LOG NO: 0507 RD.
ACTION:
FILE NO:

GEOLOGICAL, LITHOGEOCHEMICAL

AND

TRENCHING REPORT

ON THE

CABIN CREEK GROUP

(CABIN CREEK 1 - 16 CLAIMS)

COLUMBIA PROJECT

GEOLOGICAL BRANCH
ASSESSMENT REPORT

19,954

N.T.S. 82G/2E

49°06'30" NORTH, 114°39'30" WEST

FLATHEAD AREA

FORT STEELE MINING DIVISION

SOUTHEASTERN BRITISH COLUMBIA

By

Jennifer Pell, Ph.D., F.G.A.C.

March 15, 1990

Owner: Formosa Resources Corporation
Operator: Formosa Resources Corporation

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COLUMBIA PROJECT

GEOLOGICAL, LITHOGEOCHEMICAL AND TRENCHING REPORT ON THE CABIN CREEK GROUP (CABIN CREEK 1 - 16 CLAIMS)

SUMMARY

The Cabin Creek claims are located in the Cabin Creek/Flathead area of the Rocky Mountains, Fort Steele Mining Division, southeastern British Columbia. The claims are approximately 53 kilometres southeast of the town of Fernie, B.C. and are accessed via an extensive network of logging roads.

The Cabin Creek Group consists of the Cabin Creek 1 to 16 two-post and metric four-post claims, totalling 51 units. The claims are 100% owned and operated by Formosa Resources Corporation subject to a 5% Net Profit Royalty interest. Boundary Drilling Inc. was enlisted to carry out the exploration program.

The claims were staked as part of the Columbia Project, whose primary objective was to evaluate the grade and continuity of the basal Fernie phosphate horizon in terms of establishing its potential as a large tonnage P_2O_5-Y resource. In 1989, approximately $82,635 were spent on reconnaissance and detailed geological mapping, hand trenching, sampling, backhoe trenching and assaying on the entire Columbia Project. A total of $21,485 were spent on the Cabin Creek Claims. Fifty-eight rock samples were collected from outcrop, from 6 hand trenches and from 5 backhoe trenches. Samples were analyzed for P_2O_5 (by gravimetric assay), Y (by XRF), and Au and 33 trace elements (by INAA and/or ICP).

The property is predominantly underlain by a sequence of Late Paleozoic to Mesozoic strata (Permian to Jurassic) that were deposited in the Alberta Trough under marine conditions and were subsequently deformed during the Late Cretaceous. Phosphatic rocks occur in a number of stratigraphic intervals within this sequence; however, the thickest and most continuous phosphate horizon was developed at the base of the Jurassic Fernie Group and is the focus of this project. The basal Fernie phosphatic strata are generally one to two metres thick and contain unusually high concentrations of yttrium.

Preliminary results are encouraging. Many intersections containing in excess of 27% P_2O_5 and 750 ppm yttrium were encountered. Average grades of the basal phosphorite horizon on the property are around 21.75 per cent P_2O_5 and 690 ppm Y across 1.1 to 1.4 metres. In one trench, an anomalously thick section was discovered which ran 20.47 per cent P_2O_5 and 709 ppm yttrium across 3.51 metres and contained one intersection of 27.75 per cent P_2O_5 and 997 ppm yttrium (1.27 per cent Y_2O_3) across 1.37 metres.

1. INTRODUCTION - PERSPECTIVES ON THE PHOSPHATE INDUSTRY

Canada imported 2.39 million tonnes of phosphorite in 1986, approximately 80 per cent of which was used in the production of fertilizer. Other products which require the use of phosphorus include organic and inorganic chemicals, soaps and detergents, pesticides, insecticides, alloys, animal-food supplements, ceramics, beverages, catalysts, motor lubricants, photographic materials and dental and silicate cements (Barry, 1987). To date, there are no mines producing phosphate rock in Canada; approximately 55 million tonnes per annum are produced in the United States (Stowasser, 1989). Approximately 50 per cent of the phosphate rock imported into western Canada comes from Florida, the remainder being supplied from the western U.S. (Barry, 1987). The majority of phosphate rock imported into eastern Canada is also from Florida; minor amounts have been imported from Togo, Tunisia and Morocco. Resources in Florida are rapidly being depleted (Stowasser, 1988); some experts feel that the western U.S. sources will not be able to meet the demand when Florida becomes exhausted, which suggests a possible niche for a new producer.

Phosphate rock produced in the U.S. is classified as acid or fertilizer grade, more than 31 per cent P_2O_5; furnace grade, 24 to 31 per cent P_2O_5; and beneficiation grade, 18 to 24 per cent P_2O_5. Acid grade rock is used directly in fertilizer plants, furnace grade rock is charged to electric furnaces and beneficiation grade rock is upgraded to acid or furnace feed (Stowasser, 1985).

The phosphate rock mined in the western United States (Idaho, Montana, Wyoming, Utah) is from the Retort and Meade Peak members of the Permian Phosphoria Formation. The majority of mines are strip mining operations with ore zones ranging from 9 to 18 metres thick, with an average grade of 21.3 per cent P_2O_5. Overburden thickness is commonly 5 to 10 metres (Fantel et al., 1984). Cominco American operates an underground phosphate mine in Montana in which the phosphate horizon is 1 to 1.2 metres thick and has an average grade of >31 per cent P_2O_5. Most western U.S. phosphate ore is beneficiated by crushing, washing, classifying and drying (Stowasser, 1985). Phosphates mined in Florida and south Carolina are from the Miocene Hawthorne Formation and the younger, reworked deposits of the Bone Valley Formation. Ore thickness range from 3 to 8 metres, with overburden of 3 to 10 metres. Average grade is 7 per cent P_2O_5. Flotation processes are used to beneficiate the ores. Phosphates mined in Tennessee have a minimum cutoff grade of 16 to 17.2 per cent P_2O_5 and a minimum thickness of 0.6 to 1.2 metres (Fantel et al., 1984).

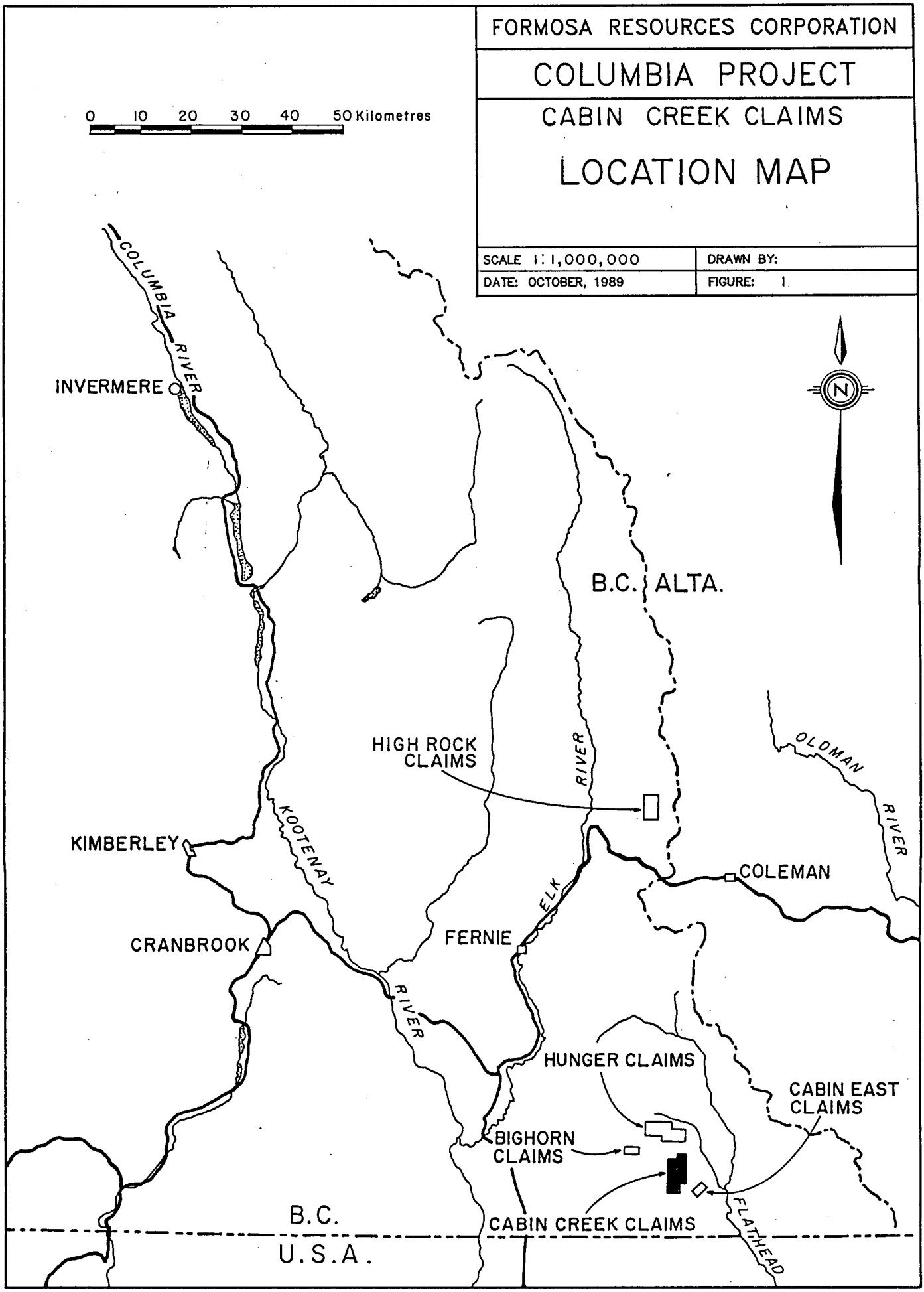
Currently, there is no byproduct recovery of yttrium from any of the U.S. operations. Phosphoria Formation phosphorites from the western phosphate field contain an average of 300 ppm Y; phosphorites from North Carolina and Florida contain an average of 235-300 ppm Y; and, phosphorites from Tennessee contain an average of 63 ppm Y (Altschuler, 1980). The worldwide average yttrium value in phosphorites is 260 ppm (Altschuler, 1980).

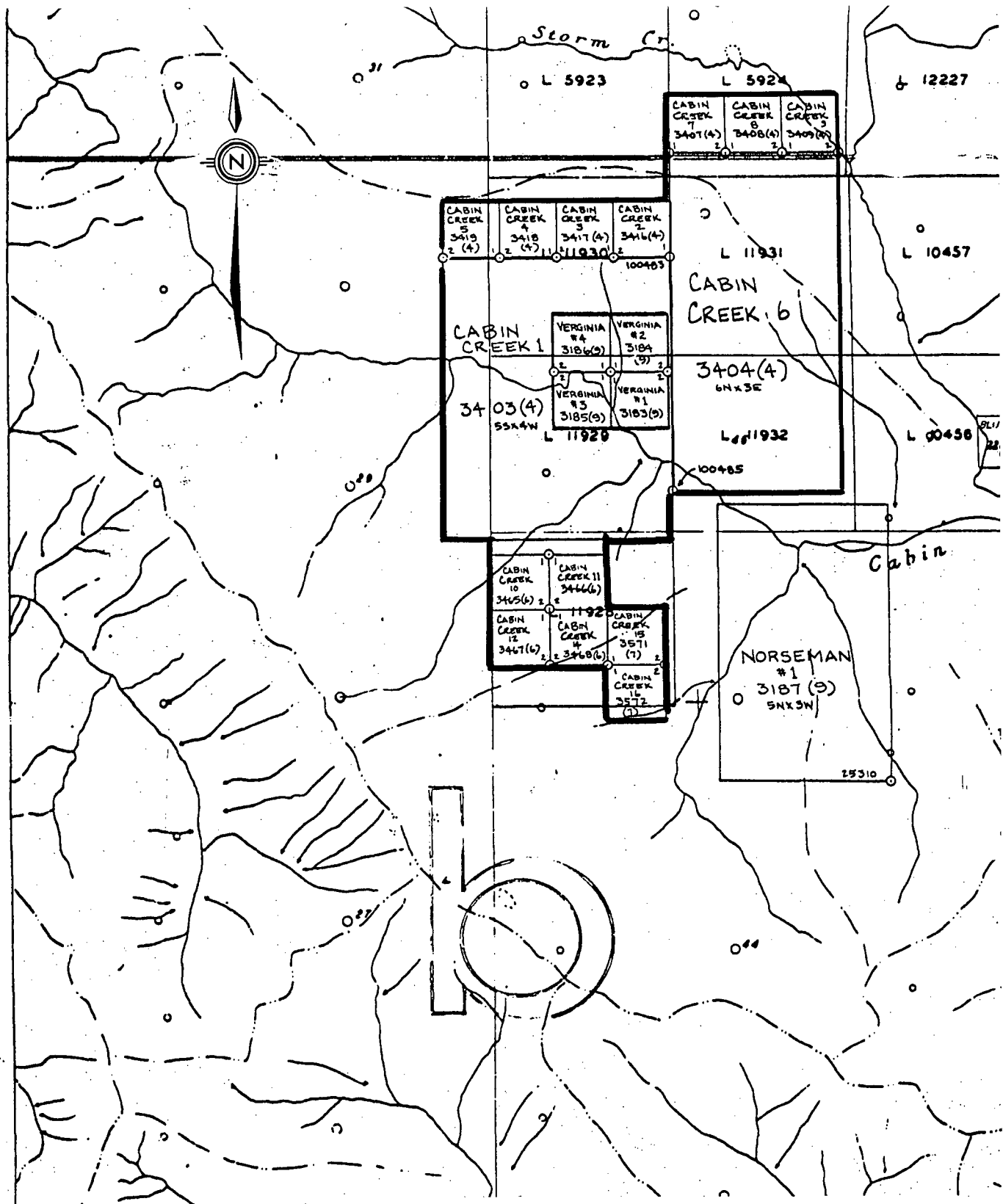
The phosphorite beds in the Jurassic Fernie Group are thin (usually 1 to 2 metres, Butrenchuk, 1987a) relative to most phosphorites mined in the United States. As with most of the phosphate ores mined in the United States, Fernie phosphorites would require beneficiation to produce an acid grade product. The Fernie phosphorites have anomalous yttrium concentrations with respect to most other sedimentary phosphate deposits. If it proves feasible to recover yttrium during the production of phosphoric acid (see Appendix 1) as has been suggested by some researchers (Altschuler et al., 1967), the economics of exploiting the Fernie Group basal phosphorite horizon will become significantly more attractive.

2. PROPERTY DESCRIPTION

2.1 LOCATION, ACCESS AND PHYSIOGRAPHY

The Cabin Creek claims are located in the Cabin Creek - Flathead River area, Fort Steele Mining Division, approximately 53 kilometres southeast of the town of Fernie in southeastern B.C. (Figure 1). The claims can be reached by conventional vehicle from Fernie by taking Highway 3 south for 12.5 kilometres to the Morrissey turnoff. Morrissey Road is followed for 5 kilometres to River Road, which is then taken for approximately 1-2 km to the Lodgepole Main Haul Road. This road is then followed, south and easterly, for 27 kilometres over a high pass and then along the Harvey Creek drainage (as the Harvey Creek Main Haul Road) for an additional 16 kilometres. At this point the Harvey Creek Road ends and the Flathead River Main continues south for 21 kilometres along the west bank of the Flathead River. Cabin Creek Road heads west from the Flathead River Main a couple of hundred metres before the Flathead Road crosses Howell Creek. The Cabin Creek Road is followed westerly for 12 kilometres to the property, which straddles the road. From the Cabin Creek road, numerous logging roads and trails access the various parts of the claims.


FORMOSA RESOURCES CORPORATION
COLUMBIA PROJECT
CABIN CREEK CLAIMS
LOCATION MAP
SCALE 1:1,000,000
DRAWN BY:
DATE: OCTOBER, 1989
FIGURE: 1
0 10 20 30 40 50 Kilometres
N
COLUMBIA RIVER
INVERMERE
B.C. ALTA.
HIGH ROCK CLAIMS
ELK RIVER
OLDMAN RIVER
KOOTENAY RIVER
KIMBERLEY
COLEMAN
CRANBROOK
FERNIE
HUNGER CLAIMS
CABIN EAST CLAIMS
BIGHORN CLAIMS
CABIN CREEK CLAIMS
FLATHEAD
B.C.
U.S.A.



FORMOSA RESOURCES CORPORATION	
COLUMBIA PROJECT	
CABIN CREEK CLAIMS	
CLAIMS MAP	
Scale: 1:50,000	N.T.S.: 82G/2
Date: April, 1990	Figure: 2

Elevations on the property range from 1525 metres (5000 feet) to 2010 metres (6600 feet). Much of the property has been recently clearcut and now is covered by small plants, grasses, fireweed and stumps. Stands of spruce and fir are present on the rest of the property.

2.2 CLAIMS

The Cabin Creek group (Figure 2) consists of 51 two-post and metric four-post units as follows:

CLAIM NAME	UNITS	RECORD NO.	EXPIRY* (D/M/Y)
Cabin Creek 1	20	3403	14/04/1993
Cabin Creek 2	1	3416	13/04/1993
Cabin Creek 3	1	3417	13/04/1993
Cabin Creek 4	1	3418	13/04/1993
Cabin Creek 5	1	3418	13/04/1993
Cabin Creek 6	18	3404	14/04/1993
Cabin Creek 7	1	3407	14/04/1993
Cabin Creek 8	1	3408	14/04/1993
Cabin Creek 9	1	3409	14/04/1993
Cabin Creek 10	1	3465	04/06/1993
Cabin Creek 11	1	3466	04/06/1993
Cabin Creek 12	1	3467	04/06/1993
Cabin Creek 14	1	3468	04/06/1993
Cabin Creek 15	1	3571	19/07/1993
Cabin Creek 16	1	3572	19/07/1993

Formosa Resources Corporation is operator and holds 100 per cent title of these properties subject to a 5% Net Profit Royalty interest. Boundary Drilling Inc. was enlisted to undertake the exploration program.

2.3 PROPERTY HISTORY

Phosphatic horizons at the base of the Jurassic Fernie Group in southeastern British Columbia were discovered in 1925 (Telfer, 1933) and have been the subject of periodic exploration by Cominco (Kenny, 1977) and others since that

*upon acceptance of this report

time. Phosphate strata in the Cabin Creek area were most recently (in the late 1970's and early 1980's) explored by Imperial Oil Limited (Van Fraassen, 1978) and First Nuclear Corporation Limited (Hartley, 1982). The phosphate potential of the area was also addressed in a number of recent academic and government studies (Butrenchuk, 1987a; 1987b; Macdonald, 1985; 1987; Marcille-Kerslake, 1990). Westrock Industries Ltd. currently holds phosphate claims adjacent to the Cabin Creek claims.

Most previous work solely addressed the phosphate potential of the basal Fernie Formation. First Nuclear Corporation (Hartley, 1982) briefly addressed the potential for trace element by-product recovery, concentrating on uranium and vanadium. It was discovered that uranium is generally present in the phosphorites in amounts less than 100 ppm and vanadium values were generally less than 200 ppm. In the course of their work, First Nuclear Corp. discovered anomalous yttrium values (the average of five samples containing in excess of 1% P_2O_5 was 570 ppm yttrium, Hartley, 1982). Later government analytical work confirmed the highly anomalous yttrium concentrations of the basal Fernie phosphorites (Butrenchuk, pers. comm., 1989; and in prep.).

In 1989, Formosa Resources Corporation began the Columbia Project, whose primary objective was to evaluate the grade and continuity of the basal Fernie phosphate horizon in terms of establishing its potential as a large tonnage P2O5 resource. Formosa began exploration for yttrium and phosphate in the area in the spring of 1989 and staked several claims, including the Cabin Creek claims.

