# GEOLOGY -- LIARD FLUORSPAR PROJECT
(May 20, 1972 to November 10, 1972)

Liard Mining Division

by
J. R. Woodcock

North Vancouver, B. C. November 1972

94M/8E, 9E, 9W

3975

# GEOLOGY - LIARD FLUORSPAR PROJECT

(May 20, 1972 to November 10, 1972)

MINERAL CLAIMS

TEE, TAM, FIRE, WEST, GEM

Included within Gem/72, Tam/72,
Coral/72, Bar/72,
Fire/72, West/72,
North-Tee/72

LIARD MINING DIVISION

Eight miles north of Mile 496, Alaska Highway at
latitude 59°32'N, longitude 126°05'W



by

J. R. Woodcock Consultants Ltd.

Mineral Claims owned by - CONWEST EXPLORATION COMPANY LIMITED
JOREX LIMITED and
J. R. WOODCOCK

North Vancouver, British Columbia

## TABLE OF CONTENTS



## APPENDICES

# FIGURES

# LIARD FLUORSPAR PROJECT

## INTRODUCTION

Regional prospecting in July of 1971 by a four-man crew with helicopter support resulted in the discovery of fluorspar prospects near the Alaska Highway of northern British Columbia. Several very good prospects were discovered north of Liard Hot Springs and a large group of claims was staked to cover the widely spaced fluorspar prospects. The surface exposures of mineralization on the Tam and the Tee prospects were mapped and sampled before a major forest fire interrupted the work in August.

In early September, 1971 the exploration crews returned to the Liard Hot Springs area where they did additional prospecting, found additional showings, and staked numerous more claims. An access road was built to the central part of the claim group and to several of the fluorspar prospects. Bulldozer trenching was done on the Tam, Camp, Coral, and Fire prospects.

In September 1971 a BQ Diamond Drill from D. W. Coates Enterprises Ltd. was employed and a total of 1891 feet of drilling in 14 holes was completed. Most of this drilling (1617 feet) was done on the Tam prospect; the remainder was on the Cliff prospect.

Many of the prospects and some of the general geology were briefly mapped in the 1971 program. In addition, bulk samples were taken from the Tam prospect, the Coral prospect, and the Fire prospect. These bulk samples and the core rejects were shipped to Lakefield Research for metallurgical tests.

The 1971 program was directed by J. R. Woodcock. Mr. K. W. Livingstone looked after the drill program and logged most of the core. Mr. Tom Wilkinson looked after road construction and general management of the camp.

In early 1972, a new company — Liard Fluorspar Mines Ltd. was formed to acquire the claims staked under the direction of J. R. Woodcock Consultants Ltd. in 1971 and also the original Gem mineral claims held for many years by Conwest Exploration Company Ltd.

In early June 1972, exploration crews again returned to the area. Diamond drilling was done by Canadian Longyear Ltd. under the supervision of Mr. Scott Zimmer of Conwest Exploration Company Ltd. Geological mapping of the mineral prospects and the claims was done by Mr. Henry Meixner, Mr. Andre Audet, and Mr. James Brander of J. R. Woodcock Consultants Ltd. J. R. Woodcock consulted on the overall program.

The present report deals with the surface geology of the fluorspar showings and the area of the claims around these showings. The regional mapping is presented on topographical maps, scale 1" = 800', contour interval 100 feet. There are four of these maps and their respective positions are shown on the index on each map. These maps are a compilation of all the mapping done on the mineral showings by the various geologists, and that done on the claims, mainly by Mr. Henry Meixner, geologist.

The fluorspar showings have been mapped on a scale of 1" = 50' with contours ranging from 10-foot intervals to 25-foot intervals. This mapping has been done by various geologists including James Brander, Henry Meixner, J. R. Woodcock, K. W. Livingstone, Andre Audet, and Scott Zimmer.

Control for the mapping of the mineral prospects was by transit and stadia or chain done by Mr. Andre Audet, geologist, and his assistant. Each of the mineral showings has been tied to a mineral claim post. In addition a survey carried along the access roads was used to tie in many of the claim posts in the vicinity of the showings. Other claims have been plotted on the 800-scale topographical maps.

## LOCATION AND ACCESS

The Liard fluorspar prospects are located near the Alaska Highway at Mile 498, about 200 miles north of Fort Nelson, British Columbia (Figure 1 ). Fort Nelson is a small town with population of 3500, serviced by the British Columbia Railway from Vancouver. The Alaska Highway is the main access road to the Yukon and is a maintained gravel surface road.

The fluorspar prospects are located along a stratigraphic contact and are thus quite widespread. The prospects are found over a distance of eleven miles along a north-south contact and six miles along an east-west trending contact.

The main prospects may be reached from the Alaska Highway by the CNT Microwave Tower all-weather gravel access road at Mile 498. About 2000 feet west of the tower on the CNT access road, a forest access road suitable for 4-wheel drive vehicles was extended to the main prospect area. In addition an access road which leaves the highway at Mile 497, extends in a north-easterly direction to the area of the original Gem prospects.

The prospect area is one of gentle to moderate relief, at an average elevation of 3000 feet. The rolling topography reflects underlying bedrock. Limestone ridges and knolls are separated by recessive areas and valleys underlain by shale. Two main creeks, Teeter and Mould, crosscut the major structural control and bedrocks, and flow obliquely across the prospect area.

During the first phase of work, a thick forest of balsam, lodgepole pine and spruce covered most of the region; outcrops were scarce. The forest fire killed all the timber. Old or re-burned areas are now completely bare; the abundant trees in the newly burned areas are starting to fall forming an inaccessible mass of deadfall.

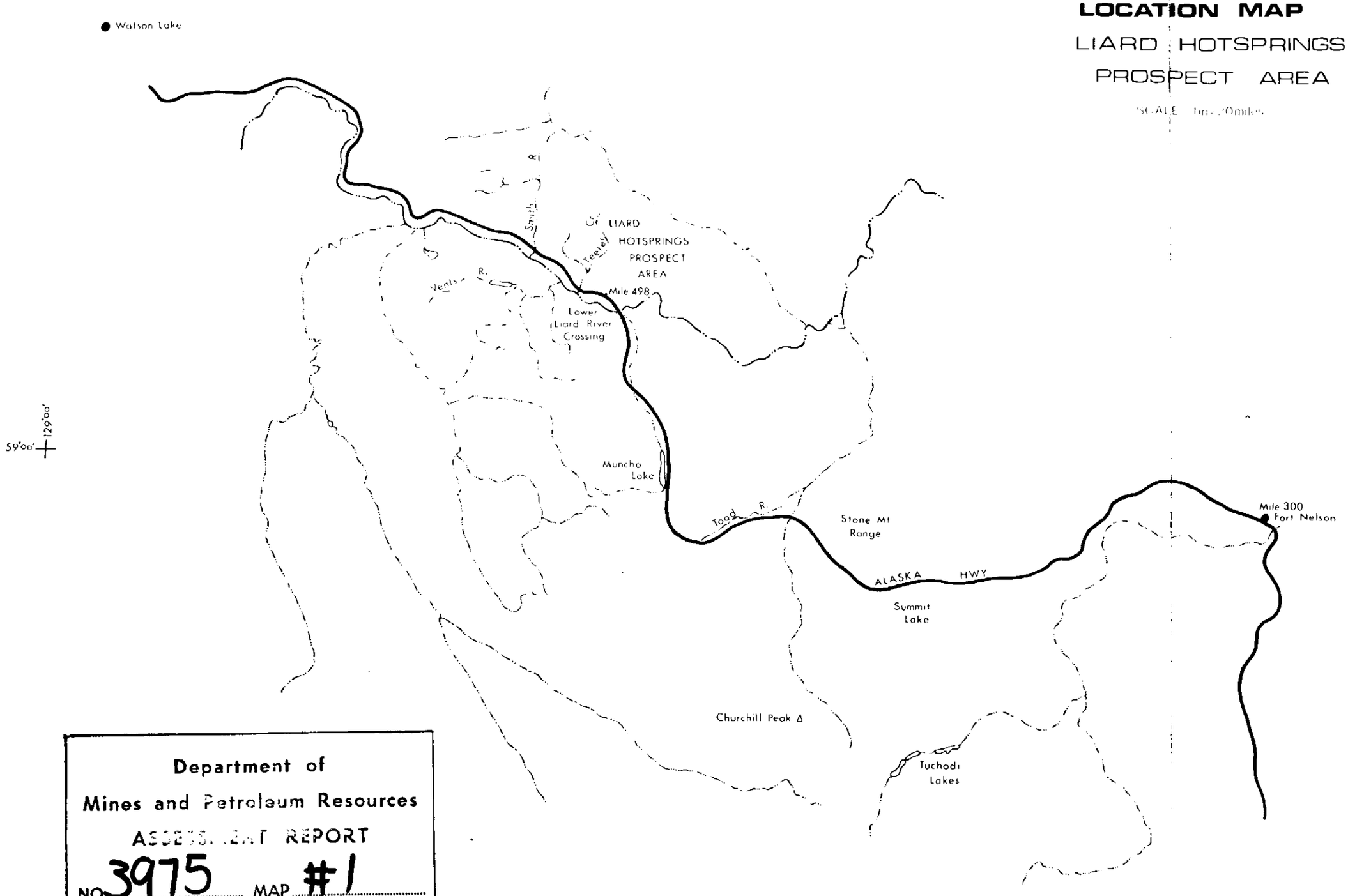
## CLAIMS AND OWNERSHIP

Previous to the discovery of fluorspar mineralization in July, 1971 the only claims in the prospect area were held by Conwest Exploration Company Limited. The Conwest property included 34 mineral claims and fractional claims (Gem 1-25, Lea Fraction and Mem 1-8). In 1971 an additional 49 Gem mineral claims were staked and recorded for Conwest Exploration Company Limited, and for Jorex Limited.

# LOCATION MAP

## LIARD HOTSPRINGS PROSPECT AREA

SCALE 1in.=20miles




Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 3975 MAP #1

Figure 1

In addition to the Gem mineral claims, a total of 678 claims were staked in the area. These included the Tam 1-151, Tee 1-140, Fire 1-26, Fire 35-109, West 1-128, Fall 1-76, Fall 79-106, and Hal 1-54, which were staked for J. R. Woodcock. Another claim group south of the Liard River, the Pet 1-100, were staked for Conwest Exploration Company Limited. The claims are plotted on Figure 2 and the claim data is summarized in the appendix.

Assessment work has been applied at various times in 1972 to many claims included in the appendix. This was applied by Mr. Bruce Pope of Conwest Exploration Company Limited after consulting Mr. J. R. Woodcock on the merits of the various claims. Many of the original claims staked in 1971 did not get assessment work credits and will accordingly lapse in 1972. A forthcoming separate report will outline the new status of the claims.

The mineral claims presently are in the name of J. R. Woodcock, Jorex Limited, or Conwest Exploration Company Limited. Eventually they should be transferred to the new Company, Liard Fluorspar Mines Ltd.

