium-bedded, medium grey, banded argillaceous and silty limestone and calcareous shale.

2.2 STRATIGRAPHY AND GEOLOGY OF THE SHAG CLAIMS (Continued)

Waterfowl Formation (Middle and Upper Cambrian)

Medium to thick-bedded, massive, light coloured, fine to medium grained, sucrosic dolostone with interbeds of dolomitic limestone and dark grey dolostone. The upper part of this formation hosts the C-4 type and Red Bed horizon mineralization.

Arctomys - Pika Formations (Middle Cambrian)

Thin-bedded, calcareous and dolomitic, dark coloured shale, siltstone, argillaceous limestone and minor dolostone.

Eldon Formation (Middle Cambrian)

Thick-bedded, massive, cliff-forming, white to light grey, fine to medium grained, sucrosic dolostone, darker argillaceous dolostone and minor limestone. The upper part of this formation hosts the B.M. horizon mineralization.

Stephen Formation (Middle Cambrian)

Thin-bedded, medium grey, fine grained argillaceous limestone, dolomitic limestone as well as very thinly bedded to laminated grey shale.

Cathedral Formation (Middle Cambrian)

Thin to thick-bedded, medium to dark grey, generally fine grained limestone and dolomitic limestone as well as massive, coarsely crystalline, light grey to white dolostone. The base of the Cathedral Formation is not exposed on the claims.

3. MINERALIZATION (Figure 5, 6 and 7)

Rio Tinto (Bending, 1979a and 1979b; Whiting, 1979) initiated work that led to the discovery of fifteen small lead-zinc showings in the Shag Claims area. Thirteen of these occur on the Shag Claims in association with two main stratigraphic horizons. These zones of mineralization occur in the upper parts of the Eldon and Waterfowl Formation dolostones, at or near the contact with overlying argillaceous limestones. They were named the "B.M." and "C-4" type mineralized horizons.

Geological work during the summer of 1981 (Lenters, 1981), suggested that the "C-4" type mineralized horizon is composed of showings of two different types that probably occur at two separate stratigraphic levels within the Waterfowl Formation dolostone. One of these is seen to outcrop along the upper dolostone contact with the Sullivan Formation limestone, and will now be referred to as the "Red Bed" mineralized horizon. The other also occurs within the Waterfowl Formation dolostone, but at a stratigraphic level that appears to be below that of the contact with the overlying Sullivan Formation. Showings of this type will retain their former name and be referred to as C-4 type mineralization.

Complete descriptions of the individual showings are given in Bending (1979a and 1979b), Whiting (1979) and Lenters (1981). For the purposes of this report, the main characteristics of each of the three mineralized horizons are summarized, while complete descriptions are given of the new showings along the Red Bed horizon that were discovered during the course of this work.

3.1 B.M. HORIZON MINERALIZATION (Upper Eldon Formation)

The B.M. mineralized horizon consists of the B.M., B.M. extension (float), and B.M. Fractures showings. These occur in dolostone, at the top of the Eldon Formation, near the contact with the overlying Pika-Arctomys Formation limestone. The mineralization occurs in discontinuous zones as spotty disseminations or replacements, and in somewhat more concentrated veinlets along thin fracture surfaces. The mineralization consists of small (1 mm), individual grains of amber or red coloured sphalerite. No galena was observed in the outcrop sections along the B.M. horizon.

The sphalerite at the main B.M. showing is contained in a zone that has a stratigraphic thickness of approximately 3 metres. This mineralization is seen in a number of discontinuous outcrops along a length of about 90 metres. The mineralization is low grade, with visual estimates suggesting less than 1 or 2% sphalerite across any mineralized section (1 to 3 metres). The other two showings along the B.M. horizon are only very minor occurrences.

3.2 C-4 TYPE AND RED BED HORIZON MINERALIZATION (Upper Waterfowl Formation)

C-4 type mineralization is exhibited at the C-4 and Pad showings. It consists of fine to coarse grained, reddish-orange sphalerite and coarser galena in disseminated replacement bands, or fracture fillings in small breccia pods. At the Pad showing, an isolated exposure shows sphalerite and galena occurring as fine to coarse grained replacement grains, in the sparry white dolomite matrix of a small breccia zone, that occurs within darker grey dolostone. Though outcrop in this area is sparce, dolostone appears to occur both stratigraphically above and below this showing.

3.2 C-4 TYPE AND RED BED HORIZON MINERALIZATION (Continued)

The C-4 showing is exposed on both sides of C-4 creek as a number of discontinuous mineralized pods and lenses. These mineralized zones contain abundant, small (1-2 mm), equant, pale yellow to red sphalerite in disseminated bands that contain some coarser grained (5-20 mm) anhedral galena. Veinlets and replacement bands of coarse (1-2 centimetre) galena also occur along fractures within the dolostone at this showing. Mineralized zones contain from 5 to 20% sphalerite and galena over a width of 0.5 to 1 metre. The C-4 showing also contains banded, coarsely recrystallized, yellow to green sphalerite in 20 to 30 cm. thick slabs of float. These pieces of float contain 50 to 80% sphalerite and appear to be pieces of dislodged sphalerite veins. Some of the outcrop pods contain material similar to these pieces of float, but they occur in very small, lower grade pockets. The float, however, does appear to have been locally derived. The mineralization at the C-4 showing exhibits a pronounced lateral as well as vertical variation. The mineralized pods are seen to abut laterally against barren dolostone. The host dolostone is creamy grey, sucrosic, finely crystalline and generally contains some pyrite in the area surrounding the C-4 showing. Overlying the main mineralized section is a thin band of light grey and brown weathering, mottled dolomitic limestone, which is again overlain by light grey dolostone. Lack of outcrop in the area surrounding the C-4 and Pad showings prohibits identification of their precise stratigraphic location, but it appears that these showings occur within upper Waterfowl dolostone, somewhat below the contact with the Sullivan Formation argillaceous limestone.

The Stripes and Red Bed Type Float showings are both float occurrences that are located just to the west of the C-4 showing. Though they occur along strike with the C-4 type showings, the mineralization within these float blocks has an appearance

3.2 C-4 TYPE AND RED BED HORIZON MINERALIZATION (Continued)

that is similar to that of the Red Bed horizon showings, which occur along the east side of Shag Valley. Again, the lack of sufficient outcrop in this area prohibits identification of their precise stratigraphic location.

The Red Bed, Crackle, Rush, Christmas and Pieces (float) showings all occur along the Red Bed mineralized horizon. During the coarse of this work, part of this horizon was prospected and a number of new shows and showings were uncovered along the zone between the Red Bed and Rush showings. The relative location of these occurrences are shown of Figure 6. The new showings consist of a southern extension of the Crackle showing including the Side show, the Tree Root show, the Kim showing, the Cliff show, the Ross Float show and the South Rush showing. A number of assay results from chip samples across some of these occurrences are given in Figure 7, and can be located on Figure 6.

The Red Bed horizon is now composed of 7 main showings that constitute a thin zone of lead-zinc mineralization, occurring within Waterfowl Formation dolostone at the contact with the overlying Sullivan Formation limestone. These showings consist of either, bands of small (1-2mm), equant, disseminated, reddish sphalerite, together, with some coarser grained pods that also contain galena, or as fracture fillings and disseminations of fine to coarse grained sphalerite and galena associated with sparry white dolomite in breccia or pseudobreccia pods within darker grey dolostone. The disseminated sphalerite occurs in variably concentrated lenses or bands, sometimes separated by non-mineralized horizons.

FIGURE 7

SHAG CLAIMS

Chip Samples Assayed

NUMBER	SAMPLE LOCATION	WIDTH		Pb (%)	Zn (%)	Ag (oz./ton)	Cd (%)
CS-8101	Rush Showing (south outcrop)	70 cm.		.01	4.90	.13	.009
CS-8102	South Rush Showing	70 cm.		.03	2.85	.53	.005
CS-8103A	Kim Showing (North) - upper part of section 3	10 cm.	70 cm.	.01	6.05	.34	.007
CS-8103B	Kim Showing (North) - lower part of section 3	60 cm.		.03	9.05	.29	.013
CS-8104A	Kim Showing (South) - upper limestone of section 4	30 cm.	90 cm.	.02	3.65	.12	.005
CS-8104B	Kim Showing (south - lower dolostone of section 4	60 cm.		.01	1.49	.10	.004

3.2 <u>C-4 TYPE AND RED BED HORIZON MINERALIZATION</u> (Continued)

The Red Bed and Kim showings are the most extensive zones of exposed mineralization along this horizon and have widths of 0.5 to 1 metre over lengths of 25 and 50 metres respectively. At these two showings the sphalerite and galena bands and pods pinch and swell along the exposed strike lengths, but contain zones 10 to 30 cm thick and 1 to 3 metres long that contain greater than 30% galena and sphalerite. Along the Red Bed horizon, between the Red Bed and Rush showings, some sphalerite mineralization was encountered at every location the Waterfowl - Sullivan contact was uncovered.

The Pieces (float) and Christmas showings are located some distance to the south and north of the main mineralization along the Red Bed horizon.

The Pieces showing consists of a number of dark grey, finely crystalline dolostone float blocks with up to 30% coarsely crystalline, flesh coloured, replacement sphalerite and 3 to 5% very finely disseminated pyrite. These float pieces measure up to 0.5 x 0.25 metres in size. They do not appear to have been displaced a great distance. Although the Waterfowl - Sullivan Formation contact directly above the float is not exposed, outcrop of the contact within 100 metres to either side does not contain mineralization.

The Christmas showing is an exposure of a typical, red sphalerite replacement band that occurs just below the Waterfowl - Sullivan Formation contact. A few large talus blocks also occur just below the exposed showing which contain approximately 55% apple green sphalerite as replacement grains across a 30 cm section of pseudobreccia. Exposure in stream beds along strike from this occurrence suggest that the mineralization here is not laterally continuous.

3.2.1 SOUTH RUSH SHOWING

The South Rush showing consists of approximately 5 or 6 outcrops that occur discontinuously along 30 metres of the Sullivan - Waterfowl Formation contact, on strike and south of the Rush showing. It is similar to the Rush and other Red Bed horizon occurrences. Sphalerite occurs as red, equant, 1 to 2 mm, disseminated replacement grains along fractures or as cavity fillings in the host dolostone. The dolostone is composed of an upper thin (20 cm) bed that is dark grey, well brecciated and almost rotton due to weathering, and a lower, medium grey, well jointed, massive dolostone. The thin upper section contains most of the sphalerite (75%), which occurs in small vugs and fractures, and a minor amount of coarse (0.5 to 1 cm) galena along a fracture.

The lower dolostone contains a minor amount of disseminated sphalerite, and no visible galena. A chip sample taken across a 0.7 metre width of this showing assayed 2.85% zinc (Figure 6 and 7; sample CS-8102).

3.2.2 ROSS FLOAT SHOW

The Ross Float show consists of a large (0.5 x 0.25 x 0.25 m) boulder and a smaller one that contain approximately 5% sphalerite within a well altered and weathered, rubbly - brecciated, medium grey dolostone.

3.2.3 KIM SHOWING

The Kim showing consists of numerous discontinuous outcrops along a 50 to 60 metre length, in which sphalerite mineralization is present at every location where the Sullivan - Waterfowl Formation contact can be uncovered. Visually, the better mineralization seems to occur within a thin (10 cm) zone of dark grey dolostone that occurs directly beneath the Sullivan limestone. In this section, sphalerite occurs as small (1 to 2 mm), red, equant, disseminated crystals or in small veins as replacement or fracture mineralization, sometimes in association with coarse, white dolomite veins, and occassionally with minor galena. Below this section, is a light grey, fine grained, sucrosic dolostone that is generally mottled or pseudobrecciated, and occasionally brecciated. This dolostone hosts disseminated sphalerite that is associated with fracturing and pseudobrecciation over a thickness of 0.5 to 2 metres. A chip sample across the mineralized section yielded an assay of 8.5% zinc over 0.7 metres (Figure 6 and 7; sample CS-8103 A and B). In places along the Kim showing, 1 to 3 cm nodules of honey coloured, coarse sphalerite occurs within the Sullivan Formation limestone, up to 20 cm above the contact with the Waterfowl Formation dolostone. A chip sample across such a section yielded an assay of approximately 2% zinc over 1 metre (Figure 6 and 7; Sample CS-8104 A and B).

3.2.4 CRACKLE SHOWING EXTENSION AND SIDE SHOW

A number of irregular blocks of mineralization were uncovered and now protrude from underneath the overburden a few metres south and along strike from the original Crackle showing outcrops. These blocks are presumed to be dislodged outcrop that is essentially in place. They contain up to 5 or 10% sphalerite over thicknesses of up 0.5 metres. The sphalerite occurs as small (1 mm), equant grains associated with white dolomite veinlets in a crackle breccia. The brecciation occurs within a fine grained, dark grey to black dolostone, as well as a medium grey somewhat coarser and sucrosic dolostone.