3. GEOLOGY

3.1 REGIONAL GEOLOGY

The Cabin Creek area is underlain by a series of predominantly marine strata which range in age from Devonian to Jurassic, and non-marine fluvio-deltaic sediments of late Jurassic to Cretaceous age. Reconnaissance geological mapping in the region (Newmarch, 1953; Price, 1965; 1964; 1962; 1961) has shown that these strata are now exposed in a broad, doubly plunging syncinorium, commonly referred to as the Fernie Basin. This synclinorium is broadly delineated by the distribution of the Jurassic Fernie Group in southeastern British Columbia (Figure 3); the structure is

Age	Group/Formation (Thickness, metres)	Lithology	Phosphatic Horizons	Thickness (metres)	Grade (% P_2O_5)
Cretaceous	Kootenay Fm.	-grey to black carbonaceous siltstone and sandstone; nonmarine; coal			
Jurassic	Fernie Gp. (+244)	-black shale, siltstone, limestone; marine to nonmarine at top -glauconitic shale in upper section -belemnites; common fossil	-approximately 60 metres above base low-grade phosphate bearing calcareous sandstone horizon or phosphatic shale -Bajocian -basal phosphate in Sinemurian strata; generally pelletal/oolitic; rarely nodular; 1-2 metres thick; locally two phosphate horizons; top of phosphate may be marked by a yellowish-orange weathering marker bed.	1-2	11-30
		regional uncomformity			
Triassic	SPRAY RIVER GP.: Whitehorse Fm.	-dolomite, limestone, siltstone			
	SPRAY RIVER GP.: Sulphur Mntn. Fm. (100-496)	-grey to rusty brown weathering sequence of siltstone, calcareous siltstone and sandstone, shale, silty dolomite and limestone	-nonphosphatic in southeastern British Columbia		
		regional unconformity			
Permian	ROCKY ISLAND GP.: Ranger Canyon Fm. (1-60)	-sequence of chert, sandstone and siltstone; minor dolomite and gypsum; conglomerate at base -shallow marine deposition	-upper portion-brown, nodular phosphatic sandstone; also rare pelletal phosphatic sandstone (few centimetres to +4 metres) -basal conglomerate-chert with phosphate pebbles present (≤1 metre)	0.6 0.5-1.0	9.5 13-18
		unconformity			
	MOUNTAIN GRANGER: Ross Creek Fm. (90-150)	-sequence of siltstone, shale chert, carbonate and phosphatic horizons areally restricted to Telford thrust sheet -west of Elk River, shallow marine deposition	-phosphate in a number of horizons as nodules and finely disseminated granules within the matrix -phosphatic coquinoid horizons present	0.4-1.0	1.7-6.0
	MOUNTAIN GRANGER: Telford Fm. (210-225)	-sequence of sandy carbonate containing abundant brachiopod fauna; minor sandstone -shallow marine deposition	-rare, very thin beds or laminae of phosphate; rare phosphatized coquinoid horizon	0.3	11.4
	UPPER PERMIAN GROUP: Johnson Canyon Fm. (1-60)	-thinly bedded, rhythmic sequence of siltstone, chert, shale, sandstone and minor carbonate; basal conglomerate -shallow marine deposition	-locally present as a black phosphatic siltstone or pelletal phosphate -phosphate generally present as black ovoid nodules in light coloured siltstone; phosphatic interval ranges in thickness from 1-22 metres -basal conglomerate (maximum 30 cm thick) contains chert and phosphate pebbles	0.2-0.3 1-22 1-2	3.0-4.0 0.1-11.0 14.2-21.2
		regional unconformity			
Pennsylvanian	SPRAY RIVER GP.: Kananaskis Fm. (±55)	-dolomite, silty, commonly contains chert nodules or beds	-locally, minor phosphatic siltstone in uppermost part of section		
	LAKES GP.: Tunnel Mntn Fm. (±500)	-dolomitic sandstone and siltstone			
Mississippian	Rundle Gp. (±700)	-limestone, dolomite, minor shale, sandstone and cherty limestone			
	Banff Fm. (280-430)	-shale, dolomite, limestone			
Devonian-Mississippian	Exshaw Fm. (6-30)	-black shale, limestone -areally restricted in south-eastern British Columbia	-an upper nodular horizon -phosphatic shale and pelletal phosphate 2-3 metres above base -basal phosphate <1 metre thick		
Devonian	Palliser Fm.	-limestone			

FIGURE 4: STRATIGRAPHIC SUMMARY INCLUDING PHOSPHATE-BEARING HORIZONS IN SOUTHEASTERN BRITISH COLUMBIA (modified from Butrenchuk, 1987a). Thickness not to scale.

N

0 10 20 30 40
Kilometres

ELK
CONNOR LAKES
FORSYTH CR.
BINGAY CR.
FORDING R.
ELKFORD
RIVER
GRAVE LAKE
ALBERTA
ALEXANDER CR.
SPARWOOD
SULPHER CR.
FORT STEELE
HWY 3
CROWSNEST PASS
FERNIE BASIN
FERNIE
HWY 3
MOUNT BROAD WOOD
HARVEY CR.
FLATHEAD
BIGHORN CR.
RIVER
CABIN CR.
HWY 93
BRITISH COLUMBIA
U.S.A.

LEGEND:

OUTCROP OF FERNIE GROUP

FAULT

FORMOSA RESOURCES CORPORATION

COLUMBIA PROJECT

DISTRIBUTION OF FERNIE GROUP STRATA IN SOUTHEASTERN B.C.

(Note:Modified from Butrenchuk,1987a)

NTS: 82 G/2	DRAWN BY:
DATE: MARCH, 1990	FIGURE: 3

complicated by second order folds and later faults, both easterly directed thrusts and west-side-down normal faults.

Phosphatic horizons (Figure 4) are known to occur at a number of intervals within the stratigraphic section (Butrenchuk, 1987a; Kenny, 1977; Macdonald, 1987; Telfer, 1933). Phosphatic strata at the base of the Fernie Group are considered to have the best potential (Butrenchuk, 1987a; Macdonald, 1987).

3.1.1 Regional Stratigraphy

Upper Devonian strata exposed in the vicinity of the Fernie Basin consist of massive grey, fine-grained, cliff forming limestones of the Palliser Formation. These limestones are commonly mottled and locally interbedded with brown dolostones. They are overlain by the Devono-Mississippian Exshaw Formation, which predominantly consists of black fissile shale, cherty shale, siltstone and minor limestone (Kenny, 1977). The Exshaw Formation is generally 6 to 30 metres thick (Figure 4). Four phosphatic horizons exist within the Exshaw Formation: the lowest is less than 50 centrimetres thick and has grades of less than 9 per cent P_2O_5; the middle two horizons are both around one metre thick, have grades of up to 10 per cent P_2O_5 and are separated by approximately two metres of shale; and the uppermost phosphatic zone, which has very limited extent, contains grades which always exceed 15 per cent P_2O_5 and is always less than 15 centrimetres thick (Macdonald, 1987).

The Mississippian Banff Formation has a gradational contact with the underlying Exshaw Formation. It is 280 to 430 metres thick and consists of dark grey, fissile shale and bands of argillaceous limestone that grade upwards into dark grey, massive, finely crystalline limestone and dolostone. The Rundle Group, also Mississippian in age, conformably overlies the Banff Formation and attains a thickness of approximately 700 metres. It consists of a series of resistant thick-bedded crinoidal limestones, grey and black finely crystalline limestones, dark, argillaceous limestones, dolostones, and minor black and green shale (Butrenchuk, 1987a; Kenny, 1977).

Conformably overlying the Mississippian carbonates are Pennsylvanian strata of the Spray Lakes Group which consist of a lower unit, the Tunnel Mountain Formation, and an upper unit, the Kananaskis Formation. The Tunnel Mountain Formation comprises a monotonous sequence of reddish-brown weathering dolomitic sandstone and siltstone that attains a maximum thickness of 500 metres at its western margin, near

the Elk River. The Tunnel Mountain Formation is disconformably overlain by the Kananaskis Formation which consists of light grey silty dolostones and dolomitic siltstones and is generally around 55 metres thick. Chert nodules and intraformational chert breccias are found in the upper part of the section. Slightly phosphatic horizons, containing up to 9 per cent P_2O_5, are reported as rare occurrences within the Kananaskis Formation (Macdonald, 1987).

The Kananaskis Formation of the Spray Lakes Group is unconformably overlain by Permian strata of the Ishbel Group. Together, the Spray Lake Group and the Ishbel Group comprise the Rocky Mountain Supergroup (Figure 4). The Ishbel Group, which has been correlated with the Phosphoria Formation in the western United States, consists of the Johnston Canyon, Telford, Ross Creek and Ranger Canyon formations, from oldest to youngest respectively.

The Johnston Canyon Formation comprises a series of recessive weathering, thin- to medium-bedded siltstones, silty carbonate rocks and sandstones, with minor shale and chert. It varies from 1 to 60 metres in thickness and commonly contains phosphatic rocks. Thin intraformational phosphate-pebble conglomerate beds are common throughout the formation and, locally, mark its base. Phosphate is present as black nodules in distinct horizons within the siltstones, locally cements siltstone beds, and locally occurs in pelletal siltstone or pelletal silty phosphorite beds which are slightly greater than 1 metre thick (Butrenchuk, 1987a; Macdonald, 1987). The pelletal phosphorites can contain up to 21 per cent P_2O_5, but are of limited distribution; the basal conglomerate is less than 50 centrimetres thick and generally contains only 3-4 per cent P_2O_5; the nodular and phosphate pebble-conglomerate beds can have cumulate thicknesses of up to 22 m, but grades rarely exceed 10 per cent P_2O_5 over a few 10's of centimetres.

The Telford and Ross Creek Formations, which attain thicknesses of 210-225 and 90-150 metres respectively, are of limited distribution, exposed only in the Telford Thrust, west of the Elk Valley in the Sparwood region. The Telford Formation consists of resistant-weathering, thick-bedded, sandy, oolitic and fossiliferous rocks. Rarely, slightly phosphatic horizons are present, with grades commonly around 11 per cent P_2O_5 across 30 centrimetres. The Ross Creek Formation is composed of recessive thin-bedded siltstone, argillaceous siltstone, minor carbonate and chert. Nodular phosphate horizons are present throughout this unit and are best developed in the upper portions. Locally, phosphatic coquinoid beds are also present. Reported phosphate grades are only 1.7 to 6 per cent P_2O_5 (Butrenchuk, 1987a; Macdonald, 1987).

The Ranger Canyon Formation, which is up to 60 metres thick, paraconformably to disconformably overlies the Ross Creek Formation. It predominantly consists of resistant cliff-forming, thick-bedded blue-grey cherts, cherty sandstones, siltstones, fine sandstones and conglomerates. Minor gypsum and dolomite are also present. The base of the formation is marked by thin, phosphate-cemented, chert-pebble conglomerates that locally contain massive, phosphatic intraclasts. Phosphate also occurs as nodules in brownish-weathering sandstone beds in the upper part of the formation. With the exception of phosphatic strata near the Fernie ski hill, most of the horizons are reportedly low grade; the highest values reported are 13.3 per cent P_2O_5 across 0.5 metres (Butrenchuk, 1987a; Macdonald, 1987).

Permian strata are unconformably overlain by the Triassic Sulphur Mountain Formation of the Spray River Group. The Sulphur Mountain Formation is between 100 and 496 metres thick and typically consists of rusty brown weathering, medium-bedded siltstones, calcareous and dolomitic siltstones, silty dolostones and limestones and minor shale. Locally, the Sulphur Mountain Formation is overlain by pale weathering, variegated dolostones, limestones, sandstones and intraformational breccias of the Whitehorse Formation. The Whitehorse Formation, which is from 6 to 418 metres thick, is middle to upper Triassic in age and is the upper member of the Spray River Group. It is not present in most areas (Butrenchuk, 1987a).

The Jurassic Fernie Group unconformably overlies the Triassic strata. It consists of a lower zone of dark grey to black shales, dark brown shales, phosphates and minor limestones, siltstones and sandstones (the basal phosphate zone and equivalent Nordegg Member, Poker Chip Shales and the Rock Creek Member), a middle unit of light grey shale, calcareous sandstone and sandy limestone (the Grey Beds), and an upper unit of yellowish-grey to pale brown or dark grey weathering glauconitic sandstone and shale grading upwards into interbedded fine-grained sandstone, siltstone and black shales (the Green and Passage beds). In southeastern British Columbia, the Fernie Group is 70 to 376 metres thick and generally thickens to the west (Freebold, 1957; Kenny, 1977; Macdonald, 1987; Price, 1965).

The base of the Fernie Group is marked by a persistent pelletal phosphorite horizon that is 1 to 2 metres thick and generally contains greater than 15 per cent P_2O_5; grades up to 30 per cent P_2O_5 have been found. It 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. This part of the formation is Sinemurian in age and generally considered to be a lateral facies of the Nordegg Member and Nordegg equivalent beds. A second phosphatic horizon is present in the Bajocian Rock Creek Member, approximately 60 metres above the base of the Fernie Group. This zone is extremely low grade, generally containing less than 1 per cent P_2O_5 and is often associated with belemnite-bearing calcareous sandstone beds (Butrenchuk, 1987a; Freebold, 1957; Macdonald, 1987).

The Kootenay Formation, of upper Jurassic to Cretaceous age, overlies rocks of the Fernie Group. It consists of dark grey carbonaceous sandstone, gritty to conglomeratic sandstone, siltstone, shale and coal and is from 150 to 520 metres thick (Price, 1965).

3.2. PROPERTY GEOLOGY

The Cabin Creek area is underlain by a sequence of sedimentary rocks which range from Mississippian to Lower Cretaceous in age (Figure 5). Geological mapping at a scale of 1:12,500 (Figure 6) using topographic base map and altimeter, with air photo control, concentrated on locating the basal Fernie Group phosphorite horizon which marks the Triassic/Jurassic boundary in this region.

3.2.1 Stratigraphy

The Cabin Creek claims are underlain by strata correlative with the Ranger Canyon Formation of the Permian Ishbel Group, the Sulphur Mountain Formation of the Triassic Spray River Group and the Jurassic Fernie Group (Figures 5, 6). Mississippian Rundle Group limestones are exposed in the core of a major anticline east of the property, and late Jurassic to early Cretaceous sandstones and siltstones of the Kootenay Formation are exposed on ridge-crests to the northwest of the claims (Figures 5, 6).

Rocks assigned to the Ranger Canyon Formation are predominantly cream to buff to light grey or, locally, pink weathering fine-grained white to light grey sandstones, siltstones and dolomitic siltstones. They are commonly medium- to thick-bedded and locally contain thin chert beds (commonly 1 to 1.5 centrimetres thick; occasionally up to 20 centrimetres thick) and chert nodule rich layers. Thin

limey beds may also be present, interlayered with the siltstones.

Phosphatic strata were noted within this formation at one locality, southwest of Cabin Creek (Stn. CBC89-607, Figure 6). There, dark grey phosphate nodules, 2 to 20 centrimetres in size, occur in medium grey to dark brown weathering, calcareous siltstones to fine-grained sandstones. Small fossil fragments occur within the nodules. The nodules contain approximately 20 per cent P_2O_5 and 200 ppm yttrium; representative material from this horizon contains only 9 to 13 per cent P_2O_5 and 150 to 200 ppm yttrium (Appendix 1). The phosphatic strata are near the top of the Ranger Canyon Formation and, in this location, are underlain by light grey dolostones or dolomitic siltstones that have a fragmental or brecciated texture and contain disseminated bitumen.

Rocks correlative with the Triassic Sulphur Mountain Formation in the Cabin Creek area are predominantly buff, yellowish-brown and chocolate brown weathering, thin- to medium-bedded siltstones with a grey to buff fresh surface. Horizons consisting of dark brown shale with thin siltstone interlayers are common within this formation, particularly to the south of Cabin Creek.

Fernie Group rocks are recessive weathering and, for the most part, not well exposed. Where the base of the Fernie is exposed, it is marked by a phosphorite horizon that is between 1.15 and 3.5 metres thick. It generally consists of two poorly consolidated gritty, pelletal phosphorite layers separated by 17 to 63 centrimetres of brown shale containing a thin, intermediary phosphatic horizon. Brown and black shales overlie the phosphorites and, south of Cabin Creek, one or more yellow bentonite beds mark the top of the phosphatic sequence. In one location south of Cabin Creek (Stn. CBC89-35, Figure 6) a slightly phosphatic grey sandstone containing fragments of the underlying buff, Triassic siltstones occurs at the base of the phosphorites.

Monotonous fissile black shales overlie the basal Fernie phosphorites. Higher up in the sequence, buff to orange weathering dolostones, "chocolate-block" boudinaged, dark grey siltstone layers, light grey limestone beds and light grey calcareous shales occur within the Fernie Group.

3.2.2 Structure

The structure of the Cabin Creek area is dominated by a series of northwest-southeast trending folds and thrust

faults (Figures 5, 6). The western margin of the area is marked by the MacDonald Thrust, a major regional structure. Two anticlines, cored by thrust faults and the intervening syncline, produce the outcrop patterns observed (Figures 5, 6). The southwesternmost of the two anticlines is characterized by a modified "donut-shaped" outcrop pattern, indicative of a domal, or doubly-plunging structure.

Stereonet analysis of structural measurements taken in the Cabin Creek area indicates that the folds are conical rather than cylindrical in nature and, as suggested by the outcrop patterns, doubly plunging (Appendix 2). The distribution of bedding data is best described by two opposite cones, one with an axis plunging moderately to the southeast (140/40) and a half apical angle of 65^{o} and the second with an axis plunging moderately to the northwest (320/40) and a half apical angle of 70^{o} (Appendix 2). The doubly plunging nature is confirmed by examining bedding measurements taken from a single large fold, the southeastern anticline (or Virginia Anticline, named after pre-existing claims which cover part of that structure); two cones plunging in opposite directions best model the data (Appendix 2). The stereonet pattern suggest that anticlinal structures open in a downplunge direction and synclinal structures open up-plunge.

4. TRENCHING AND ASSAY RESULTS

The Fernie Group rocks are poorly exposed; in order to measure sections through the basal phosphorite horizon it was necessary to dig trenches or pits. In the course of evaluating the economic potential of this horizon in the Cabin Creek area, 54 samples were collected from 6 hand trenches and 4 backhoe trenches (Figure 6, __, and Appendix 1). As well, 4 samples of Permian phosphorites were collected from outcrop on the property. Samples were analyzed for P_2O_5 using a gravimetric assay method, for yttrium using X-ray fluorescence (XRF) and for 34 trace elements, including some of the rare earths, using induced neutron activation analysis (INAA). Some samples were analyzed for trace elements using induced coupled plasma spectroscopy (ICP); this method was abandoned when it was learned that the digestion used was incomplete for yttrium and rare earths and that the values obtained, although proportionally correct, did not represent total amounts in the samples.

Hand trenches were dug using a pick and shovel; in most cases they involved digging into a bank and removing earth and slumped material to provide a well exposed section. In

some cases, hand trenched areas were revisited with a John-Deere 555 backhoe and enlarged to give more complete sections. Backhoe trenches were also dug in areas with no outcrop that were along strike from known sections. Continuous samples across measured intervals were collected. Maximum depth attainable by the backhoe was 4 metres; all samples collected may have been affected, to some degree, by surface weathering. Phosphate and yttrium results, from measured sections on the Cabin Creek claims are summarized as follows:

Summary of Measured Sections, Cabin Creek Claims

SECTION	THICKNESS METRES	WEIGHTED AVERAGES* P2O5 %	Y PPM
HAND TRENCHES			
CBC89-18	1.98	19.90	602
CONTAINS	1.50	22.61	667
CBC89-22	1.60	15.38	479
CONTAINS	1.00	18.52	615
CBC89-35	3.51	20.47	709
CONTAINS	1.37	27.75	997
AND	0.65	26.24	885
BACKHOE TRENCHES			
TR89-10-1	1.28	20.16	573
TR89-11-1	1.21	17.08	537
CONTAINS	0.67	23.51	807
TR89-12-1	1.15	18.93	546
CONTAINS	0.60	25.23	780

*Measured sections are generally composed of a number of smaller interval samples; weighted averages, based on proportional samples thicknesses, were calculated to represent the yttrium and phosphate content of the entire section.

On the Cabin Creek claims, the measured sections average 21.75 per cent P_2O_5 and 690 ppm yttrium across an average thickness of 1.07 to 1.43 metres. The values range from 3.03 per cent P_2O_5 and 135 ppm yttrium in shale layers within the phosphorite section to 27.96 per cent P_2O_5 and 1100 ppm yttrium (Appendix 1).