## GENERAL GEOLOGY

The Liard Hot Springs area is the southernmost extension of the MacKenzie Mountains, where the north-south MacKenzie Mountain structures are crosscut by the dominantly northwest-southeast Rocky Mountain structures.

The Liard Hot Springs fluorspar deposits are located along a contact between limestone and shale of Middle Devonian age. This area is one of several outcrop areas of rocks of similar lithology and age occurring in northeastern British Columbia.

Gabrielse (1963) in his regional mapping in the area did not attempt to attach formational names to the stratigraphic rock units. However, since that time, additional study by Gabrielse (1968), Taylor (1969), and Griffin (1967) have shown that the rocks are lithologically similar to those to the south where formational names have been defined.

Taylor (1969) describes the limestone as Dunedin Formation. Taylor and MacKenzie (1970) in Bulletin 186 give descriptions of the Dunedin as follows: The Dunedin Formation is a uniform sequence of argillaceous, in places siliceous and dolomitic, dark-grey bedded limestones that overlies light-coloured dolomites of the Stone Formation, and that is overlain by the Besa River shales. Dolomite is present in the lowermost strata in parts of this Formation. These lower dolomites are argillaceous, finely crystalline and thinly bedded and they commonly contain dark shale partings, thin, laterally restricted intercalations of shale and scattered sandstone lenses. Dolomite also occurs throughout the Formation as small euhedral crystals sporadically associated with the rock fractures, as partial or complete replacement of fossil remains, in vugs, or as diffuse patches and mottlings in some of the more argillaceous beds. The upper two-thirds of the sequence consists of thick-bedded to massive, finely crystalline dark-grey limestone and interbedded granular limestone. In places the

upper strata are conspicuously siliceous, particularly in the upper 100-foot interval where lenses and nodules of black chert are common. The upper 30 feet of the limestone are siliceous and argillaceous and a dark-grey black colour and very fossiliferous, particularly on the upper surface where many coral colonies are present. There are many remains of brachiopods, gastropods, and crinoids, and scattered chert nodules occur at the base of this 30-foot unit.

In the vicinity of the Liard Hot Springs, mapping has shown that the contact area between the Dunedin Limestone and the overlying Besa Shales is characterized by many coral colonies.

Overlying the limestone is a thick succession of black shale, siltstone, and minor calcareous siltstone and sandstone. In the prospect area there is no faunal evidence to date the shales. Gabrielse found some Upper Devonian and Mississippian fossils in the shales exposed to the west in the Liard River and Smith River areas. However, these shales form a separate fault block in which the contact with limestone is not exposed and thus their exact location in the shale section is not known. To the south and east, the shale overlying the Dunedin Formation is known as the Besa River Formation. The shale at the limestone contact becomes progressively older in age to the north and northwest. North of the prospect area it is correlated with the Funeral Formation (Douglas and Norris, 1961) of early Middle Devonian age (Griffin, 1967).

Taylor (1969) uses the Besa River Formation in his mapping of the area as defined by Kidd (1962, 1963). This is a thick sequence of black shale in northeastern British Columbia which lies between Mississippian cherty limestone and Middle Devonian carbonates. The problem of subdividing the Besa River Formation arose because of the lack of fauna and lithological data at the time the unit was named. Thus the pelitic section in the prospect area is undivided and grouped into Besa River Formation.

There is some doubt as to the nature of the shale - limestone contact in the prospect area. Along the eastern mountain front south of Summit Lake and in the mountain range northeast of Summit Lake (Mile 392 Alaska Highway) the contact appears quite conformable with no conspicuous irregularities to denote an erosional disconformity. However in the vicinity of the fluorspar prospects north of Liard Hot Springs, outcrops are scarce. Surface mapping done in previous years showed great irregularities in the position of the contact and thus indicated a possible disconformity. Subsequent diamond drilling has shown that a large portion of this irregularity is due to tectonic disturbance -- mainly caused by thrusting, with consequent folds and thrust faults.

The data obtained thus far is not sufficient to determine the attitude of all folds and thrusts. There appears to be a linear north-south zone of disturbance which runs through the mineralized area. In places (e.g. upper Teeter Creek) it coincides with the west side of north-south valleys.

To the west of this disturbed zone the thrusting appears to be from the west with the thrust faults dipping westerly.

A prominent shale ridge occurs to the east of the disturbed zone

and extends northward from the Alaska Highway for at least 20 miles. The shale ridge is separated from the mineralized shale - limestone contacts in the disturbed area by valleys that obscure the relationship between the two geological terraines. The shale ridge to the east of the valley is topographically higher than the shale - limestone contact to the west. The structural relationship is not apparent, but one must not overlook the possibility of overthrusting from the east such as mapped on the La Biche sheet only 30 miles to the north-northeast.

## FLUORSPAR OCCURRENCES

### Tam Deposit

Location:

The Tam deposit occurs on the Tam 2 and Tam 4 mineral claims at the end of the access road. It is exposed on the steep slope just east of the main structural valley. It has been exposed by numerous surface trenches and explored by 22 short drillholes.

Geology:

Mineralization occurs at the contact between the limestone and the overlying Besa River shales; a contact which generally dips easterly. In the zone of mineralization the limestone and the shale at the contact are brecciated. The shale breccia, in many places, consists of chaotic angular blocks. The mineralization occurs in the breccia and in fractures in the overlying shale and underlying limestone.

The mineralized zone, which is of variable thickness, generally also dips easterly and it pinches rapidly to the east where there is no shale breccia. Along the west side, the limestone - shale contact is eroded; and the west boundary of "ore" is quite sharp against barren limestone.

The mineralization extends along the hillside in a northerly direction for 900 feet as indicated by surface exposures and diamond drillholes. It is still open to the north. Widths vary from a minimum of 160 feet to a maximum of 550 feet.

Although over the large part of the length of the mineralized deposit, the control appears quite simple with the best mineralization occurring in the breccia, especially the limestone, some structural complexities occur towards the north. For instance in diamond drillhole 72-52 limestone breccia with good fluorite mineralization occurs above shale breccia with only minor fluorite mineralization. It is quite probable that had the drillhole been continued it would have intersected additional limestone below the shale breccia. The data is inadequate to determine whether this complexity is due to sharp folding or to some thrust faulting. Such a complexity could be attributed to thrusting from the west which has thrust the brecciated limestone over top of the brecciated shale. Such a thrust fault could also pass through the limestone breccia of Hole #72-53 but not be recognized because of the high degree of replacement often found within the limestone breccia. In fact much of the breccia could have originally been formed by fracturing along the thrusts and the brecciated nature could have subsequently been amplified by solution of the limestone and collapse of the adjacent rocks. If such suggested thrusting is present and is

important is the ore control, and if imbricate thrusting is present then great potential exists in the northern part of this deposit for finding additional zones under either barren limestone or barren shale.

The best mineralization occurs in the limestone breccia and in places the rock is almost completely replaced by fluorite plus barium minerals (witherite, barytocalcite, barite). A few siliceous bands may be cherty layers left from the original limestone. Calcite also occurs as a few limestone remnants. The fluorite is generally purple to black. The black variety appears to have more impurities (e.g. fine-grained quartz) than does the purple variety.

## The Tee Deposit

Location:

The Tee prospect is on the Tee 3, 5, 16, and 18 mineral claims, on the steep valley slopes west of Teeter Creek. The mineralized exposures also lie a short distance north of a small stream that enters Teeter Creek from the west. The mineralization is exposed on the steep (about 25°) northeasterly-facing slopes of Teeter Creek and also on the much steeper cliffs and slopes that face southward and form the valley sides for the small stream from the west.

Geology:

The mineralization is generally at the contact of the Dunedin limestone with the overlying Besa River shale. This contact has a general overall dip of about 25° easterly; however numerous little detailed irregularities change this dip locally and also make for discontinuities in thickness of mineralization. Generally the shale and some of the limestone are brecciated in the vicinity of the mineralization.

To facilitate the description, four areas of mineralization labelled zones "A" to "D" inclusive are indicated on the map.

Zone A, the most northwesterly one exposed, consists of remnants of highly mineralized limestone surrounded by and presumably resting on areas of barren limestone. A few shale remnants in the eastern part of this zone indicates that the zone was originally at the limestone - shale contact. The mineralization in this zone is somewhat unique for the Liard fluorspar area in that most of the fluorite is colourless. Mineralization of this zone has been mapped over an area 300 feet long and up to 220 feet wide, or a surface area of about 50,000 square feet. The high grade exposure in the southwest part of the zone has an exposed thickness up to 15 feet.

Zone B is exposed on the sharp ridge that occurs on the interfluve between Teeter Creek and the above mentioned subsidiary stream from the west. The mineralization in this place is also at the contact of shale and limestone with considerable replacement of shale breccia and limestone breccia. The steep cliffs at the west end of the exposure show that the main "ore" zone is underlain by fractured limestone containing abundant veins and lenses of fluorite. The exposures of good grade mineralization at the west end of Zone B are over a vertical interval of 60 feet. The mineralized area extends easterly down the steep hillside (approximately 30°), for a distance of 700 feet with an average width of about 200 feet. Some prominent east-west fracturing or faulting is exposed in places and this might indicate some additional east-west control of this zone. If such is the case, then

the position of greatest thickness would also have an east-west strike. The position of the postulated greatest thickness is unknown. It could occur anywhere within the exposed part of Zone B; it could have occurred to the south of Zone B and have been removed by erosion; or it may have never existed!

Zone C includes the mineralization that occurs in the vicinity of some limestone cliffs trending at 330° azimuth across the property. Most of this mineralization is exposed along the face of the cliffs in discontinuous lenses. Shale remnants are also found along these limestone cliffs. The strike of these limestone cliffs is essentially parallel to the valley side and also almost parallel to the strike of the limestone - shale contact. Presumably it is the major regional strike in this part of the Teeter Creek valley. The exact structure along these cliffs is not evident. However there is some suggestion that the limestone has been thrust from the west over shale and shale breccia. The amount of exposed mineralization is not significant in the overall ore reserve picture.

Zone D includes an area of exposures of shale and shale breccia lying downslope to the east of the limestone cliffs of Zone C. Some of these exposures are mineralized with barium carbonates and/or fluorspar. The exposures of shale and shale breccia occur over an area 250 x 300 feet.