The Side show is a small outcropping of the Sullivan - Waterfowl Formation contact showing weak mineralizaion over a 0.5 metre wide exposure. The mineralization consists of 1 mm, equant grains of orange-red sphalerite and a coarser grained galena pod, that are associated with white dolomite along replacement veins within a darker grey dolostone.

4. DIAMOND DRILLING RESULTS (Figures 6, 8, 9 and 10)

Four short diamond drill holes, totalling 151.7 metres (492 feet), were drilled from three drilling sites at locations behind the mineralized Red Bed horizon. The Red Bed horizon exposes mineralization in discontinuous outcrops over a 600 metre length along the east side of Shag Valley. The locations of the mineralized outcrops along this trend, together with that of the four diamond drill holes, are shown on Figure 6. Specific information relating to the drill holes, as well as the drill hole logs are included in Appendix II of this report.

Diamond drill hole 81-1 was spotted approximately 30 metres behind the main Red Bed showing. This is one of the better lead-zinc showings, but it occurs at the extreme southeastern end of the main Red Bed horizon trend. Fifty metres to the southeast of the Red Bed showing exposure of the Waterfowl - Sullivan Formation contact in a creek bed is unmineralized. Hole 81-1 intersected a sharp Waterfowl - Sullivan Formation contact where anticipated, but this contact contained no mineralization. However, traces of sphalerite were visible in association with steep fractures within the Waterfowl Formation dolostone 9 to 10 metres below the contact. The Waterfowl and overlying Sullivan Formation strata both contain at least 1 to 2 % very finely disseminated pyrite. Within the ten metres of Waterfowl Formation dolostone that was drilled, the most notable characteristics were the development of a moderate amount of pseudobrecciation and steep fracturing.

Diamond drill hole 81-2 was spotted 150 metres northwest of hole 81-1, and approximately 33 metres behind the anticipated trace of the Red Bed mineralized horizon. The intersection of this horizon (the Waterfowl - Sullivan Formation contact) was expected at a depth of 25 to 30 metres. However, a transitional contact was encountered at

4. DIAMOND DRILLING RESULTS (Continued)

between 10.2 and 12.1 metres, beneath 3.7 metres of fractured and broken Sullivan Formation argillaceous limestone. The transition zone consists of a small section of dolostone, 1.3 metres of limestone and argillaceous limestone, and a sheared almost cataclastic section of dolostone before encountering typical, but mineralized Waterfowl Formation dolostones. The mineralization continues for 15 metres below the contact and includes a 3.3 metre section that assays 10.25% zinc and almost 1 oz. per ton silver. The host dolostone is slightly argillaceous, light to medium grey, variably crystalline, generally well brecciated and pseudobrecciated, with coarser white dolomite infillings in breccia zones. The mineralization consists mainly of very finely disseminated, light coloured sphalerite, though some coarser sphalerite and galena occur in association with fractures. The occurrence of the main mineralization only 10 to 15 metres below the overburden has resulted in a mineralized section that is weathered and very rotton looking. Much of the sphalerite has been removed leaving open boxwork structures or fine scintery horizons, and some secondary zinc carbonate mineralization has developed. The main mineralization seems to occur in two one metre more argillaceous bands containing very fine sphalerite, that are separated by and contained within sucrosic dolostones with much less, but coarser sphalerite that is related to fracturing. Below the mineralized section, the Waterfowl dolostone remains well brecciated and pseudobrecciated, but is lighter coloured, contains more and larger vugs, and has calcite instead of dolomite in much of the brecciation.

Diamond drill hole 81-3 was drilled from the same location as hole 2, but angled at 60° in an attempt to duplicate the mineralized intersection of that hole. However, extremely poor drilling conditions due to an intense fracturing subparallel to the drilling direction,

4. DIAMOND DRILLING RESULTS (Continued)

forced the hole to terminate prior to encountering the main mineralized horizon. This hole did intersect the Waterfowl - Sullivan Formation contact where expected (in relation to hole 2), and contained some sphalerite in the Waterfowl dolostone at the contact.

Diamond drill hole 81-4 was spotted approximately 200 metres northwest of hole 3, or about halfway between hole 3 and the Rush showing at the northwest end of the main mineralized trend. The hole passed through 10 metres of typical pyritic argillaceous limestone before encountering a small fault zone. Below this are Waterfowl Formation strata, that include dolostone and a minor amount of argillaceous dolostone. The Waterfowl - Sullivan Formation contact occurred 5 to 10 metres above the level at which it was expected, if it is to be on strike with the outcrop sections along the Kim showing (Figure 10). The dolostone encountered is medium grey, variably crystalline, but generally coarse and porous, strongly brecciated, pseudobrecciated and fractured, and contains minor argillaceous sections. Dolomite occurs as infillings in earlier breccias, but much of the brecciation is late and filled with calcite. Vugs and fractures containing large amber calcite crystals become increasingly common in the lower part of the hole. Only traces of sphalerite are found within this hole. These occur just below the Sullivan - Waterfowl Formation contact, and in association with some strongly brecciated sections of the dolostone.

5. DISCUSSION AND CONCLUSIONS

Seventeen small lead-zinc occurrences are known to exist within the Shag claims. They consist of fine to coarse grained sphalerite, with some associated galena, that occurs in the upper parts of at least two different Middle Cambrian dolostones. The upper Eldon Formation dolostone hosts the B.M. horizon mineralization, while the upper Waterfowl Formation dolostone hosts both the C-4 type and Red Bed horizon mineralization. These dolostone host rocks are thick-bedded, supratidal to intertidal dolomitized carbonates that are overlain by thin bedded, subtidal argillaceous limestones and occur in an environment that is basically similar to that of many Mississippi Valley type deposits. The lead-zinc mineralization seems to have accumulated in dolomitized and early brecciated portions of a shoal complex, on the outer edge of a shallow-water carbonate platform, adjacent to a shale basin. Ore control is related to the transition zones between diagenetic dolostones and limestones. Dolomitizing fluids probably played a part in both the introduction and localization of the lead-zinc mineralization into their present locations. However, there are numerous megascopically similar limestone - dolostone contacts, within the Shag Claims, that remain unmineralized. The reason for the development of mineralized occurrences along only two stratigraphic horizons is not completely understood. While the dominant control over mineralization and dolomitization is stratigraphic, the importance of structural features such as No Name Fault remains to be determined.

The lead-zinc occurrences within the Shag Claims have been grouped into three main types; the B.M. horizon, the C-4 type and Red Bed horizon.

The B.M. horizon contains a minor amount of replacement sphalerite that is fracture related. The spotty, discontinuous nature of these mineralized occurrences indicate that this zone is unlikely to yield significant mineralization and warrants no further work.

5. DISCUSSION AND CONCLUSIONS (Continued)

C-4 type mineralization is contained within dolostones that appear to lie well within the Waterfowl Formation. The mineralization consists of sphalerite and galena that occurs within small breccias, or in somewhat larger, more stratiform bands adjacent to remnant limestone interbeds. Both are isolated types of occurrences that have a very limited lateral extent. The discontinuous, lensoid nature of these C-4 type showings is born out by Rio Tinto's 1979 drilling, where only 1 of 4 holes that were spotted behind the occurrences intersected any mineralization. Rio Tinto's DDH 79-1, which was barren of mineralization, was drilled behind the main C-4 showing and intersected the horizon that should have been mineralized 50 metres lower than expected. This could indicate either a sharpening of a fold axis or faulting within the area, and suggests a possible relationship between structure and mineralization at the C-4 showing. However, the patchy nature of this type of mineralization suggests that it would be difficult to trace along any horizon, and therefore unlikely to yield significant tonnages. These occurrences warrant no further work at this time.

The Red Bed horizon consists of seven showings along the Waterfowl dolostone - Sullivan limestone contact on the east side of Shag Creek Valley. The main Red Bed mineralized horizon consists of numerous shows and five showings, that lie along a 600 metre length, between the Red Bed and Rush showings. Along this part of the Red Bed horizon, at least some sphalerite is found everywhere the Waterfowl - Sullivan Formation contact can be uncovered. Diamond drill hole 81-2, drilled behind the main Red Bed horizon, intersected sphalerite mineralization over a 15 metre interval that contains a 3.3 metre section which assays 10.25% zinc and approximately 1 oz/ton silver.

5. DISCUSSION AND CONCLUSIONS (Continued)

The major mineralization in this intersection consists of both very fine, stratiform and larger fracture related sphalerite. Both, however, have characteristics that suggest they are related to early mineralization events. No sphalerite mineralization is found in any late fractures which typically have calcite associated with them instead of dolomite. A relatively high amount of finely disseminated pyrite (1-3%), in the overlying argillaceous limestone as well as some pyrite in the contact dolostones in these holes and at a number of the larger showings within the Shag Claims, suggests a relationship between pyrite and lead-zinc mineralization. The discovery of an "ore grade" hole to the east of a 600 metre trend of exposed mineralization is encouraging. However, holes 81-1 (at the extreme southeast of this trend) and 81-4 (near the middle of this trend) only intersected strata with traces of sphalerite mineralization. These holes did encounter brecciated and pseudobrecciated dolostones that are very similar to those in hole 81-2. A relationship may exist between mineralization and structure, possibly early faulting zones subparallel to No Name Fault, and thus there remains the potential for discovering an "ore" trend to the east of the Red Bed mineralized horizon.

The Red Bed horizon mineralization, and all the other showings within Shag Creek Valley, may also be extensions of a deep seated ore body that has reached these favourable levels of accumulation. A possible host rock in such a situation could be Cathedral Formation dolostones which also host the Monarch and Kicking Horse lead-zinc deposits that occur further to the north along the same carbonate - shale facies front.

6. RECOMMENDATIONS

Prospecting and detailed (1:1000 and 1:5000) geological mapping of the mineralized Red Bed horizon (Waterfowl - Sullivan Formation contact) within and beyond the Shag Claim group is warranted.

Within the claim group, mapping should cover most of the eastern side of Shag Creek Valley, and include an examination of the area along No Name Fault, as well as any other large structures that could act as a host to mineralization. Geological work should concentrate on the area to the north of the Rush showing, through No Name Creek Valley and up through and past the Christmas showing. Geological work south of the Red Bed showing should include a re-examination of the area between the Red Bed Type (float) and Stripes (float) showings.

Outside the Shag Claim group, an examination of the Waterfowl - Sullivan Formation contact, south along Queen Mary Creek, through the Palliser River and on to the southern limit (35 km) of Middle Cambrian exposure, should be conducted. Six kilometres south of Shag Claim boundary, along this trend, Silver Standard located a lead show on the north side of the Palliser River, in Upper Cambrian dolostone, during 1978. To the north, the Waterfowl - Sullivan Formation contact should be examined at least as far as the Cross River (7 km). A continuation of the 1981 heavy mineral sampling program should be conducted as part of the geological investigation, both to the south and north of the Shag Claim group.

In addition to the geological work, a diamond drilling program of at least 500 metres along the main part of the Red Bed horizon is warranted. These holes are necessary to evaluate the significance of the mineralization that was encountered in DDH 81-2, and to test for additional mineralization along this trend. A 75 metre hole should be spotted behind each of the Rush and Pieces (float) showings, which

6. RECOMMENDATIONS (Continued)

occur at the northern and southern extremities of the main Red Bed horizon. The remaining 350 metres should be used in five 50 to 100 metre holes to test for a continuation of the mineralization to both sides, and particularly downdip, or to the northeast of DDH 81-2.

If the proposed drilling, or geological mapping provide any encouragement, then a continuation of the drilling program may be warranted.

Martin Lenters

Martin Lenters

February 4, 1982

Date

7. REFERENCES

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SHAG CLAIMS

Government Offices

1. GOLD COMMISSIONER,
   Golden Mining Division,
   Ministry of Energy, Mines & Petroleum Resources,
   Parliament Buildings,
   VICTORIA, British Columbia.
   V8V 1X4.

   TELEPHONE: (604) 387-5975

   CONTACT: R. Rutherford (Chief Gold Commissioner)
   Dave Worcanan

2. GOLD COMMISSIONER,
   Golden Mining Division,
   Court House, P.O. Box 39,
   GOLDEN, British Columbia.
   VOA 1HO

   TELEPHONE: (604) 344-5221

   CONTACT: K.L. Jankovic (Acting Deputy Gold Commissioner)

3. DISTRICT INSPECTOR OF MINES,
   Mineral Resources Branch,
   310 Ward Street,
   NELSON, British Columbia.
   V1L 5R4.

   TELEPHONE: (604) 352-2211

   CONTACT: Bruce Lang (District Inspector of Mines)

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   Court House, P.O. Box 39,
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   VOA 1HO.

   TELEPHONE: (604) 344-5221

   CONTACT: Kay

5. FOREST SERVICE - DISTRICT OFFICE,
   406 - 7th Avenue, P.O. Box 189,
   INVERMERE, British Columbia.
   VOA 1KO.

   TELEPHONE: (604) 342-9257

   CONTACT: Don Hendren (Forest Officer)

Service Companies

Globe Drilling (1981) Ltd.
SURFACE and UNDERGROUND DRILLING

LEN SIMARD
Res: 324-2663

801 - 510 West Hastings Street
Vancouver, B C V6B 1L8

681-2924
685-8645

Shirley Air

Jeff Brown
Pilot - Manager, Fairmont Hot Springs, B.C.
Phone (604) 345-6369

Shirley Air Services Ltd.
Hangar 6A, Municipal Airport,
Edmonton, Alberta T5G 2Z3

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(604) 342-6186 (RES.)