There is a direct relationship between yttrium and phosphate values in the basal Fernie Group strata. It can be expressed as a line with the equation:

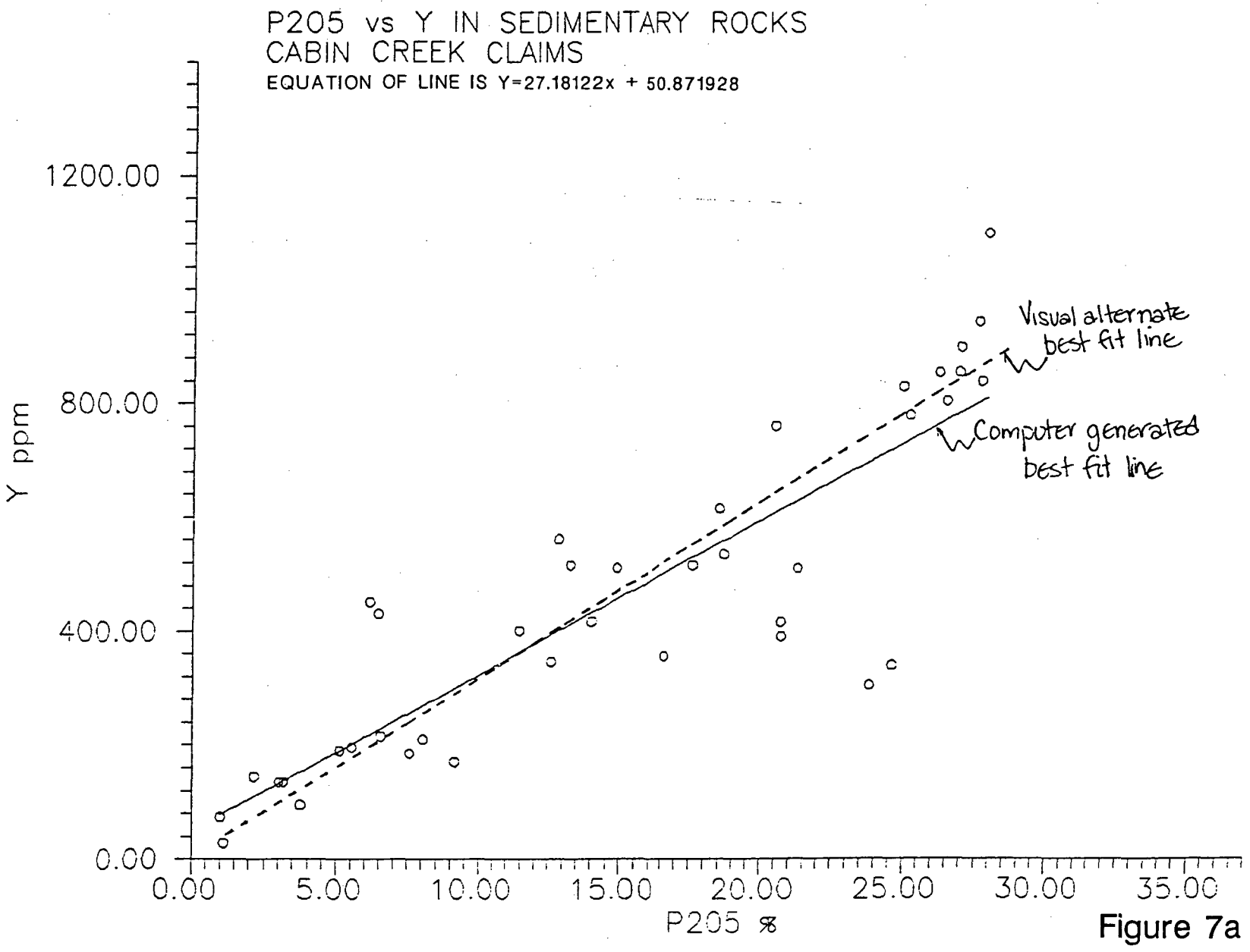

P205 vs Y IN SEDIMENTARY ROCKS
CABIN CREEK CLAIMS
EQUATION OF LINE IS Y=27.18122x + 50.871928
1200.00
800.00
400.00
0.00
Y ppm
0.00
5.00
10.00
15.00
20.00
25.00
30.00
35.00
P205 %
Visual alternate best fit line
Computer generated best fit line

Figure 7a

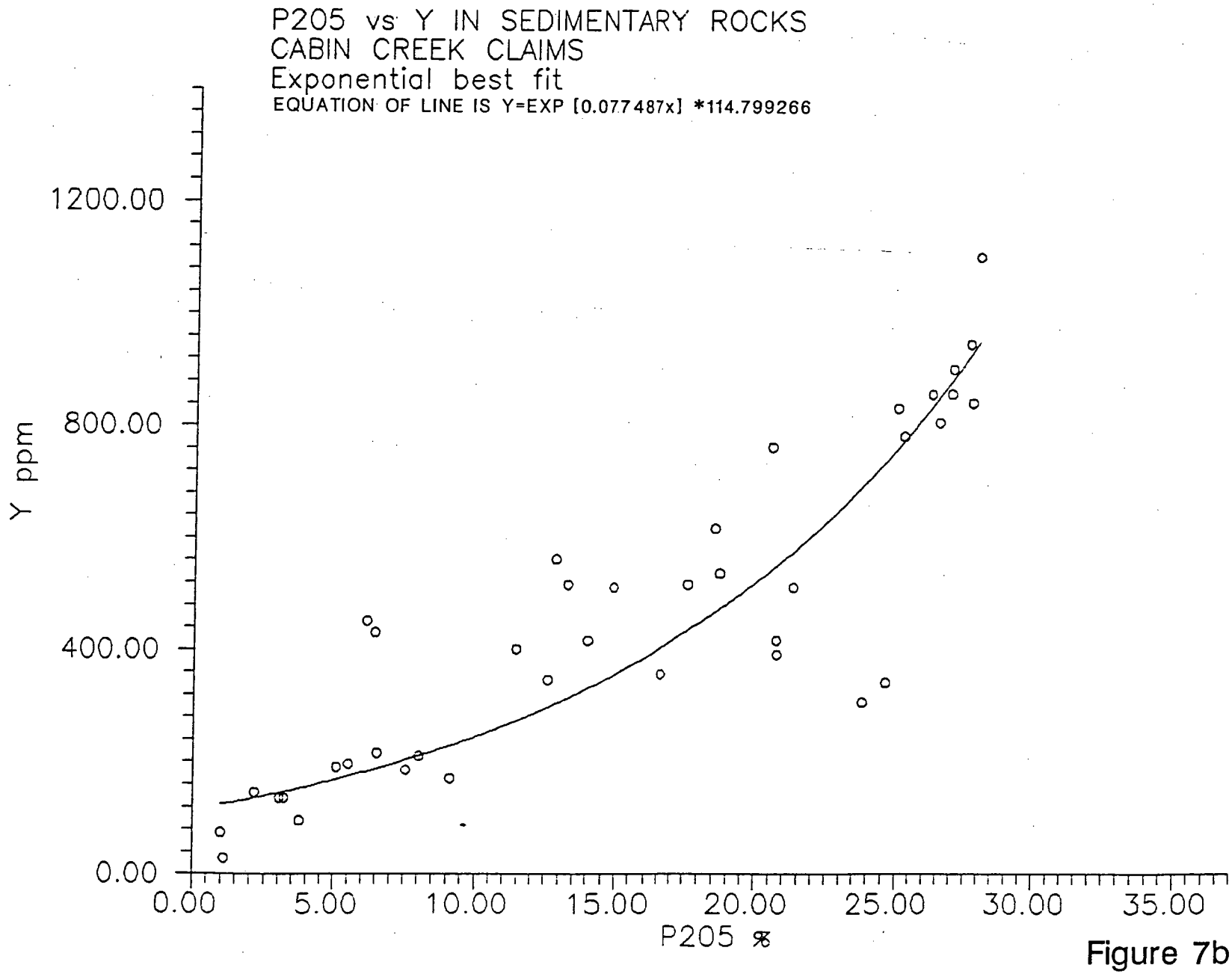

P205 vs Y IN SEDIMENTARY ROCKS
CABIN CREEK CLAIMS
Exponential best fit
EQUATION OF LINE IS Y=EXP [0.077487x] *114.799266
1200.00
800.00
400.00
0.00
Y ppm
0.00
5.00
10.00
15.00
20.00
25.00
30.00
35.00
P205 %

Figure 7b

$$Y(ppm) = 27.18122P_2O_5(\%) + 50.871928 \text{ (Figure 7A);}$$

or by an exponential equation:

$$Y(ppm) = EXP[0.077487P_2O_5(\%)] * 114.799266 \text{ (Figure 7B).}$$

In the simplest of terms, as the phosphate content of the rock increases, so does the yttrium. Data is limited and therefore it is difficult to discern which relationship is truly more representative of the distribution.

4.1 BACKHOE TRENCH SECTIONS

Five trenches were dug using a John Deere 555 Backhoe (Figure 6, 8a & 8b); one did not intersect the target horizon and one reached the top of the zone, but could not get through to expose a complete section. The trenches ranged from 4.5 to 13.5 metres in length, 1 to 2 metres in width and up to 4 metres in depth. The dimensions of individual trenches are summarized as follows:

TRENCH	LENGTH METRES	WIDTH METRES	DEPTH METRES	MATERIAL MOVED (m^3)
TR89-10	4.5	1.5	2.5-4	21.94
TR89-11	5.2	2	2.5	26
TR89-12	10.2	1	0.5-3	17.85
TR89-13	10	1	2	20
(did not intersect phosphorite)				
TR89-14A	13.5	1	1.5	20.25
TR89-14B	3	1	3	9
TR89-14C	3	1	4	12
(reached top of phosphorite horizon only)				
TOTAL VOLUME OF MATERIAL MOVED				127.04 m^3

The three trenches that intersected the phosphorite horizon south of Cabin Creek were on the southwestern limb of the southwesternmost antiform and represent a strike length of approximately 700 metres (Figure 6). In all three trenches the stratigraphy is similar; however the section is anomalously thick in the most southerly trench (Stn. CBC89-35, Figure 6, 8b). Overlying the Triassic siltstones (or in the case of CBC89-35, a grey sandy conglomerate) is a basal silty to shaley phosphatic horizon that is 25 to 86 centrimetres thick and contains 6.5 to 13.25 per cent P_2O_5 and 215 to 515 ppm yttrium. This is overlain by a pelletal, poorly consolidated phosphorite horizon that grades 23.5 to

26.24 per cent P_2O_5 and 780 to 855 ppm yttrium across 60 to 67 centrimetres. Thirty-seven to sixty-three centimetres of chocolate shales, with a thin intermediary phosphatic horizon, overlie the lower phosphorite and are, in turn, overlain by 17 to 137 centrimetres of phosphorite which contains 20.72 to 27.75 per cent P_2O_5 and 415 to 997 ppm yttrium (Appendix 1). The upper phosphorite horizon is commonly overlain by a thin layer of brown shales which are capped by yellow bentonite bed 2 to 15 centrimetres thick. In the most northerly section two thick and two thin bentonite layers were observed above the phosphorites; in the middle section one thick bentonite bed was encountered and in the southern section one thin bentonite bed, underlain by a thin phosphatic layer was present (Figures 8a, 8b). Total section thicknesses in this area are between 1.15 and 3.51 metres and contain, on average, 17 to 20.5 per cent P_2O_5 and 540 to 710 ppm yttrium. In all three cases, the phosphatic strata dip, at a moderate angle, into the hillside.

North of Cabin Creek, one good intersection through the phosphorite horizon was encountered (CBC89-18, TR89-10, Figure 6, 8a). The stratigraphic sequence was essentially similar to that observed south of Cabin Creek, except the bentonite horizon was absent. Shaley phosphatic rocks formed the base of the sequence and were overlain by a lower massive, pelletal phosphorite that was, in turn, overlain by a thin shale bed. A second pelletal to shaley phosphorite horizon capped by black shales overlies the intermediate shale bed. The lower phosphorite bed, which is 46 centrimetres thick, contains 27 per cent P_2O_5 and 900 ppm yttrium while the upper phosphorite to shaley phosphorite horizon contains 20.47 per cent P_2O_5 and 390 ppm yttrium across 40 centimetres (Figures 8a, 8b, Appendix 1). This section is on the southwestern limb of the northeastern antiform and has a moderate to steep dip, dipping slightly steeper than the hillside. To the north of this location, on a large, flat bench near the crest of the anticline, a failed attempt was made to trench through the phosphorite horizon and expose another good section (TR89-14, Figure 6). The phosphorite layer was approximately horizontal in this area and the backhoe was unable to dig through it; grab samples taken from the floor of the trench contained up to 26.5 per cent P_2O_5 and 805 ppm yttrium (Appendix 1).

5. CONCLUSIONS

The Cabin Creek claims, which can be reached by road from Fernie, B.C., are underlain by a series of Upper Paleozoic and Mesozoic strata that were deposited off the western

margin of North America between the Permian and late Jurassic. In the vicinity of the claims, phosphatic horizons occur within the Permian Ranger Canyon Formation of the Ishbel Group and at the base of the Jurassic Fernie Group. The thickest and most continuous phosphorite horizon is the one at the base of the Fernie Group and in addition to P_2O_5, it contains anomalous concentrations of yttrium, averaging around 680-690 ppm Y versus 260 ppm (the worldwide phosphorite average). The basal Fernie phosphorite was the focus of this project, the main conclusions of which may be summarized as follows:

1. On the Cabin Creek claims, the phosphatic strata are 1.15 to 3.51 metres in thickness and average slightly over 21 per cent P_2O_5 and 680 ppm yttrium. A thick and high grade section was located, but its lateral continuity has not been established.

2. Yttrium and phosphate concentrations increase proportionally.

3. South of Cabin Creek, sections located dip at moderate angles into the hillside. North of Cabin Creek, a section was found which dips in a downslope direction at an angle slightly steeper than the slope; a second area was located on a large, flat bench, where the phosphorite horizon is nearly horizontal and located 1 to 3 metres below the surface.

Based solely on the phosphate content and thickness, the basal Fernie phosphorites are currently subeconomic, as previous workers decided; however, significant amounts of yttrium are present in these rocks and if this is feasible to extract at a reasonable cost, it could change the status from subeconomic to economically exploitable. To date, the work done has been preliminary and has not addressed questions such as the effects of surface weathering and the potential of changes in grade with depth from surface. As well, it will be necessary to examine the reality of extracting yttrium during phosphoric acid process before a final assessment can be made.

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7. STATEMENT OF COSTS

COLUMBIA PROJECT 1989

Wages and Professional Fees*

Field work (May 26-July 26, 1989)	$32,073	
Benefits @ 25%	8,018	
		$40,091

Disbursements:

Truck Rental	2,409	
Gas	1,584	
Meals	3,845	
Accomodation	1,464	
Helicopter charter	5,923	
Assays	15,528	
Miscellaneous rentals	1,200	
Backhoe rental**	4,076	
Expendible supplies	1,515	
Compilation and reports	5,000	
		$42,544
TOTAL ALL CLAIMS		**$82,635**

CLAIM BLOCK ALLOCATION OF EXPENDITURES:

	Hunger Group	39%	$32,227
	Bighorn Group	4%	$ 3,307
->	**Cabin Creek Group**	**26%**	**$21,485**
	Cabin East Group	7%	$ 5,784
	Highrock Group	6%	$ 4,958
	Regional	18%	$14,874
TOTAL			**$82,635**

*Breakdown showing pay rates and days worked follows.
**Breakdown showing trench work distribution follows.

8. CERTIFICATE OF QUALIFICATIONS

I, Jennifer A. Pell, of 3011 Quadra Street, Victoria, British Columbia, do hereby certify that:

1. I was in the field in the Fernie area from late May until late July, 1989 and personally supervised the exploration on the Cabin Creek claims.

2. I am a graduate of the University of Ottawa with a Bachelor of Science Honours degree in Geology, 1979.

3. I am a graduate of the University of Calgary with a Doctorate of Philosophy degree in Geology, 1984.

4. I am a Fellow of the Geological Association of Canada.

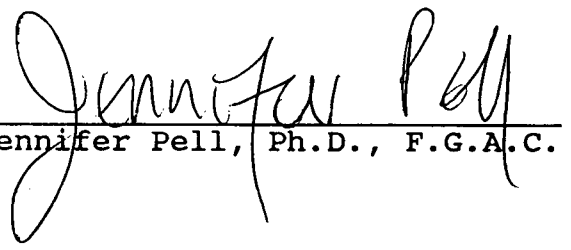
5. I was employed as an Assistant Professor in the Department of Geology, University of Windsor, teaching Economic Geology, Mineralogy, Structural Geology and Historical Geology from July, 1985 to July, 1986 and as a sessional lecturer at University of British Columbia, teaching Introductory Geology from January to April of 1987.

6. I have been engaged in mineral exploration, geologic mapping and geological research in British Columbia, the Northwest Territories, Manitoba and Ontario since 1977.

7. This report is true and factual, to the best of my knowledge. It is based on my work and work done directly under my supervision as well as a study of available literature.

8. I retain a 5% Net Profit Royalty interest on the properties described in this report.

March, 1990
Victoria, B.C.



Jennifer Pell, Ph.D., F.G.A.C.

APPENDIX 1

SUMMARY OF ANALYTICAL RESULTS AND ASSAYS

ANALYTICAL RESULTS, CABIN CREEK CLAIMS

SAMPLE NO.	P_2O_5 %	Y PPM	CE PPM	LA PPM	T M	DESCRIPTION
CBC89-18A	11.44	400	150	120	0.48	BROWN PHOSPHATIC SHALE
CBC89-18B	27.73	840	260	330	0.65	PELLETAL P2O5, MASSIVE
CBC89-18C	18.69	535	200	200	0.85	PELLETAL P2O5 & BROWN CLAY
CBC89-22A	6.44	430	180	140	0.34	WEATHERED BROWN SILTSTONE
CBC89-22B	18.52	615	230	240	1.00	GRITTY PHOSPHATE, OILY SMELL
CBC89-22C	5.52	195	140	100	0.35	CHOCOLATE SHALE
CBC89-22D	16.61	355	180	180	0.25	GRITTY PHOSPHATE
CBC89-22E	1.11	28	21	14	0.13	YELLOW BENTONITE MARKER
CBC89-22F	2.17	145	160	94	0.49	BLACK SHALE
CBC89-35A	6.14	450	210	130	CHIP	GREY, FRAGMENTAL SANDSTONE
CBC89-35B	13.27	515	220	180	0.86	SILTY TO SHALEY PHOSPHATE
CBC89-35C	26.24	855	350	330	0.65	PURE, GRITTY, UNCONSOLIDATED P2O5
CBC89-35D	5.10	190	140	92	0.21	BROWN SHALE
CBC89-35E	24.63	340	200	170	0.14	PURE, UNCONSOLIDATED PHOSPHATE
CBC89-35F	3.03	135	120	76	0.28	BROWN SHALE
CBC89-35G	27.96	1100	440	420	0.46	BLACK, GRITTY PHOSPHATE
CBC89-35H	27.64	945	390	360	0.91	PURE, HARD PHOSPHATE
CBC89-35I	3.20	135	110	68	0.34	BROWN SHALE
CBC89-35J	23.82	305	210	170	0.08	IMPURE, PHOSPHATE
TRB9-10-1A	14.89	510	120	170	0.25	SHALEY, WELL LAMINATED PHOSPHATE
TRB9-10-1B	27.01	900	170	330	0.46	MASSIVE PHOSPHATE
TRB9-10-1C	8.03	210	91	98	0.17	SHALE
TRB9-10-1D	20.74	390	150	170	0.40	MIXED SHALE AND PHOSPHATE
TRB9-11-1A	6.55	215	100	71	0.25	SHALEY PHOSPHATE
TRB9-11-1B	24.99	830	350	340	0.45	MASSIVE PHOSPHATE
TRB9-11-1C	20.51	760	360	300	0.22	MASSIVE PHOSPHATE
TRB9-11-1D	3.76	95	85	56	0.37	BROWN SHALE W/THIN P2O5 LAYER
TRB9-11-1E	20.72	415	260	200	0.17	MIXED PHOSPHATE & SHALE
TRB9-11-1F	1.00	74	86	48	0.11	BLACK SHALE, BETWEEN 2 YELLOW BENTONITES
TRB9-12-1A	12.59	345	180	140	0.30	MIXED PHOSPHATE & SHALE
TRB9-12-1B	25.23	780	360	330	0.60	MASSIVE P2O5 W/CALCITE VEINS
TRB9-12-1C	7.56	185	150	110	0.37	BROWN SHALE W/THIN P2O5 BED
TRB9-12-1D	21.30	510	319	240	0.18	MIXED PHOSPHATE & BROWN SHALE
TRB9-12-1E	9.12	170	210	120	0.12	BROWN SHALE
TRB9-14-1	26.53	805	410	360	GRAB	HARD PHOSPHATE
TRB9-14-2	12.83	560	220	190	GRAB	WEATHERED, SOFT PHOSPHATE

ANALYTICAL RESULTS, CABIN CREEK AREA, FROM OFF THE CABIN CREEK CLAIMS

SAMPLE NO.	P_2O_5 %	Y PPM	CE PPM	LA PPM	T M	DESCRIPTION
CBC89-1A*	0.20	(31)	(48)	(19)	2.50	BLACK SHALE
CBC89-1B*	3.10	(226)	(214)	(137)	0.30	MIXED SHALE AND PELLETAL PHOSPHORITE
CBC89-1C*	19.04	(543)	(451)	(338)	0.35	PELLETAL PHOSPHORITE
CBC89-1D*	23.09	(479)	(167)	(229)	0.85	PELLETAL PHOSPHORITE
CBC89-1E*	9.25	(208)	(104)	(103)	0.40	MIXED SHALE AND PELLETAL PHOSPHORITE
CBC89-1F*	0.30	(16)	(11)	(2)	1.60	YELLOW-BROWN SILTSTONE
CBC89-TR-1A	22.21	675	130	270	.62	MASSIVE PHOSPHORITE LAYER & SOFT, CLAYEY PHOSPHORITE LAYER
CBC89-610A*	15.45	(252)	(104)	(120)	0.35	GRITTY PHOSPHATIC SHALE, BASE
CBC89-610B*	24.58	(424)	(131)	(199)	0.40	FISSILE, SILTY PHOSPHORITE
CBC89-610C*	25.87	(601)	(225)	(300)	0.35	SILTY PHOSPHORITE
CBC89-610D*	3.00	(93)	(74)	(55)	0.30	DARK CHOCOLATE SHALE
CBC89-610E*	16.53	(374)	(284)	(232)	0.27	BLACK SILTY PHOSPHORITE, YELLOW MARKER AT THE TOP
CBC89-610F*	0.20	(29)	(47)	(16)	0.37	BLACK SHALE
CBC89-611*	23.09	(448)	(166)	(215)	1.30	PELLETAL, BLACK PHOSPHORITE
CBC89-611B*	27.25	(604)	(207)	(301)	GRAB	PELLETAL, BLACK PHOSPHORITE
CBC89-TR-611A	23.38	670	130	280	.68	FISSILE TO MASSIVE PHOSPHORITE
CBC89-TR-611B	17.86	350	160	160	.27	OILY, PHOSPHATIC SHALE
CBC89-32	29.44	950	150	360	GRAB	PURE, HARD PHOSPHORITE

ANALYTICAL RESULTS, PERMIAN PHOSPHORITES IN THE CABIN CREEK AREA

SAMPLE NO.	P_2O_5 %	Y PPM	CE PPM	LA PPM	T M	DESCRIPTION
CBC89-607A*	20.36	(187)	(48)	(132)	CHIP	PHOSPHATE NODULES
CBC89-607B*	12.77	(185)	(49)	(128)	GRAB	PHOSPHATIC NODULES IN DARK SILTSTONE
CBC89-607C*	9.35	(153)	(42)	(108)	GRAB	PHOSPHATE NODULE-RICH SILTSTONE
CBC89-607D*	0.67	(10)	(5)	(6)	GRAB	BUFF SILTSTONE W/SOME DRK NODULES

* (108) - TRACE ELEMENTS ANALYSED BY ICP WHICH ONLY GIVES A PARTIAL DIGESTION FOR THESE ELEMENTS AND, THEREFORE, VALUES ARE NOT TRUE TOTALS

89-1 COMP.