Shale breccia, especially mineralized shale breccia, is very important in that it overlies most of the better mineralization on many of the other deposits. Therefore should one find mineralized shale breccia it constitutes a prime exploration target and drillholes should be collared within this breccia zone to explore the underlying contact with the limestone. The shale breccia of Zone D was supposed to be explored by drillholes 62, 63, and 64. However because of difficulty in getting the drills up the steep moss-covered slopes (with underlying permafrost) the holes were collared east of the exposed exploration target. Hole #62 was a vertical hole drilled to 204 feet and it never got out of the barren shale. Hole #63 drilled northwesterly intersects barren shale to a depth of 181 feet. From 181 to 249 feet the drill intersected fractured limestone containing fluorite mineralization in fractures. The average grade of this 60 feet was 8.8% $CaF_2$. Hole #64 drilled westerly at an angle of 45° intersected shale to a depth of 122 feet and barren limestone from 122 to 208 feet. These drillholes delimit any potential mineralized zone to the east; however they do not explore the possibility of mineralization underlying the mineralized shale breccia. The mineralization encountered in Hole #63 is encouraging; however one must note that this intersected mineralization is over 200 feet vertically below the exposures of mineralized shale breccia.

## Coral Deposit

Location:

The Coral deposit is on mineral claims Tam 23 and Tam 24 about 3500 feet southwest of the Tam deposit. An access road has been built across the mineralized zone from the main access road. The prospect has been exposed in numerous trenches and tested with 12 short drillholes.

The exposures are on the gentle south slope of a small limestone hill in an area of forest cover and widespread overburden.

Geology:

The fluorspar mineralization is at the limestone - shale contact. This contact dips gently southward from the mineralized exposures. In most cases there is some brecciation of the shale and/or the limestone along this contact and considerable intersections of both the limestone breccia and shale breccia have been logged in the core. However the exposures do not have the chaotic breccia of large blocks that are visible in the exposures on the Tam prospect. Whether or not such chaotic breccia occurs in the core is not evident from the data. Much of the breccia that has been logged as such is broken rock some of which consists of remnant shale fragments in a replacement matrix, without the chaotic orientation of the blocks.

The largest exposure of mineralization occurs at the west end of the prospect on the Tam 24 mineral claim. This mineralization is exposed over a length of 300 feet (in a northwesterly direction) and a width of 150 feet. However the appearance of this mineralization in the trenches is that it is a skin or remnant left on top of the limestone formation and that it has very little vertical extent.

At the main showing (on Tam claim 23) mineralization is exposed in trenches over an east-west distance of 600 feet and a north-south distance of about 200 feet. Diamond drilling has followed the mineralization under the shale capping for an additional 500 feet to the south-southeast.

The drilling down the central part of this zone has intersected up to 87 feet of good mineralization (DDH 72-43 intersected 87 feet grading 39% $CaF_2$). The best mineralization occurs in holes 72-40, 72-42, and 72-43. In these three better holes the mineralization is largely confined to limestone breccia with lower grade mineralization over small thicknesses in the overlying shale breccia. In other holes to the east and to the west the mineralized zone has pinched, probably quite erratically. Hole 72-40 in the centre area of the mineralized exposures is collared in breccia, mainly limestone breccia. However the first 20 feet of core are relatively barren: thus at this place the mineralized zone is below barren limestone. The north-south section of the three high grade holes shows that the upper part of the mineralized zone in each of the three holes forms a fairly straight line. Two of the points of the upper "ore" contact are at the shale limestone contact and the third point (Hole 72-40) is within the limestone breccia. Thus it is possible that there is some faulting in addition to the contact which has controlled the mineralization, and that this faulting is generally along the contact; but in places it leaves the contact and goes into the adjacent formations.

## Fire Deposit

Location:

The mineralization of the Fire prospect is mainly on Fire 46 and Fire 48 mineral claims but extends onto the Fire 45 and Fire 47 mineral claims.

The property can be reached along the east-west access road which extends westward from the main access road (about 6000 feet). The property has been investigated with some bulldozer trenches and with 18 short diamond drillholes.

Geology:

In this area the limestones are generally flat-lying; remnants of overlying shale are widespread. In places, this overlying shale appears to be brecciated and also mineralized with fluorspar and barium minerals.

At the southeast end of the prospect, a narrow, highly mineralized zone extends at azimuth 330° for 900 feet. It has exposed widths between 100 feet and 200 feet. Diamond drilling has shown that most of the fluorspar mineralization occurs in the shale breccia with some underlying limestone breccia. The thicknesses of the mineralized zones are generally less than 50 feet.

Fluorspar mineralization has been noted in bulldozer trenches for an additional 1600 feet to the northwest. Most of this is in shale or shale breccia with values generally less than 10% $CaF_2$. However at the extreme northwest end of the drilling (DDH 72-37) mineralization also occurs in limestone breccia below the shale breccia. The lower part of this mineralized limestone breccia grades 37% $CaF_2$ over a thickness of 65 feet. The closest hole is 600 feet away so the extent of the mineralized limestone breccia is unknown.

## Cliff Prospect

Location:

The Cliff prospect is exposed in a northerly-trending zone along the mutual boundaries of the West 55 and 56 claims and the West 57 and 58 claims. It can be reached by the access road which extends westward past the Fire deposit.

In this area exposures are mainly flat-lying limestones which form a series of small benches, generally separated by some linear zone possibly representing a fault or fracture zone. The area is gently undulating and the dense forest cover has been killed by the 1971 forest fire.

The prospect has been investigated with four short drillholes.

Geology:

This linear zone of mineralization is exposed along the face of some low limestone cliffs over a north-south length of 500 feet, and up to 100 feet wide. On the east it is bounded by an upper bench of flat-lying barren limestone. On the west it is separated from another hill of flat-lying barren limestones by an overburden-covered north-south pass.

The fluorspar mineralization is unusual for this mining camp in that a horizontal banding occurs in the main exposure. Also much of the fluorite is colourless, although purple varieties also occur. The banded "ore" is quite siliceous and has been mapped as impure quartzite. Possibly some siliceous zones were present in the limestone. However the silica could have been added during the introduction of the fluorspar.

Just south of the mineralized exposures, shale debris and one shale outcrop have been noted. A drillhole in this south area intersected a very thin layer of fluorite mineralization at the contact of the shale and the underlying limestone.

The linear nature of the zone and the presence of shale breccia associated with the mineralization indicates a northerly-striking structure, probably fault controlled, into which some brecciated shale fragments have moved. Possibly the solution collapse along this fault zone allowed the shale fragments to drop down into their present position.

## Gem A and E Showings

Location:

The Gem A and E showings were discovered during the geological mapping in 1954. In 1972 three short holes were placed in the Gem A showing and 14 short holes were placed in the Gem E showing.

These showings are north of the Liard Hot Springs Park and can be reached by the access roads that extend northerly from Mile 497. These access roads were built about 20 years ago and rebuilt and extended by the Forest Service during the forest fire of 1971.

Geology:

The Gem A showing is the original discovery of fluorspar in this region. It occurs as a replacement under shales on a very small flat-topped butte which lies in the centre of a small depression. This appears to be an erosion remnant of what was probably a much more extensive deposit. The thickest mineralization occurs on the northeast corner of this butte (about 30 feet thick). However the mineralization appears in outcrop to pinch to the southeast and this has been confirmed in the diamond drillholes of 1972.

The Gem E showing consists of mineralization in shales at the contact with the underlying limestone. Several exposures were mapped over an area about 1000 feet x 900 feet (around the circumference of the shale exposures). Diamond drilling in 1972 explored the contact area beneath this shale. The diamond drilling has shown that the mineralization is quite extensive along the shale - limestone contact; all of the holes encountered some mineralization. However in most places the mineralization was less than 10 feet thick. Three holes (72-12, 72-14, 72-8) encountered somewhat greater widths with the best mineralization in hole 72-12 (50 feet grading 39% $CaF_2$). From the present data the mineralization appears to be very discontinuous and lensy along this contact. However the drilling has been insufficient to eliminate the possibility of some of these greater thicknesses expanding into small reserves.

The mineralization in the Gem E showing is unusual in that a large portion of it occurs in the "shale breccia" rather than in limestone breccia, and also there is a very high proportion of barium minerals in most of the mineralization. Much of the so-called shale breccia could be angular remnant pieces of shale contained within a replacement matrix of barium minerals and fluorspar.

## Camp Prospect

Location:

The Camp prospect is on the Tam 6 and 21 mineral claims 900 feet southwest of the drill camp.

The mineralization is exposed on the northeast slopes of a small hill in an area of gentle topography. Overburden is extensive and the area is well forested; however the trees have all been killed in the 1971 forest fire.

Access roads have been built to this prospect and some bulldozer stripping has been done. However there has been no diamond drilling.

Geology:

The mineralization is again at the limestone - shale contact. The hill to the west and northwest is underlain by limestone and the lower area to the southeast underlain by shale. The mineralized shale breccia occurs over an area about 150 feet in diameter. The underlying limestone is also well mineralized in places close to the exposure of mineralized shale breccia.

Bulldozing for 800 feet to the southeast has exposed barren shale. Also, bulldozer stripping to the east-northeast has exposed barren shale. Much of the overburden in the area 1500 feet east-northeast of the showing is deep glacial till where trenches did not meet bedrock. However abundant fluorite-bearing float (generally shale breccia) occurs throughout the till in this area (900 feet east-southeast of camp.).

No diamond drilling or sampling has been done on this prospect or in the area of overlying shale to the east of the prospect.

## Nick Prospect

Location:

The Nick prospect occurs along the boundary line between the West 87 and West 89 mineral claims. An access road has been built northwestward from the Cliff prospect across Teeter Creek to the Nick prospect. Some bulldozer stripping has been done on the Nick prospect.

The Nick prospect is in an area of considerable forest cover and very little outcrop. It occurs as a small circular hill, about 500 feet in diameter, which projects upward from the floor of a gentle basin. The mineralized exposures occur on the southeast and northwest flanks of this small flat-topped hill.

Geology:

Exposures along the sides of the hill and in trenches consist of shale, generally barren, and a shale breccia which is generally mineralized.

Mineralization consists of fluorspar and barium minerals within the "shale breccia" and within sparse fractures within the shale. The breccia may actually be remnant fragments of shale which occur in the replacing matrix of barium minerals and fluorspar. Samples taken in four places with sample results are shown on the sketch of the prospect made by Mr. Andre Audet.

The closest limestone exposure would be about 1000 feet to the east where very steep limestone cliffs fall away to the Teeter Creek below. The writer suggests that limestone could underlie this mineralized shale at shallow depth and that better grade mineralization will probably occur at the limestone contact. This can only be tested with a few vertical diamond drillholes.

## The Henry Prospect

Location:

The Henry prospect occurs in the northeast corner of the Gem 27 mineral claim along the crest of a northerly-trending hill. There is no road access to the prospect. However a helicopter pad has been built near the southern end of the mineralized rocks.

Geology:

The mineralization occurs near the crest of a pronounced anticline which is exhibited in the limestone cliffs along strike to the south. A pronounced northerly-trending trough occurs near the crest of this anticline and can be followed on air photos for several miles. At first appearance this appears to be the loci of axial fracturing and has in the past been interpreted as such. However the mapping by Mr. J. Brander shows that the limestones on both sides of the trough dip gently to the east or southeast and that the structure is actually on the upper part of the eastern limb of the anticline.