APPENDIX I

Statement of Expenditures

SHAG CLAIMS

October 1981 Diamond Drilling

STATEMENT OF EXPLORATION EXPENDITURES

1. PERSONNEL: (Salaries including benefits - Oct. 17/Nov. 4, 1981)

Martin Lenters: 19 days @ $165/day =	3,135.00	
Ross Almberg: 19 days @ $110/day =	2,090.00	5,225.00

2. ACCOMMODATION: (Oct.17 - Nov. 1/81)

Rocky Mountain Bungalows, Fairmont, B.C.

Kitchen unit for two - 16 days @ $42.40		678.40

3. FOOD:

34 man days @ $19.17/day =		651.78

4. SUPPLIES:

Camp equipment, zinc zap, pump rental, etc. =		434.44

5. DIAMOND DRILLING: Globe Drilling (1981), Ltd.

Mobilization & demobilization	2,000.00	
Drilling - 74' overburden @ $26/ft.	1,924.00	
- 424' rock core @ $25/ft.	10,600.00	
Extra contract charges:		
- Labour - 336 man hours @ $25/hr.	8,400.00	
- Lost rods, core boxes, propane, etc.	1,054.67	23,978.67

6. HELICOPTER: Shirley 206B based at Fairmont, B.C.

Daily flights in and out of drill site & all drill moves:

Rental: 28.3 hours @ $425/hr.	12,027.50	
Fuel & Oil: 28.3 hours @ $ 41.36/hr.	1,170.49	13,197.99

7. TRANSPORTATION:

Four-wheel drive Toyota Land Cruiser		
Rental: 3 weeks @ $150/week =	450.00	
Half-ton pick-up truck		
Rental: 2 days =	165.48	
Gasoline: 575 litres @ .41/litre =	235.75	851.23

8. SHIPPING: Via Greyhound Bus Lines

Geochemical Samples: Fairmont/Vancouver =		40.15

..../2

9. GEOCHEMICAL ASSAYS: Min-En Laboratories, Vancouver, B.C.

6 Chip Samples	(Pb,Zn,Ag,Cd)	@ $32.00	192.00	
20 Drill Core Samples	(Pb,Zn)	@ $16.75	345.00	
7 Drill Core Samples	(Ag,Cd,Cu)	@ $23.50	164.50	
2 Drill Core Samples	(Au)	@ $12.50	25.00	726.50

10. REPORT PREPARATION:

Martin Lenters:	5 days @ $165.00/day	825.00	
Ross Almberg:	2 days @ $110.00/day	220.00	
Typing, drafting & reproduction		730.00	1,775.00
			$47,559.16

COSTS APPORTIONED TO CLAIMS

CLAIM	FEET DRILLED	DRILLING CONTRACT		PROPORTION OF EXPENDITURES
Shag 2	169	$\frac{169}{498} \times 100 =$	34%	0.34 x $ 47,559.16 = $ 16,170.11
Shag 4	329	$\frac{329}{498} \times 100 =$	66%	0.66 x $ 47.559.16 = $ 31,389.05
TOTALS:	498		100%	$ 47,559.16

APPENDIX II

Diamond Drill Logs

SHAG CLAIMS

October 1981 Diamond Drill Holes

HOLE	LENGTH		ATTITUDE
DDH 81-1	35.0 m	113 ft.	240°/72°
DDH 81-2	47.1 m	153 ft.	Vertical
DDH 81-3	19.4 m	63 ft.	60°/62°
DDH 81-4	50.2 m	163 ft.	Vertical
TOTAL LENGTH:	151.7 m	492 ft.	

ESSO RESOURCES CANADA LIMITED – MINERALS

DIAMOND DRILL LOG

Hole No. 81-1

Co-ordinates 0+00

Core Size BQ

Purpose Test mineralization on Red Bed Horizon.

Started October 23, 1981

Completed October 24, 1981

Drilled By Globe Drilling Ltd.

Logged By M. Lenters

PROPERTY SHAG CLAIMS PROJECT MA67 NTS 82J-11&12.

5 Core Boxes (stored in Calgary)

Box 1. 3.4 to 10.7 metres
Box 2. 10.7 to 17.8 metres
Box 3. 17.8 to 25.1 metres
Box 4. 25.1 to 32.3 metres
Box 5. 32.3 to 35.0 metres

Latitude 50°38' N

Longitude 115° 30' W

Datum Level 1962m. (6377 feet).

Azimuth 240°

Dip 72°

Total Length 35.0m. (113 feet).

Hor Project 10.9 metres

Vert. Project 33.3 metres

DEPTH (m) FROM	TO	DESCRIPTION	Mineralization	CORE REC.	ASSAY NUMBER	FROM	TO	WIDTH	ASSAY VALUE			SAMPLE FOR SECTION
Surface	3.4	Overburden										
3.4	14.8	Argillaceous limestone (Sullivan Formation):	Py<1%	100%								
		- medium grey, finely crystalline, containing thin (<1mm.), dark grey to black shaly laminations, and irregular interbeds of orange - brown, calcareous mudstone. Where the latter are more common, the rock has an irregular mottled, grey-brown appearance, with the orange-brown silty zones occurring as wavy or kinked bands that generally parallel bedding.										
		- Bedding is generally at 75° to the core axis, but locally varies from 60 to 85°. Bedding is well defined where shaly partings are more abundant; these parting surfaces are slightly irregular and often crenulated showing signs of shearing (slicken slide surfaces).										
		- A number of coarse grained, white calcite veins cut the rock parallel to the bedding surfaces. These are located at: 6.47 to 6.53 metres (6 cm wide); 6.58 to 6.65 metres (7 cm wide); 7.06 to 7.07 metres (1 cm wide)										
		- Minor pyrite is contained throughout the section as minute grains in disseminated										

ESSO RESOURCES CANADA LIMITED – MINERALS
DIAMOND DRILL LOG

Hole No. 81-1 PROPERTY SHAG CLAIMS PROJECT MA 67 NTS 82J/11 & 12

DEPTH (m) FROM	TO	DESCRIPTION	Mineralization	CORE REC	ASSAY NUMBER	FROM	TO	WIDTH	ASSAY VALUE			SAMPLE FOR SECTION
		clusters or wisps that parallel bedding.										
14.8	15.2	Interbedded argillaceous limestone and calcareous mudstone (Sullivan Formation): - thin (1-2mm.), interbeds of medium grey, fine grained limestone and silty, generally orange - brown calcareous mudstone, that are separated by very thin dark grey to black, shaly partings. The thin alternating beds have irregular, wavy, undulating surfaces, show small scale pinching and swelling, and exhibit truncation or scouring of earlier beds by later ones. - minor fracturing, generally at 30 to 40° to core axis. - minor pyrite is disseminated as fine grains throughout the section.	Py<1%	100%								
15.2	19.3	Argillaceous limestone (Sullivan Formation): - medium grey, fine grained limestone with dark black, very thin, shaly laminations or partings that concentrate in zones 10 to 20 cm. thick. These more shaly zones contain 20 to 40% shaly laminations interbedded with the grey limestone. They are separated by 20 to 50 cm. thick zones of the grey limestone that contains weaker, more irregular, wavy dark argillaceous laminations. These thicker limestone sections contain skeletal and algal material and can be classified as a wackestone	Py=1%	100%								81-1001 17.05-17.17m

ESSO RESOURCES CANADA LIMITED – MINERALS
DIAMOND DRILL LOG

Hole No. 81-1 PROPERTY SHAG CLAIMS PROJECT MA 67 NTS 82J/11 & 12

DEPTH (m) FROM	TO	DESCRIPTION	Mineralization	CORE REC	ASSAY NUMBER	FROM	TO	WIDTH	ASSAY VALUE			SAMPLE FOR SECTION
		- laminated zones show graded bedding and truncation of lower beds by overlying ones. Laminations are at approximately 85° to the core axis. - minor pyrite; both finly disseminated, and as concentrated grains along fine and coarser grained limestone boundaries, or along other zones paralleling bedding. - minor fracturing at approximately 30° to the core axis.										
19.3	26.2	Argillaceous limestone (Sullivan Formation): - similar in composition to the limestone sections above, but the irregular, wavy, more shaly sections are thicker and more distinct. The banding is quite irregular – almost amoeboid "mottly" banded. - banding and shaly partings are at approximately 85° to the core axis - late fracturing is slightly more common than above, and occurs at approximately 45° to the core axis. - this section includes an earlier fracturing that has been healed with coarse, white calcite. These veins are generally 1 to 3 mm wide and occur as separate and en echelon tension gashes orientated at 0 to 30° to the core axis. These generally pinch out over distances of from 3 to 10 cms, but can	Py: 1-2%	100%								81-1002 24.16-24.30m

ESSO RESOURCES CANADA LIMITED – MINERALS
DIAMOND DRILL LOG

Hole No. 81-1 PROPERTY SHAG CLAIMS PROJECT MA 67 NTS 82J/11 #12 Page 4 of 6

DEPTH (m) FROM	TO	DESCRIPTION	Mineralization	CORE REC	ASSAY NUMBER	FROM	TO	WIDTH	Pb (%)	Zn (%)		SAMPLE FOR SECTION
		end abruptly at styolite surfaces, which separate zones of slightly different composition and mechanical characteristics.										
		- Styolite development is common; small surfaces at approximately 10 to 20 cm. spacing, with a few more concentrated zones containing weaker developed styolites every 1 to 3 cms. over 20 to 60 cm. lengths.										
		- Pyrite is ubiquitous as very finely disseminated grains and wisps that occur in concentrated zones that lie subparallel to bedding.										
		- the last 50cm (from 25.7 to 26.2 m), contains small (<0.05 mm) pits, in a light to medium grey limestone, which may represent pitted out pyrite, but the finer pyrite shows no weathering. These pits show no reaction to zinc zap.										81-1003 29.5-26.0m
26.2	35.0	Dolostone (Waterfowl Formation):	Py=1-2% Sphal=Tr	100%								
		- Very sharp, knife edge contact of dolostone with the overlying argillaceous limestone.			1001	26.2	27.0	0.8	.01	.01		
		- Very light to medium grey, medium to coarse (1mm) grained dolostone. Top of this section is generally the darker with the end of the hole being a very light coloured dolostone. Variance in colour gives the dolostone a subdued mottled appearance in places and a salt and pepper like										

ESSO RESOURCES CANADA LIMITED – MINERALS
DIAMOND DRILL LOG

Hole No. 81-1 PROPERTY SHAG CLAIMS PROJECT MA 67 NTS 82J/11+12 Page 5 of 6

DEPTH (m) FROM	TO	DESCRIPTION	Mineralization	CORE REC	ASSAY NUMBER	FROM	TO	WIDTH	ASSAY VALUE			SAMPLE FOR SECTION
		texture in others. Some minor pseudo-brecciation development occurs throughout the section. A few interbedded dark grey shaly horizons occur within the dolostone and these horizons contain fairly high amounts of pyrite (>3%).										
		- Pyrite is ubiquitous, but varies from traces, to zones with 1 to 2% and greater than 3% in the shaly horizons. It occurs as very small, disseminated, almost undiscernable grains, some larger disseminated grains and elongate concentrations or wisps, 1 to 2 mm. wide, paralleling bedding.										
		- Traces of small, individual, sphalerite crystals are found just below the contact with the overlying argillaceous limestone and at the very end of the hole. The last half metre of core contains the most sphalerite, which occurs as a few small (<0.05mm) grains associated with and along, thin irregular fractures in white, medium grained, sucrosic dolostone.										
		- Bedding and minor stylolite development occurs at approximately 85 to 90° to the core axis.										
		- Minor open vugs and dolomite crystals occur within the lower, lighter coloured and coarser grained dolostone and in association with the pseudo-brecciation zones.										

