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FERNIE PHOSPHATE PROJECT

1998 ASSESSMENT REPORT

Barnes Lake	49° 27'	114° 42'	082G 07E
Leslie Creek	49° 09'	114° 40'	082G 02E
Cabin Creek	49° 09'	114° 41'	082G 02E

Fort Steele Mining Division

For

Ecomineral Resources Ltd.
Suite 1601 - 675 West Hastings Street
Vancouver, British Columbia V6B 1N2

R.Tim Henneberry, P.Geo.

September 1, 1998

SUMMARY

The Fernie Phosphate Project now consists of four properties totaling 77 units. The sedimentary phosphorite properties lie in the Jurassic Fernie Basin, in the Fort Steele Mining Division of southeastern British Columbia.

The 1998 exploration program consisted of surface sampling to obtain 5 gallon pails of phosphorite for metallurgical and agronomical testing. Samples were obtained from the Cabin Creek and Barnes Lake properties; a sample was not obtained from Leslie Creek.

As well, Steve Butrenchuk, P.Geol., the geologist who undertook the phosphate study for the provincial geological survey branch, was contracted to assist in locating, explaining and sampling the phosphorite exposures.

Each of the metallurgical sample locations were photographed, sampled and assayed.

An exploration program of backhoe or excavator trenching, in combination with expansion of the property base by further staking is recommended.

The cost of the 1998 exploration program is $4,280, broken down between the three properties as follows:

Barnes Lake	$1,647
Leslie Creek	$1,110
Cabin Creek	$1,531

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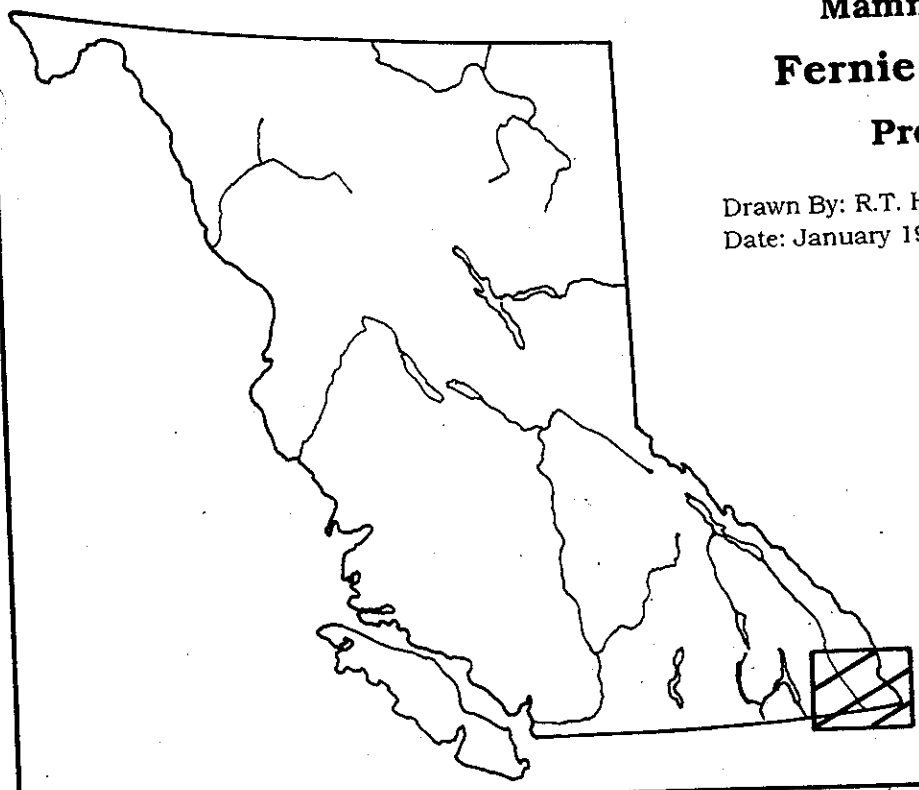
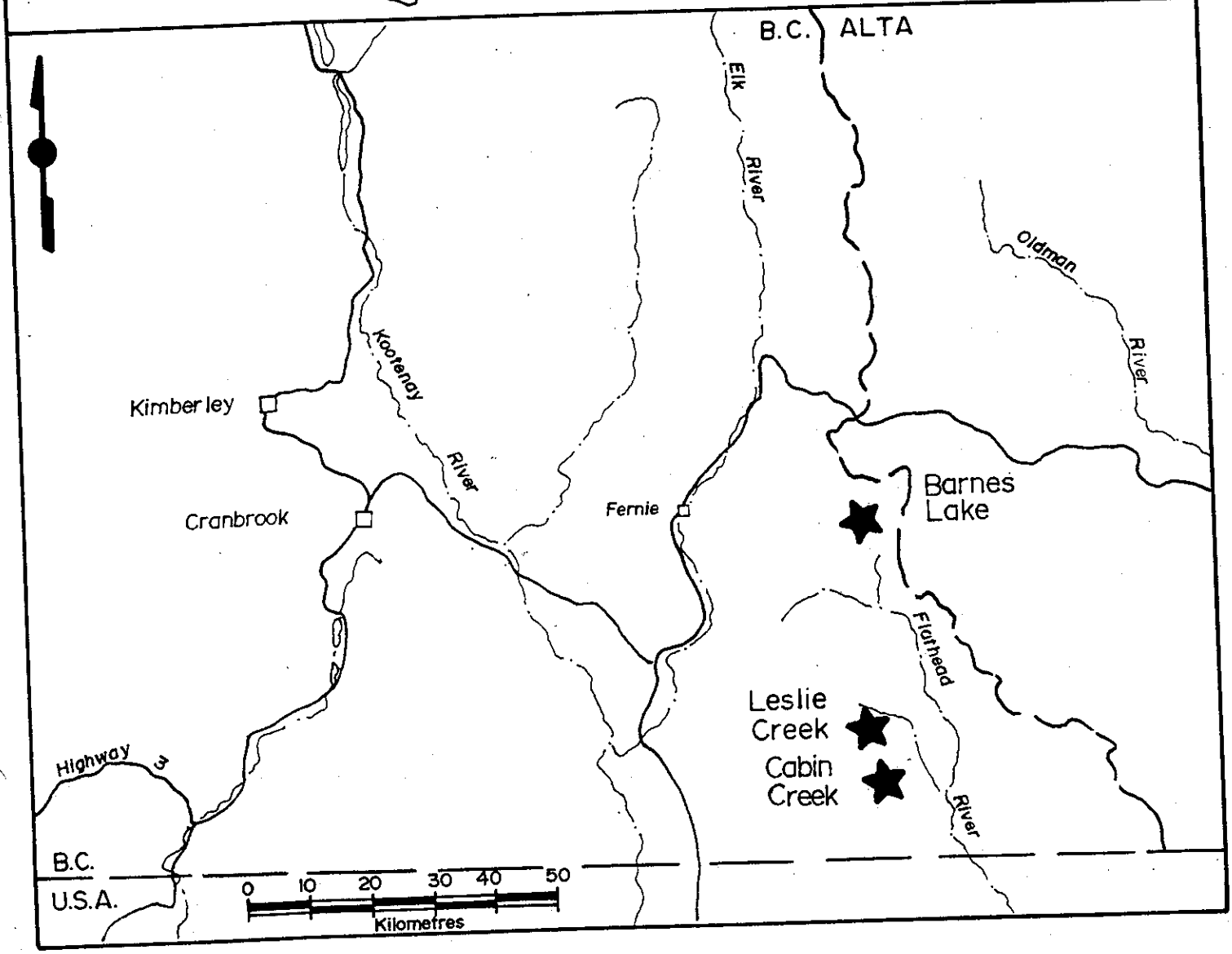
Fernie Phosphate Project

Property Locations

Drawn By: R.T. Henneberry
Date: January 1997

Figure 1





INTRODUCTION

The Fernie Phosphate project was optioned to Ecomineral Resources Ltd. of Vancouver in the late spring of 1998. Ecominerals supplied sufficient funds to complete a minimal sampling program to meet the 1998 assessment requirements. Thirty-eight additional units were staked, increasing the Cabin Creek and Leslie Creek property bases to 35 and 26 units, respectively.

Phosphate is one of the primary agricultural minerals, a key component of fertilizers.

Ecominerals Resources Ltd. is developing a proprietary process to utilize the raw unbeneficiated (but crushed) phosphate rock in combination with plant wastes and/or oxidized coal for agronomical applications. This process should circumvent the traditional stumbling block of the Fernie phosphates, poor beneficiation results.

The shallow dips and soft broken nature of the host rocks, and in several instances the phosphate rock itself, could lead to relatively uncomplicated surface mining techniques.

The Jurassic Fernie basin lies in the southeastern corner of British Columbia, within the Fort Steele Mining Division. The area of the basin is loosely bounded by the Alberta border to the east, highways 3 and 43 to the west, the International Border to the south and Elkford to the north. The area is serviced by the towns of Elkford in the north, Sparwood in the centre and Fernie in the south. A myriad of logging roads provide access to much of the basin, though road deactivation can severely hamper access to individual occurrences.

The Barnes Lake property lies approximately 32 kilometres south of Sparwood and 27 kilometres east of Fernie. The Flathead Forest Service Road from Corbin provides access to the northern section of the property, while a poorly maintained exploration road provides ATV access to the main showing areas. Elevations in the Barnes Lake area range from 1585 metres to 2255 metres. Stands of timber are present at lower elevations, while alpine terrain predominates as elevation increases. The exploration window lies between early July and mid October. Availability of water decreases as with elevation.

The Cabin Creek property, Leslie Creek property and Bighorn property all lie in the same general area, 40 to 45 kilometres southeast of Fernie. The properties are accessible by the Cabin Creek (Ram) Forestry Road and its spurs originating from Highway 3 at the Morrissey turnoff. Cross-ditched and / or waterbarred secondary roads provide access to the known showings on each of the three properties.

Elevations range from 1675 metres to 2135 metres. Most of the upper Cabin Creek (east flowing) and Bighorn Creek (west flowing) valleys have been recently clearcut. The unlogged areas host stands of spruce and fir. The property area is snow-covered from late-October to early June. Water is relatively abundant, though shortages could be encountered at higher elevations..

