STANDFAST Zn - Pb DEPOSIT

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I INTRODUCTION

The following brief report has been compiled as an information package describing the Standfast (formerly WIGWAM) Concordant Zinc-Lead Deposit by the property owners, David M. Strain and Craig A. Lynes.

Ii. LOCATION & ACCESS

The 20 unit Standfast Claim lies within the Revelstoke Mining Division approximately 30 km southeast of Revelstoke, B.C. (NTS 82K/13W).

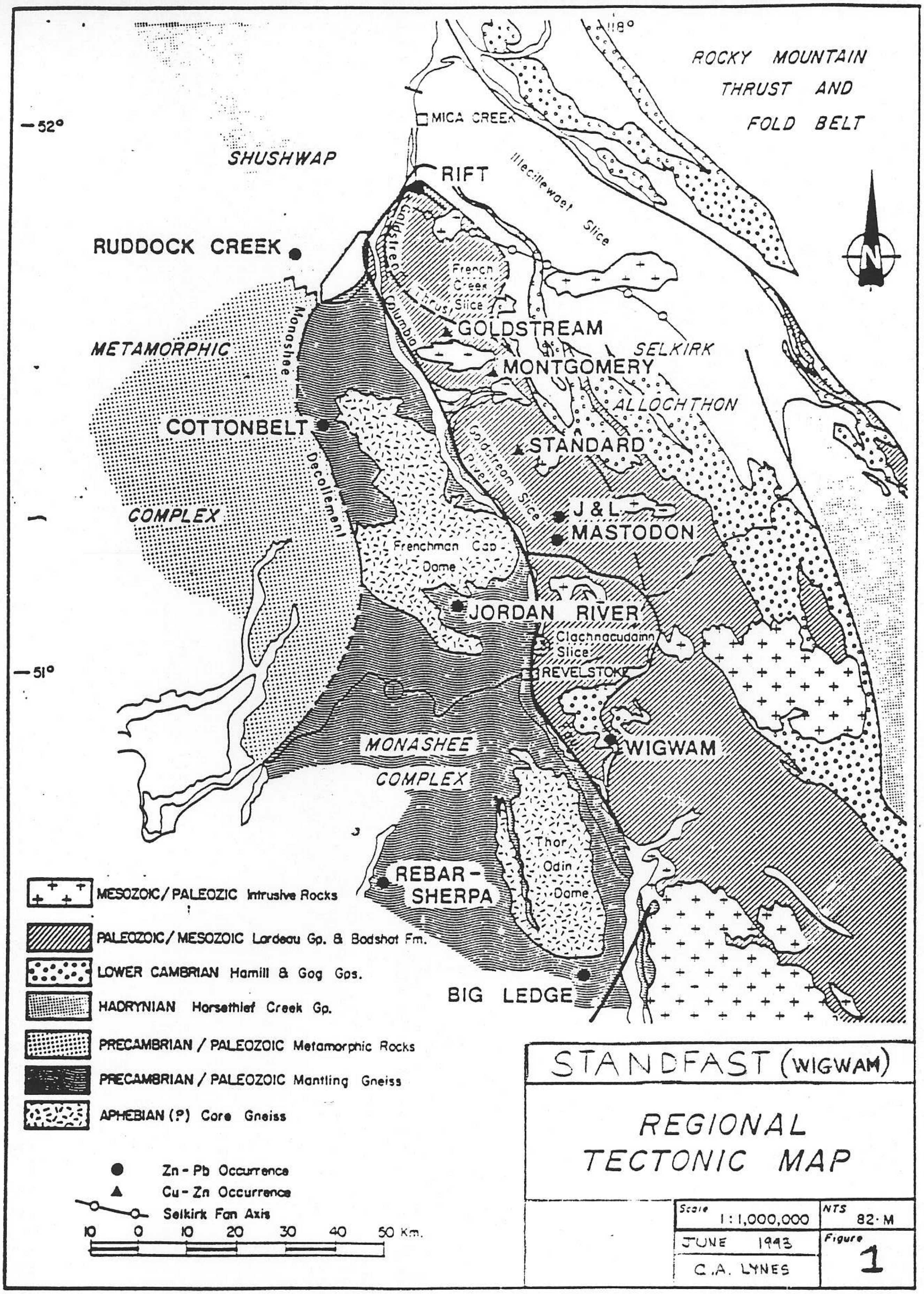
Access to the property from Revelstoke is via the paved Arrowhead Highway south for 19km, then east along the Akolkolex River logging road for 15.6 km.. Fourwheel drive tote roads extend onto the property accessing the underground and surface showings and the diamond drill sites.

