REPORT

on

GEOLOGICAL AND GEOCHEMICAL SURVEYS

by

P. C. HUBACHECK

on the

DRIFTPILE PASS PROPERTY

(DPP #1 - #9 Claims, 120 Units)

Situated west of Gataga River

in the Liard Mining Division B.C.

58° 05'N 125° 50'W

N.T.S. 94K/4W

owned by

TEXASGULF CANADA LIMITED

March, 1978 Calgary, Alberta

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SUMMARY

This report evaluates the Driftpile Pass property with regard to structural and stratigraphic mapping in conjunction with reconnaissance geochemical sampling.

The purpose of this work is to locate shale hosted Ba/Pb/Zn mineralization in northeastern Brithish Columbia.

The Gunsteel Formation of Devono-Mississippian Age ? underlies part of Tg's DPP claims. This formation is host to a "baritic lithofacies" which is lead/zinc bearing on the adjacent DP (Placer) claims.

A lead geochem response was obtained over a baritic shale unit that traces on to the DP claims.

Structural Projections indicated that the baritic lithofacies outcropped on open ground to the north of both properties. Preliminary mapping in this area confirmed the existence of these trends prompting the staking of the Puck No. 1 claims.

Detailed mapping and geochemistry is required to delineate possible Pb/Zn targets hosted in the baritic lithofacies.

Respectfully Submitted By:

Peter C. Hubacheck

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INTRODUCTION

This report summarizes the result of geologic and geochemical surveys completed on the Driftpile Pass mineral claims during the period August 8 to August 30, 1978.

Previous Work

A number of sphalerite and malachite occurrences were located in August, 1976 at Driftpile Pass near the headwaters of Driftpile Creek. Land acquisition was completed in June, 1977 with the staking of 111 units in 7 contiguous claims. (DPP #1 - #7). A reconnaissance stream sediment and soil sampling program was undertaken in August, 1977.

1978 Program Objective

The program was designed to determine the stratigraphic, structural and geochemical relationships:

1) concerning the geology of Texasgulf's DPP property as it relates to the shale hosted Ba/Pb/Zn mineralization reported on the adjacent Placer DP Property.
2) and economic significance of sphalerite and galena occurrences located at the carbonate/shale contact. (Ca/Okg showings)

The purpose of this work is to locate shale hosted Ba/Pb/Zn mineralization in northeastern British Columbia.

Field Review

Capable assistance was much appreciated with the endeavors of the following Tg personnel: Geologist; W. Gardiner and field assistants; A. Eunson and D. Mann. Structural and stratigraphic mapping proceeded concurrently with soil sampling over selected target areas. Total expenditures amounted to $18,005.00(See App.A)

Interest was primarily focused on the western boundary of the DPP property. Pb/Zn mineralization has been exposed on the adjoining DP property (Placer) by trenching and drilling. The host strata occurs on both sides of this boundary. The Puck No. 1 mineral claim was staked September 19, 1978 on behalf of Texasgulf Canada Ltd. This ground lies immediately north of the DP and DPP claim groups and is underlain by similar favourable strata.

Location and Access

Figure 2 indicates the location of the DPP claims at Driftpile Pass southwest of the Gataga River at Lat. 58° 05'N and Long. 125° 50' W (NTS 94K/4W).

A fly camp was set up and occupied from August 8 to August 24. Helicopter logistical support was initiated from the Texasgulf base camp at Mayfield lake, 10 km to the northeast. Mobilization and demobilization by float plane was expedited via Muncho Lake at mile 464 on the Alaska Highway 95 km north of the base camp.

Physiography

The Gataga Ranges comprise a series of northwest trending ridges over 6500 feet in elevation that arise on the western flank of the broad Gataga River floor and extend westward to form the eastern boundary of the Rocky Mountain Trench. A well pronounced trellis drainage pattern is terminated by the highest limestone ridges flanking the Gataga with flowage westward into the Kechika River system. These ridges are breached by a pass at the headwaters of Driftpile Creek. The Driftpile Pass Project area is dominated by a series of shale ridgebacks running transverse to the main headwall range. Large scree slopes fan out from the base of ridges with highest relief. The westerly trending ridgebacks are more recessive with more than 60% outcrop exposure above 5000 feet. The lower slopes are well forested with spruce and balsam limiting outcrop exposure to steeply incised gullies.

Fig. 1 B. C. LOCATION MAP

Scale: 1" = 100 miles (approx)

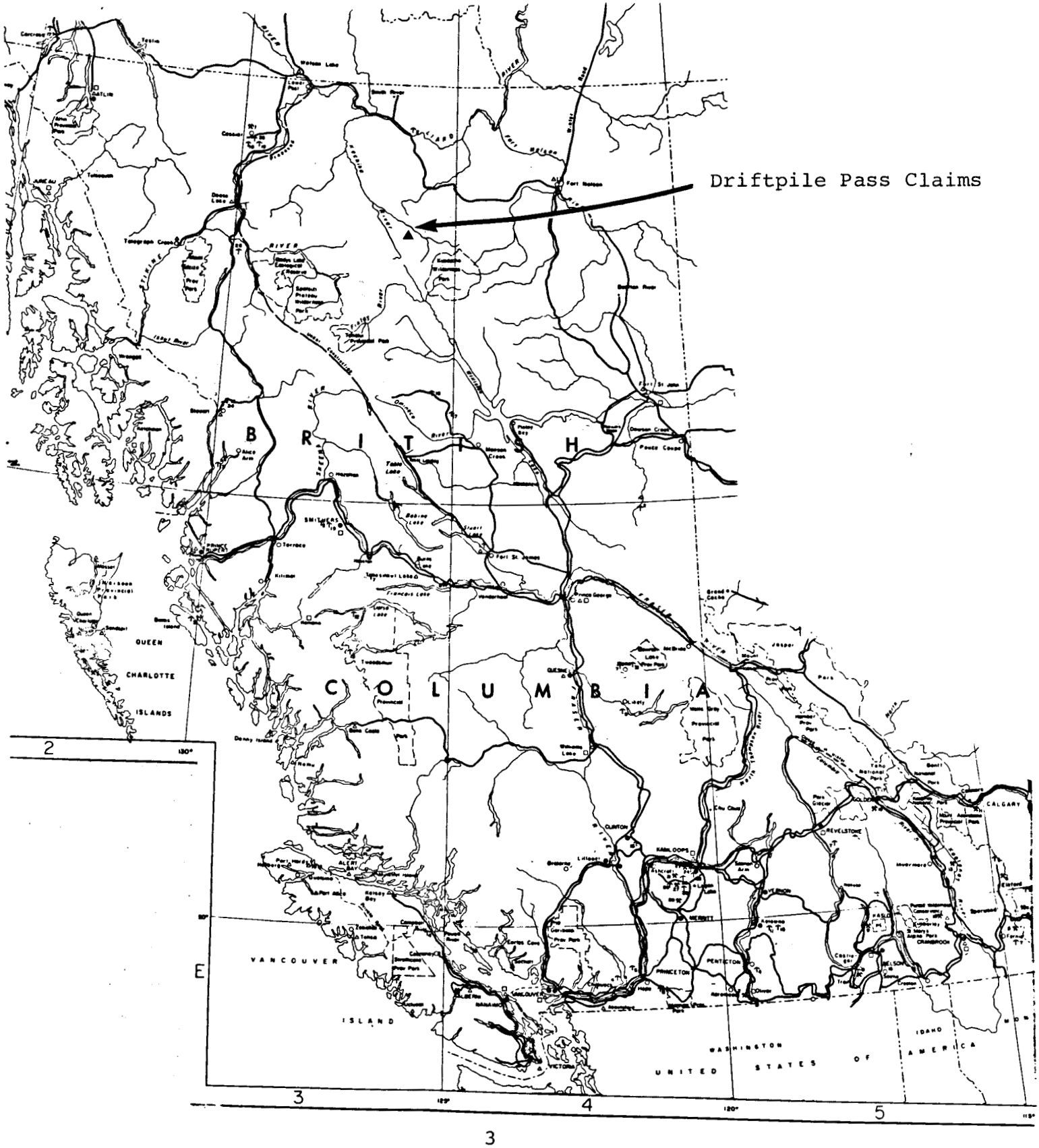
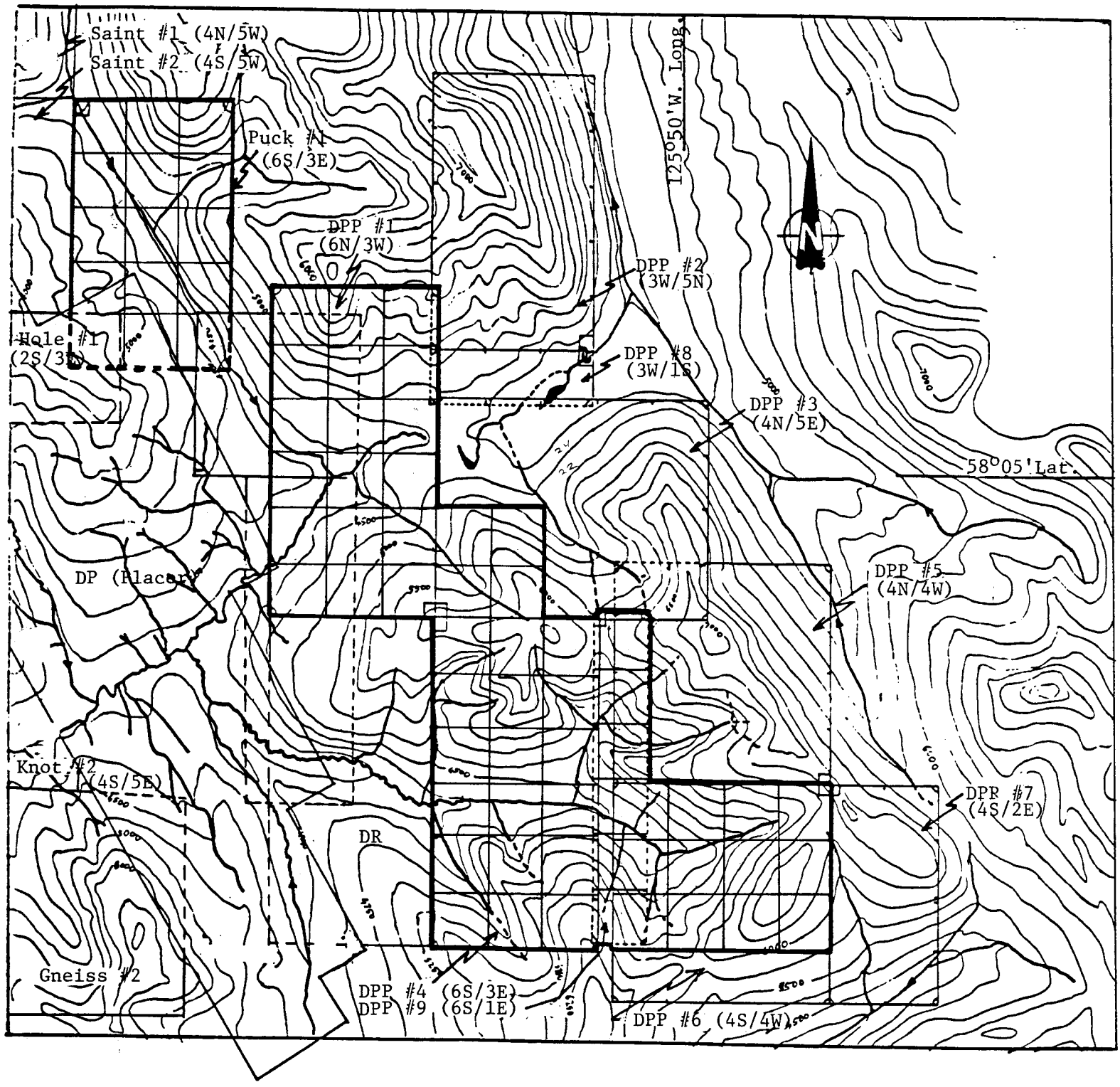