PREVIOUS EXPLORATION

The Fernie basin phosphorites have experienced several periods of exploration since their discovery in the 1920's. Exploration programs were generally halted due to poor beneficiation results, as opposed to poor exploration results.

The predecessor company of Cominco Ltd. explored the entire basin in the period 1925 to 1932, outlining various phosphate horizons and defining areas which offered the greatest economic potential. Three small exploratory underground mines were opened, but work was halted due to poor beneficiation results. Cominco did obtain mining leases on the important showings. Cominco reexamined and further explored several of the leases in the 1960-'s, utilizing new metallurgical techniques. Preliminary feasibility studies were conducted on two of the leases, but poor beneficiation characteristics halted the projects. (Kenny, 1977).

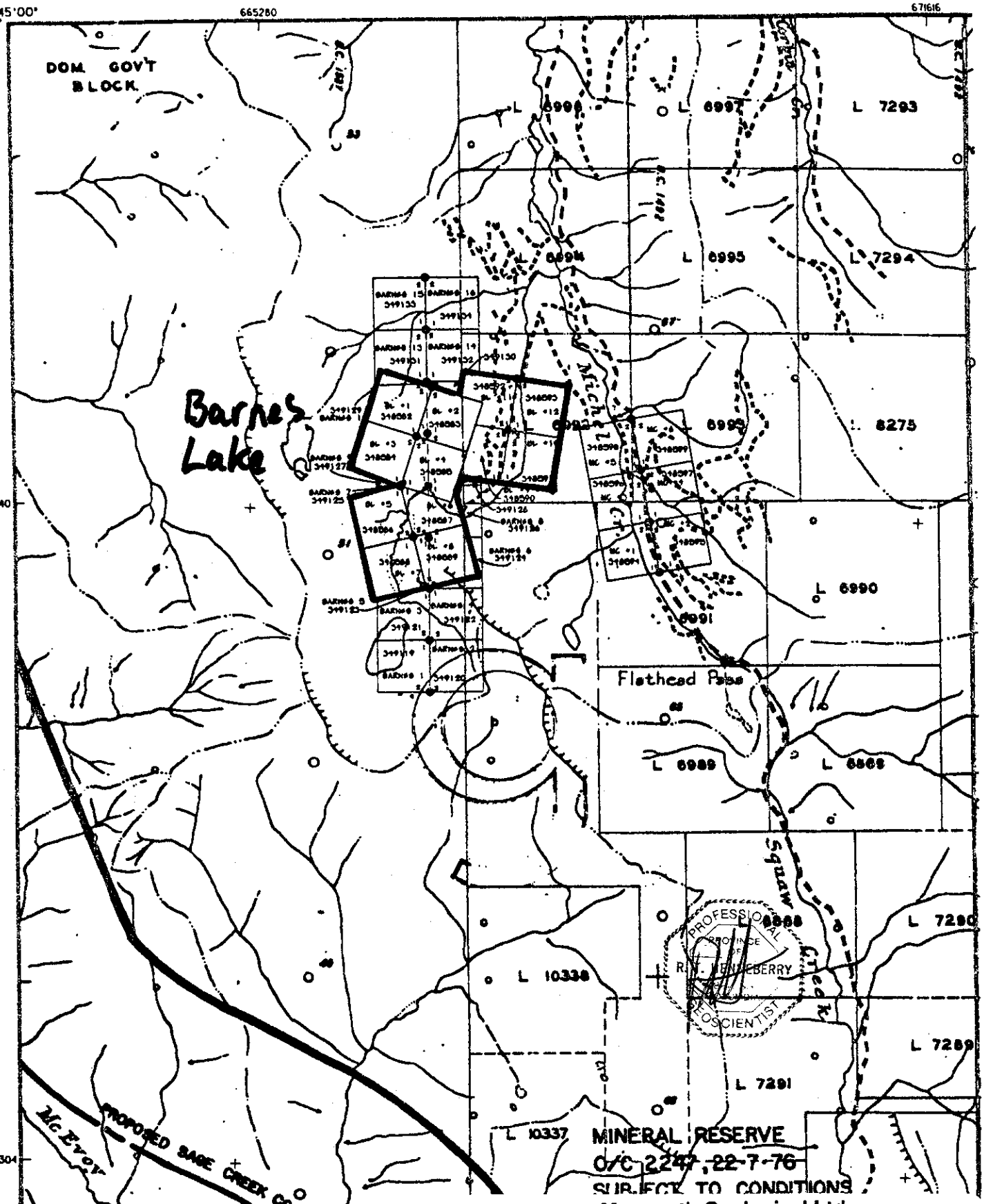
Logging operations progressively opened much of the southern Fernie basin, resulting in an exploration boom in the 1970's and early 1980's. Cominco Ltd. and several other companies were active during this period, completing mapping, sampling, trenching and drilling programs. Cominco Ltd. and the Federal Government undertook metallurgical testing on samples from the southern basin.

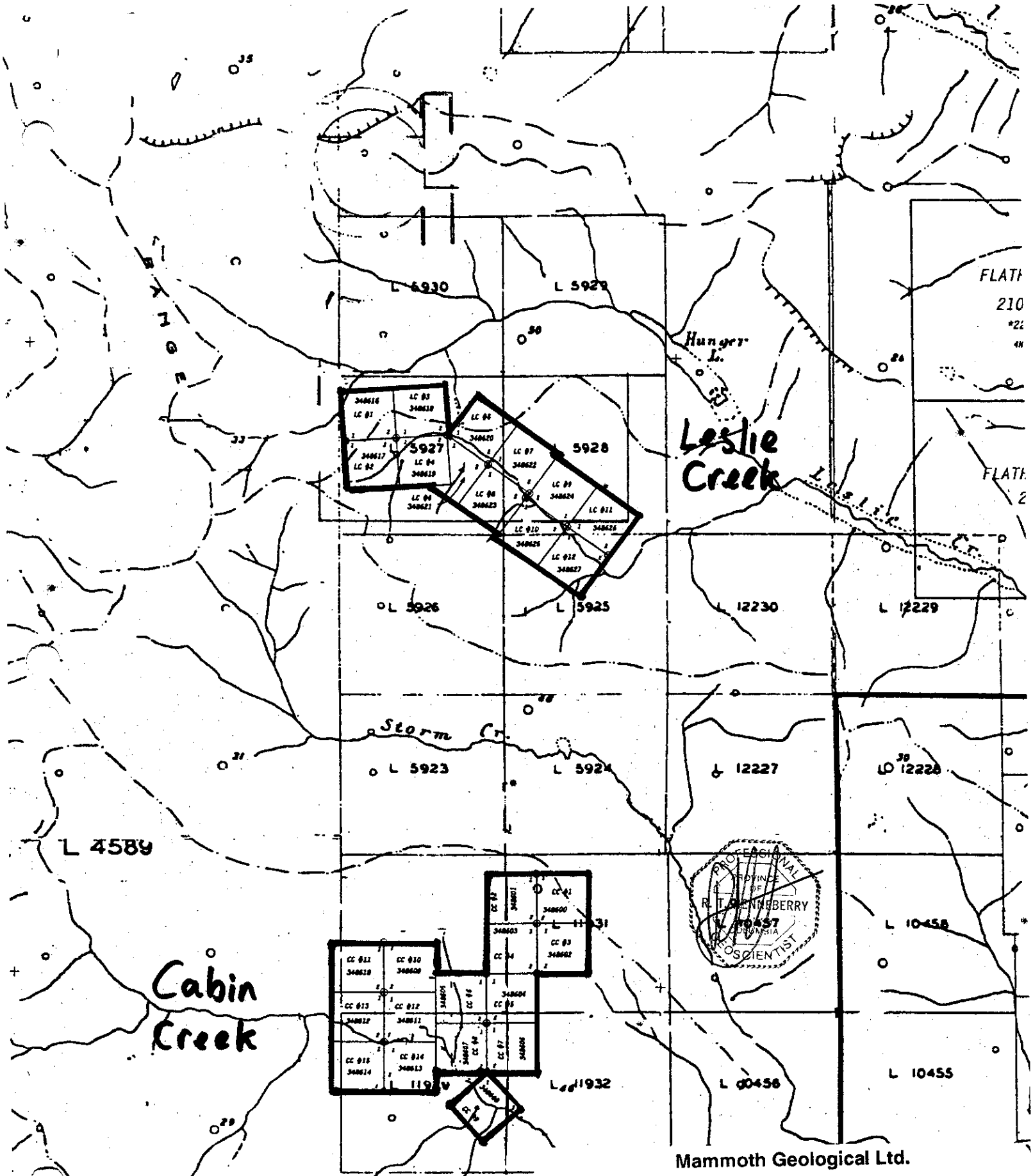
The provincial geological survey branch initiated a phosphate inventory program in 1986-1987 resulting in a preliminary publication (Butrenchuk, 1987) and later a final report (Butrenchuk, 1996). This initiative lead to the most recent exploration activity: Formosa Resources Corporation in the southern basin during 1989-1990 and Doug Allen's group in the Crowsnest Pass area during 1996-1997.

The Barnes Lake property has undergone two previous periods of exploration: the poorly documented trenching and drilling Western Warner Oils / Medesto Exploration programs in the 1970's and the Formosa Resources Corporation trenching program in 1989. The Western / Medesto programs resulted in a mineral reserve calculation of 288,000 tons of phosphate rock to a depth of 50 feet (18 metres) as reported in Dales (1978). Formosa's program culminated in eight backhoe trenches yielding grades ranging from 21% to 26% P_2O_5 (Pell, 1990c).

Imperial Oil Limited (Van Fraassen, 1978) completed a sampling and percussion drilling program in the Cabin Creek / Leslie Creek, including the present Cabin Creek and Leslie Creek property. First Nuclear Corporation Limited (Hartley, 1982) explored the phosphorites by mapping, and hand and cat trenching in 1981. Hartley examined the previously known showings and located several additional ones, including all those on the present Bighorn, Cabin Creek and Leslie Creek properties. Formosa Resources Corporation (Pell, 1990a; 1990b) completed mapping and backhoe trenching programs on each of the three presently held properties. Both Hartley and Pell obtained grades ranging from 15% to 27% P_2O_5 over widths up to 1.5 metres. Henneberry (1997) calculated preliminary mineral estimates for the present Cabin Creek and Leslie Creek properties utilizing the earlier sampling data. A resource estimate has not been calculated for the Bighorn property.