ESSO RESOURCES CANADA LIMITED – MINERALS

DIAMOND DRILL LOG

Hole No. 81-1 PROPERTY SHAG CLAIMS PROJECT MA 67 NTS 82J/11 & 12

DEPTH (m) FROM	TO	DESCRIPTION	Mineralization	CORE REC	ASSAY NUMBER	FROM	TO	WIDTH	ASSAY VALUE Pb (%)	Zn (%)		SAMPLES FOR SECTION
		- Fracture development is moderate, and stronger in areas of increased pseudo-brecciation. Fractures are irregular in orientation, but generally steep (0 to 30° to core axis. Numberous smaller fractures occur throughout this section and these host the traces of mineralization at the end of the hole.			1002	34.0	34.5	0.5	.01	.01		
					1003	34.5	35.0	0.5	.01	.02		
		- Moderate jointing; at 50° to core axis.										
	35.0	End of Hole										

ESSO RESOURCES CANADA LIMITED – MINERALS
DIAMOND DRILL LOG

Hole No. 81-2
Co-ordinates 150+00 NW
Core Size BQ
Purpose Test mineralization on Red Bed horizon.
Started October 26, 1981
Completed October 27, 1981
Drilled By Globe Drilling Ltd.
Logged By M. Lenters

PROPERTY SHAG CLAIMS PROJECT MA 67 NTS 82J-11&12

6 Core Boxes (stored in Calgary)

Box 1.	6.5 to 15.3	metres
Box 2.	15.3 to 22.8	metres
Box 3.	22.8 to 29.0	metres
Box 4.	29.0 to 36.0	metres
Box 5.	36.0 to 41.8	metres
Box 6.	41.8 to 47.1	metres

Latitude 50°38' N
Longitude 115°30' W
Datum Level 1961m. (6373 feet)
Azimuth —
Dip 90°
Total Length 47.1m (153 feet)
Hor. Project —
Vert. Project 47.1 metres

DEPTH (m) FROM	TO	DESCRIPTION	Mineralization	CORE REC	ASSAY NUMBER	FROM	TO	WIDTH	ASSAY VALUE Pb (%)	Zn (%)		SAMPLE FOR SECTION
Surface	6.5	Overburden										
6.5	10.2	Argillaceous limestone (Sullivan Formation): -medium grey, very fine grained limestone with 20 to 30% irregular brown argillaceous zones, giving the rock a mottled grey-yellow-brown appearance. The yellow-brown zones are somewhat micro-folded or kinked suggesting soft sediment deformation that may also have been enhanced by later tectonic deformation. -The rock shows moderate tectonic deformation, with the more argillaceous zones tending to become the predominant shear planes. Slickenslide surfaces occur along some argillaceous partings. -Bedding is generally at 80 to 85° to the core axis, but locally it can be at 60° (at 8.5 metres). -Minor pyrite as large grains along small fracture surfaces. (Core recovery was poor; the core tube had to be pulled up every foot or two because of blocking.	Py<1%	60%								81-2001 10.00-10.08m
10.2	10.8	Dolostone (Waterfowl–Sullivan Formation	Py=Tr	90%	1004	10.2	13.3	3.1	.01	.24		

ESSO RESOURCES CANADA LIMITED – MINERALS
DIAMOND DRILL LOG

Hole No. 81-2 PROPERTY SHAG CLAIMS PROJECT MA67 NTS 82J/11 & 12 Page 2 of 10

DEPTH (m) FROM	TO	DESCRIPTION	Mineralization	CORE REC	ASSAY NUMBER	FROM	TO	WIDTH	ASSAY VALUE	SAMPLE FOR SECTION
		Transition):								
		- light grey, fine to medium grained, sucrosic dolostone that show brecciation and has a few open vugs. Fine grained dolostone and argillaceous material occur between fragments in the breccia.								
		- appears to be an early, healed breccia; however, there has been some more recent movement, rebrecciating this zone as suggested by shearing at 35° to the core axis.								
		- Minor pyrite as large 1 to 5 mm. grains.								
10.8	12.1	Limestone and Argillaceous Limestone (Waterfowl-Sullivan Formation Transition):	Py<1% Zn<1%	95%						
		- upper half is very fine grained, light grey, and contains small (1mm.) recrystallized eyes of calcite disseminated through section. This section has been brecciated and tectonically sheared, with the latter producing breaks that have been cemented by thin (0.5 to 1 mm) veinlets of sparry calcite. The shearing here is a very local feature and is developed parallel to the core axis.								
		- lower half is a medium grained (0.25 to 0.5 mm.), crystalline, sucrosic and very porous limestone. Has a salt and pepper texture as calcite crystals are both dark grey and white.								81-2002 11.62-11.70m

ESSO RESOURCES CANADA LIMITED – MINERALS

DIAMOND DRILL LOG

Hole No. 81-2 PROPERTY SHAG CLAIMS PROJECT MA 67 NTS 82J/11 & 12

DEPTH (m) FROM	TO	DESCRIPTION	Mineralization.	CORE REC	CORE SAMPLES ASSAY NUMBER	FROM	TO	WIDTH	ASSAY VALUE Pb (%)	Zn (%)	Ag (oz/ton)	SAMPLE FOR SECTION
		-Bedding is hard to discern but appears to be at 40° to the core axis.										
12.1	12.4	Dolostone (Waterfowl Formation): -sheared & broken section, almost cataclastic. -very fine grained, medium grey dolostone. Contains clasts (or blasts) of carbonate minerals in fine grained groundmass. -Very powdery, broken core yielding a positive zinc-zap reaction for Zn and Fe (Pyrite).	Py<1% Zn<1%	60%								81-2003 12.2m
12.4	13.3	Dolostone (Waterfowl Formation): -medium to coarse grained, medium to dark grey, sucrosic dolostone. -moderate jointing. -a few 2 to 3 mm. wide irregular fractures containing coarse, sparry, white dolomite and one joint surface (20° to core axis) also with coarse, white dolomite.		95%								
13.3	15.0	Dolostone (Waterfowl Formation): -dark grey, medium grained, brecciated and pseudo-brecciated dolostone with numerous thin (1mm.), white dolomite veins and small pods of coarser, white, crystalline dolomite with some open vugginess. -13.5 to 13.7 - as above, but with coarse (1-3mm) galena crystals along a fracture (30° to core axis) and a	Gal.<1% Zn≈1-5% Py<1%	95%	1005	13.3	14.2	0.9	.55	6.31	.23	81-2004 13.69-13.72m

ESSO RESOURCES CANADA LIMITED – MINERALS

DIAMOND DRILL LOG

Hole No. 81-2 PROPERTY SHAG CLAIMS PROJECT MA 67 NTS 82J/11 & 12

DEPTH (m) FROM	TO	DESCRIPTION	Mineralization	CORE REC	ASSAY NUMBER	FROM	TO	WIDTH	Pb (%)	Zn (%)	Ag (oz/ton)	SAMPLE FOR SECTION
		number of 1 to 3 cm. ovoid zones of										
		boxwork structure containing Zn										
		mineralization (Sphalerite and Smithsonite?)										
		-Sphalerite occurs as very fine disseminations										
		through the rock and has a dull, weathered										81-2005
		appearance.										13.88-13.92m
		-Zinc carbonates (smithsonite, hydrozincite),			1006	14.2	16.6	2.2	.02	.95	.10	
		concentrate along fractures, are associated										
		with coarse white dolomite, and occur										
		within boxwork structures.										
		-Pyrite occurs as large (1mm.), disseminated										
		crystals.										
15.0	16.6	Dolostone (Waterfowl Formation):	Zn=1%	95%								
		-similar to the above dolostone	Py<1%									
		-medium to dark grey, fine grained										
		and partly sucrosic										
		-brecciated and pseudo-brecciated, but										
		not as much sparry dolomite infilling										
		as above.										
		-Zinc mineralization confined to										
		fractures and not disseminated through										
		the rock. Fractures are orientated at										
		70° to core axis										
		-Pyrite as both, very fine grained										81-2006
		disseminations and as larger (1mm)										16.2
		crystals										
		-dendritic patterns of manganese										
		oxides (psilomelane?) on some fracture										
		surfaces										
16.6	17.5	Dolostone - upper main mineralized section.	Zn>10%	90%	1007	16.6	17.5	0.9	.01	14.85	1.67	
		(Waterfowl Formation):	Py=1%									

ESSO RESOURCES CANADA LIMITED – MINERALS

DIAMOND DRILL LOG

Hole No. 81-2 PROPERTY SHAG CLAIMS PROJECT MA 67 NTS 82J/11&12

DEPTH (m) FROM	TO	DESCRIPTION	Mineralization	CORE REC	ASSAY NUMBER	FROM	TO	WIDTH	Pb (%)	Zn (%)	Ag (oz./ton)	SAMPLE FOR SECTION
		-medium to dark grey, very fine grained, porous dolostone with some argillaceous zones.										81-2007 17.0m.
		- The mineralized section has a weathered, somewhat rotton look. Either calcite, or zinc minerals have been removed from much of the section leaving very fine boxwork zones that are almost scintery.										81-2008 17.2m.
		- banding of shaly zones and some white dolomite veining approximately perpendicular to core axis. This section also contains some more irregular white dolomite veining and some pods with coarse (1-2 mm.) dolomite crystals.										
		- Zinc mineralization occurs as minor visible, fine grained sphalerite, but is composed mostly of very fine grained sphalerite and possibly zinc carbonates.										
		- Pyrite occurs as very fine grained disseminations and a few larger grains.										
17.5	18.6	Dolostone (Waterfowl Formation):	Sphal=1%	100%	1008	17.5	18.6	1.1	.01	1.34	.14	
		-medium grey, medium grained, sucrosic, pseudo-brecciated dolostone. Not weathered or altered like the above dolostone, but is much more competent.										
		-some thin, irregular, white dolomite veinlets.										
		-17.9 - a large (2 to 5mm) fracture vein containing a white, fibrous										

ESSO RESOURCES CANADA LIMITED – MINERALS
DIAMOND DRILL LOG

Hole No. 81-2 PROPERTY SHAG CLAIMS PROJECT MA67 NTS 82J/11 & 12

DEPTH (m) FROM	TO	DESCRIPTION	Mineralization	CORE REC	CORE SAMPLES ASSAY NUMBER	FROM	TO	WIDTH	ASSAY VALUE Pb (%)	Zn (%)	Ag (oz/ton)	SAMPLE FOR SECTION
		mineral growing across the fracture (40° to core axis). - minor, fine grained sphalerite disseminated in dolostone in association with fracturing. - Manganese oxides as dendritic blooms on some fracture surfaces.										
18.6	19.9	Dolostone - lower main mineralized section (Waterfowl Formation): 18.6 - 19.2 - medium grey, fine grained, brecciated and pseudo-brecciated, argillaceous dolostone. Argillaceous zones are a few cms in width and grade into more dolomitic sections. These argillaceous beds occur at 80 to 90° to the core axis.	Zn>10% Py<1%	90%	1009	18.6	19.9	1.3	.01	14.60	1.18	81-2009 18.8m.
		- 19.1 to 19.2 - well banded (90° to core axis) argillaceous zone. - a number of coarse (1-3mm.), white dolomite grains occur disseminated through the section yielding a pseudo-birdseye textured appearance. - Very fine sphalerite and possibly zinc carbonates occur throughout the section.										
		19.2 - 19.4 - medium grey, medium grained, pseudo-brecciated dolostone. Large (0.5mm), equant, honey yellow to orange sphalerite crystals occur disseminated through both the grey dolostone and latter, coarser, white recrystallized dolomite sections. Many										81-2010 19.3m

ESSO RESOURCES CANADA LIMITED – MINERALS

DIAMOND DRILL LOG

Hole No. 81-2 PROPERTY SHAG CLAIMS PROJECT MA 67 NTS 82J/11 #12

DEPTH (m) FROM	TO	DESCRIPTION	Mineralization.	CORE REC	ASSAY NUMBER	FROM	TO	WIDTH	Pb (%)	Zn (%)	Ag (oz/ton)	SAMPLE FOR SECTION
		of the sphalerite crystals have been removed leaving open pits in a fine boxwork-like structure. 19.4 - 19.9 - brecciated and broken section similar to the mineralized section from 16.6 to 17.5 m. Argillaceous, and contains weathered or altered looking "scintery" zones, where calcite and/or zinc minerals have been removed. Includes powdery and well-brecciated sections suggesting recent fracturing and minor faulting. Small fractures have thin veinlets of dolomite along their surfaces and run approximately parallel to the core axis.										81-2011 19.55m
19.9	22.6	Dolostone (Waterfowl Formation): - light to medium grey, fine to medium grained, partially pseudo-brecciated dolostone with some argillaceous dolostone zones. This section is much more competent than the greater mineralized ones above, but includes minor brecciated zones along fractures that have associated boxwork structures and sphalerite mineralization. The pseudo-brecciated areas contain a few percent open vugginess. -Sphalerite is pale cream to yellow, and occurs as minute grains in association with fractures, and	Sphal=3-5%	95%	1010	19.9	22.6	2.7	.01	3.28	.30	81-2012 21.6m

ESSO RESOURCES CANADA LIMITED – MINERALS
DIAMOND DRILL LOG

Hole No. 81-2 PROPERTY SHAG CLAIMS PROJECT MA 67 NTS 82J/11 & 12

DEPTH (m) FROM	TO	DESCRIPTION	Mineralization	CORE REC	ASSAY NUMBER	FROM	TO	WIDTH	Pb (%)	Zn (%)	Ag (oz/ton)	SAMPLE FOR SECTION
		disseminated within the dolostone generally near fracturing. - There is intense small scale fracturing associated with brecciation, and some large scale fracturing at 0 to 30° to the core axis - minor stylolite development, and the argillaceous zones both are orientated approximately perpendicular to the core axis										
22.6	24.0	Dolostone (Waterfowl Formation): - similar to above, but contains no argillaceous zones. This section is a well fractured, light coloured, variably crystalline, vuggy dolostone. - coarse dolomite crystals occur in vugs along some fractures - sphalerite occurs as fine crystals and some fracturing - the major fracturing is steep (0 to 20° to core axis), but there is also a pervasive fine fracturing that has no preferred orientation.	Sphal=1%	100%	1011	22.6	24.0	1.4	.01	1.54	.13	
24.0	32.5	Dolostone (Waterfowl Formation): - similar to the above section, but contains only traces of visible sphalerite along fractures. This section is a well fractured, white to light grey, variably crystalline (in places having a pseudo-breccia texture) dolostone. Some coarse (1-2 mm) dolomite crystals occur	Sphal=Tr.	100%	1012	24.0	25.6	1.6	.01	.24		81-2013 24.6