Mineralization consists of fluorite, witherite, and calcite replacements in flat-lying limestone. The best exposure occurs in the bottom of the trough in the northern part of the mapped area. In this exposure the limestone is almost completely replaced over an area which has a diameter of about 100 feet.

A second exposure occurs about 500 feet further to the south-southwest and this exposure is about 150 feet west of the trough. At the second exposure, flat-lying beds of limestone are replaced by the fluorite, calcite, and witherite over an area of about 70 feet x 40 feet. It appears that, although good grades can be obtained over thicknesses of about 20 feet, the lateral extent of the mineralization is very limited. There are also additional smaller zones of mineralization near this second southerly exposure.

## Bar Prospect

Location:

The Bar prospect is on the Tam 43 mineral claim on the steep northeast flank of a sharp limestone hill. It is 1000 feet southeast of Mould Creek and 1500 feet south of the side access road that extends from the main access road down to Mould Creek.

Geology:

Mineralization consisting of barite, fluorspar, etc. occurs as a replacement in massive limestone beds that dip about 45° east. The mineralization occurs as massive pods, veins and disseminations.

Mr. Andre Audet took chip samples across three areas of the better mineralization and these returned values of 35%, 51% and 31% $CaF_2$. The grade of the more massive limestone containing pods and veins of fluorite is not known.

The writer suspects that this mineralization is of a very discontinuous poddy nature and will have no economic importance. However it does occur near the shale - limestone contact and it lies about halfway between the Gem showings and the Tam showings. It is important in that it demonstrates additional mineralization in the

contact area between these two widely spaced centres of mineralization and it indicates that the contact lying between the Bar prospect and the Tam prospect will eventually merit investigation.

## Strap Prospect

Location:

The Strap prospect occurs near the crest of some gently-rolling limestone hills on the Tee 126 mineral claim. There is no road access to the property. There is, however, a small swampy area suitable for helicopter immediately southeast of the mineralized exposure.

Geology:

Most of the rocks in this area are barren, flat-lying limestones. The mineralized exposures occur along a zone which trends 330° azimuth. The mineralization has been followed intermittently for 600 feet. However the northern exposures are in areas of overburden and the total length and total width of the zone are not known. The maximum exposed width is about 40 feet.

Mineralization is fluorite and barium minerals, mainly barite. A chip panel sample on the southernmost exposure over an area 20 feet x 25 feet assayed 28.6% $CaF_2$. In addition to the exposures of fluorite and barium minerals, there is one exposure, 40 feet long, consisting of massive limonite, mainly goethite.

The lateral extent and the depth extent of the mineralization are unknown. The presence of one small shale remnant on the southernmost exposure indicates that its original limestone - shale contact would not be far removed.

The writer suggests a northwesterly-striking fault zone which has controlled the mineralization. Possibly the shale fragment was brought into its present position by fault movement or by solution and collapse. The exposed mineralization does not appear particularly interesting from an economic standpoint. However the zone to the northwest is completely covered by overburden and may have potential for more extensive mineralization.

## CONCLUSIONS AND RECOMMENDATIONS

1. Fluorspar mineralization occurs along a north-south zone for over ten miles, and over an east-west distance of up to three miles. All of these occurrences lie in close proximity to the contact between Dunedin Limestone and overlying Besa River Shale and the best mineralization occurs at the contact.

2. The exact nature of this contact is not known. There are many irregularities in it many of which are caused by structural disturbances; however some could be due to an erosional surface or disconformity. The upper part of the Dunedin Limestone, just below the overlying shales, is characterized by highly fossiliferous rock, much of which is coral reef.

3. The mineralization appears to be controlled by structural complexities, especially a north-south zone of faulting and overthrusting from the west. The best mineralization occurs within a breccia some of which consists of a chaotic jumble of shale blocks. How much of this breccia has been caused by the faulting and how much of it is due to solution collapse is not known.

4. Mineralization consists of fluorspar, witherite, barytocalcite, with minor barite and silica. Both black and purple varieties of fluorite are present, especially in the replacement of the brecciated limestone. Calcite, some of the silica, powdery hydrocarbons, and $H_2S$ gas are probably part of the original carbonate sequence.

   The best grade material occurs within the limestone breccia at the contact. However in some prospects the shale breccia has fair values in fluorspar. The adjacent or overlying shale and shale breccia and the underlying fractured limestone carry veinlets and pods of fluorspar and barium minerals.

5. The Tam deposit is the best one investigated thus far. This has been investigated by 23 short drill holes. The southern portion has better fluorspar grades than most other prospects. This southern portion has been fairly well delimited with the drilling.

   The northern portion, which contains lower grade mineralization, is a much more complex structure and has not been fully investigated. Additional drill holes are needed to delimit the mineralization to the north and to determine its structure and grade.

6. The Tee deposit also has some good grade mineralization exposed at the surface. Mineralization occurs over a large area. However only a few rough panel chip samples were taken from some surface exposures. The mineralization dips easterly along the contact and may extend under some shale breccia which occurs near the foot of the hill. The mineralization is possibly open to the north where the hill is completely covered by overburden. Diamond drilling is needed in at least three of the zones of this showing to determine the grade and vertical extent.

7. The Coral deposit has also received sparse diamond drilling on 200-foot centres. This may have indicated a central zone of material grading over 30% $CaF_2$ which extends in a south-southeasterly direction under the shale capping. Adjacent to the possible central higher grade zone is lower grade material (between 15% and 20% $CaF_2$) which has more erratic nature (grades and thicknesses). This zone is still undelimited to the south and southeast. Further drilling is necessary to establish the grade and continuity of the possible central narrow higher grade zone, to determine the extent of the lower grade adjacent mineralization, and to determine if additional relatively high grade pods occur in the general vicinity.

8. The Camp prospect at present appears to be too limited to be of economic importance. However it does occur between the Coral and the Tam prospects and the till overburden in this general area contains considerable float of well mineralized breccia. Thus this complete zone, extending eastward from the Coral prospect for more than 1500 feet will eventually need investigation.

9. The Fire deposit has well mineralized shale breccia continuous over a length of about 900 feet and a width of about 100 feet. The depth of mineralization is quite limited as shown by the drill holes placed in the main showing.

In addition, mineralized shale or brecciated shale occurs for at least 1600 feet to the northwest. The grade in this material is very low. However the most westerly hole intersected good grade mineralized limestone breccia under the shale breccia.

10. The Cliff prospect has good grade mineralization exposed over a length of about 500 feet. This prospect has been investigated by four short drill holes. The results indicate a very restricted zone.

11. Mineralization on the original Gem claims occurs in several places and has been mapped as showings Gem A to G inclusive. The highest grade material was originally exposed in the Gem A showing. A small amount of drilling to the southeast in 1972 failed to extend this mineralization enough to make it significant.

12. The Gem E showing was also tested by drill holes placed on 200-foot spacing. The contact between the limestone and the overlying shale is extensively mineralized but in most cases the mineralized section is very thin. Two good intersections were obtained and further drilling will be needed to determine whether these thicker zones have any significant extent.

13. The Nick prospect lies west of Teeter Creek and consists of fluorspar and barium mineralization around the small hill. Mineralization is largely in shale breccia; there are no limestones exposed. Diamond drill holes would be needed to determine if significant mineralization occurs at the underlying limestone shale contact.

14. Several other prospects were found and mapped but are not of significance as far as ore reserve goes. These would include the

Strap, Bar, and Henry prospects.

15. The most important untested zone of mineralization (in addition to extensions of the Coral, Tam, and Tee deposits) lies in the area of widespread overburden along the main north-south zone. The more favourable areas would include that between the Bar prospect and the Tam deposit, especially the area south of the Tam deposit and east of the Coral deposit. Another favourable area that would need testing is that immediately northwest of the Tee deposit.

16. The diamond drilling done in 1972 failed to prove up tonnage and grade needed for an economic operation. However the amount of drilling, even on some of the prospects, has not been sufficient to delimit the zones and there is great potential for finding additional reserves of similar grade to that already found. Until the economics of the fluorspar production in this locality improve (higher prices for fluorspar and/or cheaper transportation) the geologically favourable areas should be kept for future investigation.

J. R. Woodcock

November 8, 1972

**WAGES**

J. Brander:

| | | |
|---|---|---|
| June 3 to 8 | 6 | days |
| 10 to 20 | 11 | " |
| July 10 to 20 | 11 | " |
| | 28 | days |

Less 4 days applied July 27, 1972
= 24 days @ $100/day $ 2,400.00

H. Meixner:

June 1 to July 20 50 days

Less 2 days applied July 27, 1972
= 48 days @ $85/day $ 4,080.00

A. Audet:

| | | |
|---|---|---|
| May 23 to 26 | 4 | days |
| May 29 to July 20 | 53 | " |
| July 23 to Aug. 2 | 11 | " |
| September 25 | 1 | " |
| October 6 | 1 | " |
| | 70 | days |

Less 5 days applied July 27, 1972
= 65 days @ $85/day $ 5,525.00

M. Currey:

| | | |
|---|---|---|
| June 4 to 8 | 5 | days |
| July 3 to August 2 | 31 | " |
| | 36 | days |

Less 2 days applied July 27, 1972
= 34 days @ $50/day $ 1,700.00

J. R. Woodcock:

| | | |
|---|---|---|
| June 5, 6($\frac{1}{2}$), 7($\frac{1}{2}$), 11, 13($\frac{1}{2}$) | 3$\frac{1}{2}$ | days |
| July 4,5,6,7,9,10,12,13,31($\frac{1}{2}$) | 8$\frac{1}{2}$ | " |
| August 4($\frac{1}{2}$), 10($\frac{1}{2}$) | 1 | " |
| September 21($\frac{1}{2}$), 26($\frac{1}{2}$) | 1 | " |
| October 11($\frac{1}{2}$), 16,18($\frac{1}{2}$), 30($\frac{1}{2}$),31($\frac{1}{2}$) | 3 | " |
| November 3 | 1 | " |
| | 18 | days |

Less 1 day applied July 27, 1972
= 17 days @ $150/day $ 2,550.00

M. Virsumen:

June 8 to July 22 45 days

Less 3 days applied July 27, 1972
= 42 days @ $500/mo. $ 688.52

.....cont'd

WAGES (cont'd)

B. Groat:

June 5 to August 12 = 69 days @ $750/mo. $ 1,696.72

T. Drews:

| | | |
|---|---|---|
| July 31 | 1 | day |
| August 1,2,4,5,7,8,9,10,11, 14,15,17,28,29,30 | 15 | days |
| Sept. 7, 18, 21, 22, 25 | 5 | days |
| Oct. 10,11,12,13,16,17,18,30,31 | 9 | days |
| Nov. 1, 2, 3, 6, 7, 8, 9, 10 | 8 | days |
| | 38 | days |