Fig. 2 CLAIM MAP (1:50,000)



Texasgulf

Placer

Welcome North

Cyprus Anvil

Ground to be held by Tg after June 15, 1979

REGIONAL GEOLOGY

Strata exposed in the vicinity of Driftpile Pass consists of a westward dipping lower Paleozoic succession resting disconformably on Proterozoic Hadrynian phyllites. The Cambrian Atan Group consists of a paired clastic-carbonate sequence with coarse clastics at the base fining upwards into quartzites and micritic limestones.

The Ordovician-Silurian Road River Formation is conformable with the Atan. The lower section is comprised of interbedded fossiliferous limestone and shale units which change gradationally to non-calcareous graptolitic shales.

The Devono-Mississippian Gunsteel Formation lies conformably on the Road River. Pyritic, carbonaceous shale outcrops near the base grading into a siliceous,baritic mudstone followed by a thick sequence of cherty argillite.

The stratigraphic record on the DPP property shows only minor signs of tectonic unrest reflecting epeirogenic uplift and subsidence. However, regional stratigraphic mapping indicates that syn-depositional tectonic events controlled sedimentation within an unstable shelf margin-oceanic basin regime.

Fig. 3 REGIONAL GEOLOGY

MAP 1343A
TUCHODI LAKES
BRITISH COLUMBIA
94 K

Scale 1:125,000

Miles 2 0 2 4 6 Miles

Kilometres 3 0 3 6 9 Kilometres

STRUCTURE

Structure in the Driftpile Pass region is controlled by broad open flexures involving the entire lower Paleozoic section down to the Hadrynian units where detachment surfaces may have developed. (See fig. 4). However, structural complexity increases upsection since much of the compressional foreshortening has been taken up in the Ordovician-Devono-Mississippian shale assemblage producing a series of en-echelon fold structures that plunge consistently to the northwest. These fold patterns pinch and swell in a longitudinal sense parallel to the axial trend. High angle thrust splays are also prominent paralleling the fold trend. (See Fig. 6). Thrusting is subordinant with minor lateral displacement. The quartz/calcite pods of unit 3 may indicate shearing within the talcy shales. Steep probable dip slip faults disrupt the major fold structures and are generally oriented transverse to the fold trend. (See fig. 5)

The geometry of fold profiles change at different stratigraphic levels. Specifically, the fold geometry observed on the western flank of the Gataga River is determined by the relative competency of the rocks.

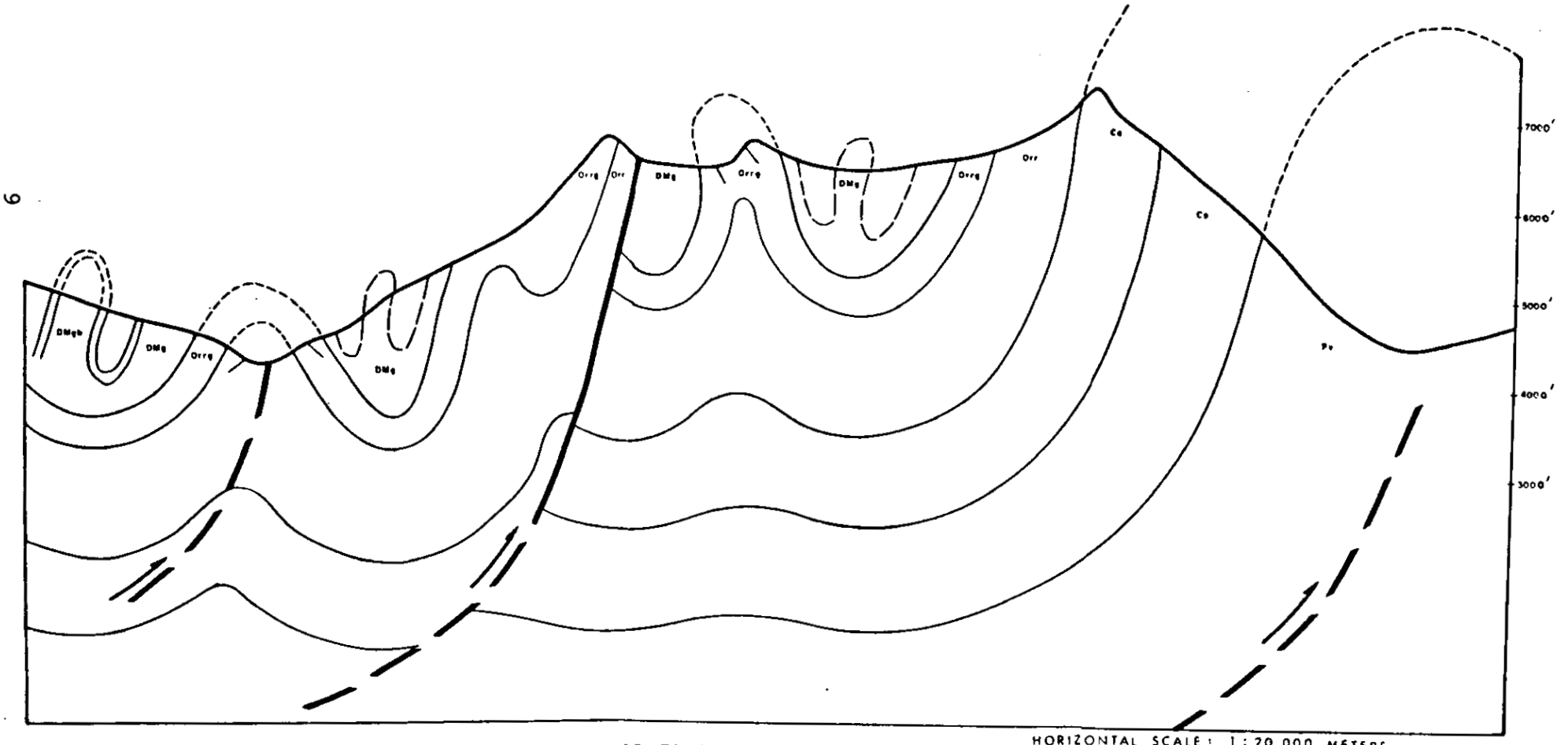
The thickly bedded quartzite, siltstone and carbonate rocks of the Atan Group exhibit a concentric flexural fold habit of mega-structural scale. Further upsection, incompetent thinly bedded rhythmites and silty shales of the Road River Formation reveal a more or less open style of folding. Unit 6 of the Road River is most easily recognized in the field by its competent fold habit and strong bedding cleavage.

However, the Gunsteel Formation displays a disharmonic style of deformation characterized by high amplitude isoclinal folds with small scale kink folds in the hinge zones. Slaty cleavage is pervasive on the limbs with bedding to cleavage angles averaging 30^{o} - 35^{o}, dipping to the northeast. Strong axial plane cleavage

in the hinge zones produces pencil-like slivers which preferentially weather resulting in a ridgeline topography consisting of anticlinal saddles and synclinal spurs. (See fig. 7). Amplitudes of the larger folds measure in excess of 600 meters. Cleavage to bedding intersection lineations, measured in internal small scale kink folds, indicate the plunges vary from 0^{o} to 42^{o}. The pronounced thickening of the Gunsteel Formation results in a fold profile which is more curvilinear with a cuspate shaped synclinal hinge. (See fig. 17).