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130 Pemberton Ave.
North Vancouver, B.C.
V7P 2R5
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REPORT: V89 02953.4

DATE PRINTED: 30-JUN-89
PROJECT: 110 PAGE 1

SAMPLE NUMBER	ELEMENT UNITS P2O5 PCT
R2 CBC89-1A	0.50
R2 CBC89-1B	3.44
R2 CBC89-1C	19.04
R2 CBC89-1D	23.09
R2 CBC89-1E	9.25
R2 CBC89-1F	0.58
R2 CBC89-18A	11.44
R2 CBC89-18B	27.73
R2 CBC89-18C	18.69
R2 CBC89-610A	15.45
R2 CBC89-610B	24.58
R2 CBC89-610C	25.87
R2 CBC89-610D	3.52
R2 CBC89-610E	16.53
R2 CBC89-610F	0.42
R2 CBC89-611	23.09
R2 CBC89-611B	27.25
R2 CRW89-600A	22.10
R2 CRW89-600B	23.77
R2 CRW89-600C	21.71
R2 CRW89-600D	10.05
R2 CRW89-600E	22.80
R2 CRW89-600F	8.83
R2 CRW89-600G	11.11
R2 CRW89-600H	25.04
R2 CRW89-600I	27.07
R2 CRW89-600J	20.30
R2 DLY89-1A	1.00
R2 DLY89-1B	8.26
R2 DLY89-1C	25.60
R2 DLY89-5	0.35
R2 INV89-1A	17.87
R2 INV89-1B	12.93

Cabin Creek

Registered Assayer, Province of British Columbia

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Certificate of Analysis

REPORT: V89-02953.4 (COMPLETE)

REFERENCE INFO: SHIPMENT #89-1

CLIENT: BOUNDARY DRILLING LTD.
PROJECT: 110

SUBMITTED BY: J. PELL
DATE PRINTED: 30-JUN-89

ORDER	ELEMENT		NUMBER OF ANALYSES	LOWER DETECTION LIMIT	EXTRACTION	METHOD
1	P205	Phosphorous	33	0.01 PCT		Gravimetric

SAMPLE TYPES	NUMBER	SIZE FRACTIONS	NUMBER	SAMPLE PREPARATIONS	NUMBER
R ROCK OR BED ROCK	33	2 -150	33	ASSAY PREP	33
				FAX CHARGE	1

REPORT COPIES TO: MR. DOUG LEIGHTON
MS. J. PELL

INVOICE TO: MR. DOUG LEIGHTON

Bondar-Clegg & Company Ltd.
130 Pemberton Ave.
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(604) 985-0681 Telex 04-352667

BONDAR-CLEGG

Geochemical Lab Report

DATE PRINTED: 21-JUL-89

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SAMPLE NUMBER	ELEMENT UNITS	Au PPB	Ag PPM	As PPM	Ba PPM	Br PPM	Cd PPM	Ce PPM	Co PPM	Cr PPM	Cs PPM	Eu PPM	Fe PCT
R2 CBC89-18A		<5	<5	20	200	2	<10	150	<10	160	3	4	1.6
R2 CBC89-18B		<5	<5	17	<100	2	<10	260	<10	200	2	11	1.0
R2 CBC89-18C		<5	<5	18	<100	3	<10	200	<10	200	2	7	1.4
R2 DLY89-1B		<5	<5	17	710	1	<10	180	<10	220	<1	9	0.9
R2 DLY89-1C		<5	<5	21	1800	2	<10	290	<10	250	3	10	1.5

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Geochemical Lab Report

DATE PRINTED: 21-JUL-89

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SAMPLE NUMBER	ELEMENT UNITS	Hf PPM	Ir PPB	La PPM	Lu PPM	Mo PPM	Na PCT	Ni PPM	Rb PPM	Sb PPM	Sc PPM	Se PPM	Sm PPM
R2 CBC89-18A		9	<100	120	<0.5	13	0.26	54	89	1.3	16.0	<10	26.5
R2 CBC89-18B		7	<100	330	<0.5	<2	0.12	86	46	1.0	34.0	<10	67.1
R2 CBC89-18C		8	<100	200	<0.5	8	0.25	72	60	1.1	26.0	<10	36.1
R2 DLY89-1B		12	<100	150	<0.5	7	0.10	82	49	0.9	12.0	<10	35.0
R2 DLY89-1C		4	<100	300	<0.5	15	0.11	200	61	1.2	34.0	<10	59.3

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SAMPLE NUMBER	ELEMENT UNITS	Sn PPM	Ta PPM	Tb PPM	Te PPM	Th PPM	U PPM	W PPM	Yb PPM	Zn PPM	Zr PPM	Y PPM
R2 CBC89-18A		<200	<1	6	<20	14.0	30.0	<2	16	<200	<500	400
R2 CBC89-18B		<200	<1	14	<20	11.0	62.6	<2	43	240	<500	840
R2 CBC89-18C		<200	<1	8	<20	12.0	43.0	<2	26	220	<500	535
R2 DLY89-1B		<200	<1	7	<20	12.0	32.0	<2	17	<200	760	420
R2 DLY89-1C		<200	<1	12	<20	13.0	74.5	<2	39	330	<500	750

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Geochemical Lab Report

REPORT: V89-02953.1 (COMPLETE)

REFERENCE INFO: SHIPMENT #89-1

CLIENT: BOUNDARY DRILLING LTD.
PROJECT: 110

SUBMITTED BY: J. PELL
DATE PRINTED: 21-JUL-89

ORDER	ELEMENT		NUMBER OF ANALYSES	LOWER DETECTION LIMIT	EXTRACTION	METHOD
1	Au	Gold	5	5 PPB	NOT APPLICABLE	Inst. Neutron Activ.
2	Ag	Silver	5	5 PPM	NOT APPLICABLE	Inst. Neutron Activ.
3	As	Arsenic	5	1 PPM	NOT APPLICABLE	Inst. Neutron Activ.
4	Ba	Barium	5	100 PPM	NOT APPLICABLE	Inst. Neutron Activ.
5	Br	Bromine	5	1 PPM	NOT APPLICABLE	Inst. Neutron Activ.
6	Cd	Cadmium	5	10 PPM	NOT APPLICABLE	Inst. Neutron Activ.
7	Ce	Cerium	5	10 PPM	NOT APPLICABLE	Inst. Neutron Activ.
8	Co	Cobalt	5	10 PPM	NOT APPLICABLE	Inst. Neutron Activ.
9	Cr	Chromium	5	50 PPM	NOT APPLICABLE	Inst. Neutron Activ.
10	Cs	Cesium	5	1 PPM	NOT APPLICABLE	Inst. Neutron Activ.
11	Eu	Europium	5	2 PPM	NOT APPLICABLE	Inst. Neutron Activ.
12	Fe	Iron	5	0.5 PCT	NOT APPLICABLE	Inst. Neutron Activ.
13	Hf	Hafnium	5	2 PPM	NOT APPLICABLE	Inst. Neutron Activ.
14	Ir	Iridium	5	100 PPB	NOT APPLICABLE	Inst. Neutron Activ.
15	La	Lanthanum	5	5 PPM	NOT APPLICABLE	Inst. Neutron Activ.
16	Lu	Lutetium	5	0.5 PPM	NOT APPLICABLE	Inst. Neutron Activ.
17	Mo	Molybdenum	5	2 PPM	NOT APPLICABLE	Inst. Neutron Activ.
18	Na	Sodium	5	0.05 PCT	NOT APPLICABLE	Inst. Neutron Activ.
19	Ni	Nickel	5	50 PPM	NOT APPLICABLE	Inst. Neutron Activ.
20	Rb	Rubidium	5	10 PPM	NOT APPLICABLE	Inst. Neutron Activ.
21	Sb	Antimony	5	0.2 PPM	NOT APPLICABLE	Inst. Neutron Activ.
22	Sc	Scandium	5	0.5 PPM	NOT APPLICABLE	Inst. Neutron Activ.
23	Se	Selenium	5	10 PPM	NOT APPLICABLE	Inst. Neutron Activ.
24	Sm	Samarium	5	0.1 PPM	NOT APPLICABLE	Inst. Neutron Activ.
25	Sn	Tin	5	200 PPM	NOT APPLICABLE	Inst. Neutron Activ.
26	Ta	Tantalum	5	1 PPM	NOT APPLICABLE	Inst. Neutron Activ.
27	Tb	Terbium	5	1 PPM	NOT APPLICABLE	Inst. Neutron Activ.
28	Te	Tellurium	5	20 PPM	NOT APPLICABLE	Inst. Neutron Activ.
29	Th	Thorium	5	0.5 PPM	NOT APPLICABLE	Inst. Neutron Activ.
30	U	Uranium	5	0.5 PPM	NOT APPLICABLE	Inst. Neutron Activ.
31	W	Tungsten	5	2 PPM	NOT APPLICABLE	Inst. Neutron Activ.
32	Yb	Ytterbium	5	5 PPM	NOT APPLICABLE	Inst. Neutron Activ.
33	Zn	Zinc	5	200 PPM	NOT APPLICABLE	Inst. Neutron Activ.
34	Zr	Zirconium	5	500 PPM	NOT APPLICABLE	Inst. Neutron Activ.
35	Y	Yttrium	5	5 PPM		X-Ray Fluorescence

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PROJECT: 110

SUBMITTED BY: J. PFIL
DATE PRINTED: 21-JUL-89

SAMPLE TYPES	NUMBER	SIZE FRACTIONS	NUMBER	SAMPLE PREPARATIONS	NUMBER
R ROCK OR BED ROCK	5	2 -150	5	CRUSH,PULVERIZE -150	5
				BATCH SURCHARGE	5

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Geochemical Lab Report

A DIVISION OF INCHCAPE INSPECTION & TESTING SERVICES

DATE PRINTED: 21-JUN-89

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SAMPLE NUMBER	ELEMENT UNITS	Ag PPM	As PPM	Ba PPM	Be PPM	Bi PPM	Cd PPM	Ce PPM	Co PPM	Cr PPM	Cu PPM	Ga PPM
R2 CBC89-1A		0.2	63	306	18.8	3	2	48	18	20	88	<2
R2 CBC89-1B		1.2	99	1248	20.7	11	7	214	27	61	191	<2
R2 CBC89-1C		2.8	189	703	21.9	<2	10	451	19	109	265	<2
R2 CBC89-1D		<0.2	44	529	7.3	<2	2	167	3	97	43	<2
R2 CBC89-1E		<0.2	54	253	12.8	<2	1	104	5	78	48	<2
R2 CBC89-1F		<0.2	246	55	6.9	81	<1	11	2	15	19	89
R2 CBC89-18A		<0.2	48	147	11.3	<2	<1	120	4	108	35	<2
R2 CBC89-18B		<0.2	36	216	5.6	<2	<1	175	2	121	32	<2
R2 CBC89-18C		<0.2	43	165	7.5	<2	<1	119	3	93	32	<2
R2 CBC89-610A		<0.2	49	199	9.9	<2	1	104	4	78	37	<2
R2 CBC89-610B		<0.2	25	180	5.0	<2	1	131	2	103	32	<2
R2 CBC89-610C		<0.2	33	215	5.4	<2	1	225	2	105	33	<2
R2 CBC89-610D		0.3	44	198	14.2	4	2	74	8	85	104	<2
R2 CBC89-610E		1.0	67	315	12.6	<2	1	284	10	79	89	<2
R2 CBC89-610F		0.3	78	424	26.0	15	3	47	25	29	123	8
R2 CBC89-611		<0.2	34	143	7.3	<2	2	166	3	102	45	<2
R2 CBC89-611B		<0.2	35	166	4.5	<2	<1	207	2	112	30	<2
R2 CRW89-600A		<0.2	30	466	9.1	<2	<1	87	2	79	45	<2
R2 CRW89-600B		<0.2	37	814	7.0	<2	1	94	2	112	49	<2
R2 CRW89-600C		<0.2	45	1014	4.5	<2	<1	194	1	104	33	<2
R2 CRW89-600D		<0.2	45	487	7.1	<2	<1	72	3	77	37	<2
R2 CRW89-600F		<0.2	44	929	5.0	<2	2	180	2	108	37	<2
R2 CRW89-600F		<0.2	43	590	8.0	<2	<1	66	3	71	41	<2
R2 CRW89-600G		<0.2	54	512	6.7	<2	<1	71	3	64	38	<2
R2 CRW89-600H		<0.2	36	1131	5.3	<2	2	154	1	115	35	<2
R2 CRW89-600I		<0.2	43	1308	5.5	<2	1	170	1	134	39	<2
R2 CRW89-600J		<0.2	44	1025	7.9	<2	1	185	3	122	45	<2
R2 DLY89-1A		<0.2	108	804	5.8	18	<1	21	2	32	5	<2
R2 DLY89-1B		<0.2	70	594	9.0	<2	<1	136	3	116	17	<2
R2 DLY89-1C		<0.2	55	1535	10.7	<2	2	209	3	114	53	<2
R2 DLY89-5		<0.2	10	287	5.9	2	<1	22	2	144	7	<2
R2 INV89-1A		<0.2	42	355	7.0	<2	<1	147	2	180	28	<2
R2 INV89-1B		<0.2	39	215	8.4	<2	<1	108	2	230	19	<2

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A DIVISION OF INCHCAPE INSPECTION & TESTING SERVICES

Geochemical Lab Report

REPORT: V89-02953.0

DATE PRINTED: 21-JUN-89

PROJECT: 110 PAGE 1B

SAMPLE NUMBER	ELEMENT UNITS	La PPM	Li PPM	Mo PPM	Nb PPM	Ni PPM	Pb PPM	Rb PPM	Sb PPM	Sc PPM	Sn PPM	Sr PPM
R2 CRC89-1A		19	12	20	10	143	36	<20	21	7	<20	202
R2 CRC89-1B		137	27	113	9	668	43	36	28	15	<20	346
R2 CRC89-1C		338	17	256	22	927	59	<20	39	27	<20	796
R2 CRC89-1D		229	23	25	24	118	39	<20	24	25	<20	619
R2 CRC89-1E		103	23	42	15	175	40	<20	28	11	<20	283
R2 CRC89-1F		2	22	6	60	59	137	<20	164	4	<20	125
R2 CRC89-18A		133	19	19	17	73	37	<20	27	13	<20	279
R2 CRC89-18B		262	20	6	27	60	41	<20	27	25	<20	608
R2 CRC89-18C		159	21	15	20	54	36	<20	24	19	<20	387
R2 CRC89-611A		120	19	25	19	76	36	<20	23	14	<20	298
R2 CRC89-611B		199	14	13	23	53	33	<20	21	22	<20	432
R2 CRC89-611C		300	16	11	25	61	37	<20	24	25	<20	515
R2 CRC89-611D		55	38	68	7	176	20	65	17	12	<20	196
R2 CRC89-611E		232	21	45	18	222	36	42	23	17	<20	474
R2 CRC89-611F		16	13	36	3	188	31	<20	20	6	<20	76
R2 CRC89-611		215	18	24	22	101	35	55	24	22	<20	372
R2 CRC89-611B		301	13	7	27	43	39	<20	23	24	<20	451
R2 CRW89-600A		119	12	10	21	45	31	23	22	14	<20	550
R2 CRW89-600B		144	15	18	24	68	36	<20	24	18	<20	828
R2 CRW89-600C		264	14	8	28	48	40	<20	27	31	<20	1073
R2 CRW89-600D		83	20	14	20	59	30	40	24	14	<20	646
R2 CRW89-600E		251	15	13	28	60	39	29	28	29	<20	1068
R2 CRW89-600F		75	17	19	20	64	31	<20	25	13	<20	673
R2 CRW89-600G		74	16	33	20	57	32	<20	28	13	<20	655
R2 CRW89-600H		222	14	14	27	57	38	<20	26	27	<20	1054
R2 CRW89-600I		254	14	14	29	61	42	<20	27	31	<20	1150
R2 CRW89-600J		244	20	12	26	69	38	<20	27	33	<20	1099
R2 DLY89-1A		11	11	8	20	23	48	<20	57	4	<20	109
R2 DLY89-1B		139	13	17	17	71	34	<20	31	11	<20	207
R2 DLY89-1C		277	18	30	28	144	46	<20	32	28	<20	594
R2 DLY89-5		8	3	2	3	12	12	<20	6	2	<20	51
R2 INV89-1A		199	10	15	21	50	31	<20	18	13	<20	403
R2 INV89-1B		141	11	14	17	41	26	21	17	10	<20	287

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Geochemical Lab Report

REPORT: V89-02953.0 | DATE PRINTED: 21-JUN-89 | PROJECT: 110 | PAGE 1C

SAMPLE NUMBER	ELEMENT UNITS	Ta PPM	Te PPM	U PPM	W PPM	Y PPM	Zn PPM	Zr PPM
R2 CRC89-1A		<10	<10	62	<10	31	212	5
R2 CRC89-1B		<10	10	138	<10	226	1061	7
R2 CRC89-1C		<10	28	132	<10	543	1343	6
R2 CRC89-1D		<10	29	64	<10	479	196	11
R2 CRC89-1E		<10	19	43	<10	208	240	5
R2 CRC89-1F		25	86	18	<10	16	158	5
R2 CRC89-18A		<10	20	44	<10	284	149	10
R2 CRC89-18B		<10	34	60	<10	541	131	12
R2 CRC89-18C		<10	22	48	<10	344	125	13
R2 CRC89-610A		<10	19	38	<10	252	154	9
R2 CRC89-610B		<10	26	56	<10	424	98	10
R2 CRC89-610C		<10	30	58	<10	601	103	12
R2 CRC89-610D		<10	<10	90	<10	93	268	10
R2 CRC89-610E		<10	18	77	<10	374	241	8
R2 CRC89-610F		<10	<10	90	<10	29	226	9
R2 CRC89-611		<10	25	58	<10	448	155	11
R2 CRC89-611B		<10	32	41	<10	604	93	12
R2 CRW89-600A		<10	25	28	<10	268	214	8
R2 CRW89-600B		<10	28	48	<10	325	335	10
R2 CRW89-600C		<10	30	45	<10	557	104	9
R2 CRW89-600D		<10	15	34	<10	163	85	4
R2 CRW89-600E		<10	30	49	<10	536	163	7
R2 CRW89-600F		<10	15	31	<10	146	107	6
R2 CRW89-600G		<10	18	32	<10	138	125	4
R2 CRW89-600H		<10	30	52	<10	477	125	10
R2 CRW89-600I		<10	33	61	<10	527	97	12
R2 CRW89-600J		<10	28	57	<10	500	129	8
R2 DLY89-1A		<10	25	18	<10	21	14	4
R2 DLY89-1B		<10	18	30	<10	282	54	3
R2 DLY89-1C		<10	35	77	<10	573	233	13
R2 DLY89-5		<10	<10	6	<10	17	22	3
R2 INV89-1A		<10	23	59	<10	407	66	6
R2 INV89-1B		<10	17	65	<10	291	64	7

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REFERENCE INFO:

CLIENT: BOUNDARY DRILLING LTD.
PROJECT: 110

SUBMITTED BY: J. PELL
DATE PRINTED: 21-JUN-89

ORDER	ELEMENT		NUMBER OF ANALYSES	LOWER DETECTION LIMIT	EXTRACTION	METHOD
1	Ag	Silver	33	0.2 PPM	HNO3-HCl HOT EXTR	Ind. Coupled Plasma
2	As	Arsenic	33	5 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
3	Ba	Barium	33	1 PPM	HNO3-HCl HOT EXTR	Ind. Coupled Plasma
4	Be	Beryllium	33	0.5 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
5	Bi	Bismuth	33	2 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
6	Cd	Cadmium	33	1 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
7	Ce	Cerium	33	5 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
8	Co	Cobalt	33	1 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
9	Cr	Chromium	33	1 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
10	Cu	Copper	33	1 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
11	Ga	Gallium	33	2 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
12	La	Lanthanum	33	1 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
13	Li	Lithium	33	1 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
14	Mo	Molybdenum	33	1 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
15	Nb	Niobium	33	1 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
16	Ni	Nickel	33	1 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
17	Pb	Lead	33	2 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
18	Rb	Rubidium	33	20 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
19	Sb	Antimony	33	5 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
20	Sc	Scandium	33	1 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
21	Sn	Tin	33	20 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
22	Sr	Strontium	33	1 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
23	Ta	Tantalum	33	10 PPM	HNO3-HCl HOT EXTR	Ind. Coupled Plasma
24	Te	Tellurium	33	10 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
25	V	Vanadium	33	1 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
26	W	Tungsten	33	10 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
27	Y	Yttrium	33	1 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
28	Zn	Zinc	33	1 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
29	Zr	Zirconium	33	1 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma

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PROJECT: 110

SUBMITTED BY: J. PELL
DATE PRINTED: 21-JUN-89

SAMPLE TYPES	NUMBER	SIZE FRACTIONS	NUMBER	SAMPLE PREPARATIONS	NUMBER
R ROCK OR BED ROCK	33	2 -150	33	ASSAY PREP	33

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Certificate of Analysis

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REPORT: V89-03911.4 | PROJECT: 110 | PAGE 1

SAMPLE NUMBER	ELEMENT UNITS P2O5 PCT
R2 CRC-89-35A	6.14
R2 CRC-89-35B	13.27
R2 CRC-89-35C	26.24
R2 CRC-89-35D	5.10
R2 CRC-89-35F	24.63
R2 CRC-89-35F	3.03
R2 CRC-89-35G	27.96
R2 CRC-89-35H	27.64
R2 CRC-89-35I	3.20
R2 CRC-89-35J	23.82
R2 DLY-89-13	30.85
R2 TR89-11-1A	6.55
R2 TR89-11-1B	24.99
R2 TR89-11-1C	20.51
R2 TR89-11-1D	3.76
R2 TR89-11-1E	20.72
R2 TR89-11-1F	1.00
R2 TR89-12-1A	12.59
R2 TR89-12-1B	25.23
R2 TR89-12-1C	7.56
R2 TR89-12-1D	21.30
R2 TR89-12-1E	9.12
R2 TR89-14-1	26.53
R2 TR89-14-2	12.83

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Certificate of Analysis

REPORT: V89-03911.4 (COMPLETE)

REFERENCE INFO: SHIPMENT #89-7

CLIENT: BOUNDARY DRILLING LTD.
PROJECT: 110

SUBMITTED BY: J. PELL
DATE PRINTED: 1-AUG-89

ORDER	ELEMENT		NUMBER OF ANALYSES	LOWER DETECTION LIMIT	EXTRACTION	METHOD
1	P2O5	Phosphorous	24	0.01 PCT		Gravimetric

SAMPLE TYPES	NUMBER	SIZE FRACTIONS	NUMBER	SAMPLE PREPARATIONS	NUMBER
R ROCK OR RED ROCK	24	2 -150	24	ASSAY PREP	24

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INVOICE TO: MR. DOUG LEIGHTON

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Geochemical Lab Report

REPORT: V89-03911.0

DATE PRINTED: 2-AUG-89

PROJECT: 110 PAGE 1

SAMPLE NUMBER	ELEMENT UNITS	Y PPM
R2 CRC-89-35A		450
R2 CRC-89-35B		515
R2 CRC-89-35C		855
R2 CRC-89-35D		190
R2 CRC-89-35E		340
R2 CRC-89-35F		135
R2 CRC-89-35G		1100
R2 CRC-89-35H		945
R2 CRC-89-35I		135
R2 CRC-89-35J		305
R2 DLY-89-13		930
R2 TR89-11-1A		215
R2 TR89-11-1B		830
R2 TR89-11-1C		760
R2 TR89-11-1D		95
R2 TR89-11-1E		415
R2 TR89-11-1F		74
R2 TR89-12-1A		345
R2 TR89-12-1B		780
R2 TR89-12-1C		185
R2 TR89-12-1D		510
R2 TR89-12-1E		170
R2 TR89-14-1		805
R2 TR89-14-2		560

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Geochemical Lab Report

REPORT: VS9-H7911.0 (PARTIAL)

REFERENCE INFO: SHIPMENT #S9-7

CLIENT: BOUNDARY DRILLING LTD.
PROJECT: 110

SUBMITTED BY: J. PELL
DATE PRINTED: 2-AUG-89

ORDER	ELEMENT	NUMBER OF ANALYSES	LOWER DETECTION LIMIT	EXTRACTION	METHOD
1	Y Yttrium	24	5 PPM		X-Ray Fluorescence

RESULTS TO FOLLOW FOR: Ag As Au Ba Br Cd Ce Co Cr Cs Eu Fe Hf Ir La Lu Mo Na Ni Rb Sb Sc Se Sm Sn Ta Tb Te Th U W Yb Zn Zr

SAMPLE TYPES	NUMBER	SIZE FRACTIONS	NUMBER	SAMPLE PREPARATIONS	NUMBER
R ROCK OR BED ROCK	24	2 -150	24	ASSAY PREP	24

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Geochemical Lab Report

REPORT: V89-03911.0 | DATE PRINTED: 9-AUG-89 | PROJECT: 110 | PAGE 1A

SAMPLE NUMBER	ELEMENT UNITS	Au PPB	Ag PPM	As PPM	Ba PPM	Br PPM	Cd PPM	Ce PPM	Co PPM	Cr PPM	Cs PPM	Eu PPM	Fe PCT
R2 CBC-89-35A		29	<5	11	170	<1	<10	210	<10	300	<1	5	<0.5
R2 CBC-89-35B		44	<5	17	150	<1	<10	220	<10	230	3	6	1.2
R2 CBC-89-35C		30	<5	15	<100	<1	<10	350	<10	240	<1	11	1.0
R2 CBC-89-35D		17	<5	22	460	2	<10	140	10	220	6	2	2.8
R2 CBC-89-35E		25	<5	37	<100	2	<10	200	<10	150	1	5	1.8
R2 CBC-89-35F		21	<5	22	380	2	<10	120	10	230	7	3	2.7
R2 CBC-89-35G		14	<5	13	2300	1	<10	440	<10	270	<1	16	<0.5
R2 CBC-89-35H		14	<5	14	240	1	<10	390	<10	220	2	11	<0.5
R2 CBC-89-35I		15	<5	24	500	3	<10	110	10	200	7	2	2.9
R2 CBC-89-35J		17	<5	31	430	2	<10	210	<10	130	2	6	1.8
R2 DLY-89-13		33	<5	16	350	<1	<10	370	<10	210	1	12	0.8
R2 TR89-11-1A		19	<5	34	380	<1	<10	100	<10	180	4	2	2.3
R2 TR89-11-1B		14	<5	13	200	1	<10	350	<10	230	<1	14	1.0
R2 TR89-11-1C		24	<5	10	170	<1	<10	360	<10	170	1	11	<0.5
R2 TR89-11-1D		20	<5	19	690	1	<10	85	<10	170	6	2	2.4
R2 TR89-11-1E		21	<5	36	790	2	<10	260	<10	160	2	5	1.6
R2 TR89-11-1F		13	<5	16	1000	<1	<10	86	<10	140	14	<2	1.8
R2 TR89-12-1A		18	<5	19	300	<1	<10	180	<10	240	3	4	1.5
R2 TR89-12-1B		15	<5	14	230	<1	<10	360	<10	200	2	10	0.6
R2 TR89-12-1C		12	<5	20	440	4	<10	150	<10	210	6	4	2.6
R2 TR89-12-1D		18	<5	32	240	3	<10	310	<10	190	2	8	1.5
R2 TR89-12-1F		22	<5	47	550	1	<10	210	28	140	8	5	4.3
R2 TR89-14-1		31	<5	16	<100	<1	<10	410	<10	250	<1	13	0.5
R2 TR89-14-2		22	<5	16	390	<1	<10	220	<10	230	3	5	0.8

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Geochemical Lab Report

DATE PRINTED: 9-AUG-89

REPORT: V89-03911.0 | PROJECT: 110 | PAGE 1B

SAMPLE NUMBER	ELEMENT UNITS	Hf PPM	Ir PPB	La PPM	Lu PPM	Mo PPM	Na PCT	Ni PPM	Rb PPM	Sb PPM	Sc PPM	Se PPM	Sm PPM
R2 CBC-89-35A		11	<100	130	<0.5	<2	0.20	<50	41	0.6	8.9	<10	37.0
R2 CBC-89-35B		11	<100	180	<0.5	22	0.27	73	72	1.1	21.0	<10	35.2
R2 CBC-89-35C		5	<100	330	<0.5	10	0.17	68	22	0.7	34.0	<10	62.6
R2 CBC-89-35D		7	<100	92	<0.5	81	0.63	300	110	1.3	21.0	<10	18.0
R2 CBC-89-35E		5	<100	170	<0.5	44	0.31	180	36	0.9	24.0	<10	30.9
R2 CBC-89-35F		8	<100	76	<0.5	77	0.68	200	110	1.2	21.0	<10	16.0
R2 CBC-89-35G		5	<100	420	<0.5	<2	0.15	<50	22	0.6	43.0	<10	86.1
R2 CBC-89-35H		5	<100	360	<0.5	5	0.14	<50	26	0.7	39.0	<10	70.9
R2 CBC-89-35I		7	<100	68	<0.5	98	0.68	240	120	1.4	19.0	<10	14.0
R2 CBC-89-35J		5	<100	170	<0.5	29	0.39	120	37	0.7	20.0	<10	30.6
R2 DLY-89-13		3	<100	360	<0.5	5	0.11	110	44	0.9	35.0	<10	71.2
R2 TR89-11-1A		9	<100	71	<0.5	86	0.40	120	110	1.7	14.0	<10	13.0
R2 TR89-11-1B		3	<100	340	0.7	<2	0.16	77	21	0.7	35.0	<10	65.3
R2 TR89-11-1C		3	<100	300	<0.5	<2	0.13	<50	20	0.5	31.0	<10	65.5
R2 TR89-11-1D		6	<100	56	<0.5	92	0.52	180	85	1.4	14.0	<10	11.0
R2 TR89-11-1E		5	<100	200	<0.5	34	0.36	160	45	1.3	25.0	<10	34.8
R2 TR89-11-1F		4	<100	48	<0.5	67	0.74	120	120	2.7	16.0	<10	7.3
R2 TR89-12-1A		10	<100	140	<0.5	23	0.30	70	71	1.1	19.0	<10	26.3
R2 TR89-12-1B		5	<100	330	<0.5	<2	0.18	70	20	0.6	33.0	<10	69.4
R2 TR89-12-1C		7	<100	110	<0.5	76	0.58	170	100	1.1	23.0	<10	20.0
R2 TR89-12-1D		6	<100	240	<0.5	29	0.33	100	44	0.9	29.0	<10	44.0
R2 TR89-12-1E		6	<100	120	<0.5	42	0.36	280	120	2.5	20.0	<10	24.2
R2 TR89-14-1		3	<100	360	<0.5	8	0.12	<50	31	0.9	37.0	<10	72.2
R2 TR89-14-2		11	<100	190	<0.5	7	0.27	<50	73	1.0	20.0	<10	34.4

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Geochemical Lab Report

REPORT: V89-03911.0 | DATE PRINTED: 9-AUG-89 | PROJECT: 110 | PAGE 1C

SAMPLE NUMBER	ELEMENT UNITS	Sn PPM	Ta PPM	Tb PPM	Te PPM	Th PPM	U PPM	W PPM	Yb PPM	Zn PPM	Zr PPM	Y PPM
R2 CBC-89-35A		<200	<1	7	<20	10.0	25.0	<2	14	<200	690	450
R2 CBC-89-35B		<200	<1	7	<20	15.0	36.0	<2	24	210	800	515
R2 CBC-89-35C		<200	<1	14	<20	11.0	58.8	<2	43	<200	<500	855
R2 CBC-89-35D		<200	1	4	<20	10.0	22.0	<2	12	290	520	190
R2 CBC-89-35E		<200	<1	6	<20	7.4	67.4	<2	22	280	<500	340
R2 CBC-89-35F		<200	1	3	<20	11.0	18.0	<2	9	280	<500	135
R2 CBC-89-35G		<200	<1	18	<20	15.0	67.1	<2	56	<200	<500	1100
R2 CBC-89-35H		<200	<1	14	<20	12.0	64.4	<2	50	<200	<500	945
R2 CBC-89-35I		<200	1	3	<20	10.0	21.0	<2	9	330	<500	135
R2 CBC-89-35J		<200	<1	6	<20	7.9	54.4	<2	19	<200	600	305
R2 DLY-89-13		<200	<1	15	<20	13.0	79.7	<2	49	<200	<500	930
R2 TR89-11-1A		<200	<1	3	<20	10.0	33.0	<2	10	340	<500	215
R2 TR89-11-1B		<200	<1	14	<20	11.0	45.0	<2	46	<200	840	830
R2 TR89-11-1C		<200	<1	12	<20	12.0	50.7	<2	39	<200	860	760
R2 TR89-11-1D		<200	<1	2	<20	7.0	16.0	<2	7	<200	<500	95
R2 TR89-11-1F		<200	<1	7	<20	8.9	62.6	<2	23	240	<500	415
R2 TR89-11-1F		<200	2	1	<20	16.0	13.0	<2	<5	250	<500	74
R2 TR89-12-1A		<200	1	6	<20	13.0	27.0	<2	20	<200	850	345
R2 TR89-12-1B		<200	<1	14	<20	12.0	50.1	<2	43	<200	<500	780
R2 TR89-12-1C		<200	<1	4	<20	8.7	29.0	<2	14	230	540	185
R2 TR89-12-1D		<200	<1	9	<20	9.4	66.6	<2	29	200	<500	510
R2 TR89-12-1F		<200	1	5	<20	10.0	40.0	<2	13	220	<500	170
R2 TR89-14-1		<200	<1	15	<20	13.0	56.2	<2	49	<200	<500	805
R2 TR89-14-2		<200	1	8	<20	14.0	30.0	<2	26	<200	760	560

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Geochemical Lab Report

REPORT: V89-03911.0 (COMPLETE)

REFERENCE INFO: SHIPMENT #89-7

CLIENT: BOUNDARY DRILLING LTD.
PROJECT: 110

SUBMITTED BY: J. PELL
DATE PRINTED: 9-AUG-89

ORDER		ELEMENT	NUMBER OF ANALYSES	LOWER DETECTION LIMIT	EXTRACTION	METHOD
1	Au	Gold	24	5 PPB	NOT APPLICABLE	Inst. Neutron Activ.
2	Ag	Silver	24	5 PPM	NOT APPLICABLE	Inst. Neutron Activ.
3	As	Arsenic	24	1 PPM	NOT APPLICABLE	Inst. Neutron Activ.
4	Ba	Barium	24	100 PPM	NOT APPLICABLE	Inst. Neutron Activ.
5	Br	Bromine	24	1 PPM	NOT APPLICABLE	Inst. Neutron Activ.
6	Cd	Cadmium	24	10 PPM	NOT APPLICABLE	Inst. Neutron Activ.
7	Ce	Cerium	24	10 PPM	NOT APPLICABLE	Inst. Neutron Activ.
8	Co	Cobalt	24	10 PPM	NOT APPLICABLE	Inst. Neutron Activ.
9	Cr	Chromium	24	50 PPM	NOT APPLICABLE	Inst. Neutron Activ.
10	Cs	Cesium	24	1 PPM	NOT APPLICABLE	Inst. Neutron Activ.
11	Eu	Europium	24	2 PPM	NOT APPLICABLE	Inst. Neutron Activ.
12	Fe	Iron	24	0.5 PCT	NOT APPLICABLE	Inst. Neutron Activ.
13	Hf	Hafnium	24	2 PPM	NOT APPLICABLE	Inst. Neutron Activ.
14	Ir	Iridium	24	100 PPB	NOT APPLICABLE	Inst. Neutron Activ.
15	La	Lanthanum	24	5 PPM	NOT APPLICABLE	Inst. Neutron Activ.
16	Lu	Lutetium	24	0.5 PPM	NOT APPLICABLE	Inst. Neutron Activ.
17	Mo	Molybdenum	24	2 PPM	NOT APPLICABLE	Inst. Neutron Activ.
18	Na	Sodium	24	0.05 PCT	NOT APPLICABLE	Inst. Neutron Activ.
19	Ni	Nickel	24	50 PPM	NOT APPLICABLE	Inst. Neutron Activ.
20	Rb	Rubidium	24	10 PPM	NOT APPLICABLE	Inst. Neutron Activ.
21	Sb	Antimony	24	0.2 PPM	NOT APPLICABLE	Inst. Neutron Activ.
22	Sc	Scandium	24	0.5 PPM	NOT APPLICABLE	Inst. Neutron Activ.
23	Se	Selenium	24	10 PPM	NOT APPLICABLE	Inst. Neutron Activ.
24	Sm	Samarium	24	0.1 PPM	NOT APPLICABLE	Inst. Neutron Activ.
25	Sn	Tin	24	200 PPM	NOT APPLICABLE	Inst. Neutron Activ.
26	Ta	Tantalum	24	1 PPM	NOT APPLICABLE	Inst. Neutron Activ.
27	Tb	Terbium	24	1 PPM	NOT APPLICABLE	Inst. Neutron Activ.
28	Te	Tellurium	24	20 PPM	NOT APPLICABLE	Inst. Neutron Activ.
29	Th	Thorium	24	0.5 PPM	NOT APPLICABLE	Inst. Neutron Activ.
30	U	Uranium	24	0.5 PPM	NOT APPLICABLE	Inst. Neutron Activ.
31	W	Tungsten	24	2 PPM	NOT APPLICABLE	Inst. Neutron Activ.
32	Yb	Ytterbium	24	5 PPM	NOT APPLICABLE	Inst. Neutron Activ.
33	Zn	Zinc	24	200 PPM	NOT APPLICABLE	Inst. Neutron Activ.
34	Zr	Zirconium	24	500 PPM	NOT APPLICABLE	Inst. Neutron Activ.
35	Y	Yttrium	24	5 PPM		X-Ray Fluorescence

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Geochemical Lab Report

REPORT: V89-03911.0 (COMPLETE)

REFERENCE INFO: SHIPMENT #89-7

CLIENT: BOUNDARY DRILLING LTD.
PROJECT: 110

SUBMITTED BY: J. PELL
DATE PRINTED: 9-AUG-89

SAMPLE TYPES	NUMBER	SIZE FRACTIONS	NUMBER	SAMPLE PREPARATIONS	NUMBER
R ROCK OR DRILL ROCK	24	2 -150	24	ASSAY PREP	24

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REPORT: V89-02997.4 (COMPLETE)

REFERENCE INFO: SHIPMENT #89-2

CLIENT: BOUNDARY DRILLING LTD.
PROJECT: 110

SUBMITTED BY: J. PELL
DATE PRINTED: 29-JUN-89

ORDER	ELEMENT		NUMBER OF ANALYSES	LOWER DETECTION LIMIT	EXTRACTION	METHOD
1	P2O5	Phosphorous	33	0.01 PCT		Gravimetric

SAMPLE TYPES	NUMBER	SIZE FRACTIONS	NUMBER	SAMPLE PREPARATIONS	NUMBER
R ROCK OR BED ROCK	33	2 -150	33	ASSAY PREP	33

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DATE PRINTED: 29-JUN-89

REPORT: V89-02997.4 | PROJECT: 110 | PAGE 1

SAMPLE NUMBER	ELEMENT UNITS	P2O5 PCT
R2 ABY-89-1A		9.12
R2 ABY-89-1B		26.76
R2 ABY-89-1C		26.66
R2 ABY-89-1D		19.17
R2 ABY-89-1E		15.88
R2 ABY-89-1F		17.84
R2 ABY-89-1G		0.70
R2 CBC-89-22A		6.44
R2 CBC-89-22B		18.52
R2 CBC-89-22C		5.52
R2 CBC-89-22D		16.61
R2 CBC-89-22E		1.11
R2 CBC-89-22F		2.17
R2 CBC-89-607A		20.36
R2 CBC-89-607B		12.77
R2 CBC-89-607C		9.35
R2 CBC-89-607D		0.67
R2 CRW-89-15A		24.51
R2 CRW-89-15B		24.59
R2 CRW-89-15C		11.31
R2 CRW-89-15D		16.78
R2 CRW-89-15E		0.80
R2 FDR-89-1A		1.61
R2 FDR-89-1B		11.94
R2 FDR-89-1C		22.43
R2 FDR-89-1D		18.34
R2 PJC-89-1A		20.41
R2 PJC-89-1B		7.10
R2 PJC-89-1C		0.89
R2 PJC-89-1D		4.75
R2 PJC-89-1E		0.78
R2 WEG-89-1		18.15
R2 WEG-89-2		14.95

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Geochemical Lab Report

DATE PRINTED: 21-JUL-89

REPORT: V89-02997.1 PROJECT: 110 PAGE 1A

SAMPLE NUMBER	ELEMENT UNITS	Au PPB	Ag PPM	As PPM	Ba PPM	Br PPM	Cd PPM	Ce PPM	Co PPM	Cr PPM	Cs PPM	Eu PPM	Fe PCT
R2 CBC-89-22A		<5	<5	10	270	1	<10	180	<10	290	2	7	1.2
R2 CBC-89-22B		<5	<5	17	330	<1	<10	230	<10	180	3	8	<0.5
R2 CBC-89-22C		<5	<5	26	1300	3	<10	140	10	210	6	4	2.8
R2 CBC-89-22D		<5	<5	32	750	2	<10	180	<10	180	4	4	1.6
R2 CBC-89-22E		5	<5	12	1700	<1	<10	21	<10	<50	8	<2	1.7
R2 CBC-89-22F		19	<5	41	580	2	<10	160	25	73	9	2	3.6

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Geochemical Lab Report

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REPORT: V89-02997.1 | PROJECT: 110 | PAGE 1B