Iii. HISTORY

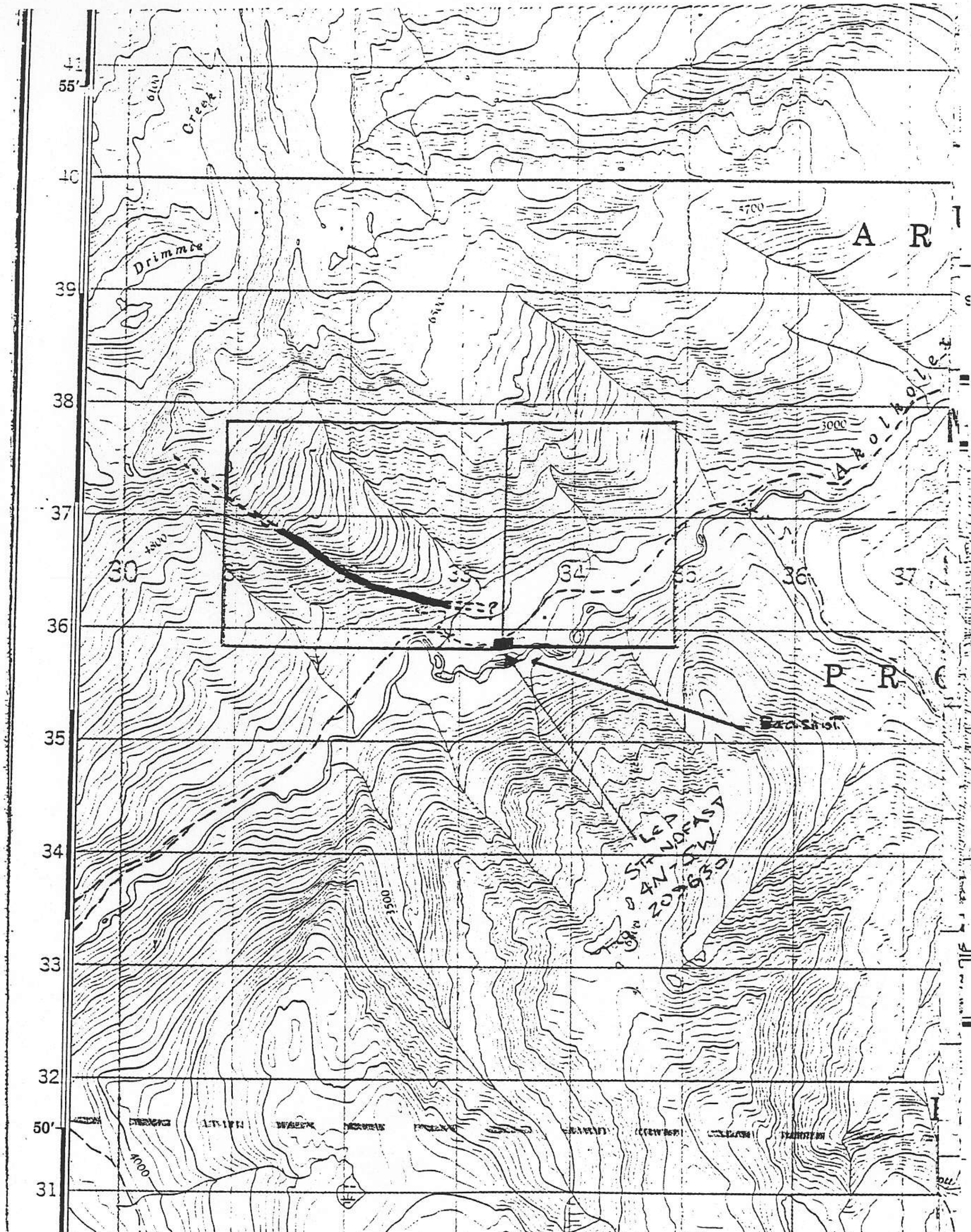
References to the Wigwam Property are made in the Minister of Mines Annual Reports for 1915,1921,1923 to 1931,1960 & 1961.