FIG. 4

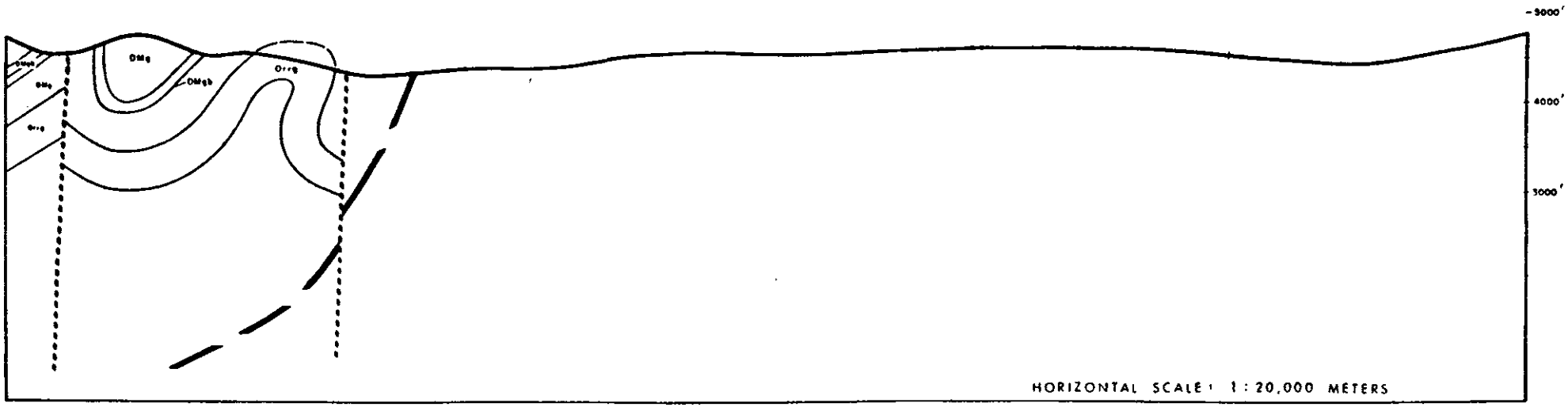
STRUCTURE SECTION A-A'



OBSERVER LOOKING NORTHWEST

HORIZONTAL SCALE: 1:20,000 METERS

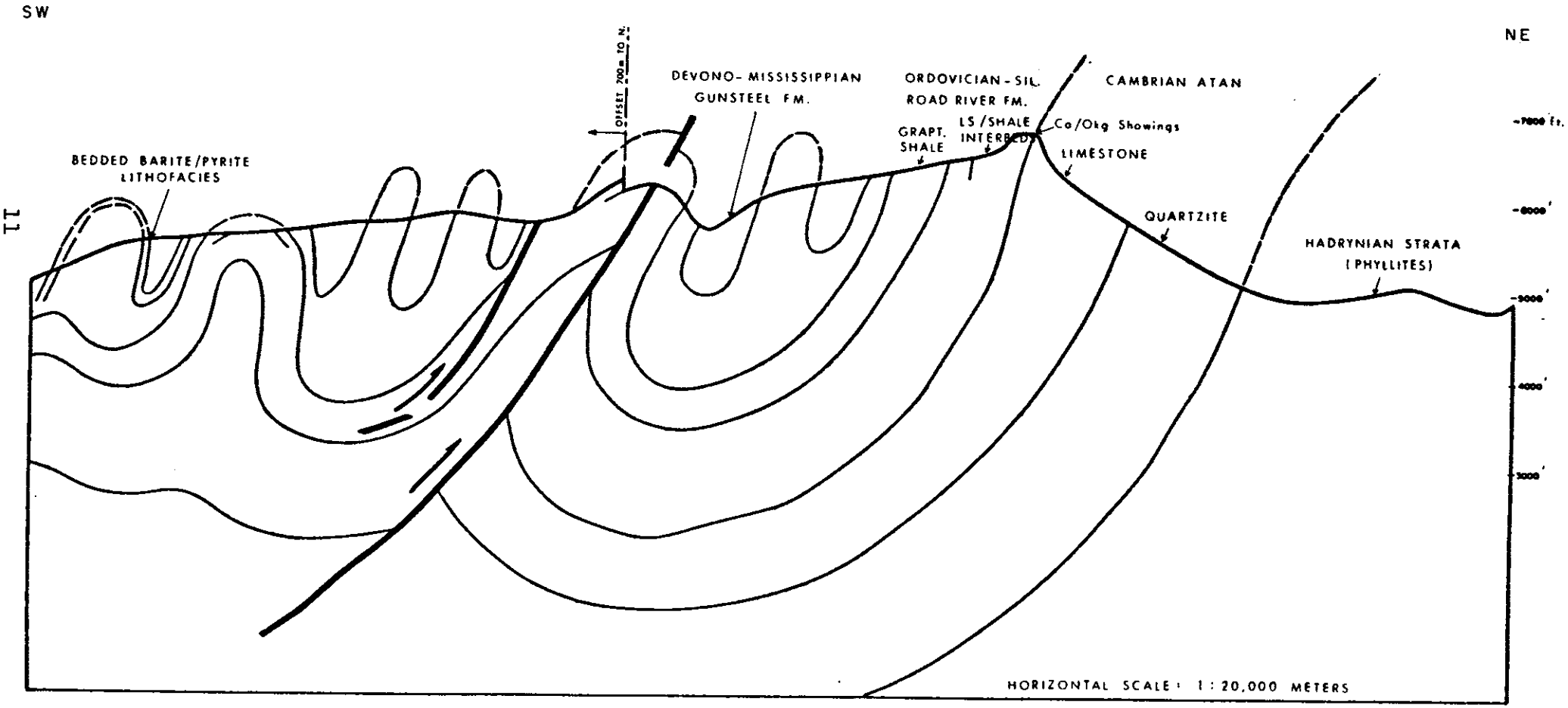
FIG. 5
STRUCTURE SECTION B-B'



OBSERVER LOOKING NORTHWEST

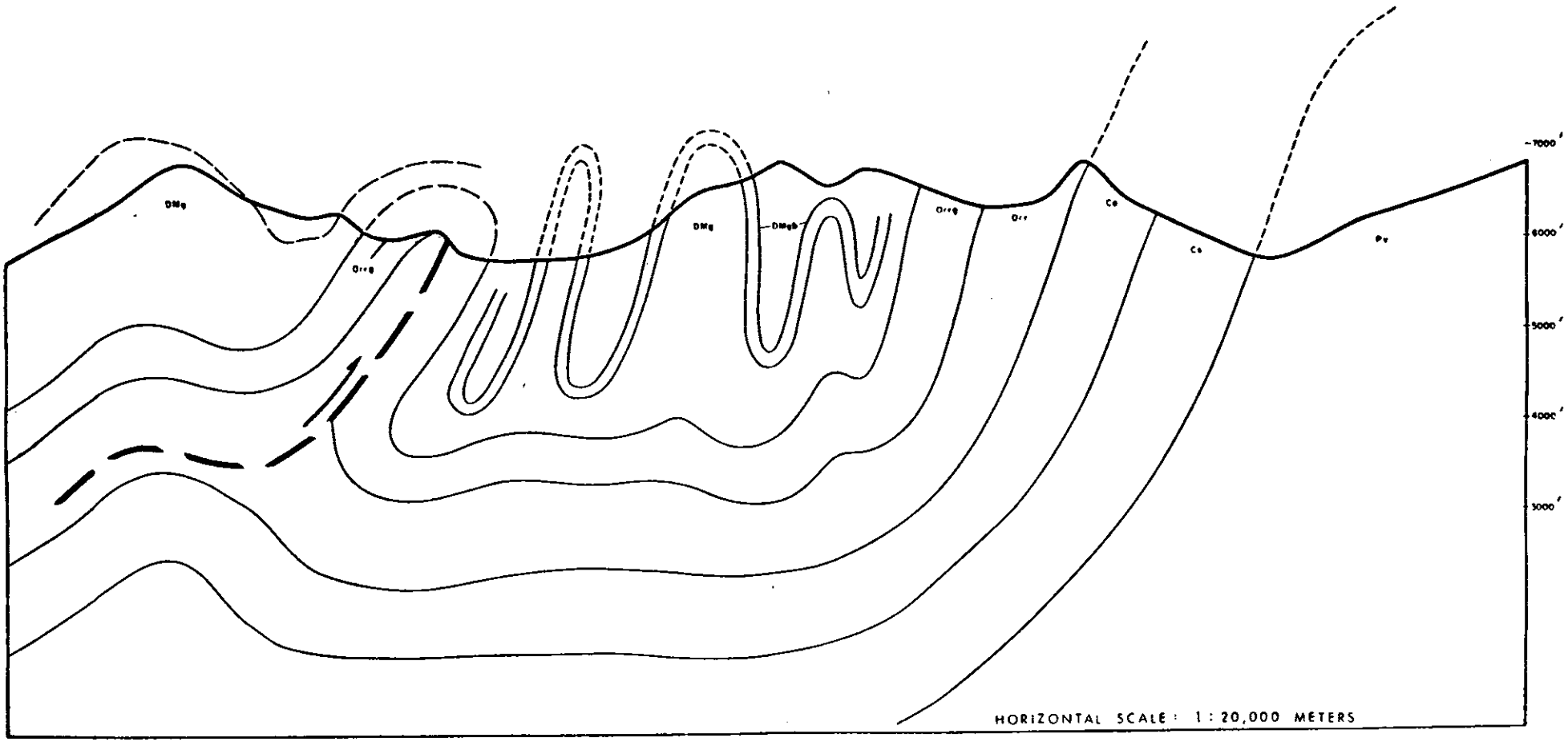
FIG. 6

STRUCTURE SECTION C-C'