ESSO RESOURCES CANADA LIMITED – MINERALS
DIAMOND DRILL LOG

Hole No 81-2 PROPERTY SHAG CLAIMS PROJECT MA 67 NTS 82J/11 #12

DEPTH (m) FROM	TO	DESCRIPTION	Mineralization	CORE REC	ASSAY NUMBER	FROM	TO	WIDTH	ASSAY VALUE Pb (%)	Zn (%)		SAMPLE FOR SECTION
		with some associated minor vugginess. The section becomes less vuggy from top to bottom.										
		- Fracturing is strongly developed and steep (20-40° to core axis). At 25m a thin (1mm), white leathery to papery sheet has developed on a fracture surface. Many clean fractures show small manganese oxide blooms on their surfaces.										
		- minor stylolite development; occurring approximately perpendicular to core axis.										
		- sphalerite mineralization occurs in association with fractures and minor open vugginess.										81-2014 32.0m
32.5	36.0	Dolostone (Waterfowl Formation):	Sphal=Tr	100%	1013	33.9	35.4	1.5	.01	.04		
		- light to medium grey, variably crystalline, vuggy dolostone that is strongly pseudo-brecciated. Coarse white dolomite crystals form hazy and indistinct "veins" around finer grained, medium grey dolostone. Small vugs are generally associated with the centres of the coarse, white, recrystallized dolomite.										
		34.6 - 36.0 - particularly coarse, vuggy, somewhat brecciated zone with traces of sphalerite in the vuggy sections.										
		- moderately fractured; 20-40° to core axis.										
36.0	47.1	Dolostone (Waterfowl Formation):	Sphal=Tr	100%								

ESSO RESOURCES CANADA LIMITED – MINÉRALS

DIAMOND DRILL LOG

Hole No. 81-2 PROPERTY SHAG CLAIMS PROJECT MA 67 NTS 82J/11+12

DEPTH (m) FROM	TO	DESCRIPTION	Mineralization	CORE REC	ASSAY NUMBER	FROM	TO	WIDTH	ASSAY VALUE Pb (%)	Zn (%)		SAMPLE FOR SECTION
		-light coloured, variably crystalline,										
		pseudo-brecciated and brecciated										
		dolostone.										
		-well brecciated and fractured on a										
		small and larger scale. Brecciation			1014	38.3	39.4	1.1	.01	.03		
		developed as angular pieces of darker										
		dolostone "floating" in lighter coloured										
		dolomite veins. Pseudo-brecciation										
		occurs as white, coarser recrystallized			1015	41.7	42.5	0.8	.01	.04		
		dolomite surrounding patches of darker										
		grey dolostone. Large voids or vugs										
		and recemented vugs in the order of										
		1 to 5 cm are common. The latest										
		brecciation and the large vugs have										
		calcite veins and large amber calcite										81-2015
		crystals developed within them.										42.4
		-generally intensely fractured; main										
		fracturing is steep (20-40° to core axis)										
		-this section contains occaisonal traces										
		of pyrite and sphalerite.										
	47.1	End of Hole (drilling proved difficult										
		over last ⅓ of hole as voids and										
		fracture slices and pieces caused										
		a fair amount of jamming and										
		loss of water circulation.)										

ESSO RESOURCES CANADA LIMITED – MINERALS
DIAMOND DRILL LOG

Hole No. 81-3
Co-ordinates 150+00 NW
Core Size BQ
Purpose Test mineralization on Red Bed horizon
Started October 28, 1981
Completed October 29, 1981
Drilled By Globe Drilling Ltd.
Logged By M. Lenters

PROPERTY SHAG CLAIMS PROJECT MA 67 NTS 82J-11&12

2 Core Boxes (stored in Calgary)
Box 1. 4.0 to 12.6 metres.
Box 2. 12.6 to 19.4 metres.

Latitude 50°38' N
Longitude 115°30' W
Datum Level 1961 m. (6373 feet)
Azimuth 60°
Dip 62°
Total Length 19.4 m. (63 feet).
Hor Project 8.9 metres
Vert Project 17.3 metres

DEPTH (m) FROM	TO	DESCRIPTION	Mineralization	CORE REC	ASSAY NUMBER	FROM	TO	WIDTH	ASSAY VALUE Pb (%)	Zn (%)		SAMPLE FOR SECTION
Surface	4.0	Overburden										
4.0	15.3	Argillaceous limestone (Sullivan Formation): - generally a dark grey, very fine grained, well banded argillaceous limestone. Consists of very dark grey to orange-brown shaly bands alternating with with bands of medium grey limestone. These alternating bands are 1 to 10 mm. thick and generally separated by an argillaceous parting along which the rock separates easily. The banding is best developed near the contact with the underlying dolostone. In places these bands are boudinaged, in which the lighter coloured limestone form boudins within darker shaly zones. - banding, shaly partings and bedding is at 30 to 40° to core axis. 4.0-13.2 - banding less developed, more irregular and kinked. 13.2-15.3 - banding well developed, more definite with sharp contacts; boudinage structure strongly developed. This section breaks readily along shaly partings and caused drilling problems - minor finely disseminated pyrite visible.	Py<1%	80%								

ESSO RESOURCES CANADA LIMITED – MINERALS

DIAMOND DRILL LOG

Hole No. 81-3 PROPERTY SHAG CLAIMS PROJECT MA 67 NTS 82J/11#12 Page 2 of 2

DEPTH (m) FROM	TO	DESCRIPTION	Mineralization	CORE REC	ASSAY NUMBER	FROM	TO	WIDTH	ASSAY VALUE Pb (%)	Zn (%)		SAMPLE FOR SECTION
15.3	19.4	Dolostone (Waterfowl Formation):	Py=Tr	95%	1016	15.30	15.65	0.35	.01	1.29		81-3001
		- light to medium grey, variably	Sphal=<1%		1017	15.65	16.30	0.65	.01	.08		15.35m
		crystalline dolostone. The dolostone			1018	16.3	17.8	1.5	.01	.05		
		is brecciated, has a strong pseudo-			1019	17.8	19.4	1.6	.01	.05		
		breccia development, some birdseye-										81-3002
		textured zones and some minor										17.7m
		banding developed at 50° to the core										81-3003
		axis.										18.9m
		- a small vein containing coarse, red										
		sphalerite occurs at and parallel to the										
		contact with the overlying argillaceous										
		limestone.										
		- minor vugginess and porosity associated										
		with the brecciation and fracturing.										
		- the section is well fractured, with										
		large fractures generally running at										
		30 to 40° to core axis and number-										
		ous smaller fractures with a random										
		orientation.										
		- calcite in veinlets up to 2mm thick										
		occurs along some larger fractures										
	19.4	End of Hole (Hole stopped due to excessive										
		blocking).										

ESSO RESOURCES CANADA LIMITED – MINERALS
DIAMOND DRILL LOG

Hole No 81-4
Co-ordinates 350+50 NW
Core Size B.Q.
Purpose Test mineralization on Red Bed horizon
Started October 30, 1981
Completed October 31, 1981
Drilled By Globe Drilling Ltd.
Logged By M. Lenters

PROPERTY SHAG CLAIMS PROJECT MA 67 NTS 82J-11&12

7 Core Boxes (stored in Calgary)
Box 1. 5.5 to 14.8 metres
Box 2. 14.8 to 21.8 metres
Box 3. 21.8 to 28.7 metres
Box 4. 28.7 to 35.1 metres
Box 5. 35.1 to 41.9 metres
Box 6. 41.9 to 47.7 metres
Box 7. 47.7 to 50.2 metres

Latitude 50°38'N
Longitude 115°30'W
Datum Level 1959 m (6367 feet)
Azimuth –
Dip 90°
Total Length 50.2 m (163 feet)
Hor. Project –
Vert. Project 50.2 metres

DEPTH (m) FROM	TO	DESCRIPTION	Mineralization	CORE REC	ASSAY NUMBER	FROM	TO	WIDTH	ASSAY VALUE			SAMPLE FOR SECTION
Surface	5.5	Overburden										
5.5	15.1	Argillaceous limestone (Sullivan Formation):	Py<1%	80%								
		- a medium grey, mottled argillaceous limestone. Consists of "mottly banded", irregular, kinked, silty bands or zones that are generally orange-brown in colour, and dark grey, shaly bands. In places these alternating bands are boundinaged.										
		- bedding is orientated at approximately 70° to the core axis.										
		-10.15 to 10.35 m. - very silty, brown calcareous zone.										
		-6.2 - a 5 cm. wide coarse, calcite vein parallel to bedding.										
		-pyrite occurs disseminated throughout the section, and as elongate 1 to 3 mm grains along bedding planes.										
		(The first 10 metres of core had poor recovery and consisted of broken and ground core and sections with no recovery.)										
15.1	15.3	Fault gouge along steep fracture.		?								

Hole No. 81-4 PROPERTY SHAG CLAIMS PROJECT MA 67 NTS 82 J/11 & 12

DEPTH (m) FROM	TO	DESCRIPTION	Mineralization	CORE REC	ASSAY NUMBER	FROM	TO	WIDTH	ASSAY VALUE Pb (%)	Zn (%)		SAMPLE FOR SECTION
15.3	21.9	Dolostone and Argillaceous Dolostone	Py<1%	100%	1020	15.2	16.0	0.8	.03	.05		
		(Waterfowl Formation):										
		- medium grey, variably crystalline but										
		generally coarse grained dolostone with										
		argillaceous partings and zones of banding										
		at 65 to 80° to core axis. This section										
		includes some very coarse (>1mm), sandy,										
		calcarenite zones.										
		- at 19.45 and 19.8 metres; 2 to 3 cm										81-4001
		thick, small black shaly-layered										19.44
		bands occur. These are orientated at										
		80° to the core axis										
		- the dolostone sections are strongly										
		brecciated and pseudo-brecciated,										
		very coarse and porous.										
		- the section is well fractured										
		containing numerous large, steep										
		fractures at 0 to 30° to the core										
		axis as well as many small fractures.										
		- pyrite occurs as large (1-2mm)										
		scattered grains.										
21.9	50.2	Dolostone (Waterfowl Formation):	Py=Tr	100%								
		- white to medium grey, variably	Mn=Tr									
		crystalline but generally coarse	Sphal=Tr									
		grained dolostone. Similar to above										
		except that it is clean looking dolostone										
		that contains little argillaceous										
		material and no shaly zones.										
		- brecciated and strongly pseudo-brecciated;										
		some birdseye textured zones										
		- dolomite occurs as a cement in										
		earlier breccias, but calcite occurs										

ESSO RESOURCES CANADA LIMITED – MINERALS

DIAMOND DRILL LOG

Hole No. 81-4 PROPERTY SHAG CLAIMS PROJECT MA 67 NTS 82J/11 & 12 Page 3 of 3

DEPTH (m) FROM	TO	DESCRIPTION	Mineralization	CORE REC	ASSAY NUMBER	FROM	TO	WIDTH	ASSAY VALUE			SAMPLE FOR SECTION
		as infillings in later breccias and as large crystals in vugs and along fractures.										
		- very porous section containing more than 3% porosity as small vugs with some large (1-3 cm) openings associated with brecciation and fracturing.										
		- numerous large fractures (>3 to 5 per metre) that are generally steep (10 to 30° to core axis).										
		-26.5 m. - large calcite infilling zone within breccia										
		-27.4 to 28.3 - large, steep fracture with fibrous material and calcite crystals along the fracture surface. Traces of sphalerite associated with this fracture, occurring as minute red grains.										
		-36.0 - 50.2 m. - most of the core is intensely fractured (minor fracturing at 1 cm spacing) yielding core much like gravel.										
		- stylolites are weakly developed in upper few metres of this section (70 to 75° to core axis).										
		- pyrite occurs as small grains and manganese oxide blooms (psilomelane) occur on some clean fracture surfaces.										
	50.2	End of Hole.										