Property	Source	width	%P_2O_5	ppmY	to 18 m	to 25 m
Barnes Lake	Dales (1978)	1.00	27.00	na	288,000	
Cabin Creek	Henneberry (1997)	1.50	19.74	605		145,411
Leslie Creek	Henneberry (1997)	1.05	20.24	586		41,140


114°45'00"
49°30'00"
665280
6716
DOM. GOV'T BLOCK
L 6993
L 6997
L 7293
L 6994
L 6995
L 7294
Barnes Lake
L 8275
5480640
L 6990
6991
Flathead Pass
L 6989
L 8868
L 8888
L 7290
L 10338
L 7289
L 7291
L 10337
MINERAL RESERVE
O/C 2247, 22-7-76
SUBJECT TO CONDITIONS
PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
R.T. HEMBERRY
GEOSCIENTIST
5474304
McEvoy Cr.
PROPOSED SAGE CREEK COAL LIMITED RAILWAY R/W
SL 37
Mammoth Geological Ltd.
Fernie Phosphate Project
Barnes Lake Claim Locations
Sheet : 082G07E
Date: July, 1998
Scale: 1:50,000
Figure: 2



Mammoth Geological Ltd.

Fernie Phosphate Project

Cabin / Leslie Creek Claim Locations

Sheet : 082G02E
Date: July, 1998

Scale: 1:50,000
Figure: 3

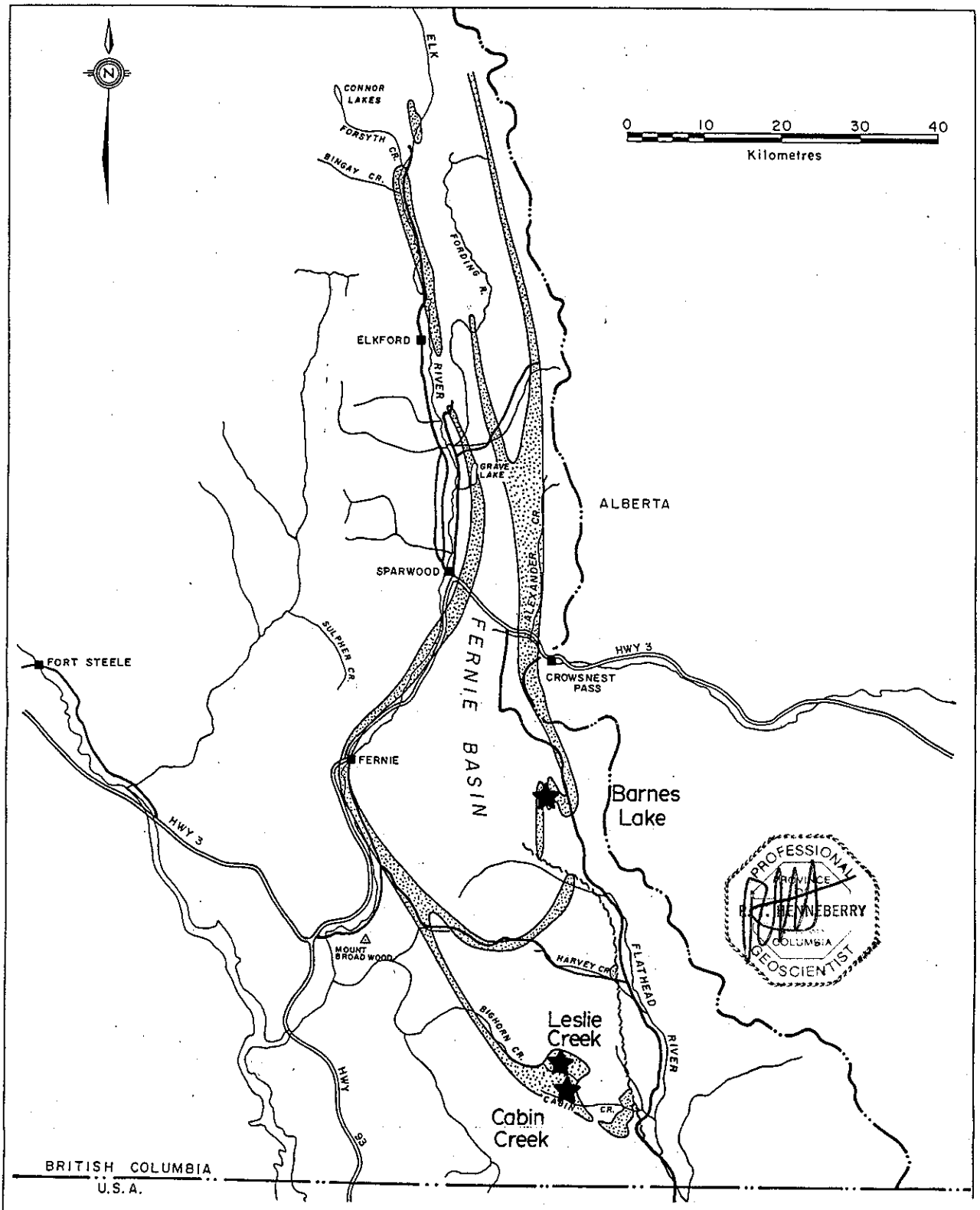
CLAIM HOLDINGS

The Fernie Phosphate project now consists of four groups totaling 77 units. This report will provide assessment credits for the previously held units, marked by an asterisk below:

Claim	Staking Date	Record Number	Anniversary Date
Barnes Lake - 082G 07E			
BL #1-#12	July 16, 1996	346582-348593	July 16, 1999 *
Cabin Creek - 082G 02E			
CC #1-#9	July 13, 1996	348600-348608	July 13, 1999 *
CC #10-#15	July 14, 1996	348609-348614	July 14, 1999 *
CC #16-#27	July 12, 1998	364158-364169	July 12, 1999
CC #27-#34	July 13, 1998	364170-364177	July 13, 1999
Leslie Creek - 082G02E			
LC #1-#12	July 12, 1996	348616-348627	July 12, 1999 *
LC #13-#22	July 10, 1996	364146-364155	July 10, 1999
LC #23-#24	July 13, 1998	364156-364157	July 13, 1999
LC #25-#26	July 13, 1998	364193-364194	July 13, 1999
Bighorn - 082 02W			
BIG #1-#2	July 13, 1998	364144-364145	July 13, 1999
BIG #3-#4	July 13, 1998	364179-364180	July 13, 1999

* pending approval of 1998 work program for assessment credits

All units are held in the name of the author, R. Tim Henneberry of Mill Bay, British Columbia. I am holding them in trust for Ecomineral Resources Ltd.



LEGEND:

OUTCROP OF FERNIE GROUP

FAULT

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Fernie Phosphate Project

Fernie Group Distribution

Modified from: Butrenchuk (1987)

Date: July, 1998

Figure: 4

GEOLOGY

Regional Geology - (Summarized from Butrenchuk, 1987; 1996)

Southeastern British Columbia is characterized by a sequence of Devonian to lower Jurassic marine strata deposited in a miogeosyncline along the western edge of the stable proto- North American craton. Depositional environments for the different sequences varied from platformal to basinal.

Cambrian to Mississippian strata, consisting of shallow water carbonate assemblages that pass westward into deeper water, are predominantly limestone, shale and siltstone. Pennsylvanian strata were deposited in a shallow marine environment, producing fine clastic and carbonate units. Low energy, shoreline conditions characterized the Permian, depositing fine-grained sandstone, siltstone, chert and minor shale. The end of the Permian is marked by a major unconformity.

Triassic sedimentation took place in a stable shelf environment, marked by bar and deltaic deposits on the eastern limits of the shelf and widespread finer clastic sediments to the west. The end of the Triassic is also defined by a major unconformity.

Moderately deep-water sedimentation, and minimal miogeosynclinal subsidence characterized the Jurassic. Deposition of widespread phosphorite and phosphatic shale carried throughout the lower Jurassic, especially at the base of the Fernie Formation, within the Fernie Basin.

Non-marine Cretaceous strata containing extensive coal measures overlie the miogeosynclinal stratigraphy.

Thrust faulting, with older rocks overriding younger rocks to the east is a common phenomenon of the eastern Rocky Mountains. Further complications structure, the Fernie Basin has been folded in a doubly-plunging syncline. Several west-side-down normal faults cut the centre of the synclinorium.

Fernie Formation - (Summarized from Butrenchuk, 1987; 1996)

Yttrium-rich phosphatic rocks occur in a number of stratigraphic intervals within the miogeosyncline: however, the thickest and most continuous phosphate horizon was developed at the base of the Jurassic Fernie Formation. The basal Fernie phosphate strata contain high concentrations of yttrium.

The base of the Fernie group is marked by a persistent pelletal phosphorite horizon that is 1 to 2 metres in thickness and generally contains greater then 15% P_2O_5. Grades in excess of 30% P_2O_5 have been located. The horizon commonly consists of two pelletal phosphorite beds separated by a thin chocolate brown to black phosphatic shale bed. The basal phosphorite rests either directly on Triassic strata or is separated from the underlying rocks by a thin phosphatic conglomerate. Phosphatic shales of variable thickness, generally less than 3 metres, overlie the phosphorites. The top of this sequence is locally marked by a yellow-orange bentonite bed.

The entire Triassic / Jurassic sequence has been structurally deformed, primarily by folding and thrust faulting. This structural deformation is important as it can result in considerable thickening of the phosphorite horizon, either by thrusting one section of the horizon directly on top of another, or by slumping during folding resulting in increased thicknesses at the nose folds. The folding can also bring larger areas of the horizon close to surface, paralleling the topography. A combination of any or all of these phenomenon makes an especially attractive target.