-- 38 days @ $44/day $ 1,672.00

Total Wages ..... $ 20,312.24

CONTINGENT HELICOPTER COSTS

| | | |
|---|---|---|
| June | 5 | 70 min. |
| | 7 | 50 " |
| | 8 | 60 " |
| | 11 | 50 " |
| | 12 | 40 " |
| | 13 | 40 " |
| | 15 | 35 " |
| | 18 | 60 " |
| July | 9 | 180 " |
| | 10 | 160 " |
| | 11 | 100 " |
| | 12 | 150 " |
| | 13 | 50 " |
| | 14 | 180 " |
| | 16 | 120 " |
| | 17 | 120 " |
| | 18 | 120 " |
| | 19 | 180 " |
| | 20 | 90 " |
| | 27 | 180 " |

2035 minutes = 33 hrs. 55 min.
say 34 hours @ $140/hr. $ 4,760.00

Less $93.00 applied on July 27/72 ( 93.00)

Total Contingent Helicopter Costs ..... $ 4,667.00

ACCOMMODATION IN FIELD

| | | | |
|---|---|---|---|
| Brander | 24 days | Versumen | 42 days |
| Meixner | 48 " | Groat | 69 days |
| Audet | 63 " | Pilot | 10 " |
| Currey | 34 " | Engineer | 10 " |
| Woodcock | 10 " | | |

Total days -- 310 @ $10/day .....$ 3,100.00

.....cont'd

TRANSPORTATION

| | | |
|---|---|---|
| Rental of G.M.C. Jimmy | $ 1,398.00 | |
| Road gas (approx.) | 200.00 | |
| Total Transportation | | $ 1,598.00 |
| TOTAL Wages, Contingent Helicopter Costs, Accommodation in Field, and Transportation ..... | | $ 29,677.24 |

# LIARD FLUORITE GROUND SURVEY

## INTRODUCTION

Critical claim posts and major fluorite showings were accurately located by a chain and transit ground survey and by triangulation. The most promising fluorite showings were surveyed by the stadia method, leaving permanent stations in the ground. Diamond drill holes on the Tam and Coral showings were tied to the main project grid by chain and transit surveys. An index of elevations and co-ordinates is appended. Those stations located by chain and transit are marked by an asterisk.

## CHAIN AND TRANSIT SURVEYS

Beginning at the 1971 diamond drill hole No. I on the Tam showing, the survey follows the main access road south, past the Camp and Coral showings to its junction with a road leading west to the Fire and Cliff showings. The survey then approximately follows this road past the Fire showing, terminating at the west side of the Cliff showing. Elevations were carried by both the vertical angle and stadia methods. The loop was closed using stadia and triangulated distances. A closing accuracy of 1:1200 was obtained. It should be noted that this represents a lower limit for accuracy that is probably much better within the chained portion of the loop.

Diamond drill holes located by chain and transit include all those drilled on the Tam showing during 1971 and all holes drilled on the Coral showing during 1972.

Triangulation was used to tie distant claim posts, as well as the Nik and Bar showings. This was done from known points using short accurately chained baselines ($\pm$ 0.01 feet) with all angles read by the repetition method to the instrument limitation of $\pm$ 5 seconds of arc.

## STADIA SURVEYS

Showings were surveyed by the stadia method to provide more or less evenly spaced stations of known elevation that would also serve to simplify geological mapping. These showings include the Tam, Camp, Coral, Fire, Cliff, Nik, Bar and Tee. Only the Tee showing is not tied to the main survey.

## TOPOGRAPHIC CONTOURING

Topographic contour maps of surveyed showings were made in the field using spot station elevations and a clinometre. This method produced reliable contours without requiring a more detailed survey.

A. J. Audet

October 10, 1972

# LIARD FLUORITE SURVEY

| STA | ELEVATION | CO-ORDINATES NORTH | WEST | COMMENTS |
|---|---|---|---|---|
| 1* | 3625.5 | 79603.1 | 19323.2 | |
| 2* | 3616.1 | 79603.1 | 19230.1 | |
| 3* | 3609.8 | 79416.7 | 19051.0 | |
| 4* | 3600.9 | 79241.2 | 18980.3 | |
| 5* | 3587.3 | 79001.5 | 18922.2 | |
| 6* | 3576.9 | 78757.2 | 18973.4 | |
| Claim Post* | 3583.9 | | | |
| 7* | 3587.2 | 78607.4 | 19222.7 | |
| 8* | 3590.2 | 78462.3 | 19191.6 | |
| 9* | 3623.4 | 78172.8 | 19363.5 | |
| 10* | 3679.1 | 77960.4 | 19751.9 | |
| 11* | 3693.1 | 77779.5 | 19894.4 | |
| 11-1 | 3677.8 | | | |
| 11-2 | 3659.2 | | | |
| 11-3 | 3668.6 | | | |
| 11-4 | 3645.8 | | | |
| 11-5 | 3633.4 | | | |
| 11-6 | 3664.7 | | | |
| 11-7 | 3668.9 | | | |
| 11-8 | 3674.5 | | | |
| 12* | 3691.3 | 77417.5 | 20012.8 | |
| 13* | 3671.6 | 77188.7 | 20285.7 | |
| 14* | 3679.9 | 76969.3 | 20350.9 | |
| 15* | 3690.9 | 76826.1 | 20393.5 | |
| 15-1 | 3695.5 | | | |
| 15-2 | 3695.7 | | | |
| 15-3 | 3694.7 | | | |
| 15-4 | 3687.9 | | | |
| 16* | 3685.9 | 76974.3 | 20637.6 | |
| 17* | 3684.8 | 76953.1 | 20880.6 | |
| 18* | 3680.3 | 77182.5 | 21030.4 | |
| 18-11 | 3685.7 | | | |
| 18-12 | 3704.9 | | | |
| 18-13 | 3725.2 | | | |
| 18-14 | 3677.6 | | | |
| 18-15 | 3664.0 | | | |

# LIARD FLUORITE SURVEY

| STA | ELEVATION | CO-ORDINATES NORTH | WEST | COMMENTS |
|---|---|---|---|---|
| 19 | 3697.4 | 77233.7 | 21277.1 | |
| 20 | 3681.1 | 77116.0 | 21519.0 | |
| 21 | 3680.5 | 77131.0 | 21627.0 | |
| 22 | 3668.7 | 77230.3 | 21900.5 | |
| 22-1 | 3665.8 | | | |
| 22-2 | 3693.3 | | | |
| 22-3 | 3670.7 | | | |
| 22-4 | 3694.4 | | | |
| 23 | 3700.8 | 77354.5 | 21914.7 | |
| 24 | 3726.2 | 77464.5 | 21823.3 | |
| 24-1 | 3714.1 | | | |
| 24-2 | 3712.8 | | | |
| 24-3 | 3738.1 | | | |
| 25 | 3755.7 | 77629.2 | 21647.4 | |
| 26 | 3746.0 | 77737.1 | 21555.1 | |
| 27* | 3824.6 | 79572.9 | 20141.3 | |
| 28* | 3821.6 | 79601.3 | 20119.1 | |
| 29* | 3804.6 | 79604.9 | 20066.1 | |
| 30* | 3862.9 | 79754.5 | 20142.9 | |
| 31* | 3860.8 | 79860.8 | 20111.0 | |
| 31-1 | 3833.9 | | | |
| 31-2* | 3825.0 | | | |
| 31-3* | 3806.9 | | | D.D.H.# 1971 - 4,5 |
| 31-4 | 3772.6 | | | |
| 31-5 | 3728.6 | | | |
| 31-6 | 3669.6 | | | |
| 32* | 3833.3 | 80000.0 | 20000.0 | D.D.H.# 1971 - 1 |
| 32A* | 3769.4 | | | |
| 32B * | 3761.9 | | | D.D.H.# 1971 - 6, 7 |
| 32C * | 3729.5 | | | |
| 32D * | 3732.3 | | | D.D.H.# 1971 - 8 |
| 32E * | 3680.0 | | | |
| 32-11* | 3839.7 | | | |

# LIARD FLUORITE SURVEY

| STA | ELEVATION | CO-ORDINATES NORTH | WEST | COMMENTS |
|---|---|---|---|---|
| 32-12 • | 3826.1 | | | D.D.H.# 1971-9,10,11,12 |
| 32-13 | 3826.1 | | | |
| 32-14 | 3771.6 | | | |
| 32-15 | 3780.2 | | | |
| 32-16 | 3789.1 | | | |
| 32-17 | 3843.5 | | | |
| 33 • | 3697.7 | 79453.6 | 19869.3 | |
| 33-1 | 3669.8 | | | |
| 33-2 | 3648.8 | 79758.5 | 19481.9 | |
| 34 • | 3669.7 | | | |
| 34-1 | 3656.6 | | | |
| 34-2 | 3641.6 | | | |
| 35 • | 3647.7 | 79583.5 | 19664.0 | |
| 36 • | 3682.6 | | | |
| 36-1 | 3713.3 | | | |
| 36-2 | 3686.7 | | | |
| 37 | 3594.4 | | | |
| 38 | 3618.5 | | | |
| 39 | 3651.4 | | | |
| 40 | 3674.5 | | | |
| 41 | 3686.8 | | | |
| 42 | 3694.0 | | | |
| 43 | 3701.7 | | | |
| 44 | 3708.5 | | | |
| 44-1 | 3727.7 | | | |
| 44-2 | 3722.6 | | | |
| 45 • | 3690.9 | 76513.4 | 20656.8 | |
| 46 • | 3675.3 | 76396.2 | 20949.2 | |
| 47 • | 3664.6 | 76300.7 | 21189.6 | |
| 48 • | 3632.0 | 76004.7 | 21206.0 | |
| 49 • | 3617.9 | 75829.6 | 21380.7 | |
| 50 • | 3600.6 | 75689.4 | 21272.5 | |
| 51 • | 3575.4 | 75524.8 | 21092.6 | |
| 52 • | 3559.1 | 75398.4 | 21292.8 | |
| 53 • | 3518.4 | 75280.1 | 21557.9 | |
| 54 • | 3487.1 | 75112.6 | 21796.1 | |

# LIARD FLUORITE SURVEY

| STA | ELEVATION | CO-ORDINATES NORTH | WEST | COMMENTS |
|---|---|---|---|---|
| 55* | 3464.9 | 74952.6 | 21709.3 | |
| 56* | 3433.2 | 74798.6 | 21432.3 | |
| 57* | 3398.1 | 74489.3 | 21249.4 | |
| 58* | 3369.9 | 74210.4 | 21297.7 | |
| 59 | 2820.6 | | | |
| 60 | 2785.6 | | | |
| 61 | 2729.2 | | | |
| 62 | 2784.8 | | | |
| 63 | 2748.2 | | | |
| 64 | 2768.8 | | | |
| 65 | 2690.7 | | | |
| 66 | 2673.0 | | | |
| 67 | 2697.3 | | | |
| 68 | 2776.0 | | | |
| 69 | 2751.7 | | | |
| 70 | 2778.2 | | | |
| 71 | 2728.7 | | | |
| 72 | 2737.3 | | | |
| 73 | 2805.2 | | | |
| 74 | 3622.4 | | | |
| 75 | 3634.2 | | | |
| 76 | 3634.9 | | | |
| 77 | 3679.6 | | | |
| 78 | 3688.8 | | | |
| 79* | 2449.8 | 75504.5 | 31919.1 | |
| 80* | 2438.6 | 75621.5 | 32141.0 | |
| 81* | 2442.0 | 75623.6 | 32252.0 | |
| 82 | 2420.3 | | | |
| 83 | 2403.1 | | | |
| 84 | 2357.2 | | | |
| DDH#71-13 | 2422.1 | | | |
| 85 | 2358.6 | | | |
| 86 | 2337.7 | | | |
| 86-1 | 2340.1 | | | DDH #71-14 |