SAMPLE NUMBER	ELEMENT UNITS	Hf PPM	Ir PPB	La PPM	Lu PPM	Mo PPM	Na PCT	Ni PPM	Rb PPM	Sb PPM	Sc PPM	Se PPM	Sm PPM
R2 CBC-89-22A		10	<100	140	<0.5	<2	0.22	57	46	0.7	11.0	<10	33.6
R2 CBC-89-22B		8	<100	240	<0.5	16	0.24	<50	33	0.9	27.0	<10	45.8
R2 CBC-89-22C		6	<100	100	<0.5	88	0.52	190	110	1.8	19.0	<10	21.7
R2 CBC-89-22D		5	<100	180	<0.5	34	0.39	120	46	1.3	24.0	<10	32.3
R2 CBC-89-22E		5	<100	14	<0.5	18	1.00	67	97	1.3	7.3	<10	2.5
R2 CBC-89-22F		6	<100	94	<0.5	48	0.33	320	100	3.7	14.0	<10	17.0

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SAMPLE NUMBER	ELEMENT UNITS	Sn PPM	Ta PPM	Tb PPM	Te PPM	Th PPM	U PPM	W PPM	Yb PPM	Zn PPM	Zr PPM	Y PPM
R2 CBC-89-22A		<200	1	7	<20	10.0	26.0	<2	17	<200	<500	430
R2 CBC-89-22B		<200	<1	9	<20	12.0	40.0	<2	32	<200	<500	615
R2 CBC-89-22C		<200	<1	5	<20	10.0	21.0	<2	13	330	<500	195
R2 CBC-89-22D		<200	<1	7	<20	8.7	44.0	<2	21	<200	<500	355
R2 CBC-89-22E		<200	1	<1	<20	14.0	4.2	<2	<5	240	<500	28
R2 CBC-89-22F		<200	1	3	<20	11.0	32.0	<2	8	590	<500	145

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Geochemical Lab Report

REPORT: V89-02997.1 (COMPLETE)

REFERENCE INFO: SHIPMENT #89-2

CLIENT: BOUNDARY DRILLING LTD.
PROJECT: 110

SUBMITTED BY: J. PELL
DATE PRINTED: 21-JUL-89

ORDER	ELEMENT		NUMBER OF ANALYSES	LOWER DETECTION LIMIT	EXTRACTION	METHOD
1	Au	Gold	6	5 PPB	NOT APPLICABLE	Inst. Neutron Activ.
2	Ag	Silver	6	5 PPM	NOT APPLICABLE	Inst. Neutron Activ.
3	As	Arsenic	6	1 PPM	NOT APPLICABLE	Inst. Neutron Activ.
4	Ba	Barium	6	100 PPM	NOT APPLICABLE	Inst. Neutron Activ.
5	Br	Bromine	6	1 PPM	NOT APPLICABLE	Inst. Neutron Activ.
6	Cd	Cadmium	6	10 PPM	NOT APPLICABLE	Inst. Neutron Activ.
7	Ce	Cerium	6	10 PPM	NOT APPLICABLE	Inst. Neutron Activ.
8	Co	Cobalt	6	10 PPM	NOT APPLICABLE	Inst. Neutron Activ.
9	Cr	Chromium	6	50 PPM	NOT APPLICABLE	Inst. Neutron Activ.
10	Cs	Cesium	6	1 PPM	NOT APPLICABLE	Inst. Neutron Activ.
11	Eu	Europium	6	2 PPM	NOT APPLICABLE	Inst. Neutron Activ.
12	Fe	Iron	6	0.5 PCT	NOT APPLICABLE	Inst. Neutron Activ.
13	Hf	Hafnium	6	2 PPM	NOT APPLICABLE	Inst. Neutron Activ.
14	Ir	Iridium	6	100 PPB	NOT APPLICABLE	Inst. Neutron Activ.
15	La	Lanthanum	6	5 PPM	NOT APPLICABLE	Inst. Neutron Activ.
16	Lu	Lutetium	6	0.5 PPM	NOT APPLICABLE	Inst. Neutron Activ.
17	Mo	Molybdenum	6	2 PPM	NOT APPLICABLE	Inst. Neutron Activ.
18	Na	Sodium	6	0.05 PCT	NOT APPLICABLE	Inst. Neutron Activ.
19	Ni	Nickel	6	50 PPM	NOT APPLICABLE	Inst. Neutron Activ.
20	Rb	Rubidium	6	10 PPM	NOT APPLICABLE	Inst. Neutron Activ.
21	Sb	Antimony	6	0.2 PPM	NOT APPLICABLE	Inst. Neutron Activ.
22	Sc	Scandium	6	0.5 PPM	NOT APPLICABLE	Inst. Neutron Activ.
23	Se	Selenium	6	10 PPM	NOT APPLICABLE	Inst. Neutron Activ.
24	Sm	Samarium	6	0.1 PPM	NOT APPLICABLE	Inst. Neutron Activ.
25	Sn	Tin	6	200 PPM	NOT APPLICABLE	Inst. Neutron Activ.
26	Ta	Tantalum	6	1 PPM	NOT APPLICABLE	Inst. Neutron Activ.
27	Tb	Terbium	6	1 PPM	NOT APPLICABLE	Inst. Neutron Activ.
28	Te	Tellurium	6	20 PPM	NOT APPLICABLE	Inst. Neutron Activ.
29	Th	Thorium	6	0.5 PPM	NOT APPLICABLE	Inst. Neutron Activ.
30	U	Uranium	6	0.5 PPM	NOT APPLICABLE	Inst. Neutron Activ.
31	W	Tungsten	6	2 PPM	NOT APPLICABLE	Inst. Neutron Activ.
32	Yb	Ytterbium	6	5 PPM	NOT APPLICABLE	Inst. Neutron Activ.
33	Zn	Zinc	6	200 PPM	NOT APPLICABLE	Inst. Neutron Activ.
34	Zr	Zirconium	6	500 PPM	NOT APPLICABLE	Inst. Neutron Activ.
35	Y	Yttrium	6	5 PPM		X-Ray Fluorescence

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SAMPLE TYPES	NUMBER	SIZE FRACTIONS	NUMBER	SAMPLE PREPARATIONS	NUMBER
R ROCK OR BED ROCK	6	2 -150	6	CRUSH,PULVERIZE -150	6
				BATCH SURCHARGE	6

REPORT COPIES TO: MR. DOUG LEIGHTON
MS. J. PFIT

INVOICE TO: MR. DOUG LEIGHTON

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SAMPLE NUMBER / ELEMENT UNITS	Ag PPM	As PPM	Ba PPM	Be PPM	Bi PPM	Cd PPM	Ce PPM	Co PPM	Cr PPM	Cu PPM	Ga PPM
R2 ABY-89-1A	<0.2	32	869	2.0	<2	<1	74	1	118	36	<2
R2 ABY-89-1B	<0.2	23	932	2.6	<2	<1	70	1	107	59	<2
R2 ABY-89-1C	<0.2	25	824	5.5	<2	<1	95	1	205	45	<2
R2 ABY-89-1D	<0.2	26	948	6.1	<2	<1	68	8	109	78	<2
R2 ABY-89-1E	<0.2	18	1073	2.7	<2	<1	83	1	127	52	<2
R2 ABY-89-1F	<0.2	30	1045	4.8	<2	<1	64	5	138	45	<2
R2 ABY-89-1G	<0.2	37	1545	10.4	10	<1	14	30	26	117	<2
R2 CBC-89-22A	<0.2	21	199	3.5	<2	<1	122	3	174	17	<2
R2 CBC-89-22B	<0.2	38	372	4.5	<2	2	161	3	127	42	<2
R2 CBC-89-22C	0.3	40	1071	10.3	<2	6	98	9	100	103	<2
R2 CBC-89-22D	0.3	39	751	6.0	<2	5	152	5	111	59	<2
R2 CBC-89-22E	0.5	12	651	4.8	3	<1	20	1	12	14	4
R2 CBC-89-22F	0.9	51	548	12.3	7	3	137	28	21	123	<2
R2 CBC-89-607A	<0.2	31	41	0.8	<2	<1	48	<1	100	10	<2
R2 CBC-89-607B	0.2	27	38	1.0	<2	<1	49	<1	112	9	<2
R2 CBC-89-607C	<0.2	25	27	0.6	<2	<1	42	<1	84	8	<2
R2 CBC-89-607D	<0.2	85	17	1.2	11	<1	5	2	100	4	<2
R2 CRW-89-15A	<0.2	30	329	7.5	<2	2	87	2	105	59	<2
R2 CRW-89-15B	<0.2	41	442	2.8	<2	1	196	1	123	38	<2
R2 CRW-89-15C	<0.2	19	306	1.4	<2	3	78	3	92	43	<2
R2 CRW-89-15D	<0.2	43	529	<0.5	<2	<1	104	3	40	35	<2
R2 CRW-89-15E	<0.2	26	217	<0.5	<2	3	18	6	11	58	<2
R2 FDR-89-1A	<0.2	30	171	<0.5	7	<1	29	3	61	9	<2
R2 FDR-89-1B	<0.2	12	297	1.3	<2	4	146	2	117	30	<2
R2 FDR-89-1C	<0.2	16	568	2.2	<2	2	75	2	139	67	<2
R2 FDR-89-1D	<0.2	25	1516	0.9	<2	2	185	<1	106	34	<2
R2 FOX-89-1	13.2	659	64	<0.5	16	51	7	2	19	35	3
R2 FOX-89-2	10.3	358	88	1.6	15	62	13	4	21	25	6
R2 FOX-89-3A	0.5	331	212	<0.5	67	<1	<5	<1	<1	294	<2
R2 FOX-89-3B	0.2	48	42	11.8	<2	<1	17	<1	2	31	<2
R2 FOX-89-3C	<0.2	49	79	7.0	<2	<1	10	<1	<1	36	<2
R2 FOX-89-4	29.4	1298	233	<0.5	27	599	33	<1	<1	371	33
R2 FOX-89-5	2.9	404	450	<0.5	31	83	6	<1	<1	64	<2
R2 FOX-89-6	>50.0	1377	252	<0.5	17	12	<5	3	26	248	<2
R2 FOX-89-7A	0.4	<5	630	<0.5	7	2	33	4	16	52	6
R2 FOX-89-7B	0.5	9	966	<0.5	<2	1	35	4	35	39	<2
R2 FOX-89-7C	<0.2	<5	190	<0.5	17	<1	53	24	20	81	12
R2 FOX-89-7D	<0.2	<5	165	<0.5	3	<1	36	4	51	9	4
R2 FOX-89-8A	1.6	24	153	<0.5	3	<1	14	<1	74	25	<2
R2 FOX-89-8B	<0.2	<5	121	0.9	4	<1	63	6	29	25	4

CABN
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SAMPLE NUMBER	ELEMENT UNITS	La PPM	Li PPM	Mo PPM	Nb PPM	Ni PPM	Pb PPM	Rb PPM	Sb PPM	Sc PPM	Sn PPM	Sr PPM
R2 ABY-89-1A		122	6	4	21	20	32	<20	18	12	<20	350
R2 ABY-89-1B		139	8	5	33	26	50	<20	26	16	<20	1110
R2 ABY-89-1C		186	12	24	33	50	52	<20	27	24	<20	997
R2 ABY-89-1D		123	20	15	27	63	49	<20	29	17	<20	794
R2 ABY-89-1E		147	7	6	23	30	37	<20	21	15	<20	609
R2 ABY-89-1F		123	12	19	33	43	52	<20	29	18	<20	603
R2 ABY-89-1G		3	7	25	9	81	38	<20	21	5	<20	69
R2 CBC-89-22A		142	8	10	15	48	26	<20	15	9	<20	197
R2 CBC-89-22B		242	25	36	29	64	50	<20	29	23	<20	571
R2 CBC-89-22C		103	49	118	17	183	39	<20	25	15	<20	396
R2 CBC-89-22D		175	37	52	24	94	41	<20	26	21	<20	675
R2 CBC-89-22E		12	6	24	4	39	40	<20	14	3	<20	332
R2 CBC-89-22F		88	16	66	9	260	41	<20	21	9	<20	247
R2 CBC-89-6017A		132	4	2	31	25	43	<20	22	1	<20	211
R2 CBC-89-6017B		128	4	1	25	22	33	<20	16	2	<20	150
R2 CBC-89-6017C		108	4	2	26	22	34	<20	18	1	<20	129
R2 CBC-89-6017D		6	3	6	20	23	45	<20	43	2	<20	47
R2 CRW-89-15A		134	15	13	33	46	54	<20	32	12	<20	935
R2 CRW-89-15B		306	14	18	36	60	56	<20	31	30	<20	1216
R2 CRW-89-15C		98	25	10	24	61	40	<20	28	13	<20	1107
R2 CRW-89-15D		124	10	36	31	225	42	<20	26	11	<20	979
R2 CRW-89-15E		10	8	77	23	119	39	<20	18	4	<20	1538
R2 FDR-89-1A		19	8	6	10	28	26	<20	21	3	<20	63
R2 FDR-89-1B		203	17	13	17	46	29	<20	16	15	<20	363
R2 FDR-89-1C		139	24	28	27	60	42	<20	27	18	<20	1008
R2 FDR-89-1D		310	16	11	33	47	43	34	25	35	<20	1018
R2 FOX-89-1		<1	4	<1	2	6	4261	<20	128	1	<20	44
R2 FOX-89-2		4	5	<1	4	8	4424	<20	96	1	<20	70
R2 FOX-89-3A		<1	10	<1	75	6	199	<20	156	<1	34	275
R2 FOX-89-3B		7	4	<1	21	1	57	<20	18	<1	<20	442
R2 FOX-89-3C		4	8	<1	31	1	67	<20	30	2	<20	687
R2 FOX-89-4		<1	9	<1	74	17	>10000	<20	982	<1	<20	236
R2 FOX-89-5		<1	8	<1	71	14	807	<20	193	<1	26	144
R2 FOX-89-6		<1	<1	41	<1	8	>10000	38	400	<1	<20	63
R2 FOX-89-7A		21	12	1	4	3	127	<20	15	4	<20	119
R2 FOX-89-7B		18	12	5	7	3	167	<20	13	2	<20	80
R2 FOX-89-7C		23	31	<1	5	15	39	21	28	12	<20	111
R2 FOX-89-7D		17	7	<1	3	4	37	<20	7	1	<20	65
R2 FOX-89-8A		8	1	15	1	2	290	<20	<5	<1	<20	33
R2 FOX-89-8B		32	19	<1	6	11	30	<20	11	5	<20	390

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SAMPLE NUMBER	ELEMENT UNITS	Ta PPM	Te PPM	U PPM	W PPM	Y PPM	Zn PPM	Zr PPM
R2 ABY-89-1A		<10	13	23	<10	294	45	5
R2 ABY-89-1B		<10	37	35	<10	291	71	18
R2 ABY-89-1C		<10	33	48	<10	403	100	17
R2 ABY-89-1D		<10	25	63	<10	284	137	7
R2 ABY-89-1F		<10	21	31	<10	339	89	7
R2 ABY-89-1F		<10	24	50	<10	289	78	8
R2 ABY-89-1G		<10	<10	40	<10	15	175	6
R2 CBC-89-22A		<10	<10	31	<10	292	46	6
R2 CBC-89-22B		<10	25	75	<10	495	157	7
R2 CBC-89-22C		<10	<10	91	<10	186	348	10
R2 CBC-89-22D		<10	20	92	<10	296	309	11
R2 CBC-89-22E		<10	<10	18	<10	15	199	3
R2 CBC-89-22F		<10	<10	101	<10	113	571	7
R2 CBC-89-607A		<10	29	65	<10	187	20	11
R2 CBC-89-607B		<10	18	60	<10	185	19	9
R2 CBC-89-607C		<10	14	43	<10	153	21	6
R2 CBC-89-607D		<10	20	40	<10	10	48	4
R2 CRW-89-15A		<10	33	31	<10	288	829	10
R2 CRW-89-15B		<10	34	56	<10	625	113	8
R2 CRW-89-15C		<10	14	27	<10	167	509	3
R2 CRW-89-15D		<10	22	24	<10	208	152	12
R2 CRW-89-15E		<10	<10	61	<10	19	253	8
R2 FOR-89-1A		<10	<10	20	<10	24	107	3
R2 FOR-89-1B		<10	10	42	<10	413	262	5
R2 FOR-89-1C		<10	26	88	<10	296	157	12
R2 FOR-89-1D		<10	22	60	<10	632	132	8
R2 FOX-89-1		<10	<10	4	57	6	17552	7
R2 FOX-89-2		<10	<10	4	45	5	17243	6
R2 FOX-89-3A		<10	75	19	<10	15	435	4
R2 FOX-89-3B		<10	<10	43	<10	19	69	13
R2 FOX-89-3C		<10	10	77	<10	17	58	13
R2 FOX-89-4		<10	<10	13	489	32	>20000	<1
R2 FOX-89-5		<10	41	49	57	15	>20000	7
R2 FOX-89-6		<10	<10	89	29	2	4673	18
R2 FOX-89-7A		<10	<10	55	<10	6	568	8
R2 FOX-89-7B		<10	<10	45	<10	8	480	9
R2 FOX-89-7C		<10	<10	228	<10	16	133	1
R2 FOX-89-7D		<10	<10	59	<10	7	151	6
R2 FOX-89-8A		<10	<10	49	<10	<1	42	4
R2 FOX-89-8B		<10	<10	61	<10	10	70	17

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PROJECT: 110

SUBMITTED BY: J. PELI
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ORDER	ELEMENT		NUMBER OF ANALYSES	LOWER DETECTION LIMIT	EXTRACTION	METHOD
1	Ag	Silver	51	0.2 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
2	As	Arsenic	51	5 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
3	Ba	Barium	51	1 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
4	Be	Beryllium	51	0.5 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
5	Bi	Bismuth	51	2 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
6	Cd	Cadmium	51	1 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
7	Ce	Cerium	51	5 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
8	Co	Cobalt	51	1 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
9	Cr	Chromium	51	1 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
10	Cu	Copper	51	1 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
11	Ga	Gallium	51	2 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
12	La	Lanthanum	51	1 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
13	Li	Lithium	51	1 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
14	Mo	Molybdenum	51	1 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
15	Nb	Niobium	51	1 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
16	Ni	Nickel	51	1 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
17	Pb	Lead	51	2 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
18	Rb	Rubidium	51	20 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
19	Sb	Antimony	51	5 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
20	Sc	Scandium	51	1 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
21	Sn	Tin	51	20 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
22	Sr	Strontium	51	1 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
23	Ta	Tantalum	51	10 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
24	Te	Tellurium	51	10 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
25	V	Vanadium	51	1 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
26	W	Tungsten	51	10 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
27	Y	Yttrium	51	1 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
28	Zn	Zinc	51	1 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma
29	Zr	Zirconium	51	1 PPM	HNO3-HCL HOT EXTR	Ind. Coupled Plasma

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SAMPLE TYPES	NUMBER	SIZE FRACTIONS	NUMBER	SAMPLE PREPARATIONS	NUMBER
R ROCK OR BED ROCK	51	2 -150	51	CRUSH,PULVERIZE -150	18
				ASSAY PREP	33
				FAX CHARGE	1

REMARKS: BE RESULTS WILL BE ELEVATED DUE TO FE AND CA
INTERFERENCE.

ASSAY OF HIGH AG, PB, AND ZN TO FOLLOW
ON V89-02997.6

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MS. J. PELL

INVOICE TO: MR. DOUG LEIGHTON

89-6 #1 COMP.