- 1924 to 1930 - The Wigwam Mining Co. conducted exploration consisting of 5877' of diamond drilling in 28 holes, trenching and open cutting, 1963' of underground developement in 13 adits. Most of the information compiled during these years has been lost.
- 1928 - The Schlumberger Electrical Propecting Co. conducted a geophysical survey of the property.
- 1950's - Newmont Mining Co. and Northwestern Explorations carried out limited geological mapping and sampling.
- 1960 & 61 - Cominco Explorations Ltd. conducted detailed geological mapping, channel sampling and prospecting. Cominco's prospecting revealed the presence of lead-zinc mineralization over a strike length of approximately two miles to the north.
- 1968 - Parmac Mines Ltd. completed eight diamond drill holes totalling 4065', over 2 miles of road construction, re-mapping and sampling of trenches and underground workings.
- 1969 - Canex Aerial Exploration Ltd. undertook a program of geological mapping, a structural study, road building, check sampling and surface diamond drilling.
- 1977 - Metallgesellschaft Canada Ltd. performed a geological study of the Wigwam deposit and immediate area.
- 1981 - Parmac Mines Ltd. completed a total of 684m (2244') of underground diamond drilling in 15 holes from the No. 11 Adit workings.

There is no record of any production from the property.



118°
ROCKY MOUNTAIN
THRUST AND
FOLD BELT
52°
MICA CREEK
SHUSHWAP
RIFT
Illecillewaet Slice
RUDDOCK CREEK
Goldstream Thrust
French Creek Slice
Columbia
GOLDSTREAM
METAMORPHIC
Monashee
SELKIRK
MONTGOMERY
ALLOCHTHON
COTTONBELT
Goldstream River
Goldstream Slice
STANDARD
Decollement
COMPLEX
J & L
MASTODON
Frenchman Cap Dome
JORDAN RIVER
Clachnacudainn Slice
51°
REVELSTOKE
MONASHEE
WIGWAM
COMPLEX
Thor Odin Dome
REBAR-SHERPA
BIG LEDGE
MESOZOIC / PALEOZOIC Intrusive Rocks
PALEOZOIC / MESOZOIC Lardeau Gp. & Badshot Fm.
LOWER CAMBRIAN Hamill & Gog Gps.
HADRYNIAN Horsethief Creek Gp.
PRECAMBRIAN / PALEOZOIC Metamorphic Rocks
PRECAMBRIAN / PALEOZOIC Mantling Gneiss
APHEBIAN (?) Core Gneiss
Zn - Pb Occurrence
Cu - Zn Occurrence
Selkirk Fan Axis
10 0 10 20 30 40 50 Km.
STANDFAST (WIGWAM)
REGIONAL
TECTONIC MAP
Scale 1:1,000,000
NTS 82-M
JUNE 1993
Figure 1
C.A. LYNES



TOPOGRAPHIC LOCATION MAP
SHOWING CLAIM BOUNDARIES
AND SURFACE POSITION OF ORE DEPOSIT

NTS 82K/13W SCALE 1:50,000

Iiii. OWNERSHIP

The claims covering the Wigwam deposit, held by Mr. Mel Pardek, lapsed on March 2,1993. On March 20,1993 DAVID M. STRAIN was contracted by CRAIG A. LYNES to stake one 20 unit 4 post claim to cover the known extent of the deposit. The claim was renamed the STANDFAST. It was agreed that D.M. Strain would aquire 50% interest in the claim for compiling geological information and report writing.

An additional 12 unit claim named the BADSHOT was acquired adjacent to and east of the STANDFAST claim by CRAIG A. LYNES on May 18 1993.

II GEOLOGY

IIi. REGIONAL SETTING

The Standfast Property lies in the transition zone between two contrasting tectonic regimes, the Shuswap/Monashee Metamorphic Complex to the west and the Selkirk Mountain Fold and Thrust Belt to the east. In this area the transition is comprised of the northwestern limit of the Kootenay Arc which represents folded lesser metamorphosed strata of the Lardeau Trough.

IIii. LOCAL GEOLOGY

The Standfast Property straddles the tectonic boundry (the Standfast Creek Fault) which seperates rocks reflecting more the geology of the Shuswap Metamorphic Complex from lesser metamorphosed rocks of the Hamill and Lardeau Groups.

Two structural levels are thus defined; the lower structural level and the upper structural level.

The lower structrural level is comprised of quartzites, pelitic schists and paragneiss in which regional and internal stratigraphic relationships are uncertain.