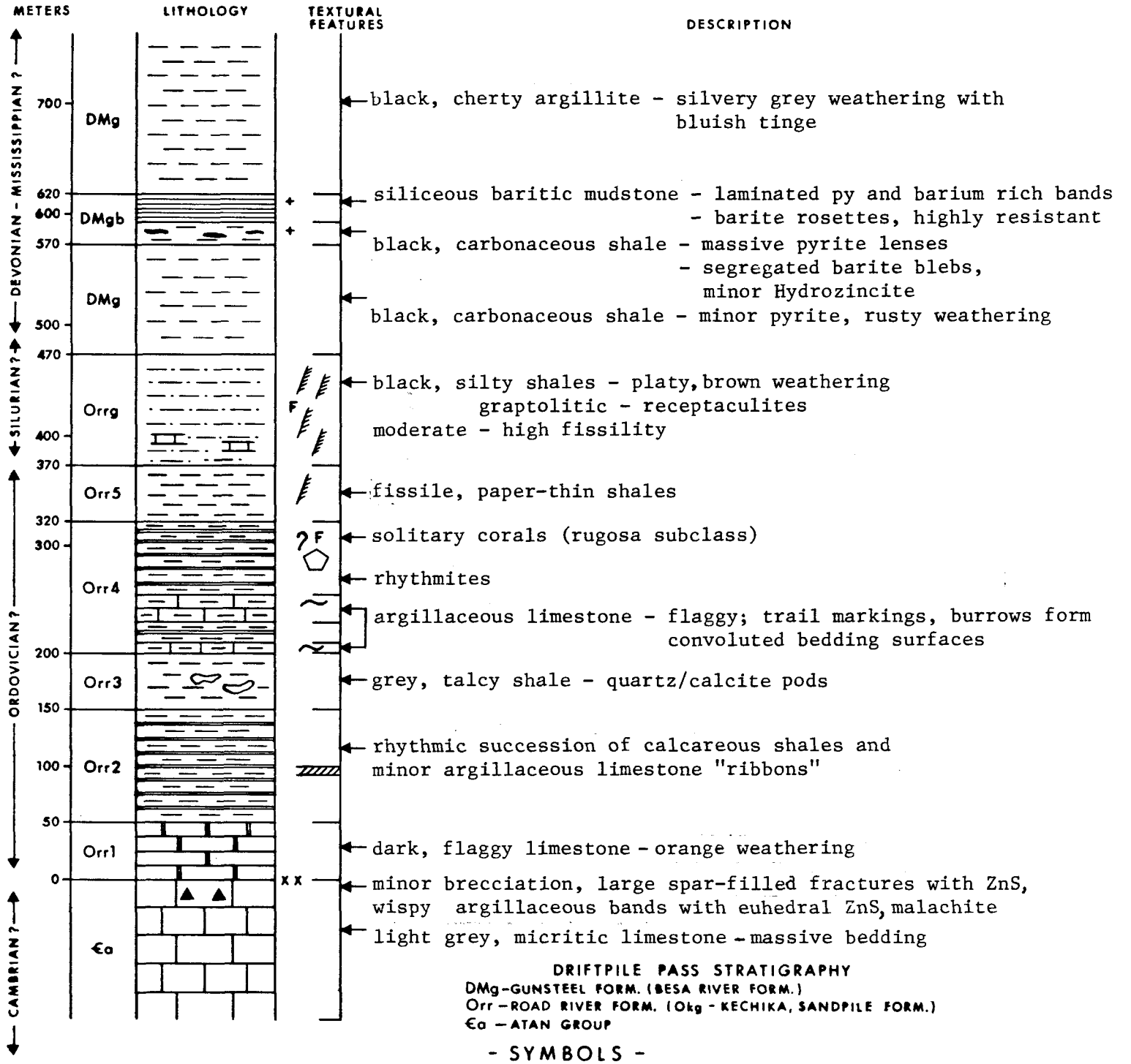
OBSERVER LOOKING NORTHWEST

FIG. 7
STRUCTURE SECTION D-D'



OBSERVER LOOKING NORTHWEST

Fig. 8 GENERALIZED STRATIGRAPHIC COLUMN
FOR DPP CLAIMS
Scale: 1:5000



- SYMBOLS -

- limestone (clean)
- limestone (dark)
- Argillaceous limestone
- rhythmites
- shale
- silty shale
- siliceous, laminated mudstone
- graptolites
- F Coralline Fauna
- ? brachiopods
- trail markings (burrows)
- mud cracks
- planar cross-laminae
- X, + mineralization - Zn/Pb/Cu, Ba

REGIONAL AND PROPERTY STRATIGRAPHY

The determination of stratigraphic relationships was essential in unravelling the structural complexities of the Driftpile region.

Figure 8 depicts a generalized stratigraphic column for the DPP claims which focuses on the lower Paleozoic section. Time stratigraphic boundaries are provisional as they are based on limited fossil evidence and regional lithologic correlations.

Each rock stratigraphic unit is discussed in terms of regional correlations focusing in on the specific stratigraphic record on the DPP claims.

Atan Group

The basic subdivisions within the Cambrian Atan Group consists of a lower (clastic) and upper (carbonate) lithofacies. Fritz (1978) has recognized three grand cycles (large clastic - carbonate pairs) in the Northern Cordillera, specifically in the Cassiar and Kechika Ranges. In the Kechika Ranges the "Upper Atan" contains clean carbonate similar to that described by Gabrielse (McDame Map Area - 1963). The characteristic Upper Atan carbonate/clastic pairing also occurs in the Tuchodi Map area in the vicinity of the Driftpile Pass claims. However, biostratigraphic correlation has not been refined enough to determine which of the cycles are present. The presence of many hiatuses also complicates the stratigraphy.

The upper carbonate facies conformably overlies the quartzite. This succession is highly uniform in character consisting of bluish gray micritic limestones which are massively bedded. Generally fossil preservation is poor, however, archaeocyathid mounds have been reported by Taylor (1972). Exposed near the lower contact are minor clast-supported breccias with hematitic mud matrix. Some of the breccias have developed vuggy porosity with calcite spar in-filling. Breccia development is more dominant along the same facies trend to the south of Driftpile Pass towards the Gataga Lakes.

Road River Formation

The type locality of the Road River Formation is located in the Richardson Mountains of the northeastern Yukon consisting of dominantly Ordovician and Silurian micritic limestone and graptolitic shale with associated carbonate breccia and conglomerate characteristic of slope and basin deposits. Jackson and Lenz (1962) indicate that this formation can probably be subdivided into an upper predominantly shaly unit and a lower predominantly calcareous unit.

These strata are unconformably overlain by the Devono-Mississippian Gunsteel Formation. The calcareous unit near the lower boundary is conformably underlain by shale, silt and sandstone of Cambrian Age. In many parts of the Olgilvie Mountains the lower boundary is abrupt and is located where graptolite bearing shales overlie a thick sequence of dolomite of probable Cambro-Ordovician age.

In the Driftpile Pass area the lower Paleozoic assemblage occupies a similar stratigraphic position and displays a comparable lithological progression. Six units with stratigraphic thickness of 470 meters are found on the property. These are regionally correlated with the Road River Formation.

Unit 1

Unit 1 consists of dark grey argillaceous limestone weathering orange-brown. Strong fissility has developed along bedding planes. Parting planes have developed regularly at 15-20 cm intervals weathering as thin plates bounded by smooth surfaces forming where the argillaceous content increases. The unit is 50 meters thick with little variation in consistency.

Unit 2

Unit 2 consist of dark grey calcareous shales interbedded with "ribbon" limestone bands ranging in thickness from 15-30 cm. The rhythmites are distributed uniformly averaging nine bands per meter. Excellent planar cross laminations within the limestone bands indicate westward tops which also coincides with the attitude of the bedding schistosity. The thickness of the unit varies between 100 - 120 meters.

Unit 3

Unit 3 consist of light grey shales displaying a strong schistosity. The cleavage surfaces are generally very smooth with shiny lustre and have a distinctive talcy feel. Large pods of massive quartz and calcite show preferred orientation parallel to bedding. The lower contact with unit 2 is gradational. The formation thickness is 50 meters.

Unit 4

Unit 4 changes gradationally into a zone of dark grey shales which enclose 2 beds of burrowed argillaceous limestone measuring 10 and 25 meters in thickness. The calcareous beds weather in large thin flags displaying intricate trail markings oriented in a convoluted pattern along bedding planes. These beds grade into an upper section of "ribboned" limestone bands which are fossiliferous. Inarticulate brachiopods were prolific near the upper surface of each band. The base of each band is darker in color and more argillaceous becoming lighter in color towards the top surface. Rugose corals with their long axes lying in the bedding place were also observed. Polygonal mudcracking has developed on the upper surface of some of the limestone bands. The formation thickness has been measured at 120 meters.

Unit 5

Unit 5 consists of dark grey non-calcareous shales weathering to brownish paper-thin wafers. Outcrop exposures are poor due to its recessive nature. The lower contact is gradational. Poorly preserved graptolitic fauna are distributed sporadically within this unit. The formation thickness is 50 meters.

Unit 6 (Orrg)

Unit 5 is in abrupt contact with Unit 6. Unit 6 consists of silty, black "non-calcareous" graptolite shales weathering a distinctive brown color. The strata weather in large booklike plates bounded by rough planar surfaces.

Strong bedding fissility has resulted in good preservation of the graptolite stipes however, weathering processes have destroyed the thecal patterns making positive identification difficult. However, fossil float from Unit 6 was discovered which has been tentatively identified as "receptaculites", diagnostic of the Middle Ordovician.

The higher silt content appears to have increased the structural competency as the resistant bedding can be traced with ease through the well preserved fold structures which locally may form cliffs. Lenses of black micritic limestone also occur within this unit although stratigraphic position is unknown. The thickness of the graptolitic unit is 100 meters.

Gunsteel Formation

The formation name "Gunsteel" is provisional and has been assigned to the Devono-Mississippian "Black Clastic" group. The black pyritic shales and cherty clastic rocks of the group, which blankets most of the Selwyn Basin, correlate with the Besa River Formation of the Southern Mackenzie and Northern Rocky Mountains, and with the Canol and Imperial formations of the northern Mackenzie and Richardson Mountains. In the Macmillan Pass area a basal clastic sequence of rhythmically interbedded siliceous black shale and siltstone about 200 m thick grades upward through tuffaceous shale and greywacke to sandstone, and locally, to chert pebble conglomerate. The superadjacent middle unit consists of a silvery weathering laminated black shale which is pyritic and carbonaceous

interstratified with bedded sulphide and barite beds occurring near the base of this unit. The upper "black clastic" sequence consists of coarse grained chert arenites grading to pebble conglomerates which is much coarser than the lower clastic facies. (See Ref. Dawson 77, Blusson 78)

A similar succession outcrops in the Driftpile Pass region however, the basal clastic sequence is absent. The silvery grey weathering middle sequence conformably overlies unit 6 of the Road River Formation. A distinctive lithology, termed the "baritic lithofacies" lies within the middle sequence of the Gunsteel.