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Certificate of Analysis

DATE PRINTED: 26-JUL-89

REPORT: V89-03859.4 | PROJECT: 110 | PAGE 1

SAMPLE NUMBER	ELEMENT UNITS	P2O5 PCT
R2 CBC-89-32		29.44
R2 CBC-89-TR-1A		22.21
R2 CBC-89-TR-611A		23.38
R2 CBC-89-TR-611B		17.86
R2 TR89-6-1A		14.47
R2 TR89-6-1B		15.27
R2 TR89-6-1C		29.20
R2 TR89-6-1D		10.97
R2 TR89-6-1E		25.69
R2 TR89-6-2A		14.23
R2 TR89-6-2B		28.87
R2 TR89-6-2C		5.04
R2 TR89-6-2D		19.95
R2 TR89-7-1A		9.35
R2 TR89-7-1B		15.42
R2 TR89-7-1C		12.87
R2 TR89-7-1D		19.48
R2 TR89-8-1A		18.52
R2 TR89-8-1B		28.33
R2 TR89-9-1A		15.57
R2 TR89-9-1B		28.98
R2 TR89-9-1C		24.67
R2 TR89-9-1D		10.26
R2 TR89-9-1E		15.97
R2 TR89-9-G		13.39
R2 TR89-10-1A		14.89
R2 TR89-10-1B		27.01
R2 TR89-10-1C		8.03
R2 TR89-10-1D		20.74

CABIN CK

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Certificate of Analysis

REPORT: V89-03859.4 (COMPLETE)

REFERENCE INFO: SHIPMENT #89-6

CLIENT: BOUNDARY DRILLING LTD.
PROJECT: 110

SUBMITTED BY: J. PELL
DATE PRINTED: 26-JUL-89

ORDER	ELEMENT		NUMBER OF ANALYSES	LOWER DETECTION LIMIT	EXTRACTION	METHOD
1	P205	Phosphorous	29	0.01 PCT		Gravimetric

SAMPLE TYPES	NUMBER	SIZE FRACTIONS	NUMBER	SAMPLE PREPARATIONS	NUMBER
R ROCK OR BED ROCK	29	2 -150	29	ASSAY PREP	29

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A DIVISION OF INCHCAPE INSPECTION & TESTING SERVICES

Geochemical Lab Report

REPORT: V89-03859.0 (PARTIAL)

REFERENCE INFO: SHIPMENT #89-6

CLIENT: BOUNDARY DRILLING LTD.
PROJECT: 110

SUBMITTED BY: J. PELL
DATE PRINTED: 2-AUG-89

ORDER	ELEMENT		NUMBER OF ANALYSES	LOWER DETECTION LIMIT	EXTRACTION	METHOD
1	Y	Yttrium	29	5 PPM		X-Ray Fluorescence

RESULTS TO FOLLOW FOR: Ag As Au Ba Br Cd Ce Co Cr Cs Eu Fe Hf Ir La Lu Mo Na Ni Rb Sb Sc Se Sm Sn Ta Tb Te Th U W Yb Zn Zr

SAMPLE TYPES	NUMBER	SIZE FRACTIONS	NUMBER	SAMPLE PREPARATIONS	NUMBER
R ROCK OR BED ROCK	29	2 -150	29	ASSAY PREP	29

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SAMPLE NUMBER	ELEMENT UNITS	Y PPM
R2 CRC-89-3?		950
R2 CRC-89-1R-1A		675
R2 CRC-89-1R-611A		670
R2 CRC-89-1R-611B		350
R2 TR89-6-1A		645
R2 TR89-6-1B		320
R2 TR89-6-1C		865
R2 TR89-6-1D		385
R2 TR89-6-1F		430
R2 TR89-6-2A		340
R2 TR89-6-2B		770
R2 TR89-6-2C		175
R2 TR89-6-2D		350
R2 TR89-7-1A		300
R2 TR89-7-1B		630
R2 TR89-7-1C		320
R2 TR89-7-1D		600
R2 TR89-8-1A		510
R2 TR89-8-1B		905
R2 TR89-9-1A		420
R2 TR89-9-1B		890
R2 TR89-9-1C		905
R2 TR89-9-1D		210
R2 TR89-9-1E		830
R2 TR89-9-G		1300
R2 TR89-10-1A		510
R2 TR89-10-1B		900
R2 TR89-10-1C		210
R2 TR89-10-1D		390

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Geochemical Lab Report

REPORT: V89-01859.0

DATE PRINTED: 8-AUG-89

PROJECT: 110 PAGE 1A

SAMPLE NUMBER / ELEMENT UNITS	Au PPB	Ag PPM	As PPM	Ba PPM	Br PPM	Cd PPM	Ce PPM	Co PPM	Cr PPM	Cs PPM	Eu PPM	Fe PCT
R2 CBC-89-32	<5	<5	16	<1000	<1	<10	150	<10	200	2	10	<0.5
R2 CBC-89-1R-1A	18	<5	17	1300	2	<10	130	<10	120	2	6	1.1
R2 CBC-89-1R-611A	<5	<5	18	120	<1	<10	130	<10	190	3	8	1.2
R2 CBC-89-1R-611B	<5	<5	19	<210	<1	<10	160	<10	140	3	4	1.3
R2 TR89-6-1A	<5	<5	23	140	2	<10	110	<10	210	3	6	1.6
R2 TR89-6-1B	<5	<5	24	180	2	<10	78	<10	160	3	3	1.6
R2 TR89-6-1C	<5	<5	19	<220	1	<10	140	<10	200	2	7	0.6
R2 TR89-6-1D	7	<5	21	140	1	<10	100	<10	160	5	5	1.8
R2 TR89-6-1E	11	<5	65	<280	3	<10	130	<10	120	2	4	2.4
R2 TR89-6-2A	<5	<5	21	120	<1	<10	82	<10	140	3	2	1.2
R2 TR89-6-2B	<5	<5	21	<230	<1	<10	130	<10	190	<1	7	0.9
R2 TR89-6-2C	7	<5	22	310	1	<10	87	12	210	6	3	2.2
R2 TR89-6-2D	9	<5	56	<270	3	<10	150	<10	140	2	4	2.3
R2 TR89-7-1A	<5	<5	43	<180	5	<10	90	<10	160	2	5	2.7
R2 TR89-7-1B	<5	<5	21	<100	2	<10	120	<10	180	3	8	0.9
R2 TR89-7-1C	<5	<5	20	<100	2	<10	110	<10	180	4	3	2.1
R2 TR89-7-1D	<5	<5	20	<100	2	<10	130	<10	180	4	5	1.7
R2 TR89-8-1A	<5	<5	25	<250	<1	<10	55	<10	210	3	3	1.3
R2 TR89-8-1B	<5	<5	18	<100	<1	<10	150	<10	150	<1	10	<0.5
R2 TR89-9-1A	<5	<5	33	<100	2	<10	86	<10	160	3	3	1.4
R2 TR89-9-1B	13	<5	27	<100	<1	<10	150	<10	210	1	9	<0.5
R2 TR89-9-1C	<5	<5	21	<220	2	<10	160	<10	250	3	7	0.6
R2 TR89-9-1D	<5	<5	28	730	2	<10	120	<10	190	5	<2	2.6
R2 TR89-9-1F	21	<5	195	<700	6	<10	340	26	230	2	14	5.6
R2 TR89-9-G	55	<11	315	<1600	5	17	830	<10	380	2	21	10.0
R2 TR89-10-1A	<5	<5	19	220	<1	<10	120	<10	210	2	6	0.6
R2 TR89-10-1B	<5	<5	20	<100	1	<10	170	<10	200	2	12	<0.5
R2 TR89-10-1C	<5	<5	15	260	2	13	91	<10	150	5	2	1.5
R2 TR89-10-1D	9	<5	46	<100	3	<10	150	<10	150	7	3	2.1

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Geochemical Lab Report

DATE PRINTED: 8-AUG-89

REPORT: V89-03859.0 | PROJECT: 110 | PAGE 1B

SAMPLE NUMBER / ELEMENT / UNITS	Hf PPM	Ir PPB	La PPM	Lu PPM	Mo PPM	Na PCT	Ni PPM	Rb PPM	Sb PPM	Sc PPM	Se PPM	Sm PPM
R2 CBC-89-32	5	<100	360	<1.3	<5	0.12	<50	34	2.4	31.0	<10	79.9
R2 CBC-89-1R-1A	5	<100	270	<1.1	19	0.26	100	36	2.8	28.0	<10	53.4
R2 CBC-89-1R-611A	9	<100	280	<1.2	18	0.19	100	47	1.3	30.0	<10	52.1
R2 CBC-89-1R-611B	6	<100	160	<0.5	56	0.30	250	43	1.3	23.0	<10	27.1
R2 TR89-6-1A	11	<100	230	<0.5	<2	0.34	<50	57	1.0	17.0	<10	47.1
R2 TR89-6-1B	10	<100	120	<0.5	30	0.35	63	56	1.5	19.0	<10	18.0
R2 TR89-6-1C	5	<100	320	<1.4	6	0.11	<50	44	1.6	33.0	<10	57.8
R2 TR89-6-1D	7	<100	140	<0.5	73	0.41	280	110	1.6	22.0	<10	29.3
R2 TR89-6-1F	4	<100	180	<0.5	61	0.22	530	34	2.6	22.0	<10	32.5
R2 TR89-6-2A	7	<100	120	<0.5	33	0.35	58	84	1.7	17.0	<10	18.0
R2 TR89-6-2B	5	<100	270	<1.4	<4	0.16	<50	21	1.2	30.0	<10	48.1
R2 TR89-6-2C	7	<100	81	<0.5	79	0.55	210	97	2.0	20.0	<10	17.0
R2 TR89-6-2D	4	<100	170	<0.5	83	0.31	460	57	3.0	24.0	<10	28.9
R2 TR89-7-1A	9	<100	110	<0.5	4	0.39	68	52	1.1	12.0	<10	19.0
R2 TR89-7-1B	11	<100	230	<0.5	4	0.33	<50	52	1.2	20.0	<10	42.8
R2 TR89-7-1C	9	<100	110	<0.5	22	0.38	75	69	1.6	18.0	<10	17.0
R2 TR89-7-1D	6	<100	200	<0.5	35	0.28	100	47	1.7	24.0	<10	36.5
R2 TR89-8-1A	8	<100	160	<0.5	29	0.26	110	55	2.1	21.0	<10	24.4
R2 TR89-8-1B	5	<100	310	<1.3	6	0.15	<50	36	1.7	30.0	<10	62.9
R2 TR89-9-1A	7	<100	130	<0.5	34	0.22	71	62	2.6	13.0	<10	23.1
R2 TR89-9-1B	5	<100	330	1.0	13	0.13	<50	24	3.1	32.0	<10	67.7
R2 TR89-9-1C	5	<100	340	<1.5	17	0.24	<50	53	2.1	34.0	<10	66.7
R2 TR89-9-1D	7	<100	110	<0.5	110	0.44	200	86	2.5	21.0	<10	19.0
R2 TR89-9-1F	5	<100	390	<3.0	357	0.18	250	44	34.8	32.0	14	79.4
R2 TR89-9-6	3	<100	691	<1.7	824	<0.83	490	50	67.2	50.9	21	150.0
R2 TR89-10-1A	10	<100	170	<0.5	8	0.27	<50	56	1.4	19.0	<10	29.9
R2 TR89-10-1B	5	<100	330	1.1	<4	0.13	<50	27	1.3	34.0	<10	66.4
R2 TR89-10-1C	4	<100	98	<0.5	70	0.34	150	62	1.7	17.0	<10	17.0
R2 TR89-10-1D	6	<100	170	<0.5	37	0.26	270	48	1.9	24.0	<10	29.8

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Geochemical Lab Report

REPORT: V89-03859.0

DATE PRINTED: 8-AUG-89

PROJECT: 110 PAGE 1C

SAMPLE NUMBER	ELEMENT UNITS	Sn PPM	Ta PPM	Tb PPM	Te PPM	Th PPM	U PPM	W PPM	Yb PPM	Zn PPM	Zr PPM	Y PPM
R2 CBC-89-32		<200	<1	19	<20	15.0	59.3	<2	47	290	<500	950
R2 CBC-89-1R-1A		<200	<1	12	<20	11.0	55.9	<2	38	340	<500	675
R2 CBC-89-1R-611A		<200	<1	12	<20	11.0	67.9	<2	41	<200	<500	670
R2 CBC-89-1R-611B		<200	1	6 •	<20	7.4	63.0	<2	21	520	670	350
R2 TR89-6-1A		<200	<1	11	<20	12.0	46.0	<2	34	<200	1100	645
R2 TR89-6-1B		<200	<1	4	<20	11.0	34.0	<2	18	210	<500	320
R2 TR89-6-1C		<200	<1	13	<20	10.0	66.8	<2	45	<200	<500	865
R2 TR89-6-1D		<200	2	7	<20	10.0	36.0	<2	22	350	620	385
R2 TR89-6-1E		<200	<1	7	<20	7.4	83.9	<2	24	340	<500	430
R2 TR89-6-2A		<200	<1	4	<20	12.0	32.0	<2	17	300	840	340
R2 TR89-6-2B		<200	<1	11	<20	8.0	70.6	<2	44	<200	<500	770
R2 TR89-6-2C		<200	1	4	<20	10.0	24.0	<2	11	370	700	175
R2 TR89-6-2D		<200	<1	6	<20	7.9	82.7	<2	21	530	<500	350
R2 TR89-7-1A		<200	<1	4	<20	7.6	59.7	<2	15	<200	<500	300
R2 TR89-7-1B		<200	<1	10	<20	11.0	44.0	<2	36	<200	890	630
R2 TR89-7-1C		<200	<1	4	<20	13.0	27.0	<2	17	250	<500	320
R2 TR89-7-1D		<200	<1	9	<20	9.1	50.9	2	30	<200	730	600
R2 TR89-8-1A		<200	<1	6	<20	7.4	77.1	<2	25	<200	<500	510
R2 TR89-8-1B		<200	<1	14	<20	11.0	56.8	<2	44	<200	<500	905
R2 TR89-9-1A		<200	<1	5	<20	9.0	50.0	<2	18	220	570	420
R2 TR89-9-1B		<200	<1	15	<20	12.0	56.2	<2	48	<200	860	890
R2 TR89-9-1C		<200	<1	14	<20	12.0	65.1	<2	48	310	<500	905
R2 TR89-9-1D		<200	<1	4	<20	8.8	39.0	<2	15	540	<500	210
R2 TR89-9-1E		<200	<1	14	<49	14.0	211.0	<2	36	1100	<1100	830
R2 TR89-9-G		<200	<1	28	<20	21.0	433.0	<16	56	1300	860	1300
R2 TR89-10-1A		<200	<1	7	<20	12.0	29.0	<2	25	<200	<500	510
R2 TR89-10-1B		<200	<1	15	<20	11.0	58.9	<2	52	<200	<500	900
R2 TR89-10-1C		<200	<1	4	<20	6.4	28.0	<2	13	300	<500	210
R2 TR89-10-1D		<200	<1	6	<20	7.4	54.5	<2	24	570	630	390

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Geochemical Lab Report

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PROJECT: 110

SUBMITTED BY: J. PELL
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ORDER		ELEMENT	NUMBER OF ANALYSES	LOWER DETECTION LIMIT	EXTRACTION	METHOD
1	Au	Gold	29	5 PPB	NOT APPLICABLE	Inst. Neutron Activ.
2	Ag	Silver	29	5 PPM	NOT APPLICABLE	Inst. Neutron Activ.
3	As	Arsenic	29	1 PPM	NOT APPLICABLE	Inst. Neutron Activ.
4	Ba	Barium	29	100 PPM	NOT APPLICABLE	Inst. Neutron Activ.
5	Br	Bromine	29	1 PPM	NOT APPLICABLE	Inst. Neutron Activ.
6	Cd	Cadmium	29	10 PPM	NOT APPLICABLE	Inst. Neutron Activ.
7	Ce	Cerium	29	10 PPM	NOT APPLICABLE	Inst. Neutron Activ.
8	Co	Cobalt	29	10 PPM	NOT APPLICABLE	Inst. Neutron Activ.
9	Cr	Chromium	29	50 PPM	NOT APPLICABLE	Inst. Neutron Activ.
10	Cs	Cesium	29	1 PPM	NOT APPLICABLE	Inst. Neutron Activ.
11	Eu	Europium	29	2 PPM	NOT APPLICABLE	Inst. Neutron Activ.
12	Fe	Iron	29	0.5 PCT	NOT APPLICABLE	Inst. Neutron Activ.
13	Hf	Hafnium	29	2 PPM	NOT APPLICABLE	Inst. Neutron Activ.
14	Ir	Iridium	29	100 PPB	NOT APPLICABLE	Inst. Neutron Activ.
15	La	Lanthanum	29	5 PPM	NOT APPLICABLE	Inst. Neutron Activ.
16	Lu	Lutetium	29	0.5 PPM	NOT APPLICABLE	Inst. Neutron Activ.
17	Mo	Molybdenum	29	2 PPM	NOT APPLICABLE	Inst. Neutron Activ.
18	Na	Sodium	29	0.05 PCT	NOT APPLICABLE	Inst. Neutron Activ.
19	Ni	Nickel	29	50 PPM	NOT APPLICABLE	Inst. Neutron Activ.
20	Rb	Rubidium	29	10 PPM	NOT APPLICABLE	Inst. Neutron Activ.
21	Sb	Antimony	29	0.2 PPM	NOT APPLICABLE	Inst. Neutron Activ.
22	Sc	Scandium	29	0.5 PPM	NOT APPLICABLE	Inst. Neutron Activ.
23	Se	Selenium	29	10 PPM	NOT APPLICABLE	Inst. Neutron Activ.
24	Sm	Samarium	29	0.1 PPM	NOT APPLICABLE	Inst. Neutron Activ.
25	Sn	Tin	29	200 PPM	NOT APPLICABLE	Inst. Neutron Activ.
26	Ta	Tantalum	29	1 PPM	NOT APPLICABLE	Inst. Neutron Activ.
27	Tb	Terbium	29	1 PPM	NOT APPLICABLE	Inst. Neutron Activ.
28	Te	Tellurium	29	20 PPM	NOT APPLICABLE	Inst. Neutron Activ.
29	Th	Thorium	29	0.5 PPM	NOT APPLICABLE	Inst. Neutron Activ.
30	U	Uranium	29	0.5 PPM	NOT APPLICABLE	Inst. Neutron Activ.
31	W	Tungsten	29	2 PPM	NOT APPLICABLE	Inst. Neutron Activ.
32	Yb	Ytterbium	29	5 PPM	NOT APPLICABLE	Inst. Neutron Activ.
33	Zn	Zinc	29	2000 PPM	NOT APPLICABLE	Inst. Neutron Activ.
34	Zr	Zirconium	29	500 PPM	NOT APPLICABLE	Inst. Neutron Activ.
35	Y	Yttrium	29	5 PPM		X-Ray Fluorescence

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SAMPLE TYPES	NUMBER	SIZE FRACTIONS	NUMBER	SAMPLE PREPARATIONS	NUMBER
R ROCK OR DRD ROCK	29	2 -150	29	ASSAY PREP	29

REMARKS: ELEVATED DETECTION LIMITS DUE TO HIGH
URANIUM CONTENT.

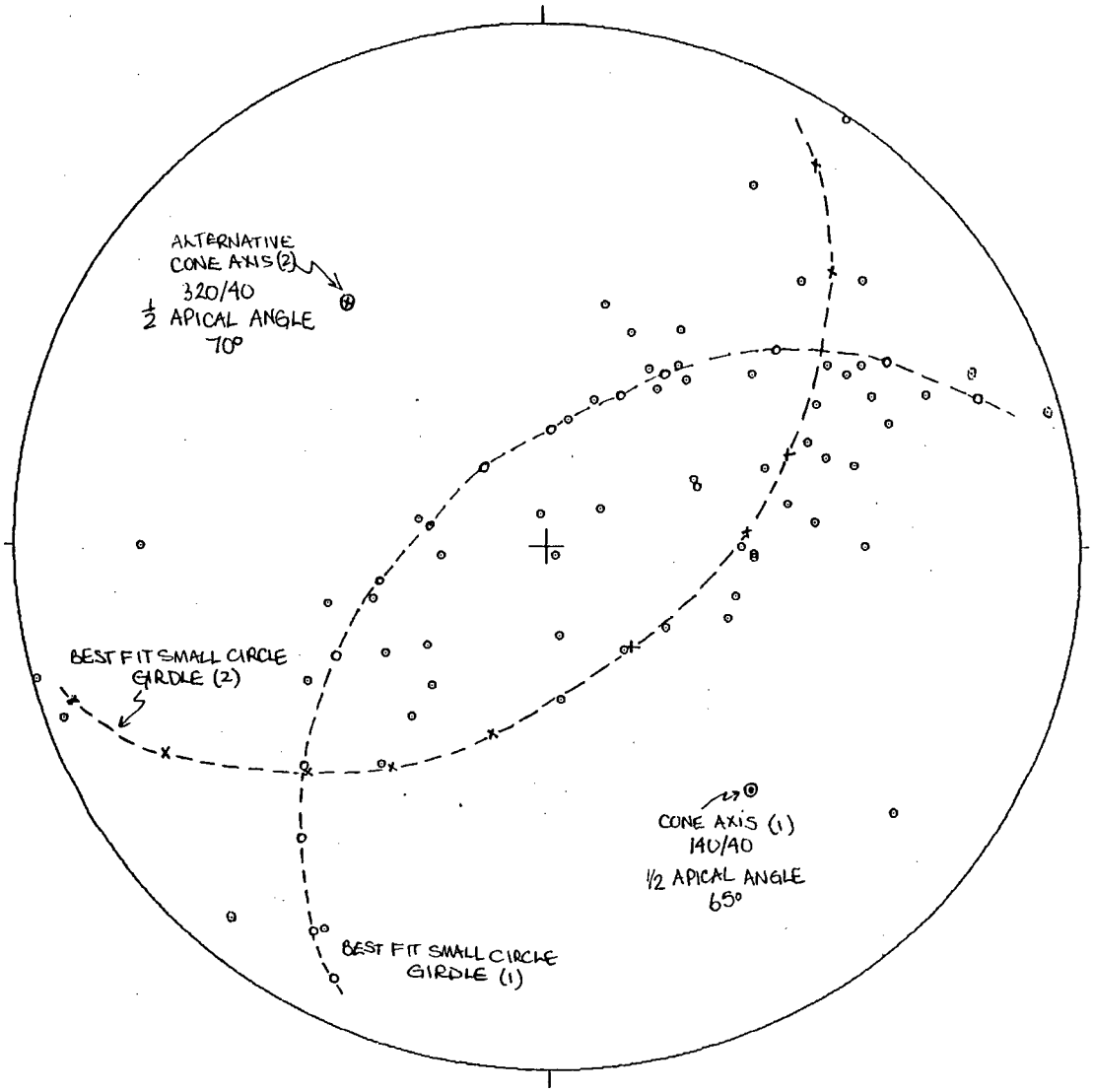
REPORT COPIES TO: MR. DOUG LEIGHTON
MS. JENNIFER PELL