# LIARD FLUORITE SURVEY

| STA | ELEVATION | CO-ORDINATES NORTH | WEST | COMMENTS |
|---|---|---|---|---|
| 86-2 | 2363.3 | | | |
| 87 | 2311.9 | | | |
| 88 | 2347.1 | | | |
| 89 | 2326.4 | | | |
| 89-1 | 2318.8 | | | |
| 90• | 2314.1 | | | |
| 90-1 | 2288.8 | | | |
| 91• | 2475.3 | 75299.4 | 31701.9 | |
| 92• | 2506.8 | 74956.3 | 31495.3 | |
| 93• | 2566.0 | 74711.1 | 30793.2 | |
| 94• | 2578.5 | 74721.7 | 30504.7 | |
| 95• | 2637.6 | 74925.3 | 29943.3 | |
| 96• | 2711.0 | 74526.1 | 29403.3 | |
| 97• | 2751.4 | 74294.9 | 28401.3 | |
| 98• | 2828.5 | 74225.2 | 27445.7 | |
| 98-1 | 2756.1 | | | |
| 98-2 | 2844.3 | | | |
| 98-3 | 2820.5 | | | |
| 98-4 | 2862.9 | | | |
| 99• | 2873.8 | 73682.8 | 26781.8 | |
| 99-1 | 2887.7 | | | |
| 99-2 | 2832.0 | | | |
| 99-3 | 2786.6 | | | |
| 99-4 | 2828.4 | | | |
| 99-5 | 2866.9 | | | |
| 100• | 2987.3 | 73878.8 | 26226.7 | |
| 101• | 3104.7 | 74147.4 | 25786.9 | |
| 102• | 3158.3 | 74334.1 | 24964.5 | |
| 103• | 3199.3 | 74396.8 | 24422.8 | |
| 104• | 3246.9 | 74412.7 | 23758.7 | |
| 105• | 3265.5 | 74410.1 | 23238.7 | |
| 106• | 3272.4 | 74349.4 | 22445.7 | |
| 107• | 3302.5 | 74244.8 | 21932.2 | |
| 108• | 3299.2 | 73998.1 | 21663.2 | |
| 109• | 3327.5 | 73462.7 | 21331.9 | |

# LIARD FLUORITE SURVEY

| STA | ELEVATION | CO-ORDINATES NORTH | WEST | COMMENTS |
|---|---|---|---|---|
| 110 • | 3328.3 | 73876.1 | 21361.4 | |
| 133 | 3681.8 | | | |
| 133-1 | 3641.3 | | | |
| 133-2 | 3680.6 | | | |
| 133-3 | 3678.9 | | | |
| 134 | 3699.4 | | | |
| 135 | 3700.2 | | | |
| 135-1 | 3687.5 | | | |
| 135-2 | 3671.9 | | | |
| 135-3 | 3671.6 | | | |
| 135-4 | 3702.0 | | | |
| 135-5 | 3700.7 | | | |
| 136 | 3691.7 | | | |
| 136-1 | 3675.0 | | | |
| 136-2 | 3646.7 | | | |
| 137 | 3574.6 | | | |
| 137-1 | 3567.6 | | | |
| 137-2 | 3535.5 | | | |
| 138 | 3544.3 | | | |
| 139 | 3519.3 | | | |
| 139-1 | 3523.8 | | | |
| 140 | 3527.0 | | | |
| 141 | 3499.1 | | | |
| 142 | 3466.7 | | | |
| 142-1 | 3434.2 | | | |
| 143 | 3540.1 | | | |
| 144 | 3560.9 | | | |
| 145 | 3577.2 | | | |
| 146 | 2824.6 | | | |
| 146-1 | 2832.1 | | | |
| 146-2 | 2851.6 | | | |
| 146-3 | 2839.0 | | | |
| 146-4 | 2814.6 | | | |
| 147 | 2857.8 | | | |
| 147-1 | 2846.1 | | | |

# LIARD FLUORITE SURVEY

| STA | ELEVATION | CO-ORDINATES NORTH | WEST | COMMENTS |
|---|---|---|---|---|
| 147-2 | 2880.3 | | | |
| 147-3 | 2905.6 | | | |
| 147-4 | 2924.5 | | | |
| 148 | 2977.4 | | | |
| 148-1 | 2963.0 | | | |
| 148-2 | 2961.6 | | | |
| 149 | 2978.9 | | | |
| 149-1 | 2982.9 | | | |
| 149-2 | 2945.4 | | | |
| 150 | 3682.8 | | | |
| 150-1 | 3684.2 | | | |
| 151 | 3677.1 | | | |
| 152 | 3744.1 | | | Triangulation sta NW of Coral Prospect |
| 153 | 3741.6 | 77518.2 | 21998.5 | " " " " " |
| 154 | 3716.7 | | | |
| 155 | 3665.1 | | | |
| 156 | 3703.5 | | | |
| 157 | 3702.4 | | | |
| 158 | 3694.8 | | | |
| 158-1 | 3682.5 | | | |
| 159 | ------ | 64765.4 | 25527.9 | Triangulation point 980'SE of AP#1 |
| 160 | ------ | | | Triangulation Sta. above Bar Showing |
| 161 | 2838.9 | 62521.4 | 21139.9 | Triangulation Sta.at the Bar Showing |
| 161-1 | 2842.7 | | | |
| 161-2 | 2852.0 | | | |
| 161-3 | 2794.8 | | | |
| 161-4 | 2787.0 | | | |
| 161-5 | 2816.2 | | | |
| 161-6 | 2817.7 | | | |
| 161-7 | 2812.4 | | | |
| 161-8 | 2452.6 | | | |
| 161-9 | 2871.4 | | | |
| 162 | ------ | 66372.4 | 22271.9 | Triangulation Sta.at sharp turn in Bar Rd. |
| 163 | ------ | | | 150' SW of 162 |
| 164 | ------ | | | 260' west of 162 |
| 165 | ------ | | | Triangulation Sta. north of Sta.96 |

# LIARD FLUORITE SURVEY

| STA | ELEVATION | CO-ORDINATES NORTH | WEST | COMMENTS |
|---|---|---|---|---|
| 166 | 2572.8 | 77588.1 | 33851.3 | Triangulation Sta. at Nik Showing |
| 166-1 | 2524.2 | | | |
| 166-2 | 2546.3 | | | |
| 166-3 | 2547.0 | | | |
| 166-4 | 2560.6 | | | |
| 166-5 | 2558.1 | | | |
| 167 | 2578.9 | 77699.1 | 34005.3 | |
| 168 | 2566.9 | 77572.1 | 34022.3 | |
| 168-1 | 2554.0 | | | |
| 168-2 | 2547.5 | | | |
| 169 | 2571.9 | 77750.1 | 34058.3 | |
| 169-1 | 2548.6 | | | |
| 169-2 | 2552.7 | | | |
| 170 | 2546.9 | 77471.1 | 33873.3 | |
| 171 | 2490.3 | 77183.1 | 34136.3 | |
| 171-1 | 2477.8 | | | |
| 171-2 | 2506.8 | | | |
| 172 | 2782.7 | | | |
| 172-1 | 2791.6 | | | |
| 172-2 | 2778.1 | | | |
| 172-3 | 2759.6 | | | |
| 173 | 2913.4 | | | |
| 173-1 | 2898.9 | | | |
| 173-2 | 2936.0 | | | |
| 173-3 | 2955.6 | | | |
| 173-4 | 2920.1 | | | |
| 173-5 | 2903.1 | | | |
| 173-6 | 2906.2 | | | |
| 173-7 | 2883.2 | | | |
| 174 | 2745.1 | | | |
| 175 | 2720.5 | | | |
| 175-1 | 2727.0 | | | |
| 175-2 | 2726.9 | | | |
| 175-3 | 2763.4 | | | |

# LIARD FLUORITE SURVEY

| STA | ELEVATION | CO-ORDINATES NORTH | WEST | COMMENTS |
|---|---|---|---|---|
| A.P. #1 | | 65153.7 | 26447.4 | |
| J-7 | 3691.4 | | | |
| J-9 | 3676.9 | | | |
| J-10 | 3672.6 | | | |
| J-11 | 3676.6 | | | |
| J-13 | 3688.9 | | | |
| J-14 | 3687.8 | | | |
| J-15 | 3685.9 | | | |
| J-16 | 3692.5 | | | |
| J-18 | 3697.3 | | | |
| J-19 | 3697.4 | | | |
| J-20 | 3701.1 | | | |
| T 1 | 2750.0 | | | |
| T 2 | 2798.6 | | | |
| T 3 | 2843.9 | | | |
| T 3-1 | 2866.6 | | | |
| T 3-2 | 2901.6 | | | |
| T 3-3 | 2915.2 | | | |
| T 4 | 2942.0 | | | |
| T 4-1 | 2986.2 | | | |
| T 4-2 | 2985.4 | | | |
| T 5 | 2976.1 | | | |
| T 5-1 | 2981.8 | | | |
| T 5-2 | 3044.1 | | | |
| T 5-3 | 3079.6 | | | |
| T 6 | 3032.3 | | | |
| T 6-1 | 3065.1 | | | |
| T 7 | 3098.6 | | | |
| T 8 | 3165.9 | | | |
| T 8-1 | 3176.2 | | | |
| T 8-2 | 3113.8 | | | |
| T 8-3 | 3228.8 | | | |
| T 9 | 3222.4 | | | |
| T 9-1 | 3182.0 | | | |
| T 9-2 | 3152.7 | | | |