The baritic lithofacies is widely distributed within the Gunsteel varying in composition, form and thickness over the property area. The baritic lithofacies consists of two units; an upper siliceous bedded baritic mudstone unit and a lower pyritic, carbonaceous shale unit containing segregated barite. The lower unit (approx. 20m thick) consists of black carbonaceous shale with lenses of massive pyrite. Oval shaped blebs of white barite are contained within segregated bands concordant with bedding. In the fold hinges, these small boudins are commonly transposed with orientation parallel to the axial plane cleavage.

The upper unit (approx. 30m thick) is characterized by resistant rusty weathering blocks of high density. Thin bands of dark grey to black barite are intercalated with well indurated siliceous mudstone. Some of the barite bands thicken up to 20cm. However, they may grade to discrete nodular rosettes of 5 - 10cm diameters with radial interval structure.

Very thin pyrite laminae are interbedded with the barite bands and may appear in both units. These laminae are best preserved in the more competent upper siliceous unit. The siliceous unit grades into a thick sequence of black cherty argillite which may be locally carbonaceous and pyritic.

Structural projections indicate a minimum thickness of the Gunsteel to be approximately 200 meters. The baritic lithofacies is estimated to lie approximately 75 - 100 meters above the Road River contact. True stratigraphic thicknesses are difficult to obtain due to the disharmonic fold habit of the Gunsteel. Figure 7 shows a rapid thickening of the Gunsteel, inferred from structure, on the over-riding thrust plate. Further detailed mapping is required to verify the thickening trend.

The upper chert arenite pebble conglomerate sequence outcrops extensively in the Driftpile Creek area, however only a thin veneer is exposed on the ridgetop to the SW of DPP No. 6.

DEPOSITIONAL ENVIRONMENTS

The stratigraphic section observed in the Driftpile Property areas exhibits remarkable continuity laterally and vertically. This suggests that the paleo-shoreline in lower Paleozoic time was a strandline feature oriented roughly parallel to the Laramide structural trends.

The lower Cambrian siliciclastics are basal transgressive in nature with deposition occurring in a littoral environment with foreland regions shedding clastics westward into a proto-Pacific basin. The Upper Atan carbonates were deposited on an open platform near its seaward margin as indicated by the presence of clast supported breccias filled with hematitic muds. These large breccia occurrences outcrop to the north and south of the Driftpile property and appear to be coeval with the Upper Atan carbonates. These breccias are interpreted to represent basinal slope deposits which developed near a submarine platform margin where a debris apron of limestone blocks has been transported directly from shallow to deep water. These rather steep margins may indicate listric normal faulting along oceanic margins or a faster rate of subsidence in the basin than the adjacent platform. Cecile (1979) reports the occurrence of red weathering sheeted conglomerates in the Tuchodi Map area which can be directly related to large normal faults active at the time of deposition with vertical displacement in excess of 500 meters.

The Ordovician - Silurian Shale packet is composed of a blanket-like succession of interbedded shales and carbonates grading into black shales by Devono - Mississippian time. The Road River assemblage can be regarded as being deposited in a transitional environment from upper shelf marginal to lower shelf basinal. Unit 1 was deposited in a sublittoral environment near the platform edge indicated by increasing shale content towards the upper part of the unit. The ribboned micrites of Unit 2 were laid down in a pelagic

slope environment with carbonate being contributed from the marginal platform under slightly higher energy conditions indicated by planar laminations preserved in the rhythmites.

Unit 4 exhibits intense biogenic activity as benthonic organisms left burrows and feeder trails. Coralline and shelly fauna with mudcracks exposed in the same interval of unit 4 suggest shoaling water conditions prevailed near mud mounds which may have been exposed subaerially in the intertidal zone. However, the widespread distribution of the burrowed sequence below indicates a strong degree of uniformity in shelf bathymetry which has restricted the development of subenvironments providing that fluctuations in sea level were minor.

Slight changes in the hydrodynamic regime during the deposition of the graptolitic units 5 and 6 are reflected by the sudden paucity of carbonate and coralline material, concomitant with the influx of silts. Continous sedimentation persisted into the Devonian with the deposition of the Gunsteel Formation.

Barite and sulphide deposition apparently occurred during a period of quiescent sedimentation that followed or accompanied a period of uplift and erosion of chert bearing (Road River?) strata to the west. Euxinic conditions controlled the deposition of syngenetic pyrite and carbonaceous material in a starved basin environment which existed in early Devonian time.

A transition from a reducing to an oxidizing regime is represented by the co-deposition of syngenetic barite and pyrite with siliceous muds reflecting a major change in the chemogenic evolution of the basin.

The upper clastic sediments were deposited in a high energy environment during continuing uplift and erosion in Upper Devonian to Mississippian time.

GEOCHEMISTRY

Summary

A total of 530 soil samples were collected. Pb,Zn and Cu analyses were run on each sample and submitted for assessment credit. Samples were collected between August 9 and August 31 by personnel employed by Texasgulf Inc. (See Appendix A)

Sampling and Analytical Procedure

Soil samples were collected from the B horizon at 5-15cm depths using a grubhoe. Unconsolidated scree material (horizon) is commonly encountered at shallow depths on upper slopes. Samples were placed in kraft paper bags (35lb wet strength), air dried and shipped to Bondar - Clegg Ltd. in North Vancouver. At this lab, the -80 mesh fraction was analysed for Pb, Zn and Cu using hot aqua regia extraction and atomic absorption analytical techniques. Results are quoted as "ppm - total metal".

Survey Grid

Baselines were established in the area, surveyed by chain and brunton compass. 25.3 km of grid and baselines were run in areas of interest. Contour sample lines on steep hillsides were spaced every 250 feet in elevation and flagged at 50 meter intervals along the line (chain, brunton, clinometer control). Grid sample lines over less steep terrain were offset from a baseline every 60 meters with 40 meter stations flagged in.

Results and Interpretation

Reconnaissance soil sampling was mainly restricted to the Devono-Mississippian Gunsteel Formation. A summary of the statistical analysis follows:

Metal	Pop'n	Mean ($\bar{x}$)	St. Dev. (s)	Threshold ($\bar{x}$ + s)	Anomalous ($\bar{x}$ + 2s)	Rejected Pop'n
Zn*	523	245	222	468	690	7
Pb**	527	19	11	30	40	3
Cu***	530	36	23	60	82	-

* Seven samples not included in this population contained between 1520 ppm and 14700 ppm Zn. These extremely anomalous samples are exclusively comprised of springiron tuffa material. The springiron tuffa deposits have migrated away from the metal source. (See fig. 10)

** Three highly anomalous lead values are not included in this population (470, 330 and 220 ppm). These values were obtained over the baritic lithofacies on the SW corner of the DPP No. 1 claim and form a coherent lead anomaly. The other lead values are generally unremarkable. (ie- less than 60 ppm; see fig. 11)

*** The distribution of copper anomalies is erratic. (See fig.12)

The principal soils on the DPP property are azonal lithosols which have developed on steep slopes and consist of fresh and imperfectly weathered rock fragments. Hence, physical weathering predominates over chemical weathering processes. However, hydromorphic dispersion processes result in the formation of spectacular "springiron" deposits. These transported gossans are lobate or fan shaped and some show considerable vertical relief due to aggradational processes. These gossans have a high Zn content. Lead values are extremely low.

The following factors are important in the genesis of springiron deposits in the Driftpile region:

1) Topography - intense physical weathering on ridgeline permits intake of acid rain water
   - downward migration of ground waters
   - seeps discharge near base of slope

2) Lithology - disseminated and bedded pyrite in carbonaceous shale of Gunsteel Formation
   - hydromorphic movement of iron, calcium and zinc cations
   - precipitation of iron oxides & $CaCO_3$
   - adsorption of zinc cations

3) Structure - dominant penetrative cleavage and axial plane cleavage in steeply plunging hinge zones provide plumbing system for leach waters

4) Vegetation - sphagnum moss and dwarf willow stabilize mobile scree material
- ferro-calc ooze cements this substrate
- continuing mass wastage builds deposit upwards and outwards
- greatest accumulations are usually found on southwest facing slopes where mass wastage is less rapid (up to 500m x 150m)
- small seeps also originate in steeply incised runoff channels with active precipitation of hydrozincite and calcium carbonate on loose scree

Pleistocene geomorphological events have locally affected the soil profiles in the Driftpile area. The existence of a proglacial dam barrier lake is evident. A remnant beach terrace can be traced across the flanks of ridges facing Driftpile Pass at approximately elevation 4500 feet. The soil profiles below this elevation are residual in character and formed in a reducing chemical environment. Soils, associated with the lower pyritic carbonaceous unit of the baritic lithofacies are black with some unoxidized pyrite fragments. The upper siliceous baritic mudstone unit produces a medium brown soil with high concentrations of barium. (up to 2.5%)

Conclusions

1) The lead response (470,330, & 220 ppm) on the SW corner of DPP No. 1 represents a mechanical dispersion halo in residual soils (at El. 4250') indicating the presence of galena associated with the baritic lithofacies.

2) The high zinc values (1520 to 14700 ppm) obtained over large springiron gossans are partly accounted for by the scavenging of zinc cations by ferric hydroxide. The zinc is derived from the Gunsteel Formation outcropping upslope from the gossans.

3) Lead and barium anomalies are related exclusively to the baritic lithofacies.

