PRODUCT *PRODUIT*	PROVINCE OR TERRITORY *PROVINCE OU TERRITOIRE*	N.T.S. AREA *RÉGION DU S.N.R.C.*	REF. *RÉF.*
PHOSPHATE	British Columbia	82 G/10	Phs 1

NAME OF PROPERTY
NOM DE LA PROPRIÉTÉ CROWSNEST (ALEXANDER CREEK)

OBJECT LOCATED Geographic
OBJET LOCALISÉ

UNCERTAINTY 1000 m
FACTEUR D'INCERTITUDE

Lat. *Lat.* 49°39'40" Long. *Long.* 114°44'30"

Mining Division *Division minière* Fort Steele
District *District* Kootenay

County *Comté*
Township or Parish *Canton ou paroisse*

Lot *Lot*
Concession or Range *Concession ou rang*

Sec *Sect.* Tp. *Ct.* R. *R.*

OWNER OR OPERATOR/*PROPRIÉTAIRE OU EXPLOITANT*

DESCRIPTION OF DEPOSIT/*DESCRIPTION DU GISEMENT*

Phosphate occurrences in the Crowsnest area include those in the Exshaw Formation, Ishbel Group, and Fernie Formation. A measured section in the Exshaw (Devonian-Mississippian), about 2 miles north of Crowsnest includes 0.6 feet of nodular phosphate (37.4 % $Ca_3P_2O_8$) and 0.6 feet of oolitic phosphate (50.8 % $Ca_3P_2O_8$). The Ishbel (Permian) section includes nodular phosphate in a sandstone matrix in a horizon approximately 1 m thick. A sample of the sandstone had a phosphate content of 12.3 %. The Jurassic Fernie Formation is the major source of phosphate in this area.

Regionally, the Fernie Formation occupies a broad syncline known as the Fernie basin. This formation contains a phosphatic unit which extends throughout the basin and is consistently 1 to 2 metres thick. An estimated 8.4 billion tonnes of phosphatic rock have been deposited but less than 5 per cent can be considered as a potential resource; this is estimated to be 400 million tonnes with a phosphate content of 15 to 25 per cent P_2O_5 (Geological Fieldwork, 1986, p. 294, BC Dept. of Mines).

con't card 2

Associated minerals or products
Minéraux ou produits associés

HISTORY OF EXPLORATION AND DEVELOPMENT
HISTORIQUE DE L'EXPLORATION ET DE LA MISE EN VALEUR

The Crowsnest phosphate mine is located at 4 500 feet elevation on Alexander Creek, some 4 km northwest of the Alberta border at Crowsnest Pass.

The Consolidated Mining and Smelting Company of Canada Limited (Cominco Ltd) began a search for sources of phosphate with a view to producing fertilizer, thereby utilizing by-product sulphur produced by the smelter at Trail. Company engineers in 1925 discovered four phosphatic beds near Crowsnes and later work indicated the phosphate occurs over large areas. Cominco gained Crown-granted rights to the phosphate mineralization underlying large areas through the Phosphate Act which wa then in force but later repealed; the company, however, still retains these rights. Several of the more promising and access ible sites were chosen for development.

At the Crowsnest claims (Lots 13830-13836), tracing of beds, trenching, and diamond drilling was carried out in 1926. Test shipments of phosphate rock were made from surface outcrops and strippings in 1927-28. Development work in 1929-31 included a 300 foot crosscut adit, 2 800 feet of drift on the phosphate bed and a raise to surface.

The underground work indicated further tonnages of 50 per cent tri-calcium phosphate ($Ca_3P_2O_8$) over mineable widths (Cominco 1931 Annual Report). Work ceased in May 1931, but resumed for one month in 1933 to produce a further 2000 tons of phosphate rock for test purposes. No commercial production was attempted; the beds tested were too low-grade or too thin or disturbed. In 1964-65, the mine was reopened to obtain additional rock for testing.

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HISTORY OF PRODUCTION/*HISTORIQUE DE LA PRODUCTION*

MAP REFERENCES/*RÉFÉRENCES CARTOGRAPHIQUES*

Map 35-1961, Fernie (E½), (Geol.), Sc. 1": 2 miles, accomp - Paper 61-24, Geol. Surv. of Canada.

Distribution of Jurassic and Pennsylvanian-Permian strata, Figs 4-6-4 and 4-6-6, Geological Fieldwork, 1986, BC Dept. of Mines.

Map 82 G/10, Crowsnest, (Topo.), Sc. 1: 50 000.

REMARKS/*REMARQUES*

Comp./Rev. By *Comp./rév. par*	DMacR						
Date *Date*	09-87						

REFERENCES/*BIBLIOGRAPHIE*

Telfer, L.; Phosphate in the Canadian Rockies; The Canadian Institute of Mining and Metallurgy, Transactions, Vol. 36, pp. 566-605, 1933.

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Freebold, Hans; The Jurassic Fernie Group in the Canadian Rocky Mountains and Foothills; Memoir 287, p. 72, Geol. Surv. of Canada, 1957.

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PRODUCT *PRODUIT*	PROVINCE OR TERRITORY *PROVINCE OU TERRITOIRE*	N.T.S. AREA *RÉGION DU S.N.R.C.*	REF. *RÉF.*
Phosphate	British Columbia	82 G/10	Phs 1

NAME OF PROPERTY
NOM DE LA PROPRIÉTÉ CROWSNEST (ALEXANDER CREEK)

DESCRIPTION OF DEPOSIT/DESCRIPTION DU GISEMENT (con't)

At Crowsnest, the Fernie Formation phosphate seam consists of three beds over a 1.5 metre interval; a lower oolitic high-grade phosphate, a shale parting, and an upper nodular phosphate horizon. In the Crow mine the phosphate bed had locally been thickened where individual phosphate beds are thrust one upon another; in other sections of the mine the phosphate bed is faulted out along strike. At one trenched location phosphate beds are repeated four times. increasing the width of the phosphate section to 16 metres. As exposed underground widths of up to 6 metres occur for 180 metres along strike. The raise showed the thickening to continue up dip for 150 metres, where the beds assume their true width. In the mine workings the beds strike northerly and dip from 12° to 25° west.