Barnes Lake - (Summarized from Pell, 1990c)

The Barnes Lake property is underlain by Permian through to Jurassic strata. Permian Ranger Canyon Formation rocks are medium to thick-bedded, cream to buff to light-grey weathering, fine-grained sandstones, siltstones and dolomitic siltstones, with white to grey fresh surfaces. Triassic Sulphur Mountain Formation units are predominantly buff, yellowish-brown and chocolate brown weathering, thin to medium bedded siltstone and shalely siltstones. Jurassic Fernie Group rocks, the phosphorite host rocks, are recessive weathering and poorly exposed. These rocks are brown and black shales overlain by black, brown and dark grey shales with interbedded buff to orange weathering dolostones, buff, fine-grained sandstones and light-grey limestones.

The basal phosphorite horizon is commonly 1.1 to 2.1 metres thick, consisting of poorly to well consolidated, gritty, pelletal phosphorite and shaley phosphorite capped by phosphorite shale. In most exposures, the phosphorite horizon overlies orange and yellow clays, or interbedded buff to brown Triassic shales and siltstones. The phosphorites are generally shalely to pelletal in nature and exhibit an increase in grade upsection until a fairly pure phosphorite (28% to 32% P_2O_5) is developed. Commonly, the high-grade phosphorite is black, pelletal and overlain by increasingly shaley phosphorite and shale.

The structure of the Barnes Lake area is dominated by a pair of north-northwest trending, upright to overturned anticlines and the intervening syncline which is cored, in the central and northern part of the property, by a thrust fault. Small back thrusts occur along the western limb of the easternmost anticline and locally disrupt phosphatic strata.

Leslie Creek - (Summarized from Pell, 1990b)

The Leslie Creek property is underlain by Permian through to Jurassic strata. Permian Ranger Canyon Formation rocks are medium to thick-bedded, cream to buff to light-grey weathering, fine-grained sandstones, siltstones and dolomitic siltstones. Triassic Sulphur Mountain Formation units are predominantly light, yellowish-brown to medium brown weathering, medium- to thin- bedded siltstones, and calcareous or dolomitic light grey siltstones. Jurassic Fernie Group rocks, the phosphorite host rocks, are recessive weathering and poorly exposed. These rocks are monotonous fissile black shales, with cream to light grey weathering siltstones and silty limestones, as well as shales and silty shales much higher up in the section.

The basal phosphorite horizon is in the range of 1 metre thick, consisting of two poorly consolidated, gritty, pelletal phosphorite layers separated by 5cm to 25cm of chocolate brown shale. In most exposures, the phosphorite horizon overlies buff to grey Triassic siltstones or sandstone. The base of the phosphorite horizon is a 25cm to 86cm pelletal phosphorite to phosphatic shale horizon, overlain by the chocolate brown shale, in turn overlain by a second 18cm to 77cm pelletal, or in some cases nodular phosphorite horizon. The phosphatic sequence is overlain by slightly phosphatic black or brown shales, that grade upwards into non-phosphatic rocks.

The structure of the Leslie Creek area is dominated by a series of northwest-southeast trending folds and thrust faults. The phosphate horizon outlines broad, open folds and is present as a shallow southwest dipping layer, actually dipping into the valley at an angle which is slightly steeper than the hillside, over the eastern third of the exposure.

Cabin Creek - (Summarized from Pell, 1990a)

The Cabin Creek property is underlain by Permian through to Jurassic strata. Permian Ranger Canyon Formation rocks are medium to thick-bedded, cream to buff to light-grey, or locally pink-weathering, fine-grained sandstones, siltstones and dolomitic siltstones. Triassic Sulphur Mountain Formation units are predominantly buff, yellowish-brown and chocolate brown weathering, thin to medium- bedded siltstones and shaley siltstones. Jurassic Fernie Group rocks, the phosphorite host rocks, are recessive weathering and poorly exposed. These rocks are brown and black shales overlain by black, brown and dark grey shales with interbedded buff to orange weathering dolostones, buff, fine-grained sandstones and light-grey limestones.

The basal phosphorite horizon is 1.15 to 3.51 metres thick, consisting of two poorly consolidated, gritty, pelletal phosphorite layers separated by 15cm to 60cm of brown shale. In most exposures, the phosphorite horizon overlies buff to grey Triassic siltstones or sandstone. The base of the phosphorite horizon is a 25cm to 86cm pelletal phosphorite to phosphatic shale horizon, overlain by the chocolate brown shale, in turn overlain by a second 15cm to 135cm pelletal horizon. The phosphatic sequence is capped by a 2cm to 15cm thick yellow bentonite bed.

The structure of the Cabin Creek area is dominated by a series of northwest-southeast trending folds and thrust faults. Two anticlines, cored by thrust faults, and the intervening syncline have been mapped. Surface mapping has detailed an outcrop pattern indicative of a double plunging anticline.

Two areas of particular interest were noted. At the first, on the limb of an anticline, the dip of the phosphate horizon and the hillside are roughly parallel. At the second, a large flat bench, the phosphate horizon is flat under 1 to 3 metres of overburden.

1998 SAMPLING PROGRAM

The aim of the 1998 exploration program was straight forward. Raw phosphate rock is required for preliminary testing in the Ecomineral Resources Ltd. proprietary agronomy process. Preliminary testing utilizing vat leaching (a new technology potentially applicable to the beneficiation of the Fernie phosphates) will also require raw phosphate rock. While a larger excavator trenching program was preferred to obtain the phosphate material, scarcity of funding left sampling known surface exposures as the only option.

In order to ensure these exposures were accurately located, Steve Butrenchuk, P.Geol., was contracted to locate the showings, to assist in the sampling, to explain the geology and to assist in the acquisition of additional ground (staking).

James Patrick, an experienced prospector, was contracted to undertake the staking and assist in packing the samples out from the Barnes Lake showings, a distance in excess of 4 kilometres.

The program was completed during the period July 11 to July 14, 1998.

Barnes Lake

The Barnes Lake showings were sampled on July 14. The exploration trail into the property is now only accessible by ATV or by foot. The distance from the Michel Creek crossing to the south showings is over 4 kilometres and to the north showings is over 4.2 kilometres, rising in elevation from 5300 feet to 6600 feet.

Three showings were examined and sampled, two of the south showings and one of the north showings. A fourth area, outlined by Pell (1990c) was examined, without locating the phosphorite outcropping.

The most important observation is the consolidated nature of the phosphorite, especially at the southern exposures. The phosphorite itself and the Triassic footwall are both competent units, while the hanging wall Fernie sediments are friable and deeply weathered. In order to remove larger bulk samples, the hanging wall Fernie sediments will need to be removed, after which the phosphorite will be peeled off the footwall Triassic sediments. The phosphorite will require crushing prior to utilization. The steep dip of the phosphorite unit in this area is favourable for this type of bulk sampling operation.

The northern showing is relatively flat lying (± 15 degrees) and friable. The friable nature is due to thrust faulting, meaning the individual pieces of the phosphorite will still require crushing prior to utilization, as at the south end. The phosphorite bed in this area exhibits a dip similar to the top of the hill, a favourable dip slope setting.

Number	Location	Pell (1990c) Sample Location	%P2O5	m width
57767	south #1	BNT90-8	32.46	0.60
57766	south #2	BNT90-7	31.19	0.60
57768	north #1	BNT90-3	24.64	1.10

Each of the three showing areas were sampled and photographed. Approximately 15 kilograms of phosphorite was taken from each of the southern exposures, while 30 kilograms was taken from the northern exposure. The phosphorite will be stored for future metallurgical testing.

Leslie Creek

The Leslie Creek property was visited on July 11. The road providing access to the property is ditched and presently impassable approximately 3 kilometres from the centre of the property. A locked gate was encountered about 700 metres east of the ditch.

Three of the areas outlined by Pell (1990b) were examined without locating the phosphorite horizon. The phosphorite horizon does not outcrop and each of the trenched areas were back filled.

The lack of a phosphorite outcrop in particular and outcropping in general strongly suggests the Fernie sediments, the phosphorite itself and the footwall Triassic sediments are all deeply weathered and friable.

Excavator or backhoe trenching will be required to obtain exposures in the Leslie Creek phosphorite.

Cabin Creek

The Cabin Creek property was visited on July 12. Access to the Cabin Creek area is generally good, though all of the secondary roads are cross ditched.

The main showing on C.C.#7 was examined and sampled. Additional outcroppings were examined, but the phosphorite horizon was not located.

The C.C.#7 showing is deeply weathered, friable and unconsolidated. Both the footwall (Triassic) and hanging wall (Fernie) are also deeply weathered. The phosphorite horizon is steeply dipping in this area, making it a favourable location for later bulk sampling.

The showing was sampled and photographed. Two 5 gallon pails of phosphorite was removed (approximately 40 kgs) for later metallurgical testing.

Number	Location	Pell (1990a) Sample Location	%P2O5	m width
57763	C.C.#7	CBC89-1	20.96	1.00

Additional Staking

The property land base was significantly increased as part of the 1998 program. Staking was concentrated in three areas: expansion of the Leslie Creek property, expansion of the Cabin Creek property and acquisition of the Bighorn property. No additional staking was undertaken at Barnes Lake.

Fourteen additional units were staked at Leslie Creek, tracing the phosphorite to the west. The Leslie Creek property now consists of 26 units, blanketing 6.5 kilometres of phosphorite strike length.

Twenty additional units were staked at Cabin Creek, to total 35 units, ensuring the key central area of the Cabin Creek occurrence was covered. Two showings were sampled on the newly acquired ground, with 40 kgs taken from showing C7 and 20 kgs taken from showing C8.

The phosphorite is deeply weathered and unconsolidated at both showings, similar in appearance to the C.C#7 showing. The Triassic footwall is significantly more competent at these showings, however. This showing is another favourable site for bulk sampling.

Four units were staked over the previously known Bighorn showing. The main showing was sampled and 40 kgs of phosphorite was taken for later metallurgical testing.

The phosphorite is steeply dipping and competent, a geological setting similar to the southern Barnes Lake phosphorite.