APPENDIX III

Assay Analyses

SHAG CLAIMS

Split Core Samples Assayed

SAMPLE NUMBER	DRILL HOLE	METERAGE FROM:	METERAGE TO:	WIDTH METRES	ASSAY VALUE Pb (%)	Zn (%)	Ag (oz/ton)	Cd (%)	Cu (%)	Au (oz/ton)
1001	81-1	26.2	27.0	0.8	.01	.01				
1002	81-1	34.0	34.5	0.5	.01	.01				
1003	81-1	34.5	35.0	0.5	.01	.02				
1004	81-2	10.2	13.3	3.1	.01	.24				
1005	81-2	13.3	14.2	0.9	.55	6.31	.23	.015	.003	
1006	81-2	14.2	16.6	2.2	.02	.95	.10	.004	.002	
1007	81-2	16.6	17.5	0.9	.01	14.85	1.67	.025	.014	.001
1008	81-2	17.5	18.6	1.1	.01	1.34	.14	.004	.002	
1009	81-2	18.6	19.9	1.3	.01	14.60	1.18	.023	.010	.001
1010	81-2	19.9	22.6	2.7	.01	3.28	.30	.008	.004	
1011	81-2	22.6	24.0	1.4	.01	1.54	.13	.004	.003	
1012	81-2	24.0	25.6	1.6	.01	.24				
1013	81-2	33.9	35.4	1.5	.01	.04				
1014	81-2	38.3	39.4	1.1	.01	.03				
1015	81-2	41.7	42.5	0.8	.01	.04				
1016	81-3	15.3	15.65	0.35	.01	1.29				
1017	81-3	15.65	16.3	0.65	.01	.08				
1018	81-3	16.3	17.8	1.5	.01	.05				
1019	81-3	17.8	19.4	1.6	.01	.05				
1020	81-4	15.2	16.0	0.8	.03	.05				

SHAG CLAIMS

Chip Samples Assayed

NUMBER	SAMPLE LOCATION	WIDTH		Pb (%)	Zn (%)	Ag (oz./ton)	Cd (%)
CS-8101	Rush Showing (south outcrop)	70 cm.		.01	4.90	.13	.009
CS-8102	South Rush Showing	70 cm.		.03	2.85	.53	.005
CS-8103A	Kim Showing (North) - upper part of section 3	10 cm.)	70 cm.	.01	6.05	.34	.007
CS-8103B	Kim Showing (North) - lower part of section 3	60 cm.)		.03	9.05	.29	.013
CS-8104A	Kim Showing (South) - upper limestone of section 4	30 cm.)	90 cm.	.02	3.65	.12	.005
CS-8104B	Kim Showing (south - lower dolostone of section 4	60 cm.)		.01	1.49	.10	.004

MIN-EN Laboratories Ltd.

705 WEST 15th STREET,
NORTH VANCOUVER, B.C., CANADA V7M 1T2
TELEPHONE (604) 980-5814

ANALYTICAL REPORT

Project: Shag — Date of report: Nov.12/81.

File No.: 1-1097 — Date samples received: Nov.11/81.

Samples submitted by: M. Lenters

Company: Esso Minerals Canada

Report on: Geochem samples

20 Assay samples

Copies sent to:

1. Esso Minerals, Calgary, Alta.
2.
3.

Samples: Sieved to mesh — Ground to mesh -100

Prepared samples stored ☒ discarded ☐

rejects stored ☒ discarded ☐

Methods of analysis: Acid digestion-chemical analysis.

Remarks:

SPECIALISTS IN MINERAL ENVIRONMENTS

MIN-EN LABORATORIES LTD.
705 WEST 15TH STREET, NORTH VANCOUVER, B.C. V7M 1T2
PHONE: (604) 980-5814 OR (604) 988-4524

Certificate of Assay

TO: Esso Minerals Canada,
237-4th Ave. S.W.,
Calgary, Alta.

PROJECT No. Shag
DATE: Nov. 12/81.
File No. 1-1097

SAMPLE No.	Pb %	Zn %				
1001	.01	.01				
02	.01	.01				
03	.01	.02				
04	.01	.24				
05	.55	6.31				
06	.02	.95				
07	.01	14.85				
08	.01	1.34				
09	.01	14.60				
10	.01	3.28				
11	.01	1.54				
12	.01	.24				
13	.01	.04				
14	.01	.03				
15	.01	.04				
16	.01	1.29				
17	.01	.08				
18	.01	.05				
19	.01	.05				
1020	.03	.05				

MINE-EN Laboratories Ltd.

CERTIFIED BY: [signature]

MIN-EN Laboratories Ltd.

705 WEST 15th STREET,
NORTH VANCOUVER, B.C., CANADA V7M 1T2
TELEPHONE (604) 980-5814

ANALYTICAL REPORT

Project: Shag — Date of report: Nov.17/81.

File No.: 1-1097R — Date samples received: Nov.16/81.

Samples submitted by: M. Lenters

Company: Esso Minerals

Report on: ... Geochem samples

7 Assay samples

Copies sent to:

1. Esso Minerals, Calgary, Alta.
2.
3.

Samples: Sieved to mesh ... Ground to mesh ...

Prepared samples stored ☐ discarded ☐

rejects stored ☐ discarded ☐

Methods of analysis: Acid digestion-chemical analysis.

Remarks:

SPECIALISTS IN MINERAL ENVIRONMENTS

MIN-EN LABORATORIES LTD.
705 WEST 15TH STREET, NORTH VANCOUVER, B.C. V7M 1T2
PHONE: (604) 980-5814 OR (604) 988-4524

Certificate of Assay

TO: Esso Minerals Canada,
237-4th Ave.S.W.,
Calgary, Alta.

PROJECT No. Shag
DATE: Nov.17/81.
File No. 1-1097R

SAMPLE No.	Cu %	Ag oz/ton	Cd %			
1005	.003	.23	.015			
06	.002	.10	.004			
07	.014	1.67	.025			
08	.002	.14	.004			
09	.010	1.18	.023			
10	.004	.30	.008			
1011	.003	.13	.004			

MINE-EN Laboratories Ltd.

CERTIFIED BY:

MIN-EN Laboratories Ltd.

705 WEST 15th STREET,
NORTH VANCOUVER, B.C., CANADA V7M 1T2
TELEPHONE (604) 980-5814

ANALYTICAL REPORT

Project .... Date of report ..... Dec. 11/81. ....

File No. .... 1-1097R .... Date samples received .... Dec. 8/81. ......

Samples submitted by: .... M. Lenters ....

Company: .... Esso Minerals ....

Report on: .... Geochem samples

....

.... 2 .... Assay samples

....

Copies sent to:

1. ..... Esso Minerals, Calgary, Alta. ....
2. ....
3. ....

Samples: Sieved to mesh .... Ground to mesh ....

Prepared samples stored ☐ discarded ☐

rejects stored ☐ discarded ☐

Methods of analysis: .... Fire Assay. ....

....

Remarks: ....

....

....

SPECIALISTS IN MINERAL ENVIRONMENTS

MIN-EN LABORATORIES LTD.
705 WEST 15TH STREET, NORTH VANCOUVER, B.C. V7M 1T2
PHONE: (604) 980-5814 OR (604) 988-4524

Certificate of Assay

TO: Esso Minerals Canada,
237-4th Ave. S.W.,
Calgary, Alta.

PROJECT No. Attn: M. Lenters
DATE: Dec.11/81.
File No. 1-1097R

SAMPLE No.	Au oz/ton					
1007	.001					
1009	.001					

MINE-EN Laboratories Ltd

CERTIFIED BY:

MIN-EN Laboratories Ltd.

705 WEST 15th STREET,
NORTH VANCOUVER, B.C., CANADA V7M 1T2
TELEPHONE (604) 980-5814

ANALYTICAL REPORT

Project: Shag   Date of report: Nov. 6/81.

File No.: 1-1077   Date samples received: Nov. 3/81.

Samples submitted by: M. Lenters

Company: Esso Minerals

Report on: .... Geochem samples

6 Assay samples

Copies sent to:

1. Esso Minerals, Calgary, Alta.
2.
3.

Samples: Sieved to mesh .... Ground to mesh -100

Prepared samples stored ☒ discarded ☐

rejects stored ☒ discarded ☐

Methods of analysis: Acid digestion-chemical analysis.

Remarks:

SPECIALISTS IN MINERAL ENVIRONMENTS

MIN-EN LABORATORIES LTD.
705 WEST 15TH STREET, NORTH VANCOUVER, B.C. V7M 1T2
PHONE: (604) 980-5814 OR (604) 988-4524

Certificate of Assay

TO: Esso Minerals Canada,
237-4th Ave. S.W.,
Calgary, Alta.

PROJECT No. Shag
DATE: Nov.6/81.
File No. 1-1077

SAMPLE No.	Pb %	Zn %	Ag oz/ton	Cd %		
CS-8101	.01	4.90	.13	.009		
02	.03	2.85	.53	.005		
03A	.01	6.05	.34	.007		
03B	.03	9.05	.29	.013		
04A	.02	3.65	.12	.005		
CS-8104B	.01	1.49	.10	.004		

MINE-EN Laboratories Ltd.

CERTIFIED BY: [signature]

APPENDIX IV

Shag Claims Information

APPENDIX V

Statement of Qualifications

CERTIFICATION

I, Martin H. Lenters of Unit 506 - 720 Fifteenth Avenue, S.W., Calgary, Alberta, do hereby certify and declare that:

1. I am a graduate of the University of Toronto (1976) with a B.Sc. (Honours) in Geology, and that I have taken three years of Graduate Studies at the University of Toronto.

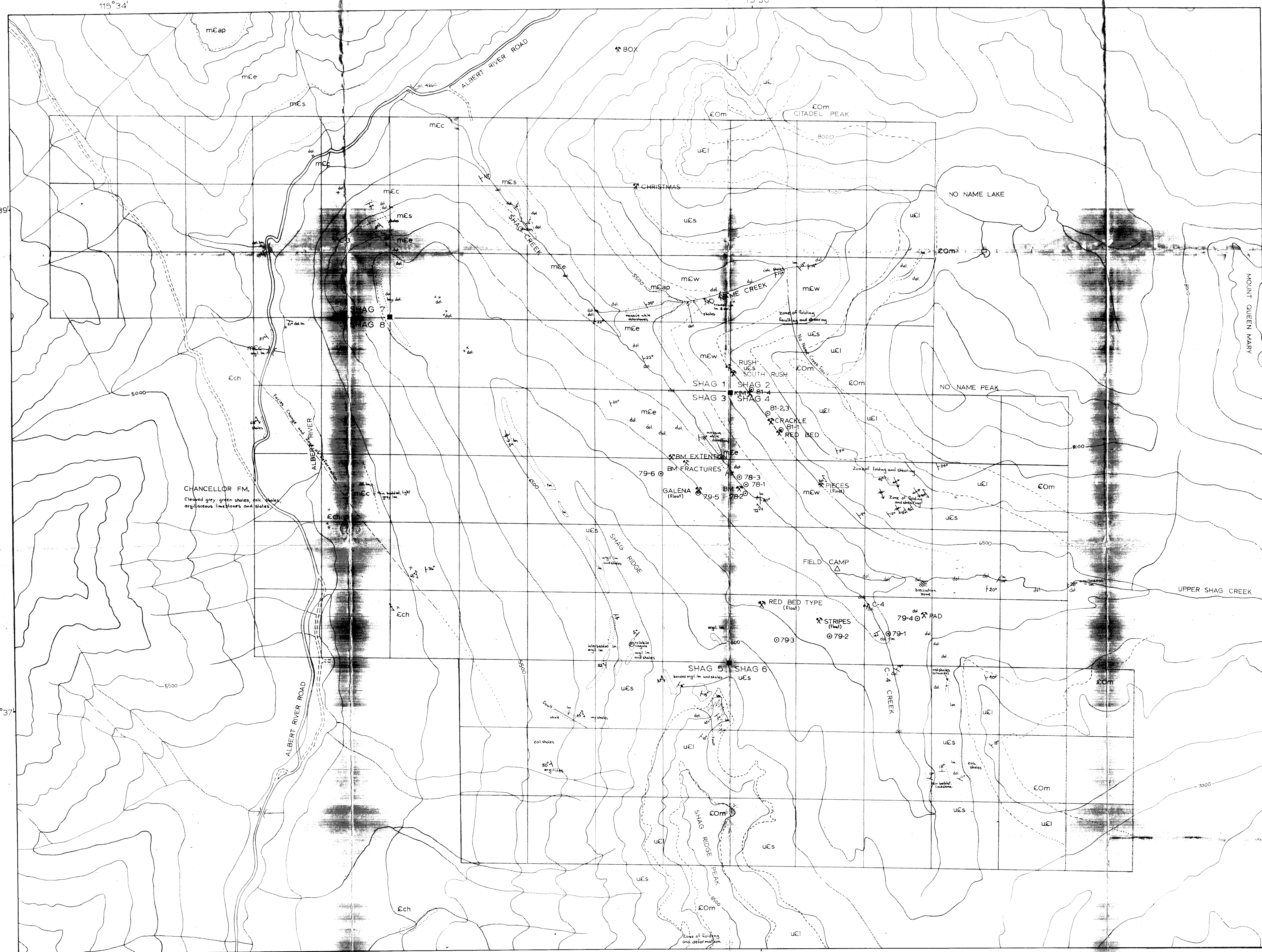
2. Since 1976, I have worked as a geologist in Nova Scotia, New Brunswick, Ontario, Saskatchewan, British Columbia, the Yukon and Northwest Territories, and that I have been employed by Esso Resources Canada Ltd., in their Minerals Exploration department since April, 1979.