# LIARD FLUORITE SURVEY

| STA | ELEVATION | CO-ORDINATES NORTH | WEST | COMMENTS |
|---|---|---|---|---|
| T 9-3 | 3160.3 | | | |
| T 9-4 | 3244.5 | | | |
| T 10 | 3271.7 | | | |
| T 10-1 | 3280.1 | | | |
| T 10-2 | 3314.6 | | | |
| T 10-3 | 3318.2 | | | |
| T 11 | 3310.9 | | | |
| T 11-1 | 3339.1 | | | |
| T 11-2 | 3366.4 | | | |
| T 11-3 | 3384.2 | | | |
| T 12 | 3367.1 | | | |
| T 12-1 | 3407.6 | | | |
| T 13 | 3410.8 | | | |
| T 13-1 | 3403.5 | | | |
| T 13-2 | 3376.4 | | | |
| T 14 | 3330.1 | | | |
| T 14-1 | 3315.2 | | | |
| T 14-2 | 3259.1 | | | |
| T 15 | 3325.6 | | | |
| T 15-1 | 3284.6 | | | |
| T 15-2 | 3267.7 | | | |
| T 15-3 | 3270.2 | | | |
| T 16 | 3247.3 | | | |
| T 16-1 | 3207.9 | | | |
| T 17 | 3201.5 | | | |
| T 17-1 | 3142.8 | | | |
| T 18 | 3203.0 | | | |
| T 18-1 | 3159.2 | | | |
| T 18-2 | 3160.3 | | | |
| T 18-3 | 3157.9 | | | |
| T 19 | 3150.7 | | | |
| T 19-1 | 3110.9 | | | |

| CLAIM NAME | RECORD NO. or CROWN GRANT NO.* | DATE RECORDED |
|---|---|---|
| GEM # 1 | 6700 CG | |
| " 2 | 6701 CG | |
| " 3 | 6702 CG | |
| " 5 | 6703 CG | |
| " 6 | 6704 CG | |
| " 7 | 6705 CG | |
| GEM # 2 Fr. | 6706 CG | |
| " 3 Fr. | 6707 CG | |
| " 4 Fr. | 6708 CG | |
| " 8 | 6709 CG | |
| GEM # 5 Fr. | 6710 CG | |
| " 4 | 6711 CG | |
| GEM # 1 Fr. | 6712 CG | |
| " 9 | 6713 CG | |
| " 14 | 6714 CG | |
| " 15 | 6715 CG | |
| " 11 | 6716 CG | |
| " 12 | 6717 CG | |
| " 13 | 6718 CG | |
| " 19 | 6719 CG | |
| " 16 | 6720 CG | |
| " 17 | 6721 CG | |
| " 22 | 6722 CG | |
| " 23 | 6723 CG | |
| " 24 | 6724 CG | |
| " 25 | 6725 CG | |
| " 21 | 6726 CG | |
| Lea Fr. | 6727 CG | |
| Mem # 1 to Mem # 8 | 49392 to 49399 | September 15, 1970 |
| GEM # 26 to GEM # 41 | 51875 to 51890 | July 23, 1971 |
| GEM # 42 to GEM # 58 | 55318 to 55334 | September 2, 1971 |

*CG refers to Crown Grant

.....2

| CLAIM NAME | RECORD NO. or CROWN GRANT NO.* | DATE RECORDED |
|---|---|---|
| GEM # 68 | 56544 | October 7, 1971 |
| to | to | |
| GEM # 76 | 56552 | October 7, 1971 |
| GEM # 77 | 56766 | October 7, 1971 |
| to | to | |
| GEM # 83 | 56772 | October 7, 1971 |
| GEM # 59 | 57798 | December 20, 1971 |
| to | to | |
| GEM # 67 | 57806 | December 20, 1971 |
| Pet # 1 | 56953 | October 20, 1971 |
| to | to | |
| Pet # 100 | 57052 | October 20, 1971 |
| Fall # 1 to | 56482 to | October 7, 1971 |
| Fall # 26 | 56507 | October 7, 1971 |
| Fall # 27 to | 56522 to | October 7, 1971 |
| Fall # 32 | 56527 | October 7, 1971 |
| Fall # 33 to | 56508 to | October 7, 1971 |
| Fall # 46 | 56521 | October 7, 1971 |
| Fall # 47 to | 56528 to | October 7, 1971 |
| Fall # 52 | 56533 | October 7, 1971 |
| Fall # 53 to | 56534 to | October 7, 1971 |
| Fall # 56 | 56537 | October 7, 1971 |
| Fall # 57 to | 56538 to | October 7, 1971 |
| Fall # 62 | 56543 | October 7, 1971 |
| Fall # 63 to | 57618 to | October 25, 1971 |
| Fall # 76 | 57631 | October 25, 1971 |
| Fall # 79 to | 57632 to | October 25, 1971 |
| Fall # 94 | 57647 | October 25, 1971 |
| Fall # 95 to | 57713 to | October 28, 1971 |
| Fall # 97 | 57715 | October 28, 1971 |
| Fall # 98 to | 57716 to | October 28, 1971 |
| Fall # 104 | 57722 | October 28, 1971 |
| Fall # 105 | 57723 | October 28, 1971 |
| Fall # 106 | 57724 | October 28, 1971 |
| Fire # 1 to | 56746 to | October 7, 1971 |
| Fire # 20 | 56765 | October 7, 1971 |
| Fire # 21 to | 56609 to | October 7, 1971 |
| Fire # 26 | 56614 | October 7, 1971 |
| Fire # 35 to | 56661 to | October 7, 1971 |
| Fire # 56 | 56682 | October 7, 1971 |
| Fire # 57 to | 56683 to | October 7, 1971 |
| Fire # 65 | 56691 | October 7, 1971 |
| Fire # 66 | 56615 | October 7, 1971 |
| Fire # 67 | 56616 | October 7, 1971 |

CG refers to Crown Grant

.....3

| CLAIM NAME | RECORD NO. or CROWN GRANT NO.* | DATE RECORDED |
|---|---|---|
| Fire # 68 | 56617 | October 7, 1971 |
| Fire # 69 | 56618 | October 7, 1971 |
| Fire # 70 to | 56692 to | October 7, 1971 |
| Fire # 75 | 56697 | October 7, 1971 |
| Fire # 76 | 56698 | October 7, 1971 |
| Fire # 77 to | 56699 to | October 7, 1971 |
| Fire # 79 | 56701 | October 7, 1971 |
| Fire # 80 to | 56702 to | October 7, 1971 |
| Fire # 100 | 56722 | October 7, 1971 |
| Fire # 101 to | 56723 to | October 7, 1971 |
| Fire # 109 | 56731 | October 7, 1971 |
| Hal # 1 to | 57075 to | October 19, 1971 |
| Hal # 26 | 57100 | October 19, 1971 |
| Hal # 27 to | 57534 to | October 25, 1971 |
| Hal # 54 | 57561 | October 25, 1971 |
| Tam # 1 to | 51739 to | July 26, 1971 |
| Tam # 4 | 51742 | July 26, 1971 |
| Tam # 5 to | 51743 to | July 23, 1971 |
| Tam # 32 | 51770 | July 23, 1971 |
| Tam # 33 to | 51771 to | July 23, 1971 |
| Tam # 84 | 51822 | July 23, 1971 |
| Tam # 85 to | 55335 to | September 2, 1971 |
| Tam # 151 | 55401 | September 2, 1971 |
| Tee # 1 to | 51823 to | July 23, 1971 |
| Tee # 52 | 51874 | July 23, 1971 |
| Tee # 53 to | 56643 to | October 7, 1971 |
| Tee # 70 | 56660 | October 7, 1971 |
| Tee # 71 to | 56732 to | October 7, 1971 |
| Tee # 84 | 56745 | October 7, 1971 |
| Tee # 85 to | 57562 to | October 25, 1971 |
| Tee # 140 | 57617 | October 25, 1971 |
| West # 1 to | 56619 to | October 7, 1971 |
| West # 24 | 56642 | October 7, 1971 |

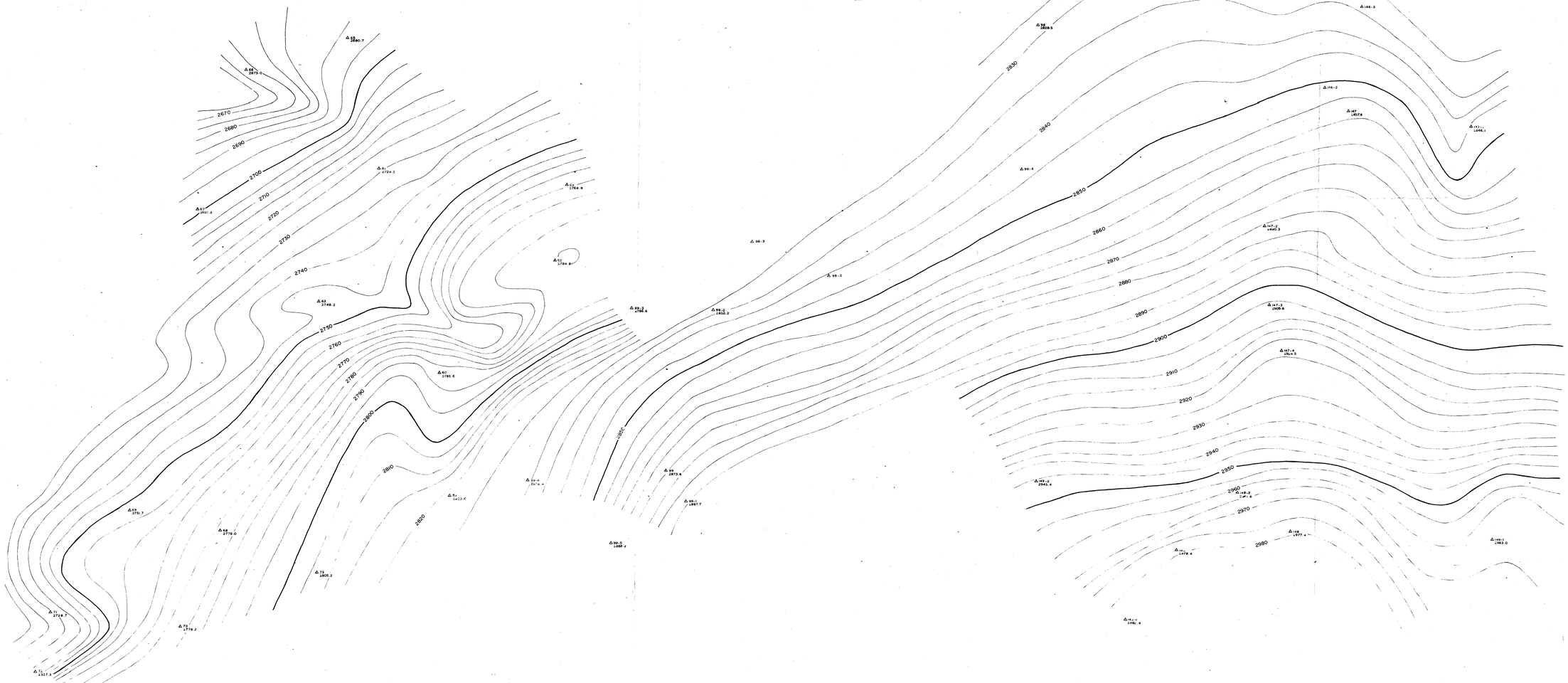
*CG refers to Crown Grant

.....4

| CLAIM NAME | RECORD NO. or CROWN GRANT NO.* | DATE RECORDED |
|---|---|---|
| West # 25 to | 56553 to | October 7, 1971 |
| West # 80 | 56608 | October 7, 1971 |
| West # 81 to | 57101 to | October 19, 1971 |
| West # 96 | 57116 | October 19, 1971 |
| West # 97 to | 57528 to | October 25, 1971 |
| West # 102 | 57533 | October 25, 1971 |
| West # 103 to | 57663 to | October 19, 1971 |
| West # 128 | 57688 | October 19, 1971 |

*CG refers to Crown Grant

N






To accompany Report
by
J. R. Woodcock
(November 1972)
on
Liard Fluorspar Project
Tee, Tam, Fire, West, Gem Mineral Claims
Liard Mining Division

LIARD FLUORSPAR MINES LTD.