Analyses from samples taken on newly acquired claims

Number	Location	Pell (1990a) Sample Location	%P2O5	m width
57762	C# 7	CBC89-610	16.67	1.10
57765	C# 8	CBC89-611	20.15	grab
		Pell (1990b)		
57769	Bighorn (B1)	INV89-1	20.28	1.00

DISCUSSION

The results to date on the Fernie Phosphate Project warrant continued exploration. The thorough mapping programs completed by Formosa Resources Corporation (Pell, 1990a; 1990b; 1990c) leave little need for further property wide mapping. All the previous exploration programs concentrated on sampling the existing previously known exposures. There is little point in continually re-sampling these exposures. Further surface mapping and sampling should be directed at tracing the phosphorite horizons along strike.

Formosa Resources Corporation's backhoe trenching programs (Pell, 1990a; 1990b; 1990c) were successful in confirming results from the earlier exploration and in identifying target areas within the phosphorites. This program was especially successful on the Leslie Creek property (Pell, 1990b), where there is little actual phosphorite outcropping. This backhoe trenching program should be expanded to test the phosphorites at regular intervals along strike.

While the actual property base was doubled with the 1998 staking program, further staking is still required to cover much of the remaining strike projections of the phosphorite horizons.

Two distinct markets are being considered for the Fernie Phosphate Project. The first market is more or less internal. Ecomineral Resources Ltd. will require raw, crushed but unbeneficiated, phosphate rock for its agronomy testing of its proprietary process. This market is likely to be in the 25,000 to 50,000 ton per annum basis over the next several years.

The second market is the larger fertilizer market where phosphate rock in the range of 24% to 32% P_2O_5 is required. The Fernie phosphates can only achieve this grade through beneficiation. Existing technology is slowly progressing, but has yet to produce an economical salable concentrate from the Fernie phosphates. Pioneering work by Judd et al (1986), Wilemon and Scheiner (1987) and Habashi (1994) is evaluating a new vat leaching process with moderate success to date in laboratory scale testing. This leaching process will bypass the chief stumbling block with raw phosphate rock, carbonate, which consumes sulphuric acid and precipitates phosphogypsum, a waste product considered an environmental risk due to its numerous impurities.

The near surface exposures and relatively weathered or friable nature of the hanging wall host rock (and often the phosphorite itself) suggests a strip mining / open cut mining operation would be feasible, at least initially. The phosphorite will be mined along strike to a shallow depth (±25 metres or 75 feet). This will likely result in one or more long, narrow trenches, following the phosphorite bed across topography.

A mining plan could easily be realized where the overburden and waste ahead is used to backfill the open-cut behind, in much the same manner as placer mining follows the pay streak up the creek valley. This type of mining plan will have minimal environmental impact. This plan will, however, require long claim blocks along the surface strike projections of the phosphorite beds.

The exploration of the Fernie Phosphate Project should continue with these goals in mind.

The next stage should consist of continuing property acquisition to hold long continuous blocks of claims along the projected strike of the phosphorite horizon. Part of this phase should also include exploring these strike projections for new exposures and physically marking the strike projections in the field with pickets.

At the same time, the excavator or backhoe trenching program can be initiated. The purpose is to test and verify the strike projections of the phosphorite, to sample the phosphorites for confirmation and / or upgrade of the existing mineral resource estimates and to supply sufficient phosphate rock to allow initial vat leaching metallurgical testing.

The third stage will involve a large scale bulk sampling program. The bulk sampling will supply sufficient phosphate rock to undertake pilot scale testing of the vat leaching process and to continue with the Ecomineral Resources Ltd. agronomical testing. Preliminary open cuts will be excavated and 500 to 1000 tons of phosphate rock will be stockpiled from each open cut. The purpose is to ensure Fernie phosphate will be amenable to the vat leaching process.

CONCLUSIONS AND RECOMMENDATIONS

The Fernie Phosphate Project consists of four properties totaling 77 units. The sedimentary phosphorite properties lie in the Jurassic Fernie basin, in the Fort Steele Mining Division of southeastern British Columbia.

Previous exploration programs have outlined shallow mineral reserves estimates in the range of 50,000 to 300,000 tons at grades in the range of 20% P2O5 and 600 ppm yttrium on these properties. The recent government phosphate project (Butrenchuk, 1996) suggested the entire strike lengths of the phosphorite horizons could contain in excess of 45 million tonnes to 300 metres of depth.

Metallurgical testing using standard grinding and flotation techniques has yet to produce salable concentrates from the Fernie phosphorites. Recent research and development in the field of vat leaching has met with reasonable success in bench scale testing. Ecomineral Resources Ltd. is evaluating a proprietary agronomical process which will utilize raw crushed phosphate rock and plant wastes.

The exploration program completed in 1998 was curtailed by a lack of funding. Nonetheless, samples for agronomical testing were obtained. These samples have also been stored for future testing. A small volume of phosphate rock has been sent to Ecomineral Resources Ltd. for testing in the proprietary agronomical process.

Further exploration consisting of continuing property acquisition, excavator / backhoe trenching and bulk sampling is recommended.

Phase I will consist of tracing the phosphorite beds along strike to dig a number of test pits for 20 litre samples. As well, further staking is required to cover the remaining readily accessible sections of the phosphorite beds. The Phase I program is now budgeted at $18,305.

Phase II will consist of excavator trenching and beneficiation testing. The purpose of the excavator trenching is to examine, map and sample the phosphate horizons at regular intervals along strike. This will allow an increase in confidence in the preliminary phosphate resources, as the near surface resources will be recategorized as proven and probable reserves as opposed to probable reserves and inferred resources. Sufficient phosphate rock will be stockpiled to allow both beneficiation testing and agronomy testing. The time frame for phase II is 12 days at a total cost of $51,470.

Phase III will consist of large scale bulk testing. Preliminary open cuts will be excavated and 500 to 1000 tons of phosphate rock will be stockpiled from each open cut. The time frame for phase III is 45 days at a total cost of $157,900.

Phase I	$18,305
Phase II	$59,970
Phase III	$182,900
Total Budget	$261,175

At the conclusion of phase III of the exploration and development program, a firm mineral reserve should be in hand for each of the three properties. A total of 2,500 to 3,000 tons of phosphate rock should be excavated and stored on surface. All data should be in hand to complete a feasibility study prior to production.

The cost of the 1998 exploration program is $4,280, broken down between the three properties as follows:

Barnes Lake	$1,647
Leslie Creek	$1,110
Cabin Creek	$1,531

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Wilemon,G.M. and Scheiner,B.J. (1987). Leaching of phosphate values from two central Florida ores using H_2SO_4 - methanol mixtures. United States Department of the Interior, Report of Investigations 9094, 9p.

STATEMENT OF QUALIFICATIONS

I, R. Tim Henneberry, am the principle of Mammoth Geological Ltd., a geological consulting firm with an office at 604 Noowick Road, R.R. #1 Mill Bay, B.C. V0R 2P0.

I earned a Bachelor of Science Degree majoring in geology from Dalhousie University, graduating in May 1980.

I have practiced my profession continuously since graduation.

I am registered with the Association of Professional Engineers and Geoscientists in the Province of British Columbia as a Professional Geoscientist (registration number 19759). I am also a Fellow of the Geological Association of Canada.

I am the registered owner of the claim groups of the Fernie Phosphate Project: BL #1-#12 (record numbers 348582-348593), CC #1-#15 (record numbers 348600-348614), LC #1-#12 (record numbers 348616-348627), BIG #1-#2 (record numbers 364144-364145), BIG #3-#4 (record numbers 364179-364180), CC #16-#34 (record numbers 364158-364177), LC #13-#24 (record numbers 364156-364157) and LC #25-#26 (record numbers 364193-364194). I am holding all units in trust for Ecomineral Resources Ltd.

I undertook the sampling program described in this report on the following dates: BL #1-#12 on July 14, 1998, CC #1-#15 on July 12, 1998 and LC #1-#12 on July 11, 1998.

I am a principle of Ecomineral Resources Ltd.

This report may be used for any purpose normal to the business of Ecomineral Resources Ltd., provided no part is used in such a manner to convey a meaning different than that set out in the whole.

Dated this 3rd day of September in the town of Mill Bay, British Columbia.

PROFESSIONAL ENGINEERS PROVINCE OF BRITISH COLUMBIA R. T. HENNEBERRY GEOSCIENTIST

R.Tim Henneberry, P.Geo.

STATEMENT OF COSTS

Barnes Lake (July 14)		
Tim Henneberry	1 day @ $300	$300
Steve Butrenchuk	1 day @ $300	$300
James Patrick	1 day @ $200	$200
Vehicle	1 day @ $50	$50
Room and Board		$137.34
Analysis	3 sam @ $20	$60
Report	2 day @ $300	$600
Barnes Lake Total		$1,647.34
Leslie Creek (July 11)		
Tim Henneberry	1 day @ $300	$300
Steve Butrenchuk	1 day @ $300	$300
Vehicle	1 day @ $50	$50
Room and Board		$160.51
Report	1 day @ $300	$300
Leslie Creek Total		$1,110.51
Cabin Creek (July 12)		
Tim Henneberry	1 day @ $300	$300
Steve Butrenchuk	1 day @ $300	$300
James Patrick	1/2 d @ $200	$100
Vehicle	1 day @ $50	$50
Room and Board		$161.75
Analysis	1 sam @ $20	$20
Report	2 day @ $300	$600
Cabin Creek Total		$1,530.75

COST ESTIMATES

Phase I - Initial Testing and Additional Staking

Complete check mapping and sampling on each property
Dig a number of test pits and remove a 5 gallon pail of phosphate rock from each pit
Add to property base by staking along strike of the phosphorite beds.