3. The information included in this report is based on literature research, field mapping, geological prospecting and an examination of diamond drill core.

4. I hold no direct or indirect interest in the property reported herein, nor do I expect to receive any.

Martin H. Lenters

Date



GEOLOGY LEGEND

EASTERN FACIES

LOWER ORDOVICIAN AND UPPER CAMBRIAN

£Om	McKAY GROUP — Red-green shales, thin interbedded limestones

UPPER CAMBRIAN

u£l	LYELL FORMATION — Dolostones and limestones
u£s	SULLIVAN FORMATION — Argillaceous limestones, calcareous shales, limestones, minor dolostones, dolomitic limestone

MIDDLE CAMBRIAN

m£w	WATERFOWL FORMATION — Dolostone and limestone, minor argillaceous limestone
m£ap	ARCTOMYS - PIKA FORMATION — Calcareous and dolomitic shale, siltstones, argillaceous limestone, thin bedded dolostones
m£e	ELDON FORMATION — Massive dolostones, limestones, argillaceous limestones
m£s	STEPHEN FORMATION — Thin bedded, argillaceous limestones and shales
m£c	CATHEDRAL FORMATION — Massive dolostones, dolomitic limestones, limestones

WESTERN FACIES

UPPER AND MIDDLE CAMBRIAN

£ch	CHANCELLOR FORMATION — Cleaved argillaceous limestone, calcareous shales, slates

GEOLOGICAL SYMBOLS

- GEOLOGICAL BOUNDARY (defined, approximate, assumed)
- OUTCROP BOUNDARY (some isolated outcrops delineated, but many of the streams and gullies have almost continual exposure)
- BEDDING (inclined)
- CLEAVAGE (inclined, vertical)
- FAULT (defined, approximate, assumed)
- ANTICLINE (showing direction of plunge)
- SYNCLINE (showing direction of plunge)
- FACIES BOUNDARY
- PAD — LEAD - ZINC OCCURRENCE (name of showing)
- 79-1 — DIAMOND DRILL HOLE (year and hole number)
- FOSSIL LOCALITY

LEGEND

- ROAD
- TRACK
- BRIDGE
- RIVER, CREEK OR STREAM
- INTERMITTANT STREAM
- LAKE OR POND
- 7000 — CONTOUR (interval 500 feet)
- CLAIM UNIT BOUNDARY
- SHAG 4 — LEGAL CORNER POST

10,143

ESSO MINERALS CANADA

A DIVISION OF ESSO RESOURCES CANADA LIMITED

SHAG CLAIMS 1-8
GEOLOGY MAP

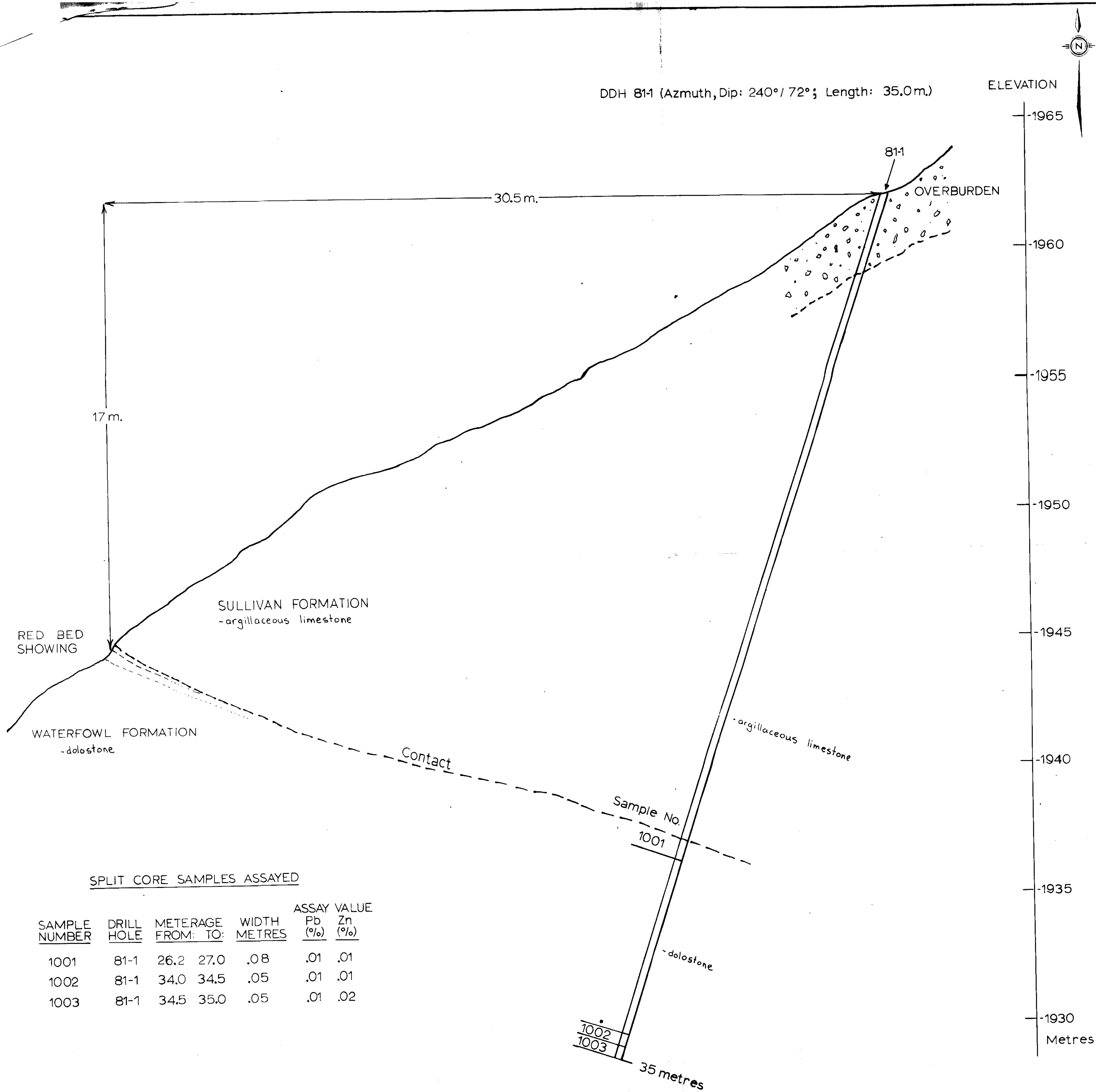
Project No. SHAG Mining Division GOLDEN

Latitude 50°38' Longitude 115°30'

NTS 82 J 11,12 — 0 — 500 metres — Scale 1:10,000

To Accompany A Report By M. LENTERS

Dated AUG. 1981 Map No. 5



SPLIT CORE SAMPLES ASSAYED

SAMPLE NUMBER	DRILL HOLE	METERAGE FROM:	TO:	WIDTH METRES	ASSAY VALUE Pb (%)	Zn (%)
1001	81-1	26.2	27.0	.08	.01	.01
1002	81-1	34.0	34.5	.05	.01	.01
1003	81-1	34.5	35.0	.05	.01	.02

10,143

SECTION 0+00

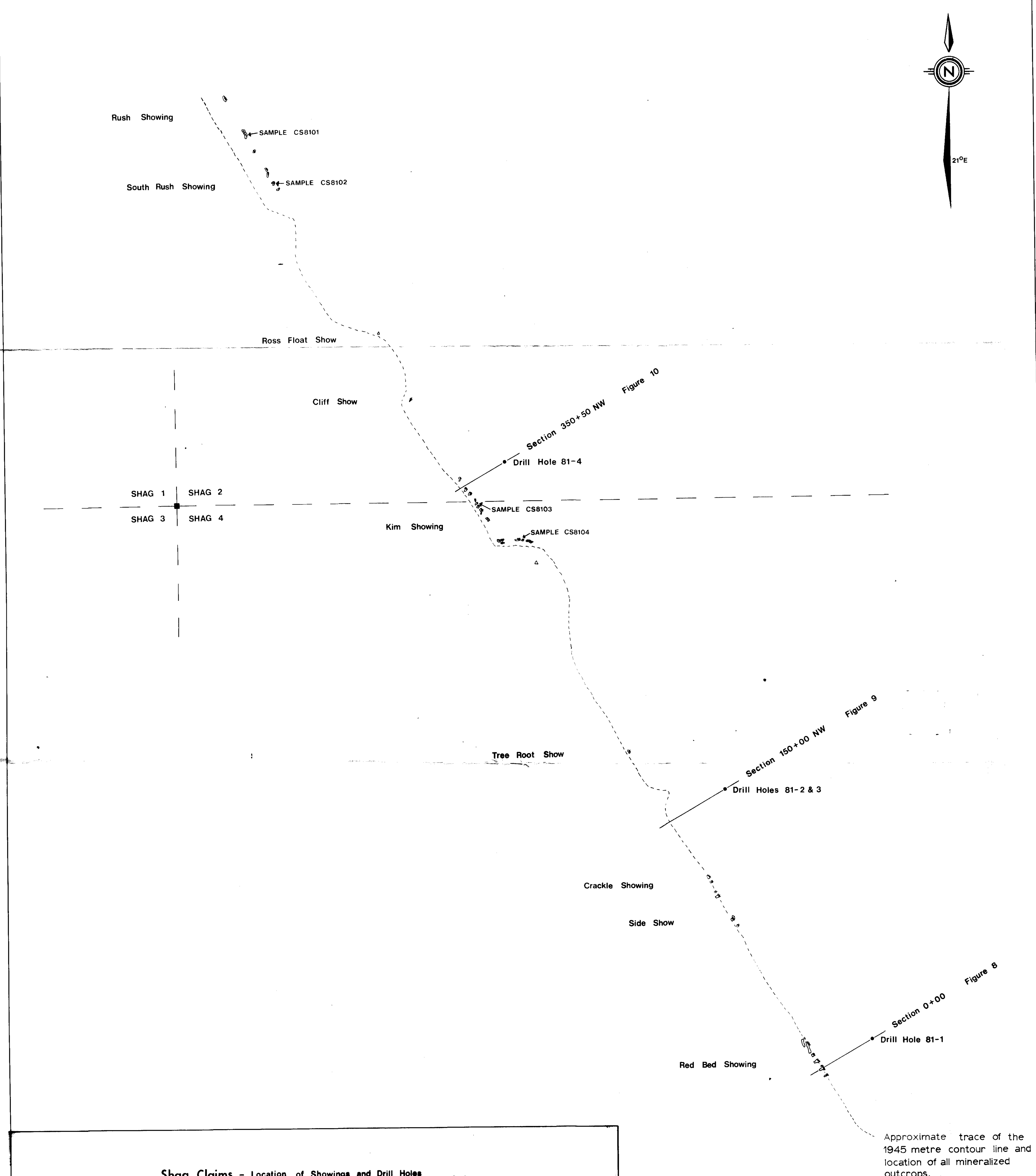
ESSO MINERALS CANADA
A DIVISION OF ESSO RESOURCES CANADA LIMITED

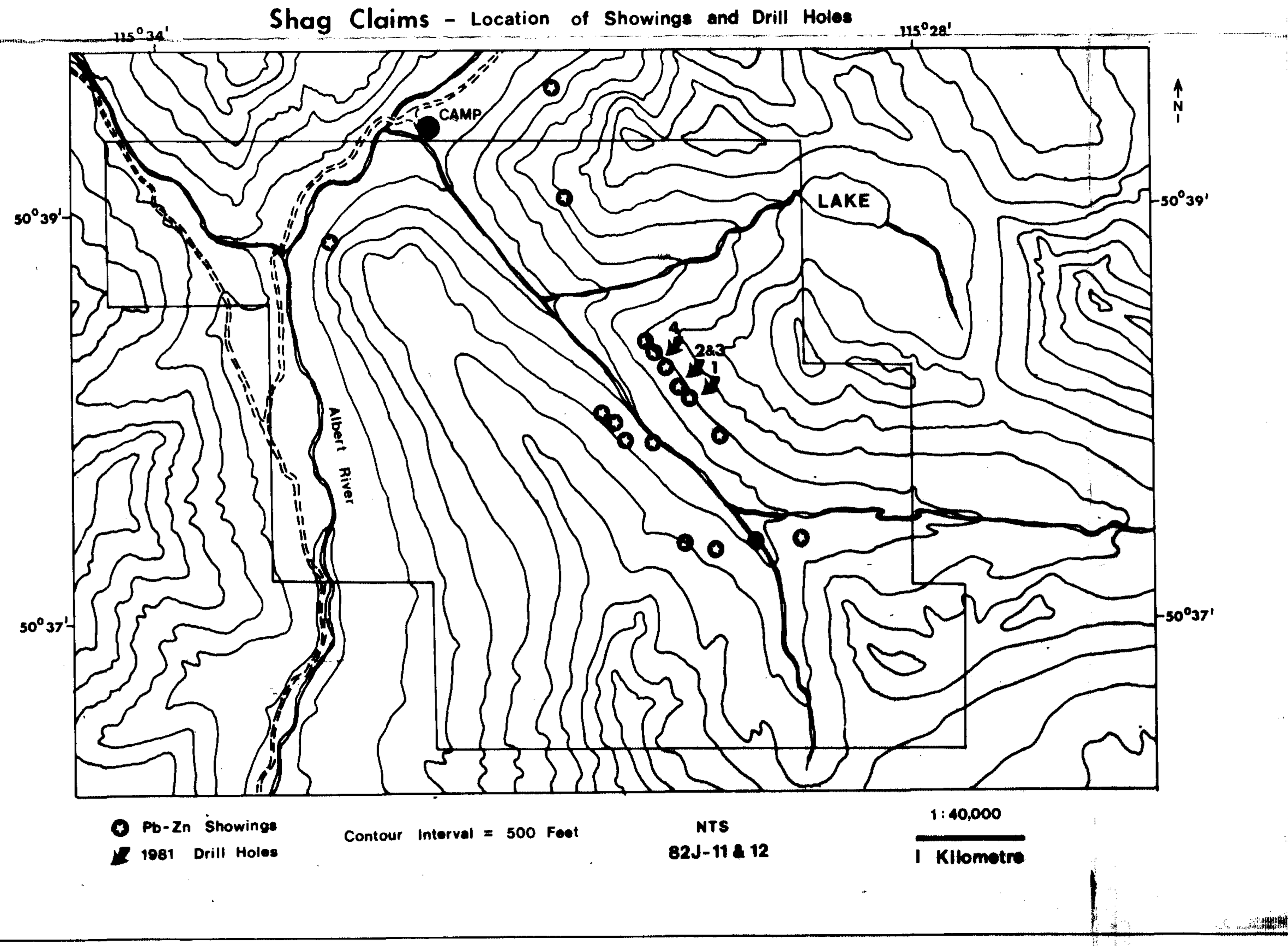
SHAG CLAIMS
SW-NE CROSS-SECTION THROUGH DDH-1