FIRE DEPOSIT
CONTOUR MAP

SCALE
0 50 0 50 100 FEET

Project No. - 1972 Figure No. - 15

N

Besa River Shales

CREEK

MOULD

Besa River Shales

Some thin dolomite beds

Lst cliffs (Beds dip west)

Massive Fl in Lst

Low grade showings

No outcrop, scree shale float

ALASKA HIGHWAY

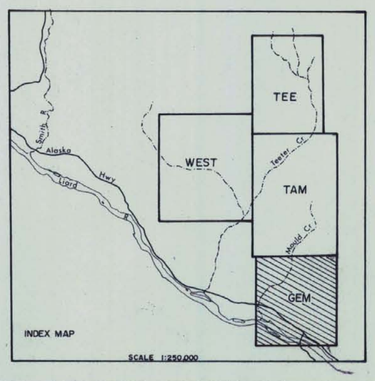
Liard Hotsprings

LIARD RIVER

3400 2900 2800 2300 1900 1600 1800 2200 2500 2400 3300 3000 2600 3500 3100 1700 2000

LEGEND

| | |
|---|---|
| 3 | Fluorite Mineralization |
| 2 | Besa River Shales |
| 1 | Dunedin Limestone |
| | Bedding |
| | Mapped Contact |
| | Assummed Contact |
| Lst | Limestone |




To accompany Report
by
J. R. Woodcock
(November 1972)
on
Liard Fluorspar Project
Tee, Tam, Fire, West, Gem Mineral Claims
Liard Mining Division



LIARD FLUORSPAR MINES LTD.

GEM SHEET

**GENERAL GEOLOGY**

800 400 0 400 800 ft

Mapped by - J R Woodcock Consultants Ltd. 1972

Project No - Figure No-3

N

Massive Limestone Cliffs

Massive Limestone Cliffs

TEETER CREEK

Massive Limestone

Limestone Cliffs

Area of Massive Bedded Limestone

Siltstone exercise with poor massive fissility

Local folding

Massive Limestone

Shale Ridge Numerous Exposures

TAM 72 | 71 / 2 | 1

trench

trench

TAM DEPOSIT

No Outcrop

CAMP PROSPECT

trench

CORAL DEPOSIT

CLIFF PROSPECT

57 / 58 WEST

FIRE 69 | 68 / 67 | 66

FIRE 67 | 66 / 47 | 48

Contorted truncated shale

FIRE 47 | 48 / 45 | 46

FIRE DEPOSIT

Sinkholes

FIRE 13 | 14 / 11 | 12

No Outcrop

MOULD CREEK

No Outcrop

FIRE 41 | 42 / 39 | 40

Area of Abundant Shale Float

FIRE 78 | 77 / 24 | 23

TAM 42 | 41 / 44 | 43

BAR PROSPECT

GEM 46 | 45 / 27 | 26

HENRY PROSPECT

3 Fluorite Mineralization

2 Besa River Shales

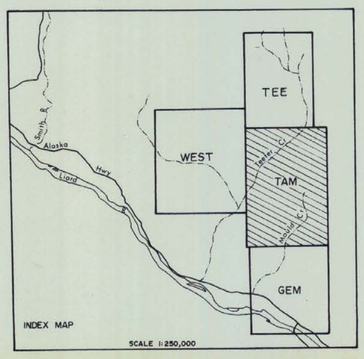
1 Dunedin Limestone

Bedding

Mapped contact

Assumed contact

To Accompany Report
by
J. R. Woodcock
(November 1972)
on
Liard Fluorspar Project
Tee, Tam, Fire, West, Gem Mineral Claims
Liard Mining Division






LIARD FLUORSPAR MINES LTD.

TAM SHEET

GENERAL GEOLOGY

800 400 0 400 800 ft

Mapped by - J.R Woodcock Consultants Ltd. 1972

Project No - Figure No - 4

N

TEETER

Ridge of Besa River Shales

Thin bedded black shale

No Outcrops

Area of abundant shale float
Occasional outcrops

Barren Lst

Barren Foss Lst

Limestone Cliffs

Limestone Outcrops

TEE DEPOSIT

Lst Rubble

Foss Lst

STRAP PROSPECT

Shale Outcrops

Old Road

Shale Float And Outcrops

IP Tam 73 / 74

IP Tee 25/26

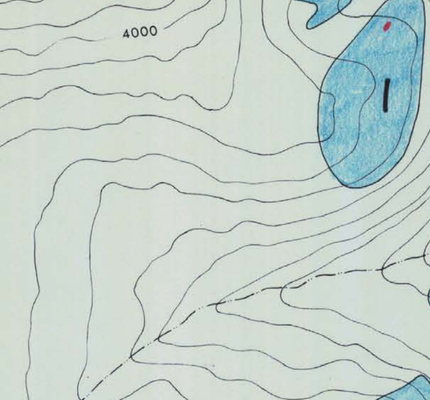
FP, Fire, 92 / 95

3200 3400 3600 3900 4000 3000 3300 3500 3800 4200 2800

## LEGEND

| | |
|---|---|
| 3 | Fluorite Mineralization |
| 2 | Besa River Shales |
| 1 | Dunedin Limestone |
| | Bedding |
| | Mapped Contact |
| | Assummed Contact |
| Foss | Fossiliferous |
| Lst | Limestone |

To accompany Report
by
J. R. Woodcock
(November 1972)
on
Liard Fluorspar Project
Tee, Tam, Fire, West, Gem Mineral Claims
Liard Mining Division






LIARD FLUORSPAR MINES LTD.

TEE SHEET

**GENERAL GEOLOGY**

800 400 0 400 800 ft

Mapped by - J.R Woodcock Consultants Ltd. 1972

Project No- Figure No - 5

Dolomitic Limestone

Dolomitic Dark & Light Calcareous Dolomites

Dolomitic Limestone

Foss Lst

Foss Lst

Foss Lst

Foss Lst

Sh Bx Limonitic

Local Concentration of Fossils in Lst

Overturned Sharp Fold

White Talus

Foss Lst

HAL 29 30 27 28

HAL 21 20 19

Shale Rubble

No Outcrop

No Outcrop

No Outcrop

Abundant Shale Float

Nik Prospect

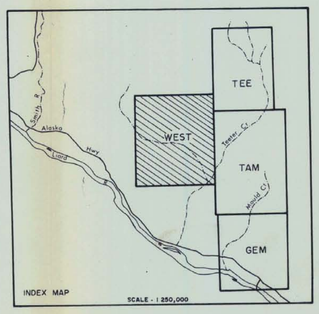
Access Road

Deep Glacial Till

3500 4500 4000 3900 3400 3600 3200 3300 2500 3700 3200 3000 2200 2900 2500 3400 2800 2400 2600

## LEGEND

- 3 — Fluorite Mineralization
- 2 — Besa River Shales
- 1 — Dunedin Limestone
- Bedding
- Mapped Contact
- Assumed Contact
- Foss — Fossiliferous
- Lst — Limestone




To accompany Report
by
J. R. Woodcock
(November 1972)
on
Liard Fluorspar Project
Tee, Tam, Fire, West, Gem Mineral Claims
Liard Mining Division



LIARD FLUORSPAR MINES LTD

WEST SHEET

**GENERAL GEOLOGY**

800 400 0 400 800 Ft.

Mapped by - JR Woodcock Consultants Ltd 1972

Project No - Figure No - 6

Fig. 3

SECTION A-B

A
B
3840'
3800'
3760'
3720'
3680'
DDH 5
DDH 4
3
1
2
4
5

LEGEND

5 Argillite
4 Argillite breccia
3 Limestone
2 Limestone breccia
1 Mineralization

FLUORITE VEIN
75
DDH 10
TAM 2
TAM 1
DDH 9
DDH 11
DDH 12
DDH 7
DDH 1
DDH 2
DDH 3
DDH 6
46
36
50
58
1 WITHERITE
TRACE FLUORITE
DDH 5
DDH 4
FOSSILIFEROUS LIMESTONE
TO CAMP
TO POND
Astro. North
3600
3640
3680
3720
3760
3800
3840

GEOLOGY OF THE TAM SHOWINGS

Modified after J.R. Woodcock Consultants Ltd.

Scale 50 0 50 100 Feet

Scale 0 25 50 Metres

3975 M-1a

N

32,000 W | 28,000 W | 24,000 W | 20,000 W | 16,000 W | 12,000 W

80,000 N
76,000 N
72,000 N
68,000 N
64,000 N

NIK PROSPECT

169 △ △167
168 △ △166
△170
△171

CLIFF PROSPECT

WEST
55 | 57 / 56 | 58

△80 △79 △90 △91 △92 △95 △93 △94 △96 △97 △98

WEST 61 / 62

FIRE
67 | 66 / 47 | 48

101-1 △ △101 △100 △99

FIRE
47 | 48 / 45 | 46

FIRE DEPOSIT

WEST 79 / 80

70 | 71
FIRE

TAM DEPOSIT

TAM
2 | 1 / 4 | 3

△32 △31 △30 △29 △27 △28 △35 △1 △2 △34 △33

TAM
△3
4 | △ 3 / 6 | 5
△5 △6 △7 △8 △9 △10 △11 △12 △13 △14 △15 △16 △17 △18

CAMP PROSPECT

TAM
22 | 21 / △153 △154 24 | 23 / △155 △156

CORAL DEPOSIT

△45 △46 △47 △48 △49 △50 △51 △52 △53 △54 △55 △56 △57 △58 △110 △109 △108 △107 △106 △105 △104 △103 △102

△164
163 △ △162

△AP-1
△159

FIRE
78 | 79 / 24 | 23

BAR PROSPECT
△161

TAM
△160
44 | 43 / 46 | 45

LEGEND

□ — Claim post

△108 — Survey station - Wooden Hubs marked with numbered aluminum tags

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 3975 MAP #7

J. R. Woodcock

To accompany Report
by
J. R. Woodcock
(November 1972)
on
Liard Fluorspar Project
Tee, Tam, Fire, West, Gem Mineral Claims
Liard Mining Division

LIARD FLUORSPAR MINES LTD.

GROUND SURVEY MAP

Scale
800 400 0 400 800 ft

Project No - 1972 Figure No-7