File one year assessment work on all claims

Time frame

Cabin Creek	3 days
Leslie Creek	3 days
Barnes Lake	3 days

Personnel	$6,300
Support	$3,015
Analysis	$5,100
Reports	$3,150
Filing Fees	$740
Phase I Budget	$18,305

Phase II - Trenching and Metallurgical Testing

Undertake an excavator trenching program at regular intervals along strike
Stockpile ±50 tons from each trench and take samples for analysis
Combine phosphate rock from trenches to form composite samples for metallurgical testing
Calculate and update mineral inventory for each property

File two years of assessment work for all claims

Time frame

Cabin Creek	4 days
Leslie Creek	4 days
Barnes Lake	4 days

Personnel	$7,200
Support	$7,320
Analysis	$3,150
Excavator	$7,200
Reports	$4,200
Contingency	$3,500
Metallurgical tests	$19,000
Filing Fees	$2,780
Bond	$5,000
Phase II Budget	$59,970

COST ESTIMATES
(Continued)

Phase III - Bulk Testing
Take a bulk test of ±2,500 tons from each property
Truck phosphate rock to a local site
Sample mined phosphate rock at regular intervals
Update mineral inventory for each property

File 5 years of assessment work on all claim groups

Time frame

Cabin Creek	15 days
Leslie Creek	15 days
Barnes Lake	15 days

Personnel	$27,000
Support	$27,450
Analysis	$15,000
Equipment	$69,450
Reports	$10,500
Contingency	$10,000
Filing Fees	$8,500
Bonds	$15,000
Phase III Budget	$182,900

FERNIE PHOSPHATE PROJECT

1998 Sampling Program for Metallurgical Testing

Analytical Analysis

Number		Width	% P2O5
Cabin Creek			
57762	Black, generally decomposed, weathered, oolitic phosphorite	1.1	16.67
57763	Black, generally decomposed, weathered, oolitic phosphorite	1.0	20.96
57765	Black, generally decomposed, weathered, oolitic phosphorite	grab	20.15
Bighorn			
57769	Black, massive, oolitic phosphorite	1.0	20.28
Dally Hill			
57764	Black, generally decomposed, weathered phosphorite (?)	0.6	0.75
Barnes Lake			
57766	Black, massive, oolitic phosphorite	0.6	31.19
57767	Black, massive, oolitic phosphorite	0.6	32.46
57768	Black, weathered, friable oolitic phosphorite, flat lying	1.1	24.64

Chemex Labs Ltd.

Analytical Chemists * Geochemists * Registered Assayers

212 Brooksbank Ave., North Vancouver
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MAMMOTH GEOLOGICAL LTD.

604 NOOWICK RD., RR#1
MILL BAY, BC
V0R 2P0

A9824948

Comments: ATTN:TIM HENNEBERRY

CERTIFICATE A9824948

(QID) - MAMMOTH GEOLOGICAL LTD.

Project:
P.O. # :

Samples submitted to our lab in Vancouver, BC.
This report was printed on 27-JUL-98.

SAMPLE PREPARATION

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION
299	8	Pulp; prepped on other workorder
200	8	Whole rock fusion

ANALYTICAL PROCEDURES

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION	METHOD	DETECTION LIMIT	UPPER LIMIT
594	8	Al2O3 %: Whole rock	ICP-AES	0.01	100.00
588	8	CaO %: Whole rock	ICP-AES	0.01	100.00
590	8	Cr2O3 %: Whole Rock	ICP-AES	0.01	100.00
586	8	Fe2O3(total) %: Whole rock	ICP-AES	0.01	100.00
821	8	K2O %: Whole rock	ICP-AES	0.01	100.00
593	8	MgO %: Whole rock	ICP-AES	0.01	100.00
596	8	MnO %: Whole rock	ICP-AES	0.01	100.00
599	8	Na2O %: Whole rock	ICP-AES	0.01	100.00
597	8	P2O5 %: Whole rock	ICP-AES	0.01	100.00
592	8	SiO2 %: Whole rock	ICP-AES	0.01	100.00
595	8	TiO2 %: Whole rock	FURNACE	0.01	100.00
475	8	L.O.I. %: @ 1000 deg.C	CALCULATION	0.01	105.00
540	8	Total %			

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MAMMOTH GEOLOGICAL LTD. **

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Invoice No. :I9824948
P.O. Number :
Account :QID

Project :
Comments: ATTN:TIM HENNEBERRY

CERTIFICATE OF ANALYSIS A9824948

SAMPLE	PREP CODE		Al2O3 %	CaO %	Cr2O3 %	Fe2O3 %	K2O %	MgO %	MnO %	Na2O %	P2O5 %	SiO2 %	TiO2 %	LOI %	TOTAL %
57762	299	200	7.49	24.72	0.03	2.18	3.48	0.56	0.02	0.48	16.67	36.89	0.37	6.20	99.09
57763	299	200	5.28	29.91	0.03	1.90	2.14	0.56	0.02	0.37	20.96	32.10	0.31	5.95	99.53
57764	299	200	13.75	2.91	0.03	4.18	3.66	1.60	0.05	0.11	0.75	59.00	0.60	11.44	98.08
57765	299	200	6.81	29.27	0.03	2.19	2.92	0.59	0.01	0.40	20.15	31.07	0.44	5.17	99.05
57766	299	200	3.18	43.00	0.03	1.37	1.66	0.28	0.02	0.24	31.19	13.62	0.19	5.41	100.20
57767	299	200	2.57	45.00	0.03	1.33	1.29	0.24	0.03	0.21	32.46	10.95	0.15	5.79	100.05
57768	299	200	4.78	35.60	0.03	1.77	2.13	0.43	0.06	0.38	24.64	23.12	0.30	6.24	99.48
57769	299	200	3.44	28.91	0.04	1.49	1.79	0.32	0.01	0.25	20.28	39.08	0.39	3.46	99.46

CERTIFICATION: Stan Bielle

Chemex Labs Ltd.

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Certificate Date: 27-JUL-98
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P.O. Number :
Account :QID

CERTIFICATE OF ANALYSIS A9824948

SAMPLE	PREP CODE		Al2O3 %	CaO %	Cr2O3 %	Fe2O3 %	K2O %	MgO %	MnO %	Na2O %	P2O5 %	SiO2 %	TiO2 %	LOI %	TOTAL %	
57762	299	200	7.49	24.72	0.03	2.18	3.48	0.56	0.02	0.48	16.67	36.89	0.37	6.20	99.09	
57763	299	200	5.28	29.91	0.03	1.90	2.14	0.56	0.02	0.37	20.96	32.10	0.31	5.95	99.53	
57764	299	200	13.75	2.91	0.03	4.18	3.66	1.60	0.05	0.11	0.75	59.00	0.60	11.44	98.08	
57765	299	200	6.81	29.27	0.03	2.19	2.92	0.59	0.01	0.40	20.15	31.07	0.44	5.17	99.05	
57766	299	200	3.18	43.00	0.03	1.37	1.66	0.28	0.02	0.24	31.19	13.62	0.19	5.41	100.20	
57767	299	200	2.57	45.00	0.03	1.33	1.29	0.24	0.03	0.21	32.46	10.95	0.15	5.79	100.05	
57768	299	200	4.78	35.60	0.03	1.77	2.13	0.43	0.06	0.38	24.64	23.12	0.30	6.24	99.48	
57769	299	200	3.44	28.91	0.04	1.49	1.79	0.32	0.01	0.25	20.28	39.08	0.39	3.46	99.46	

CERTIFICATION: _____

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To: MAMMOTH GEOLOGICAL LTD.

604 NOOWICK RD., RR#1
MILL BAY, BC
V0R 2P0

A9824947

Comments: ATTN:TIM HENNEBERRY

CERTIFICATE A9824947

(QID) - MAMMOTH GEOLOGICAL LTD.

Project:
P.O. #:

Samples submitted to our lab in Vancouver, BC.
This report was printed on 26-JUL-98.

SAMPLE PREPARATION

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION
205	8	Geochem ring to approx 150 mesh
226	8	0-3 Kg crush and split
3202	8	Rock - save entire reject
229	8	ICP - AQ Digestion charge
* NOTE	1:	

The 32 element ICP package is suitable for trace metals in soil and rock samples. Elements for which the nitric-aqua regia digestion is possibly incomplete are: Al, Ba, Be, Ca, Cr, Ga, K, La, Mg, Na, Sr, Ti, Tl, W.

ANALYTICAL PROCEDURES

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION	METHOD	DETECTION LIMIT	UPPER LIMIT
2118	8	Ag ppm: 32 element, soil & rock	ICP-AES	0.2	100.0
2119	8	Al %: 32 element, soil & rock	ICP-AES	0.01	15.00
2120	8	As ppm: 32 element, soil & rock	ICP-AES	2	10000
2121	8	Ba ppm: 32 element, soil & rock	ICP-AES	10	10000
2122	8	Be ppm: 32 element, soil & rock	ICP-AES	0.5	100.0
2123	8	Bi ppm: 32 element, soil & rock	ICP-AES	2	10000
2124	8	Ca %: 32 element, soil & rock	ICP-AES	0.01	15.00
2125	8	Cd ppm: 32 element, soil & rock	ICP-AES	0.5	500
2126	8	Co ppm: 32 element, soil & rock	ICP-AES	1	10000
2127	8	Cr ppm: 32 element, soil & rock	ICP-AES	1	10000
2128	8	Cu ppm: 32 element, soil & rock	ICP-AES	1	10000
2150	8	Fe %: 32 element, soil & rock	ICP-AES	0.01	15.00
2130	8	Ga ppm: 32 element, soil & rock	ICP-AES	10	10000
2131	8	Hg ppm: 32 element, soil & rock	ICP-AES	1	10000
2132	8	K %: 32 element, soil & rock	ICP-AES	0.01	10.00
2151	8	La ppm: 32 element, soil & rock	ICP-AES	10	10000
2134	8	Mg %: 32 element, soil & rock	ICP-AES	0.01	15.00
2135	8	Mn ppm: 32 element, soil & rock	ICP-AES	5	10000
2136	8	Mo ppm: 32 element, soil & rock	ICP-AES	1	10000
2137	8	Na %: 32 element, soil & rock	ICP-AES	0.01	10.00
2138	8	Ni ppm: 32 element, soil & rock	ICP-AES	1	10000
2139	8	P ppm: 32 element, soil & rock	ICP-AES	10	10000
2140	8	Pb ppm: 32 element, soil & rock	ICP-AES	2	10000
2141	8	Sb ppm: 32 element, soil & rock	ICP-AES	2	10000
2142	8	Sc ppm: 32 elements, soil & rock	ICP-AES	1	10000
2143	8	Sr ppm: 32 element, soil & rock	ICP-AES	1	10000
2144	8	Ti %: 32 element, soil & rock	ICP-AES	0.01	10.00
2145	8	Tl ppm: 32 element, soil & rock	ICP-AES	10	10000
2146	8	U ppm: 32 element, soil & rock	ICP-AES	10	10000
2147	8	V ppm: 32 element, soil & rock	ICP-AES	1	10000
2148	8	W ppm: 32 element, soil & rock	ICP-AES	10	10000
2149	8	Zn ppm: 32 element, soil & rock	ICP-AES	2	10000