Rocks tectonically above the Standfast Creek Fault constitute the upper structural level. Quartzites, limestones and pelite units of Cambrian age can be correlated with established stratigraphic units of the Kootenay Arc and the Western Selkirk Mountains.

Early Cambrian Hamill Group quartzites form the base of the upper structural level and are seperated from younger Lardeau Group phyllites and slates (Index Fm.) by the Mohican and Badshot Formations.

The Mohican Formation overlies the Hamill Group and comprises up to 1000' of interbedded calcareous schists, limestone and micaceous quartzite.

Overlying the Mohican Formation is the Badshot Formation, a dense crystalline limestone marker several hundred feet thick. The mineralized section, on the north slope of the Akolkolex River, is known as the Wigwam Lime.

TABLE 1. ROCK UNITS IN THE AKOLKOLEX RIVER AREA

System	Map Unit	Map Symbol	Upper Structural Level
?	Broadview Formation	bv	Black phyllite; brown feldspathic grit.
Ordovician – – – ? – – –	Index Formation	Єin	Grey and black phyllite and slate; Єin$_a$ – grey and whitish grey quartzite; Єin$_b$ – greenstone.
Cambrian	Badshot Formation	Єbd	White and grey coarsely crystalline limestone; siliceous limestone; minor dolomite; contains sulphide layers: pyrite, pyrrhotite, galena, sphalerite.
	Mohican Formation	Єmo	Siliceous green, brown, and grey phyllite; calcareous phyllite; brown micaceous quartzite; grey and buff limestone.
Cambrian and Eocambrian (?)	Hamill Group	Єha	Massive to platy, white and tan quartzite; grey and brown micaceous quartzite; grey and brown quartzose phyllite.
– – – – – –	– – – – – –	tectonic contact	– – – – – –
			Lower Structural Level
? Cambrian Eocambrian ?		D*	Brown and grey biotite (garnet) schist; tan and grey micaceous quartzite; black and grey slate; buff and grey micaceous limestone.
		C*	White and grey coarsely crystalline limestone; siliceous limestone.
		B1,2,3,4*†	Grey, black, and brown biotite-garnet schist; minor amphibolite; calcareous schist; grey and brown micaceous and feldspathic quartzite; B4$_a$ – dark grey and black phyllite and schist; coarsely crystalline grey limestone; reddish brown biotite; B4$_b$ – tan and white quartzite and micaceous quartzite; buff marble; B4$_c$ – amphibolite.
		A1,2,3*†	White, tan, and grey quartzite and micaceous quartzite; minor varicoloured schist.
		Gn*	Grey, homogeneous (quartz-biotite-hornblende-plagioclase-K-feldspar) gneiss.

*Numerals refer to individual map units of B and A.
†May not be in order of superposition.