Project No. MA 67 Mining Division GOLDEN
Latitude 50°38′ Longtitude 115°30′
NTS 82J-11,12

0 1 2 3 4 5
METRES

To Accompany A Report By: M.H. LENTERS
Dated: Jan. 82
Map No. 8





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ESSO MINERALS CANADA

A DIVISION OF ESSO RESOURCES CANADA LIMITED

SHAG CLAIMS

LOCATION OF SHOWINGS AND DIAMOND DRILL HOLES ALONG RED BED MINERALIZED HORIZON

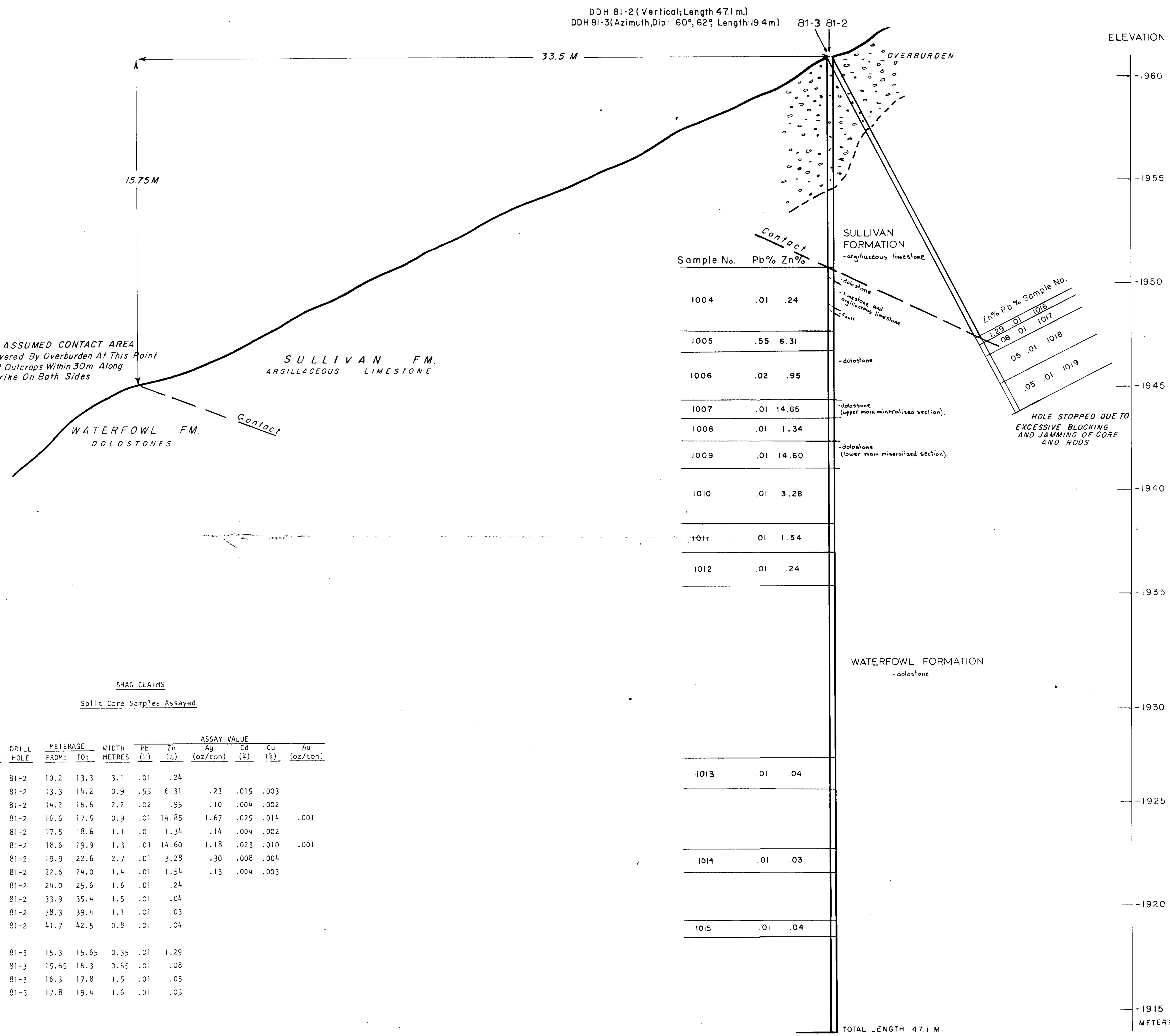
PROJECT NO. MA 67 MINING DIVISION GOLDEN

LATITUDE 50°38' LONGITUDE 115°30'

NTS 82J-11E & 12W SCALE 1:1000

0 20 40 60 80 100 metres

M.H. LENTERS JAN. 1982 MAP NO. 6



SHAG CLAIMS

Split Core Samples Assayed

SAMPLE NUMBER	DRILL HOLE	METERAGE FROM:	METERAGE TO:	WIDTH METRES	ASSAY VALUE Pb (%)	Zn (%)	Ag (oz/ton)	Cd (%)	Cu (%)	Au (oz/ton)
1004	81-2	10.2	13.3	3.1	.01	.24				
1005	81-2	13.3	14.2	0.9	.55	6.31	.23	.015	.003	
1006	81-2	14.2	16.6	2.2	.02	.95	.10	.004	.002	
1007	81-2	16.6	17.5	0.9	.01	14.85	1.67	.025	.014	.001
1008	81-2	17.5	18.6	1.1	.01	1.34	.14	.004	.002	
1009	81-2	18.6	19.9	1.3	.01	14.60	1.18	.023	.010	.001
1010	81-2	19.9	22.6	2.7	.01	3.28	.30	.008	.004	
1011	81-2	22.6	24.0	1.4	.01	1.54	.13	.004	.003	
1012	81-2	24.0	25.6	1.6	.01	.24				
1013	81-2	33.9	35.4	1.5	.01	.04				
1014	81-2	38.3	39.4	1.1	.01	.03				
1015	81-2	41.7	42.5	0.8	.01	.04				
1016	81-3	15.3	15.65	0.35	.01	1.29				
1017	81-3	15.65	16.3	0.65	.01	.08				
1018	81-3	16.3	17.8	1.5	.01	.05				
1019	81-3	17.8	19.4	1.6	.01	.05				

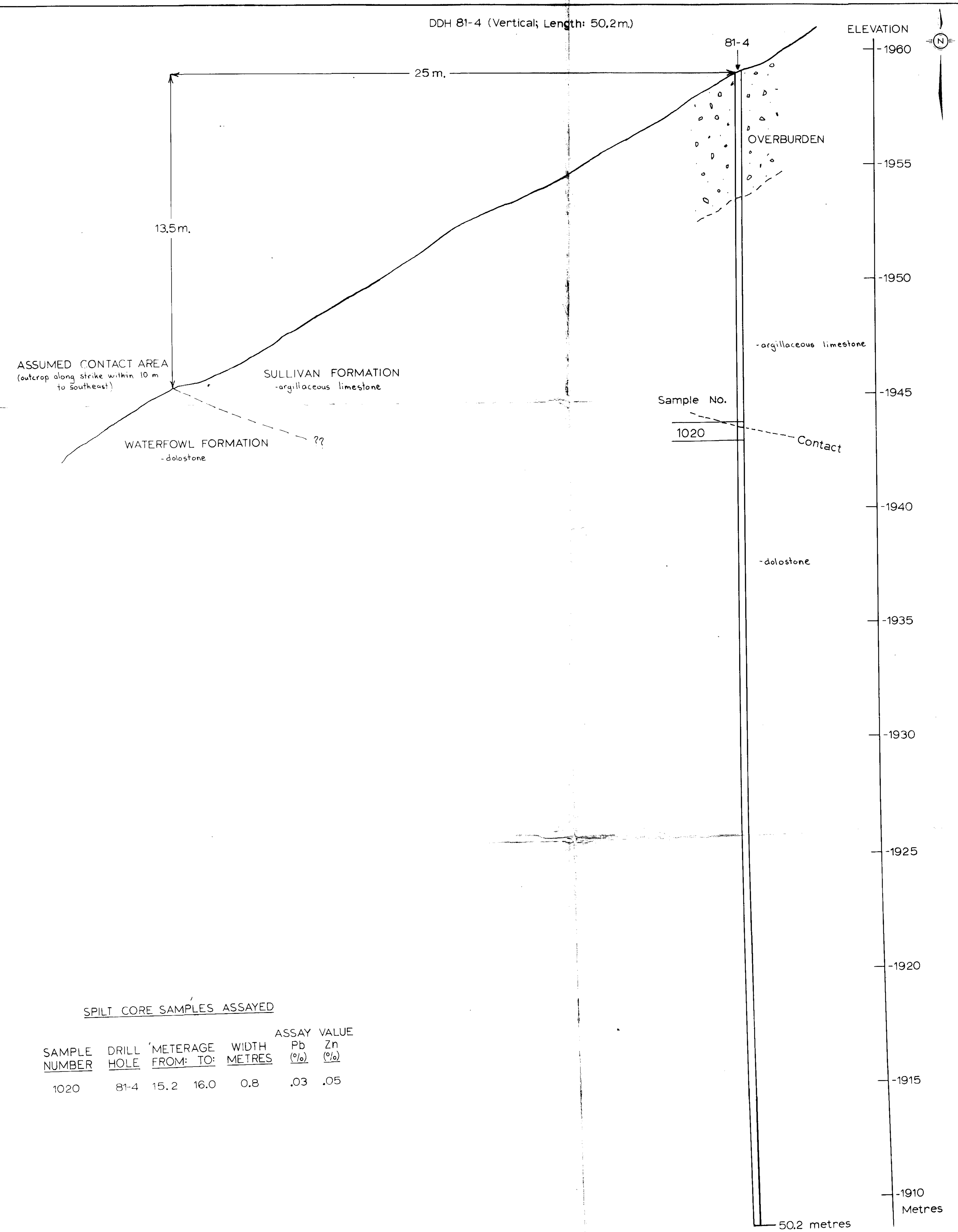
10,143

SECTION 150+00 NW

ESSO MINERALS CANADA
A DIVISION OF ESSO RESOURCES CANADA LIMITED

SHAG CLAIMS
SW-NE CROSS-SECTION THROUGH DDH 2+3

Project No. MA 67 Mining Division GOLDEN
Latitude 50°38′ Longitude 115°30′
NTS 82J-11,12 0 1 2 3 4 5 METRES
To Accompany A Report By: M.H. LENTERS
Dated: Jan. 82 Map No. 9



SPILT CORE SAMPLES ASSAYED

SAMPLE NUMBER	DRILL HOLE	METERAGE FROM:	TO:	WIDTH METRES	ASSAY VALUE Pb (%)	Zn (%)
1020	81-4	15.2	16.0	0.8	.03	.05

10,143

SECTION 350+50 NW

ESSO MINERALS CANADA
A DIVISION OF ESSO RESOURCES CANADA LIMITED

SHAG CLAIMS
SW-NE CROSS-SECTION THROUGH DDH-4

Project No. MA 67 Mining Division GOLDEN

Latitude 50°38′ Longitude 115°30′

NTS 82J-11,12 0 1 2 3 4 5 METRES

To Accompany A Report By: M.H. LENTERS

Dated: Jan. 82 Map No. 10