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Page Number :1-A
Total Pages :1
Certificate Date: 26-JUL-98
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CERTIFICATE OF ANALYSIS A9824947

SAMPLE	PREP CODE		Ag ppm	Al %	As ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Ga ppm	Hg ppm	K %	La ppm	Mg %	Mn ppm	Mo ppm
57762	205	226	< 0.2	2.05	16	180	1.5	< 2	>15.00	1.0	3	117	41	1.36	< 10	1	0.94	180	0.27	120	28
57763	205	226	< 0.2	1.80	4	220	1.5	< 2	>15.00	1.5	2	126	35	1.16	< 10	< 1	0.87	240	0.27	135	21
57764	205	226	< 0.2	1.33	14	2360	0.5	< 2	2.19	2.5	8	29	48	2.44	< 10	< 1	0.46	10	0.25	170	9
57765	205	226	< 0.2	2.28	12	120	1.5	< 2	>15.00	< 0.5	4	113	27	1.37	< 10	1	1.09	150	0.29	55	28
57766	205	226	< 0.2	1.10	14	100	1.0	< 2	>15.00	1.0	1	142	36	0.76	< 10	< 1	0.69	330	0.15	70	9
57767	205	226	< 0.2	0.94	12	210	0.5	< 2	>15.00	2.5	1	135	37	0.71	< 10	3	0.61	350	0.12	35	13
57768	205	226	< 0.2	1.57	6	100	1.5	< 2	>15.00	1.0	1	135	36	1.01	< 10	3	0.82	240	0.21	200	17
57769	205	226	< 0.2	1.17	12	190	0.5	< 2	>15.00	0.5	1	176	21	0.88	< 10	< 1	0.64	210	0.17	50	10

CERTIFICATION: Tant Bielle

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Page Number : 1-B
Total Pages : 1
Certificate Date: 26-JUL-98
Invoice No. : I9824947
P.O. Number :
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CERTIFICATE OF ANALYSIS A9824947

SAMPLE	PREP CODE		Na %	Ni ppm	P ppm	Pb ppm	Sb ppm	Sc ppm	Sr ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Zn ppm
57762	205	226	0.06	79	>10000	10	< 2	18	446	0.01	< 10	40	68	< 10	180
57763	205	226	0.07	99	>10000	8	< 2	22	691	0.01	< 10	30	66	< 10	178
57764	205	226	0.01	79	3060	12	< 2	8	170	< 0.01	< 10	< 10	57	< 10	246
57765	205	226	0.08	50	>10000	12	< 2	15	419	0.01	< 10	30	44	< 10	118
57766	205	226	0.10	34	>10000	6	< 2	28	814	< 0.01	< 10	40	63	< 10	142
57767	205	226	0.10	35	>10000	6	< 2	28	756	< 0.01	< 10	40	63	< 10	228
57768	205	226	0.08	51	>10000	8	< 2	24	638	< 0.01	< 10	30	56	< 10	206
57769	205	226	0.06	27	>10000	< 2	< 2	15	494	< 0.01	< 10	30	74	< 10	54

CERTIFICATION: Jan Bielle

Chemex Labs Ltd.

Analytical Chemists * Geochemists * Registered Assayers

212 Brooksbank Ave., North Vancouver
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MAMMOTH GEOLOGICAL LTD. **

604 NOOWICK RD., RR#1
MILL BAY, BC
V0R 2P0

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Comments: ATTN:TIM HENNEBERRY

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CERTIFICATE OF ANALYSIS A9824947

SAMPLE	PREP CODE		Ag ppm	Al %	As ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Ga ppm	Hg ppm	K %	La ppm	Mg %	Mn ppm	Mo ppm
57762	205	226	< 0.2	2.05	16	180	1.5	< 2	>15.00	1.0	3	117	41	1.36	< 10	1	0.94	180	0.27	120	28
57763	205	226	< 0.2	1.80	4	220	1.5	< 2	>15.00	1.5	2	126	35	1.16	< 10	< 1	0.87	240	0.27	135	21
57764	205	226	< 0.2	1.33	14	2360	0.5	< 2	2.19	2.5	8	29	48	2.44	< 10	< 1	0.46	10	0.25	170	9
57765	205	226	< 0.2	2.28	12	120	1.5	< 2	>15.00	< 0.5	4	113	27	1.37	< 10	1	1.09	150	0.29	55	28
57766	205	226	< 0.2	1.10	14	100	1.0	< 2	>15.00	1.0	1	142	36	0.76	< 10	< 1	0.69	330	0.15	70	9
57767	205	226	< 0.2	0.94	12	210	0.5	< 2	>15.00	2.5	1	135	37	0.71	< 10	3	0.61	350	0.12	35	13
57768	205	226	< 0.2	1.57	6	100	1.5	< 2	>15.00	1.0	1	135	36	1.01	< 10	3	0.82	240	0.21	200	17
57769	205	226	< 0.2	1.17	12	190	0.5	< 2	>15.00	0.5	1	176	21	0.88	< 10	< 1	0.64	210	0.17	50	10

CERTIFICATION: Tant Biddle.

Chemex Labs Ltd.

Analytical Chemists * Geochemists * Registered Assayers

212 Brooksbank Ave., North Vancouver
British Columbia, Canada V7J 2C1
PHONE: 604-984-0221 FAX: 604-984-0218

To: MAMMOTH GEOLOGICAL LTD. **

604 NOOWICK RD., RR#1
MILL BAY, BC
V0R 2P0

Project :
Comments: ATTN:TIM HENNEBERRY

Page Number :1-B
Total Pages :1
Certificate Date: 26-JUL-98
Invoice No. :I9824947
P.O. Number :
Account :QID

CERTIFICATE OF ANALYSIS A9824947

SAMPLE	PREP CODE		Na %	Ni ppm	P ppm	Pb ppm	Sb ppm	Sc ppm	Sr ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Zn ppm
57762	205	226	0.06	79	>10000	10	< 2	18	446	0.01	< 10	40	68	< 10	180
57763	205	226	0.07	99	>10000	8	< 2	22	691	0.01	< 10	30	66	< 10	178
57764	205	226	0.01	79	3060	12	< 2	8	170	< 0.01	< 10	< 10	57	< 10	246
57765	205	226	0.08	50	>10000	12	< 2	15	419	0.01	< 10	30	44	< 10	118
57766	205	226	0.10	34	>10000	6	< 2	28	814	< 0.01	< 10	40	63	< 10	142
57767	205	226	0.10	35	>10000	6	< 2	28	756	< 0.01	< 10	40	63	< 10	228
57768	205	226	0.08	51	>10000	8	< 2	24	638	< 0.01	< 10	30	56	< 10	206
57769	205	226	0.06	27	>10000	< 2	< 2	15	494	< 0.01	< 10	30	74	< 10	54

CERTIFICATION: Hart Biddle

LEGEND

JURASSIC and CRETACEOUS

KK	Kootenay Formation	dark grey carbonaceous sandstone and conglomerate, sandstone, siltstone, shale, coal

JURASSIC

JF	Fernie Group	grey calcareous shale, shaley limestone, silty limestone, dark grey to black shale, limestone, sandstone
— - —	Basal phosphorite bed	

TRIASSIC

TRS	Spray River Group	grey dolomite siltstone and sandstone, brown siltstone and silty shale

PERMIAN

PI	Ishbel Group	white and grey siltstone, shale, chert, fine-grained sandstone, minor dolomite, some nodular phosphate rock