INTERPRETATION OF FIELD DATA

Geologic mapping shows that the baritic lithofacies consists of an upper siliceous baritic mudstone unit and a lower pyritic carbonaceous shale unit. They have a characteristic topographic expression which can be recognized in the field as resistant siliceous outcrop ribs and recessive barium-rich poison zones.

Structural projections suggested that the baritic lithofacies outcrops on open ground between the DPP and the DP claim groups. Subsequent field work in this area, identified a stratigraphic succession similar to that which hosts the mineralized baritic unit outcropping on the DP property. The baritic lithofacies outcrop distribution is controlled by folding since the fold limbs can be recognized by tracing the vegetation kill zones. Some of the poison zones assayed greater than 2.5% barium. Soil geochemistry should be useful in detecting secondary dispersion halos indicative of subcropping mineralization associated with the baritic lithofacies.

Minor occurrences of sphalerite, galena, chalcopyrite, azurite and malachite are hosted near the upper contact of the Atan limestone unit localized in spar-filled fracture zones and breccia pockets. Euhedral sphalerite also occurs in argillaceous bands within the Atan near the contact. This mineralization is distributed erratically along the contact.

CONCLUSIONS AND RECOMMENDATIONS

1) Stratigraphic and structural mapping has confirmed the presence of the Gunsteel Formation, which hosts a baritic shale unit, outcropping on ground held by Tg.

The lead geochemical response obtained over the baritic outcrop trace on the DPP No. 1 MC indicates that galena is associated with this unit. This baritic lithofacies outcrops

on the adjoining ground held by Placer Development Ltd. (DP property). Several interesting high grade galena and sphalerite occurrences are intimately associated with the baritic lithofacies and have been tested by trenching and diamond drilling.

The discovery of similar galena and sphalerite occurrences associated with the baritic lithofacies remains promising on Tg mineral claims.

The principal area of interest on the Driftpile Pass property lies within the DPP No. 1 and Puck No.1 M.C.'s.

I recommend that first priority be assigned to evaluate these claims. This involves detailed geologic mapping to delineate the barite unit on the Puck No. 1 claim. A subsequent geochemical soil survey will test the unit for Pb/Zn mineralization.

The mineral claims listed below should be retained for future consideration.(See fig. 2)

DPP No. 1
DPP No. 3 (2N, 2E)
DPP No. 4
DPP No. 6 (3S, 4W)
DPP No. 9
Puck No. 1

It must be emphasized that the ground held by Tg marks the eastward extension of geologic settings favourable for shale hosted Ba/Pb/Zn mineralization similar to that occurring on the DP property. Additional drilling will be done during the 1979 field season on the DP property.

2) No further work is warranted on the Ca/Okg showings at this time. Mineral rights to this ground should be allowed to lapse.

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B. C. Department of Mines Assessment Report
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B. C. Department of Mines Assessment Report
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STATEMENT OF QUALIFICATIONS

P. Hubacheck Geologist BEng

P. Hubacheck was employed by Texasgulf Inc. as a geologist during the summer of 1977. I obtained my degree from the South Dakota School of Mines in May 1977.

This is my 5th summer of employment with Texasgulf Inc.

W. Gardiner Geologist BSc MSc

W. Gardiner is employed by Texasgulf Inc. as a geologist during the summer of 1977. He obtained his degree from Memorial University New Brunswick, 1975.

In May 1978 he finished has MSc in Mineral Exploration at McGill University, Quebec. He is a conscientious and competent field geologist.

D. Mann Assistant

Mr. Mann is enrolled in his 3rd year of Geology at Acadia University Nova Scotia.

This is his third summer's work with Texasgulf. He is a keen and capable field assistant.

D. Cameron Assistant

Mr. Cameron is enrolled in his 2nd year of Geology at Carlton University.

This is his first summer in the field. He is a keen and capable field assistant.

A. E. Eunson Assistant

Mr. Eunson is enrolled in his 3rd year of Geology at the University of Manitoba. This was his third season of geological related field work. He is a thorough and competent field assistant.

STATEMENT OF EXPENDITURES

DPP Claims No. 1 to No. 9

(Grid Establishment and Geochemical Sampling)

SALARIES AND FRINGE BENEFITS - TEXASGULF INC.

P. Boyle, B.Sc. - Supervisor		
Period August 8 - 25, 1978 2 days @ $90 per day	180.00	
D. Jewett, Geologist		
Period August 8 - 30, 1978 1 day @ $100 per day	100.00	
P. Hubacheck, Geologist		
Period August 8 - 30, 1978 5 days @ $85 per day	425.00	
W. Gardiner, Geologist		
Period August 8 - 30, 1978 6 days @ $60 per day	360.00	
A. Eunson, Assistant		
Period August 8 - 30, 1978 7 days @ $35 per day	245.00	
D. Cameron, Assistant		
Period August 8 - 23, 1978 2 days @ $35 per day	70.00	
D. Mann, Assistant		
Period August 8 - 30, 1978 7 days @ $35 per day	245.00	
	1625.00	1625.00

CAMP EXPENSE

30 man-days @ $25 per day	750.00	
Pro-rated share of camp mob, demob.	960.00	
	1710.00	1710.00

HELICOPTER SUPPORT

Texasgulf Bell 206-B 7.7 hr. @ $300/hr	2310.00

ANALYTICAL COSTS

530 soil samples @ $2.85	1510.00

MISCELLANEOUS

Shipping (geochem samples)	120.00	
Report Preparation	250.00	
	370.00	370.00
	TOTAL=	$7525.00

PRO-RATING

	% Work Apportionment (samples per claim/total samples)	Cost Apportionment (% Work X Total Cost)
DPP No. 1	9%	$677.75
No. 2	0	0.00
No. 3	0	0.00
No. 4	77%	$5794.25
No. 5	1%	$75.25
No. 6	11%	$827.25
No. 7	0	0.00
No. 8	0	0.00
No. 9	2%	$150.50
		$7525.00

P. C. Hubacheck

STATEMENT OF EXPENDITURES
DPP Claims No. 1 to No. 9
(Geology)

SALARIES AND FRINGE BENEFITS - TEXASGULF INC.

P. Boyle, B.Sc. - Supervisor		
Period August 8 - 25, 1978 2 days @ $90 per day	180.00	
D. Jewett, Geologist		
Period August 8 -30, 1978 0 days	0.00	
P. Hubacheck, Geologist		
Period August 8 - 30, 1978 17 days @ $85 per day	1445.00	
W. Gardiner, Geologist		
Period August 8 - 30, 1978 14 days @ $60 per day	840.00	
A. Eunson, Assistant		
Period August 8 - 30, 1978 10 days @ $35 per day	350.00	
D. Cameron, Assistant		
Period August 8 - 23, 1978 0 days	0.00	
D. Mann, Assistant		
Period August 8 - 30, 1978 10 days @ $35 per day	350.00	
	3165.00	3165.00

CAMP EXPENSE

53 man-days @ $25 per day	1325.00	
Pro-rated share of camp mob, demob.	1690.00	
	3015.00	3015.00

HELICOPTER SUPPORT

Texasgulf Bell 206-B 13.5 hr. @ $300/hr.	4050.00

MISCELLANEOUS

Report Preparation	250.00
TOTAL=	$10,480.00

PRO-RATING

	% Work Apportionment (man-days per claim/total man-days)	Cost Apportionment (% Work X Total Cost)
DPP No. 1	26%	$2724.80
No. 2	0	0.00
No. 3	8%	$838.40
No. 4	32%	$3353.60
No. 5	13%	$1362.40
No. 6	19%	$1991.20
No. 7	0	0.00
No. 8	0	0.00
No. 9	2%	$209.60
		10,480.00

PCH.

Peter C. Hubacheck

CLAIM STATUS SUMMARY - BASED ON 1978 FIELD WORK

Mineral Claim	1979 Assessment Work Credits	1979 PAC Account	Assessment Value Applied for	Units Retained	Work Credits Filed ($100/unit/yr	Credits Available for Regrouping	Credit Transfers	Work Credits Filed ($200/unit/yr	Excess Work Credits	Anniversary Date	Expiry Date
DPP# 1	$3402.55	$1020.77	$4400.00	18	$3600.00	$800.00	$4000.00	$3600.00	1200.00	June/77	1982
DPP# 2	0.00	0.00	0.00	0	0.00					June/77	
DPP# 3	838.40	251.54	1000.00	4	800.00	200.00		800.00		June/77	1982
DPP# 4	9147.85	2744.36	11800.00	18	3600.00	8200.00		3600.00		June/77	1982
						8400.00		4400.00			
DPP# 5	1437.65	431.30	1800.00	0	0.00	1800.00			1200.00	June/77	
DPP# 6	2818.45	845.54	3600.00	12	2400.00	1200.00				June/77	1981
DPP# 7	0.00	0.00	0.00	0	0.00					June/77	
DPP# 8	0.00	0.00	0.00	0	0.00					Sept/78	
DPP# 9	360.10	107.96	400.00	6	1800.00	-1400.00	1800.00		400.00	Sept/78	1982
	*$18005.00								$2800.00		
Puck# 1				15						Sept/79	