TABLE 2. REGIONAL CORRELATION OF THE UPPER STRUCTUAL LEVEL OF SUCCESSION

GROUP	FORMATION	DUNCAN LAKE AREA (FYLES, 1964)	FERGUSON AREA (FYLES AND EASTWOOD, 1962)	AKOLKOLEX RIVER AREA	WESTERN SELKIRK MOUNTAINS (WHEELER, 1963)
Lardeau	Broadview	Green and grey micaceous quartzite, greywacke, grit, and fine-grained mica schist.	Grey and green grit and phyllite; minor pebble conglomerate and pyroclastic rocks.		Quartz mica schist and quartz chlorite schist, micaceous and chloritic quartzite, locally gritty and feldspathic.
	TECTONIC CONTACT	TECTONIC CONTACT	TECTONIC CONTACT		
	Jowett	Fine-grained chlorite schist and feldspar chlorite schist.	Mafic lavas, pyroclastic rocks, argillite; minor limestone.		
	Sharon Creek	Dark grey to black argillite.	Dark grey to black siliceous argillite; slate, phyllite, and minor grit.	? Green and dark grey phyllite; local brown feldspathic grit.	
	Ajax	Massive grey quartzite.	Massive grey quartzite.		
	Triune	Grey and black quartzite and argillite.	Grey to black siliceous argillite.		
				TECTONIC CONTACT	TECTONIC CONTACT
	Index	UPPER INDEX: Feldspar chlorite schist. Green mica schist and garnet mica schist; minor lenses of grey schist and limestone. LOWER INDEX: Creamy white and grey fine-grained limestone, micaceous limestone, brownish quartzite, and fine-grained grey and green schist. Grey and dark grey fine-grained mica schist, calcareous dark grey mica schist and dark grey limestone; locally grey garnet and staurolite mica schists.	Dark grey and green phyllite; dark grey argillite; minor limestone and volcanic rocks.	Grey and black phyllite and slate; thin bands of blue-grey and black limestone and silty limestone. Green epidote - chlorite - feldspar phyllite. Grey phyllite. Grey and whitish grey quartzite. Grey and black graphitic phyllite and slate; calcareous and siliceous phyllite and slate. Greenish grey and grey lustrous phyllite.	Dark grey to black graphitic, siliceous and limy phyllites and slates, blue-grey and dark grey limestone, limy siltstone, and int.aformational conglomerate and breccia. Beds up to 10 feet thick of pale grey quartzite. Buff to grey lustrous phyllites and slates, minor limestone.
	Badshot	Grey and white crystalline limestone, dolomite, and siliceous dolomite.	Grey limestone.	Grey and white crystalline limestone; siliceous limestone and chert with associated sulphide mineralization; minor dolomite.	Dark grey, carbonaceous limestone. Grey and buff, sheared, thin-bedded limestone. Lower Cambrian archaeocyathids occur in lowest 20 feet.
	Mohican	Interlayered limestone or dolomite and green or grey mica schist; porphyroblasts of garnet, chloritoid, or biotite in higher metamorphic grades.	Dark grey and green phyllite; minor limestone.	Siliceous green and greenish brown phyllite; calcareous brown and grey phyllite; brown and grey micaceous quartzite; thin grey and buff crystalline limestone.	Greyish green and rusty green, crumpled, limy chloritic phyllite with interbeds a few inches thick of brown and buff marble. Grey and white marble underlain by buff to yellowish marble.
Hamill	Marsh Adams	Grey and brown micaceous quartzite and mica schist; white quartzite and minor brown-weathering limy schist.	Grey, brown and white quartzite; micaceous quartzite; minor phyllite.	Grey and tan quartzite; grey and brown micaceous quartzite; subordinate grey and brown siliceous phyllite.	Interbedded micaceous quartzite and quartz sericite schist. Mainly white, brown, and pale green quartzite. Crumpled rusty brown quartz mica and golden mica schist.
	Mount Gainer		White to pinkish quartzite.	Flaggy white quartzite.	Mainly white and light brown quartzite.

Four units are recognized within the Wigwam Lime Sequence. From lowest to uppermost are:

(1) 150 - 250' of dark-grey-banded limestone with lenses of marble and bands of calcareous schist and phyllite.

(2) 100' of conspicious laminated, fine grained grey-to-black, calcareous quartzite (silicified limestone/chert ?). Lenses of pyrite, pyrrhotite, galena and sphalerite occur in close association with this quartzite horizon.

(3) 100 to 150' of grey phyllite.

(4) 200 to 300' of grey, thinly bedded limesone with thin bands of grey phyllite and feldspathic schist.

IIiii. STRUCTURE

Two dominant phases or types of folding are recognized throughout the area; recumbent isoclines are designated as phase 1 folds, and upright, more open folds are designated as phase 2 folds.

The lower Paleozoic rocks above the Standfast Creek fault occur as a pair of large recumbent isoclinal folds: the Akolkolex anticline and the Drimmie Creek syncline. Rocks in the lower structural level appear to have the same structural style.

The axial planes of these structures are sub-horizontal but generally have a trend of about 110^0 and shallow (20^0) north dip.

Schistosity and primary lithological layering are subparallel to the axial planes of the larger structures.

III MINERALIZATION

Limits of the lead-zinc mineralization concur closely with those of the grey quartzite band in the middle of the Wigwam Lime succession, and forms the dominant host rock for the sulphide minerals.

The sulphides in order of decreasing abundance are pyrrhotite, pyrite, sphalerite, and galena, which occur as fine grained disseminated to massive lensoidal masses, primarily contained within the thickened hinge zone of the Drimmie Creek Syncline.

Mineralization has been traced and evaluated by trenching, diamond drilling, and underground access over a strike length of 1500m. The eastern-most workings (Ice Adit) occur at elevation 785m. (2575') a.s.l.; the western most workings are at 1335m (4380') a.s.l.

Exploration work to date indicates that there are two centres of mineralization, around the No. 11 Adit and Trench 5, and at the Ice Adit.

Estimates of grade and tonnage made by T.R. Tough are 632,810 tonnes of indicated ore at 2.14% lead and 3.54% zinc, and approximately 8.0 million tonnes of inferred ore at similiar grades (Assess Rpt. 10354 Sept. 14,1982). Silver content of the sulphides is low, generally less than 1.0 oz. per ton.