Fault — Creek

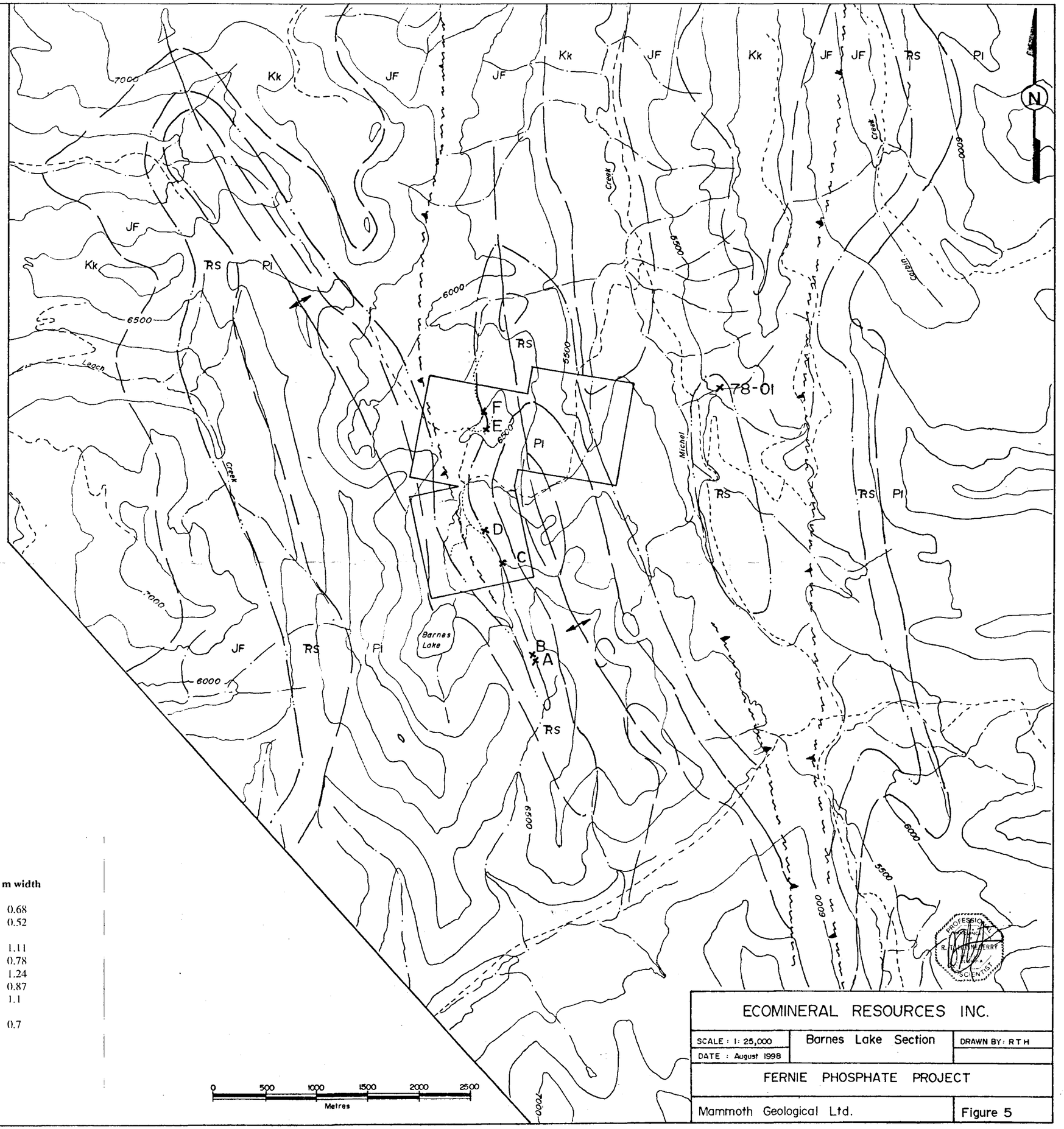
Geologic contact — Road

Thrust fault

500 foot contour interval

After : Pell (1990); Butrenchuk (1996); Price (1964)

site	sampler	%P2O5	m width
A	Pell	27.29	0.65
B	Pell	30.5	0.98
C	Pell - trench	20.93	1.62
	Pell - trench	22.23	2.11
	Butrenchuk	22.4	0.8
	Henneberry	32.46	0.60
D	Pell - trench	23.58	1.45
	Henneberry	31.19	0.6
E	Pell	25	0.68
	Pell	25.67	0.52
F	Pell - trench	22.35	1.11
	Pell - trench	21.24	0.78
	Pell - trench	24.26	1.24
	Pell - trench	24.89	0.87
	Henneberry	24.64	1.1
7801	Dales	31.2	0.7

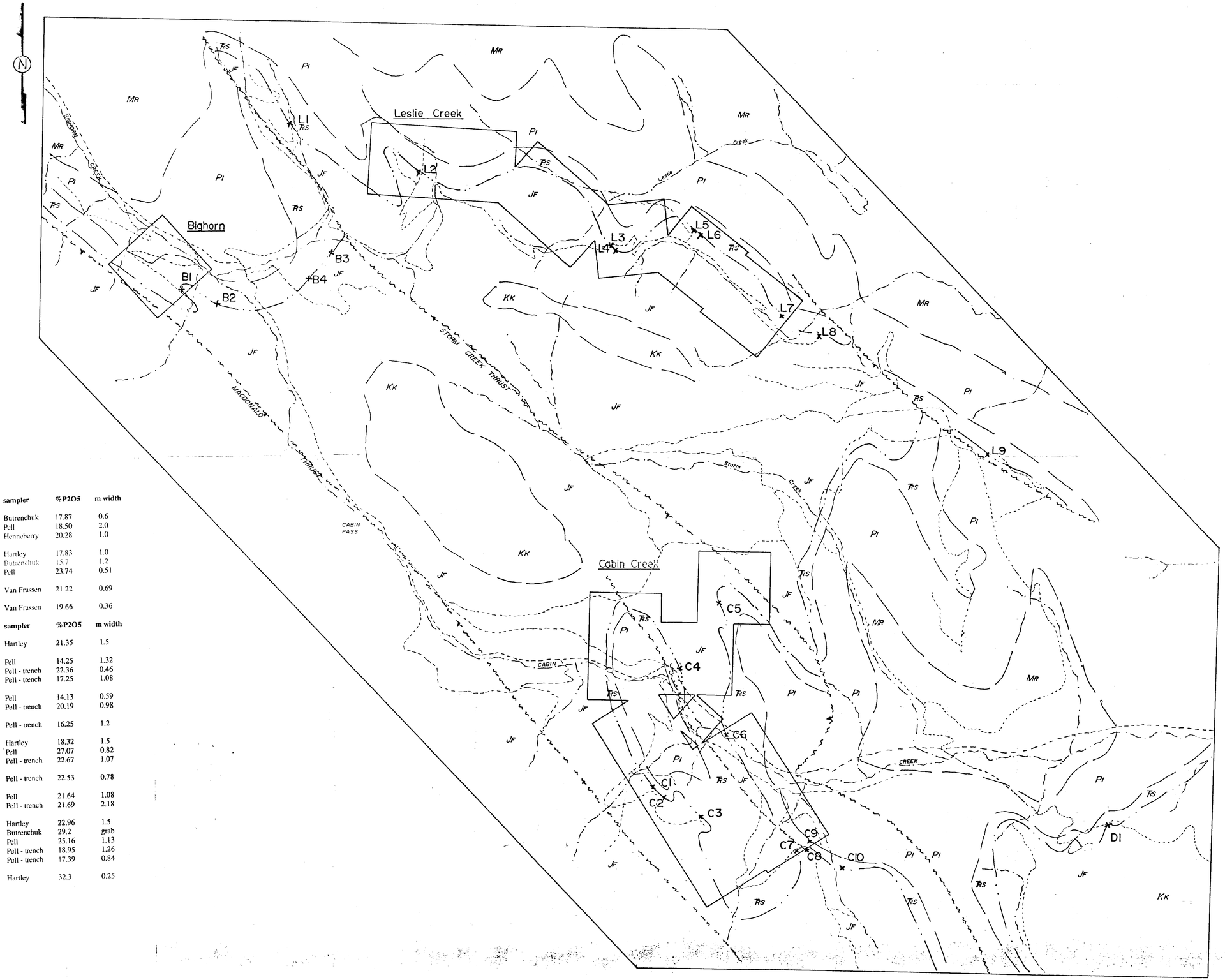


ECOMINERAL RESOURCES INC.

SCALE : 1: 25,000	Barnes Lake Section	DRAWN BY: R T H
DATE : August 1998		

FERNIE PHOSPHATE PROJECT

Mammoth Geological Ltd. — Figure 5



LEGEND

KK JURASSIC and CRETACEOUS
Kootney Formation — dark grey carbonaceous sandstone & conglomerate sandstone, siltstone, shale, coal

JF JURASSIC
Fernie Group — grey calcareous shale, shaley limestone, silty limestone, dark grey to black shale, limestone, sandstone

Basal phosphorite beds

TRS TRIASSIC
Spray River Group — grey dolomite siltstone and sandstone, brown siltstone and silty shale

PI PERMIAN
Ishbel Group — white and grey siltstone, shale, chert, fine-grained sandstone, minor dolomite, some nodular phosphate rock

MR MISSISSIPPIAN
Rundle Group — limestone, dolomite, minor shale, sandstone, and cherty limestone

Fault
Geologic contact
Thrust fault
Creek
Road

After Pell, 1989

site	sampler	%P2O5	m width
B 1	Butrenchuk	17.87	0.6
	Pell	18.50	2.0
	Henneberry	20.28	1.0
B 2	Hartley	17.83	1.0
	Butrenchuk	15.7	1.2
	Pell	23.74	0.51
B 3	Van Frassen	21.22	0.69
B 4	Van Frassen	19.66	0.36

site	sampler	%P2O5	m width
L 1	Hartley	21.35	1.5
L 2	Pell	14.25	1.32
	Pell - trench	22.36	0.46
	Pell - trench	17.25	1.08
L 3	Pell	14.13	0.59
	Pell - trench	20.19	0.98
L 4	Pell - trench	16.25	1.2
L 5	Hartley	18.32	1.5
	Pell	27.07	0.82
	Pell - trench	22.67	1.07
L 6	Pell - trench	22.53	0.78
L 7	Pell	21.64	1.08
	Pell - trench	21.69	2.18
L 8	Hartley	22.96	1.5
	Butrenchuk	29.2	grab
	Pell	25.16	1.13
	Pell - trench	18.95	1.26
	Pell - trench	17.39	0.84
L 9	Hartley	32.3	0.25

site	sampler	%P2O5	m width
C 1	Van Fressen	18.05	0.98
	Hartley	12.39	1.95
	Butrenchuk	17.6	grab
	Pell	15.38	1.6
	Pell - trench	17.08	1.21
C 2	Pell - trench	18.93	1.15
C 3	Hartley	13.68	2.5
	Pell	20.47	3.51
C 4	Van Frassen	21.27	1.59
	Hartley	19.27	1.5
	Butrenchuk	18	1
	Pell	21.91	1.2
	Pell - trench	22.21	0.62
	Henneberry	20.96	1.0
C 5	Hartley	18.29	1.5
	Butrenchuk	14	1
	Pell	19.9	1.98
	Pell - trench	20.16	1.28
C 6	Hartley	21	1
C 7	Van Frassen	18.05	0.95
	Hartley	16.5	1.25
	Butrenchuk	13.7	2
	Pell	17.76	1.67
	Henneberry	16.67	1.1
C 8	Hartley	26.04	1
	Butrenchuk	27.5	1
	Pell	23.09	1.3
	Pell - trench	21.81	0.95
	Henneberry	20.15	grab
C 9	Hartley	20.97	2
	Hartley	21.46	1
C10	Hartley	25.8	1.9

site	sampler	%P2O5	m width
D1	Hartley	29.73	1.9
	Butrenchuk	22.2	1

0 500 1000 1500 2000 2500
Metres

ECOMINERAL RESOURCES INC.

SCALE: 1:25,000	APPROVED BY: Cabin - Leslie Section	DRAWN BY RTH
DATE: July 1998		REVISED

FERNIE PHOSPHATE PROJECT

Mammoth Geological Ltd. — DRAWING NO. Figure 6