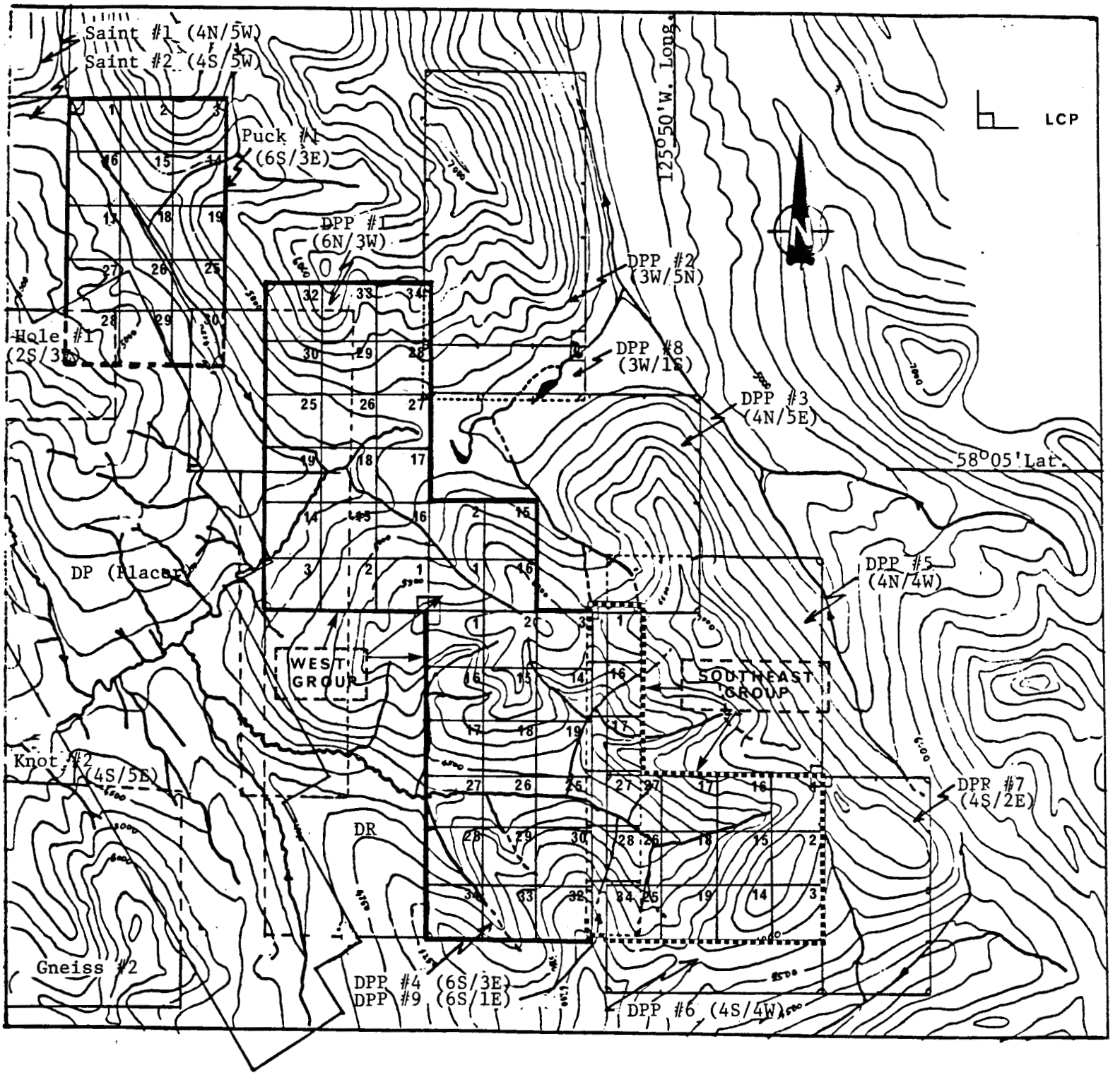
** - West Group (DPP# 1, DPP# 3, DPP# 4)

*** - Southeast Group (DPP# 6, DPP# 9)

Regrouping Claim Status Effective After June 1, 1979 (See Fig. 18)

* - Total Expenditures (See Appendix A)

Fig. 18 CLAIM GROUPING MAP (1:50,000)



Texasgulf

Placer

Welcome North

Cyprus Anvil

West Group

Southeast Group

TEXASGULF INC.
MINERAL EXPLORATION CALGARY

DPP No.1 TO No. 9 CLAIMS

MINERAL RESOURCES BRANCH
ASSESSMENT REPORT
NO. 7290

GEOLOGY

DATE:	BY:	NTS:	C.I.: 500'
OCT. 16, 1978	P.HUBACHECK	94-K-4	SCALE-1:10,000

TO ACCOMPANY: 1978 ASSESSMENT REPORT

FIG. 9 GATAGA RIVER AREA, LIARD MINING DIVISION

COMPILER / AUTHOR Peter C. Hubacheck

DATE: March 1, 1979.

LCP (LEGAL CLAIM POST)
CORNER POST
ID POST

PACE AND COMPASS SURVEY

0 500 1000
METERS

GEOLOGICAL LEGEND

DEVONO-MISSISSIPPIAN

DMg GUNSTEEL FM. (undivided) — chert arenite - cherty argillite, siliceous baritic mudstone with lam.py → DMgb; carbonaceous shale with py lenses, silvery grey weathering

ORDOVICIAN-SILURIAN

Orr ROAD RIVER FM.
- Unit Orrg - silty, graptolitic shale - platy, brown weathering
- Unit 5 - dark, grey paper shale / thin fossil. limestone interbeds
- Unit 4 - dark, grey shale / burrowed, calc. interbeds - thick
- Unit 3 - soft, grey shale - talcy feel / quartz veining
- Unit 2 - dark, grey shale / minor limestone interbeds
- Unit 1 - argillaceous limestone - flaggy, orange weathering

CAMBRIAN

Ca, Cs ATAN GROUP — Ca: light, grey limestone - poorly bedded; Cs: quartzite, minor slate and shale

Geological Mapping by: P. Hubacheck
W. Gardiner

SYMBOLS

- GEOLOGICAL BOUNDARY (approximate)
- BEDDING (inclined, overturned)
- CLEAVAGE (dominant inclined)
- FAULT (defined, assumed)
- THRUST (defined, assumed)
- ANTICLINE (defined, approx.)
- SYNCLINE (defined, approx.)
- PLUNGE
- PLUNGING FOLD
- OUTCROP
- SPRING - IRON, SEEPAGE TUFA (iron red - r, white - w)
- GEOCHEMICAL ANOMALY (hydrozincite → zinc rich - Zn, lead rich - Pb, barium rich - Ba) - poison zones
- MINERALIZATION (sphalerite - sph, galena - ga, pyrite - py, chalcopyrite - cpy, barite - ba, malachite - ma, azurite - az)

TEXASGULF INC.
MINERAL EXPLORATION CALGARY

DPP No.1 TO No.9 CLAIMS

Zn ppm – TOTAL METAL

SOIL SAMPLING

DATE:	BY:	NTS:	C.I.: 500'
OCT. 16, 1978	P.HUBACHECK	94-K-4	SCALE-1:10,000

TO ACCOMPANY 1978 ASSESSMENT REPORT

FIG. 10 GATAGA RIVER AREA, LIARD MINING DIVISION

COMPILER / AUTHOR Peter C. Hubacheck

DATE March 6, 1979

LCP (LEGAL CLAIM POST)
CORNER POST
ID POST

0 500 1000
METERS

RED	> 1,500 ppm
ORANGE	700 - 1,500
YELLOW	475 - 699
	> 475

DPP No.2
DPP No.8
DRIFTPILE PASS
DPP No.1
DPP No.3
DPP No.4
DPP No.9
DPP No.5
DPP No.6
DRIFTPILE CREEK
125° 46' W Long.
58° 05' N Lat.
125° 48' W Long.
58° 03' N Lat.

MINERAL RESOURCES BRANCH
ASSESSMENT REPORT
NO. 7290

TEXASGULF INC.
MINERAL EXPLORATION CALGARY

DPP No.1 TO No.9 CLAIMS

Pb ppm – TOTAL METAL

SOIL SAMPLING

DATE:	BY:	NTS:	C.I.: 500'
OCT. 16, 1978	P.HUBACHECK	94-K-4	SCALE-1:10,000

TO ACCOMPANY 1978 ASSESSMENT REPORT

FIG. 11 GATAGA RIVER AREA, LIARD MINING DIVISION

COMPILER / AUTHOR Peter C. Hubacheck

DATE March 1, 1979

(DPP FINAL CLAIM POST)

CORNER POST

ID POST

0 500 1000
METERS

RED	> 200 ppm
ORANGE	50 - 200
YELLOW	40 - 49
	< 40

DPP No.2
DPP No.8
DRIFTPILE PASS
DPP No.1
DPP No.3
DPP No.4
DPP No.7
DPP No.5
DPP No.6
DRIFTPILE CREEK
125° 46' W Long
58° 05' N Lat.
125° 48' W Long
58° 03' N Lat.

MINERAL RESOURCES BRANCH
ASSESSMENT REPORT
7290
NO.