Traces of gold have been reported in some of the sampling by various Companies, but more accurate determinations and methods of analysis are unknown. Other references suggesting the presence of gold in the Standfast deposit are: one of the adits is named the Gold Adit; gold is listed as one of the commodities on the Mineral Inventory Map (#68 Wigwam Zn, Pb, Au, Fl); and Richard E. Meyers reported that the Standfast along with the J & L are Zn-Pb (Ag,Au) deposits.

IV DEPOSIT CLASSIFICATION & ORIGIN

James T. Fyles includes the Standfast deposit in a group known as Concordant Lead-Zinc deposits of the Shuswap Metamorphic Complex. The most significant of these deposits are the STANDFAST, BIG LEDGE, RUDDOCK CREEK and COTTONBELT. Lead-Zinc layers in the Jordan River area (King Fissure) also fall into this category.

These deposits have many features in common. The most important are:

(1) Stratigraphically confined: lithologic sequences vary from property to property, but the sulphide layers are essentially stratigraphic.

(2) Similiar mineralogy, metal ratios and concentrations, texture and occurence of the sulphide layers.

(3) All have been deformed and metamorphosed.

The Standfast deposit is unique among the Shuswap type deposits in that it is the only one which can be "dated" stratigraphically (ie. - age and stratigraphic pos-tion of the host rock is known).

Some similiarites are apparent between the Standfast and lead-zinc deposits at Duncan Lake.

The most obvious similarity is that they occur in the Lower Cambrian Badshot Formation. Other similarities include the lenticular morphology of the mineralized zones, sulphide minerals present and lead-zinc grades and ratios.

The main difference between the Standfast deposit and the Duncan type is the type of structure each is associated with. The Standfast deposit occurs in the thickened hinge of a phase 1 recumbent isocline, while deposits of the Duncan type occur in the Duncan Anticline, an open phase 2 structure.

Lead isotope studies of lead-zinc mineralization of the Kootenay Arc show that these deposits are epigenetic. Texture and structures of the mineralization are clearly the result of replacement.

Suggestions that the Standfast (formerly Wigwam) deposit is syngenetic (sedex) have been made, but of a different style (carbonate-hosted opposed to cherty,carbonaceous black shale hosted sedex).

The argument as to the origin of the Standfast Lead-Zinc deposit is mainly academic in that it does not affect the approach to defining the mineralization.

V CONCLUSIONS & RECOMMENDATIONS

The Standfast deposit is stratabound (restricted to the Badshot Formation) and comprised of a number of lenticular mineralized masses which have been highly deformed and situated primarily in the thickened hinge zone of the Drimmie Creek Syncline. The origin of the Standfast is unknown, and displays similarities to Shuswap Complex type as well as Duncan type.

Two centres of mineralization are distinguishable: the area around the No. 11 Adit and Trench #5, and at the Ice Adit. Mineralization in the Badshot has been traced by prospecting for 3km to the northwest of the deposit.

The deposit itself has not been adequately defined, being open in all directions, and the potential for finding new mineralized centres nearby within the Badshot Formation is excellent. No attempt has been made to evaluate the gold content of the deposit or enclosing silicified limestone.

It is recommended that an exploration program addressing these ideas be undertaken. More specifically the program would include the following:

(1) A detailed compilation of all existing data to produce a good property base map, and to layout a diamond drill program.

(2) A mine grid will be required involving establishment of a baseline, surveying and remapping the roads, workings and geology.

(3) Access roads to workings, old diamond drill sites etc. will have to be refurbished.

(4) Establishment of new drill pads.

(5) Diamond drilling should focus on defining the limits of the main mineralized centres with some footage reserved for testing new targets.

(6) Geophysics (EM and/or IP) on the flater sections on the Badshot claim should be carried out to explore for the southeastward extensions of the mineralization. This would involve the establishment of a cutline grid.

(7) Prospecting and silt sampling around the claims to identify new mineralization within the Badshot Formation.

(8) Propecting, trenching and sampling of occurrences along strike to the northwest of the main mineralized area (No.11 Adit to Ghost Peak).

(9) Resampling of selected showings to obtain accurate gold values and assess the potential for large tonnage, low grade gold.

DAVID M. STRAIN

Geologist

VI LIST OF REFERENCES

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