TEXASGULF INC.
MINERAL EXPLORATION CALGARY

DPP No.1 TO No.9 CLAIMS

Cu ppm – TOTAL METAL

SOIL SAMPLING

DATE:	BY:	NTS:	C.I.: 500'
OCT. 16, 1978	P.HUBACHECK	94-K-4	SCALE-1:10,000

TO ACCOMPANY 1978 ASSESSMENT REPORT

FIG. 12

CATASA RIVER AREA, LIARD MINING DIVISION

COMPILER / AUTHOR: Peter C. Hubacheck

DATE: March 1, 1979

LOCATION (CLAIM POST)
CORNER POST
LINE POST

0 500 1000
METERS

RED	>80 ppm
ORANGE	60 - 80
	< 60

N

125° 46' W Long

58° 05' N Lat

125° 48' W Long

58° 03' N Lat

DRIFTPILE CREEK

DRIFTPILE PASS

DPP No.2
DPP No.8
DPP No.1
DPP No.3
DPP No.4
DPP No.9
DPP No.5
DPP No.6

MINERAL RESOURCES BRANCH
ASSESSMENT REPORT
NO. 7290

TEXASGULF INC.
MINERAL EXPLORATION CALGARY

DPP No.1 TO No.9 CLAIMS

SAMPLE LOCATION MAP

DATE:	BY:	NTS:	C.I.: 500'
OCT. 16, 1978	P.HUBACHECK	94-K-4	SCALE 1:10,000

TO ACCOMPANY 1978 ASSESSMENT REPORT

FIG. 13 ATLIN MINING DIVISION

COMPILER/AUTHOR Peter C. Hubacheck

DATE March 1, 1979

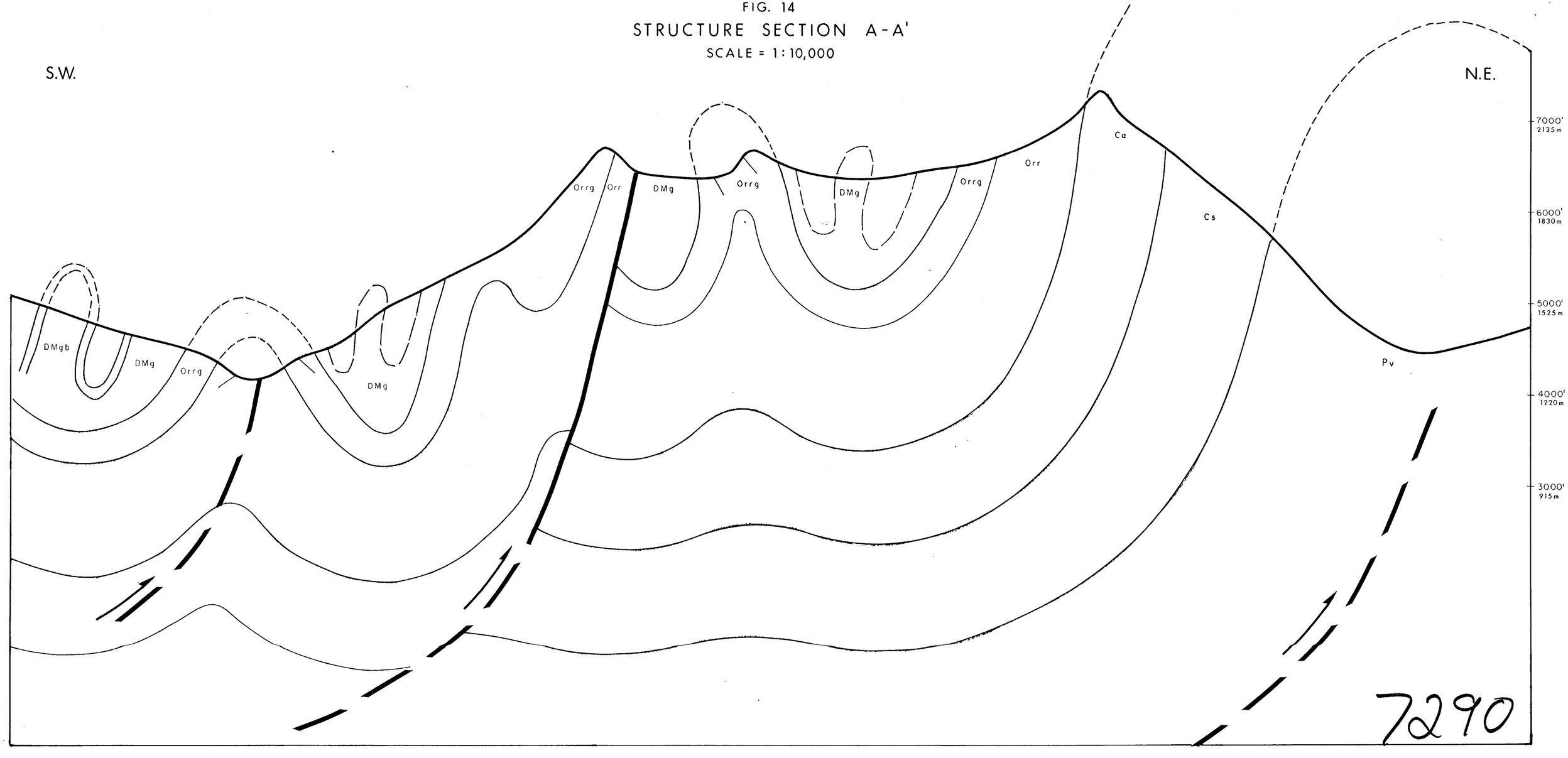
METERS

MINERAL RESOURCES BRANCH
ASSESSMENT REPORT
7290
NO.

FIG. 14

STRUCTURE SECTION A-A'

SCALE = 1:10,000



7290

FIG. 15

STRUCTURE SECTION B-B'

SCALE = 1:10,000

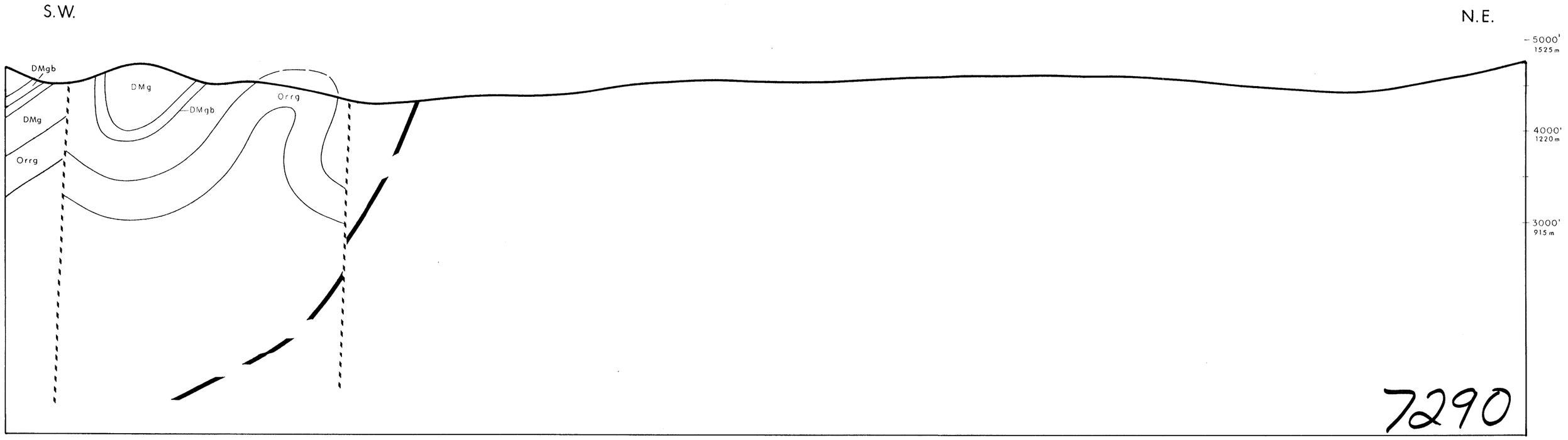


FIG. 16

STRUCTURE SECTION C-C'

SCALE = 1:10,000

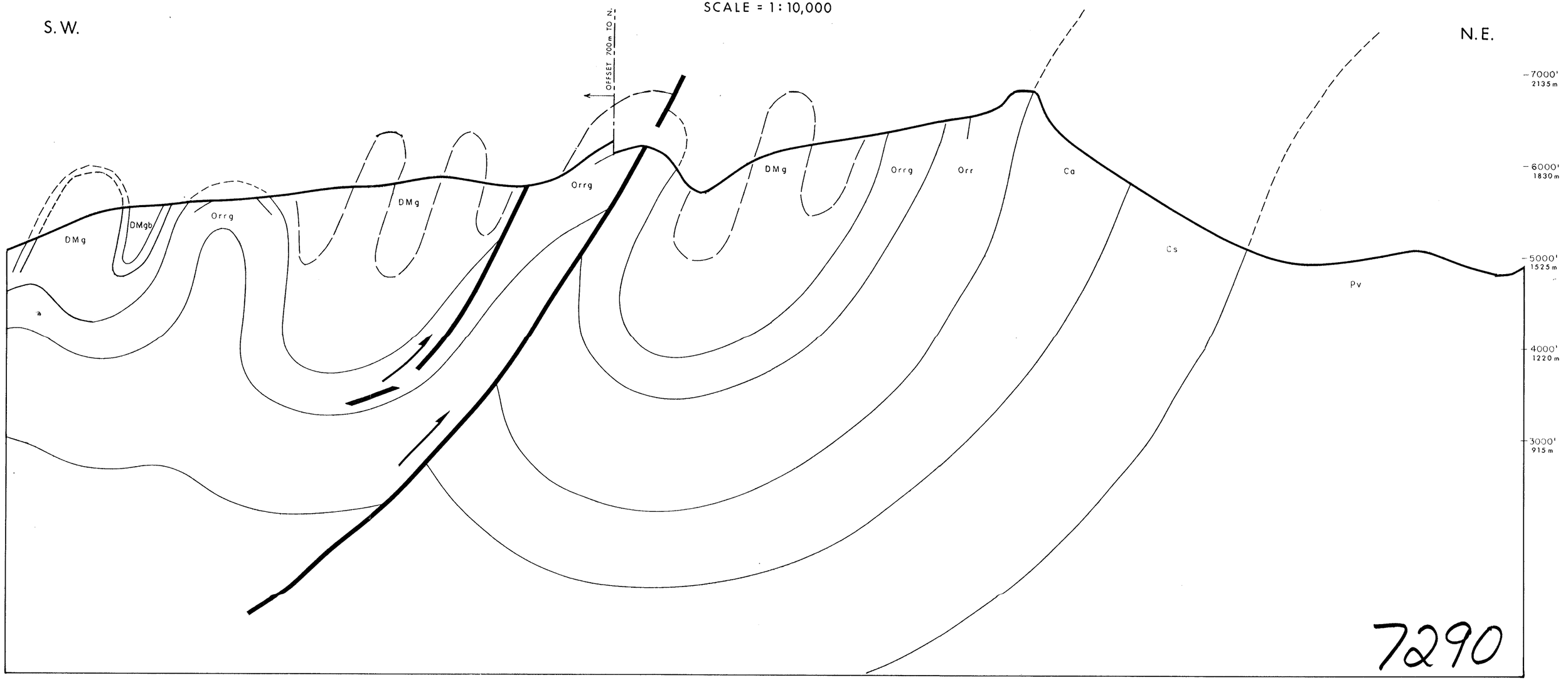


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FIG. 17

STRUCTURE SECTION D-D'

SCALE = 1:10,000