INVOICE TO: MR. DOUG LEIGHTON

APPENDIX 2

STRUCTURAL ANALYSIS

CABIN CREEK BEDDING
North



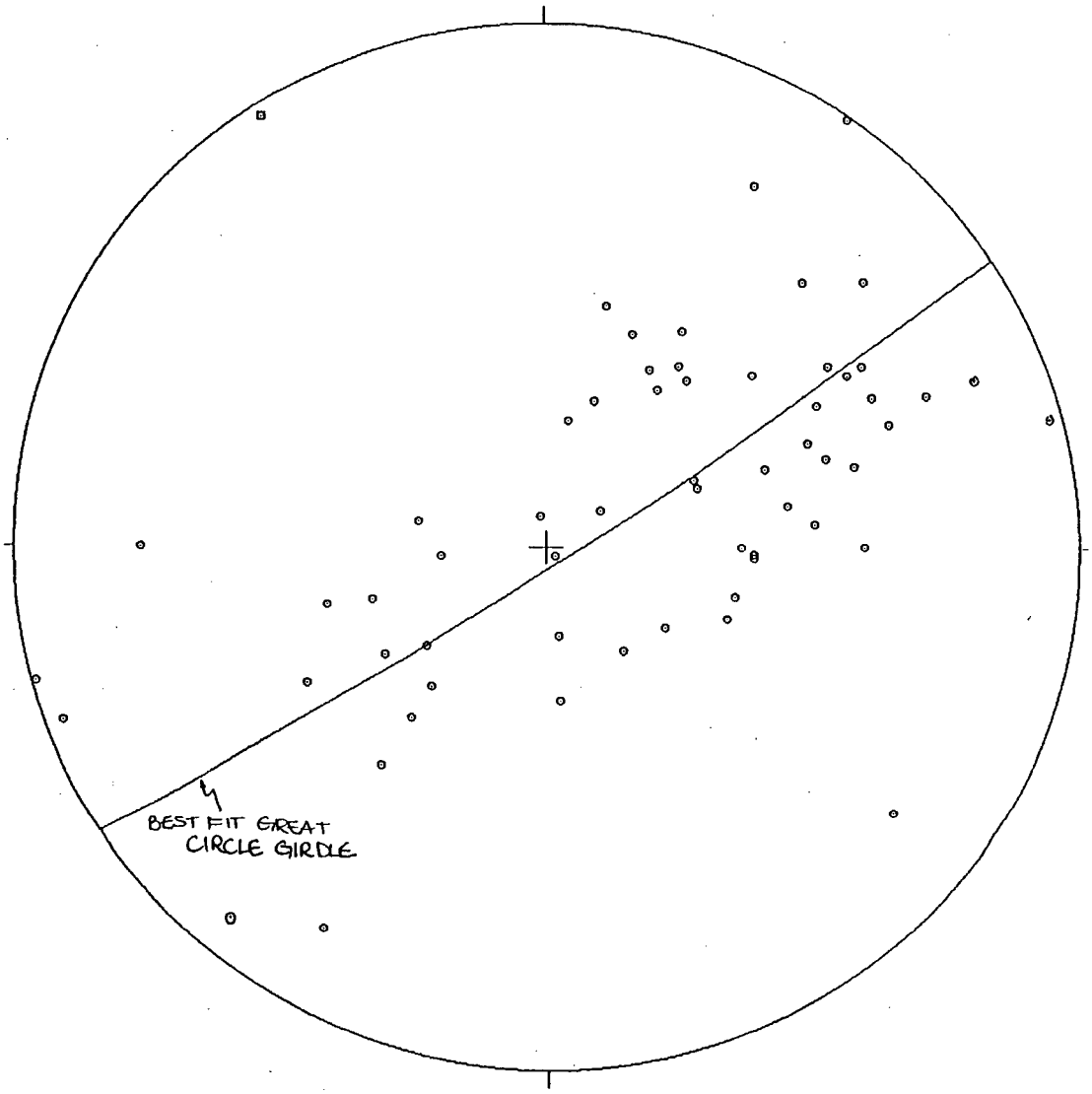
EQUAL AREA PROJECTION

CABIN CREEK BEDDING

	Symbol
57 Points	O
57 Points Total	

SPLOT by Darton Software

CABIN CREEK BEDDING
North



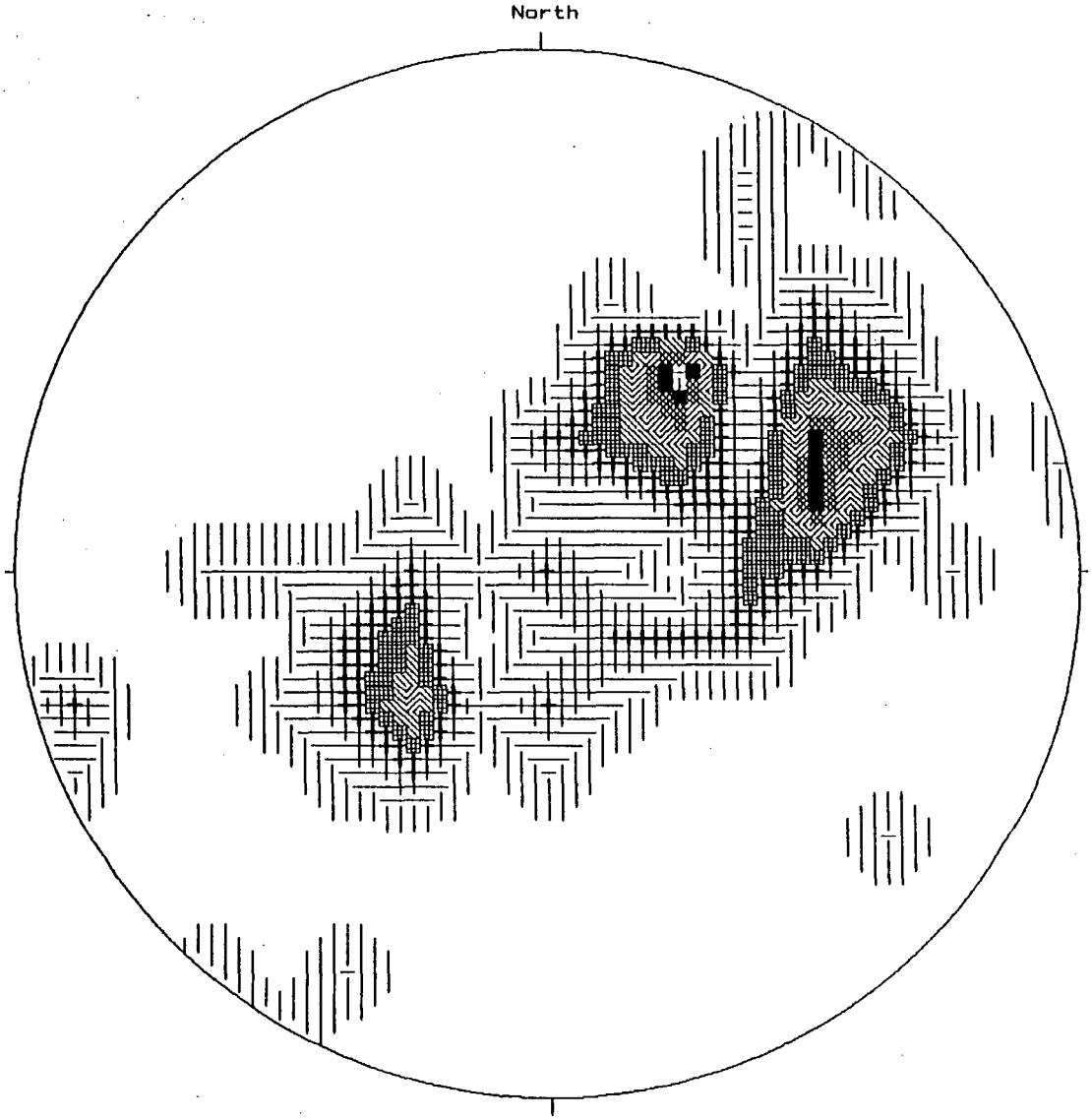
EQUAL AREA PROJECTION

CABIN CREEK BEDDING

SPLOT by Darton Software

	Symbol
57 Points	O
57 Points Total	

CABIN CREEK BEDDING



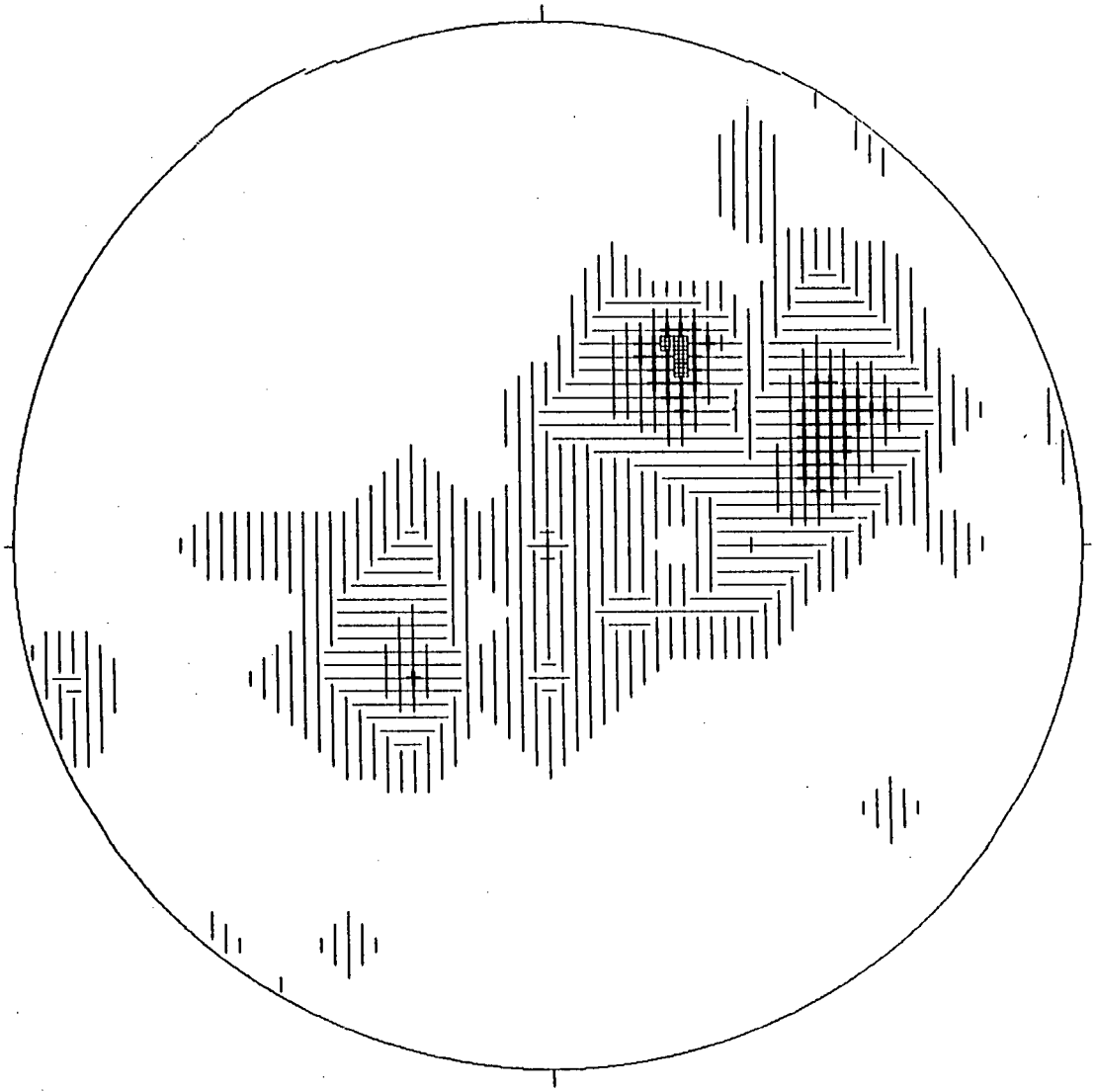
57 Points

LEGEND (for first 9 intervals)

1- 1	6- 6	Contour Method:	Schmidt (1925)
2- 2	7- 7	Counting Area:	0.010
3- 3	8- 8	Contour Interval:	1% Points per 1% Area
4- 4	9- 9	Maximum Contour:	11
5- 5			

NOTE: Contour Patterns Repeat Every 9 Intervals

CABIN CREEK BEDDING
North



57 Points

LEGEND (for first 9 intervals)

1- 2	11- 12	Contour Method:	Schmidt (1925)
3- 4	13- 14	Counting Area:	0.010
5- 6	15- 16	Contour Interval:	2% Points per 1% Area
7- 8	17- 18	Maximum Contour:	10
9- 10			

NOTE: Contour Patterns Repeat Every 9 Intervals

SPLOT Statistical Summary

DataType : PLANAR
Number of Data Pairs : 57

Test of Uniformity :
The data differ significantly from uniform at the 95% level

Test of Distribution
Ak = 0.63790
Expected Type of Distribution : Girdle
Cstat = 2.19985
Data have weak preferential orientation

Test of Rotational Symmetry S(G)
SG = 21.96570
This differs significantly from a girdle at the .95 level

Best-Fit Gridle on Data:
Strike = 237 Dip = 87
Dip Azimuth = 147
Pi-Point = 327
03

Directional Cosine
L = 5.6142
M = 11.5979
E = 41.0272

Directional Cosine Matrix

8.0486	6.8227	3.4793
6.8227	16.0684	7.8108
3.4793	7.8108	32.8830

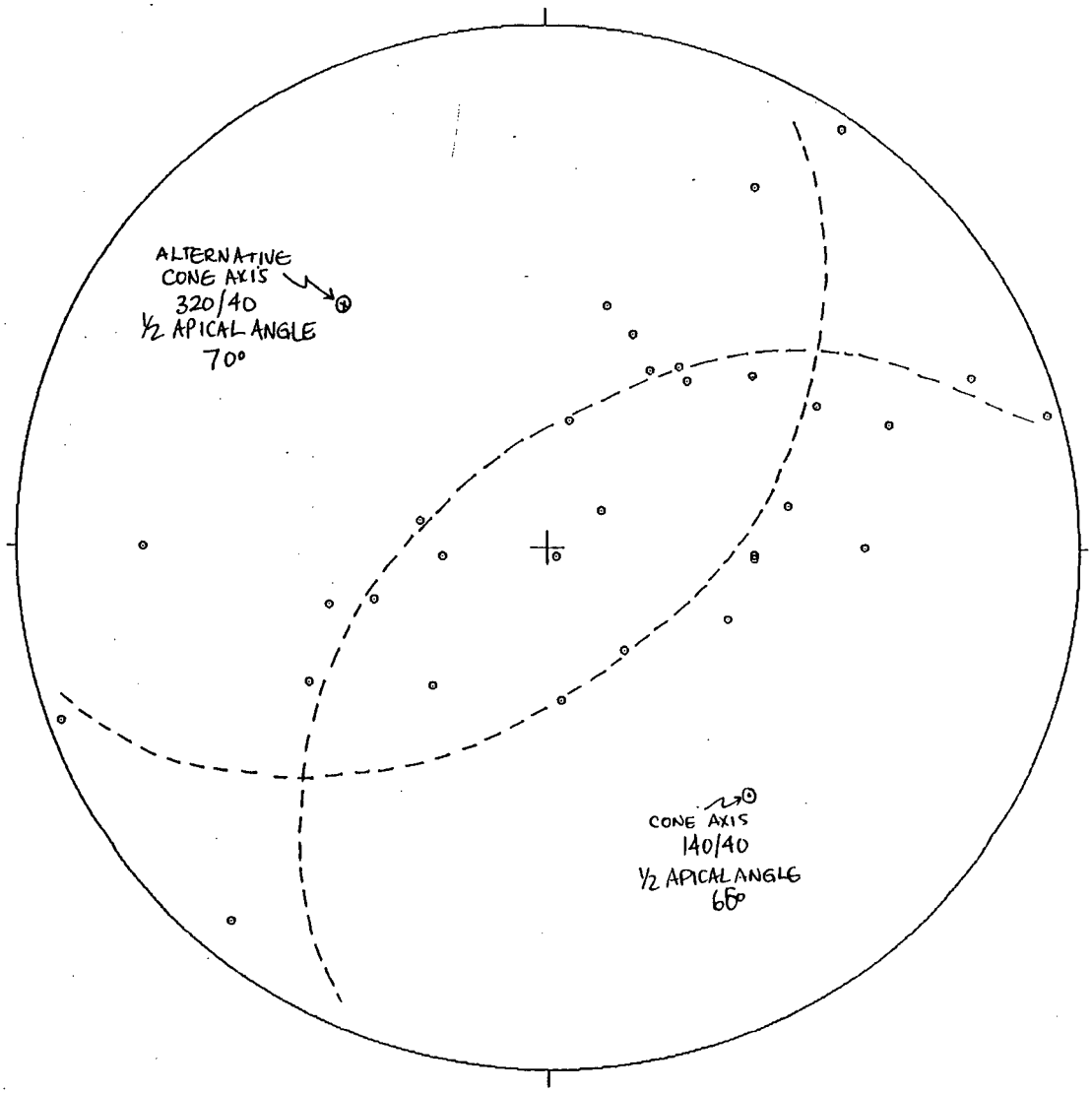
Eigenvalues
4.1142
15.7609
37.1249

Eigenvectors
-0.8578
0.5128
0.0355

Contents of file: cbc.dat
Title: CABIN CREEK BEDDING
Data type: Planar
Number of data pairs: 57

345,89	012,20	112,36	125,89	170,38
355,16	309,28	330,43	130,34	160,58
155,25	155,57	218,71	134,59	165,50
158,25	215,22	175,42	080,05	320,24
195,30	158,66	150,55	150,58	307,43
108,24	120,68	145,10	126,35	120,32
152,48	180,50	183,32	140,42	340,86
225,02	182,32	104,39	265,24	100,20
234,20	202,30	343,28	345,35	000,65
300,73	125,30	326,30	262,14	308,34
180,30	160,36	158,44	162,46	147,53
140,67	122,40			

BEDDING DATA, VIRGINIA ANTIFORM



EQUAL AREA PROJECTION

BEDDING DATA, VIRGINIA ANTIFORM

	Symbol
31 Points	O

31 Points Total

SPLOT by Darton Software

Contents of file: CBCANTI.DAT
Title: BEDDING DATA, VIRGINIA ANTIFORM
Data type: Planar
Number of data pairs: 31

158,75	165,87	309,28	330,43	130,34
160,58	355,16	125,87	170,38	112,36
012,20	120,68	145,10	126,35	120,32
152,48	310,82	180,50	183,32	140,42
340,87	225,02	182,32	104,39	265,24
100,20	234,20	202,30	343,28	345,35
000,65				

APPENDIX 3

COLUMBIA PROJECT

COSTS BREAKDOWN

COLUMBIA PROJECT

PAYROLL DISTRIBUTION FOR ASSESSMENT PURPOSES

1989 Field Work

Jennifer Pell - JP @ $275/day
Ray Morris - RM @ $175/day
Randy Lowery - RL @ $150/day

LOCATION	CODE	MONTH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Time Total
Mob/Demobilization Travel/Exp./Etc.	JP	MAY																									X	X	X					3
																											X	X	X					
Cabin Creek	JP	MAY																												X			X	2
																													X			X	
Bighorn	JP	MAY																																½
																															½		
Hunger	JP	MAY																													½			½
Regional Recy/ Mapping	JP	MAY																																½
																														½			
Mob/Demobilization Travel/Exp./Etc.	RM	MAY																									X	X	X		X			4
																											X	X	X		X			
Cabin Creek	RM	MAY																												X			X	2
																														X			X	
Bighorn	RM	MAY																																½
																															½		
Hunger	RM	MAY																														½		½
High Rock	JP	MAY																													½			½
Total chargeable																																		

LOCATION	CODE	MONTH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Time Total
Mob/Demobilization Travel/Exp./Etc.	RL	MAY																													X			1
																															X			
Hunger	RL	MAY																																½
																																½		
Bighorn	RL	MAY																																½
																																½		
Cabin Creek	RL	MAY																															X	1
																																X		
Total chargeable																																		

LOCATION	CODE	MONTH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Time Total
Expediting/Organize Etc. - Office Work	JP	JUNE									X			X			X				½						½		½	½	X		6
											X			X			X														X		
Cabin Creek	JP	JUNE		X	X	½				X		X															½		½	½	½			6½
				X	X					X		X																					
Hunger	JP	JUNE					X											X	X	X							½							4½
							X											X	X	X													
Highrock & General Area	JP	JUNE	X					X																										2
			X					X																									
Regional Recy./ Mapping	JP	JUNE											X		X	X																		3
													X		X	X																	
Cabin East	JP	JUNE							X																									1½
						½			X																								
Visiting U.S. Phosphates	JP	JUNE																				X	X	X	X	X								5
																						X	X	X	X	X							
Total chargeable																																		

LOCATION	CODE	MONTH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Time Total
Expediting/ Organizing, etc.	RM	June									X				X	X					X								X	X	X	X		8
											X				X	X					X								X	X	X	X		
Cabin Creek	RM	June		X	X	½						X																						4
				X	X							X															½							
Hunger	RM	June					X											X	X	X							½							4½
							X											X	X	X													
Highrock/ Alexander Creek	RM	June	X					X		X																								3
			X					X		X																								
Regional Recy./ Mapping, etc.	RM	June											X				X																	2
													X				X																	
Cabin East	RM	June							X					X																				2½
						½			X					X																				
Visiting U.S. Phosphates	RM	June																				X	X	X	X	X								5
																						X	X	X	X	X								
Bighorn	RM	June																										X						1
																												X						
Total chargeable																																		

LOCATION	CODE	MONTH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Time Total
Expediting/ Organizing/Errands	RL	June	X					½			X				X						X								X	X	X	X		8½
			X								X				X						X								X	X	X	X		
Cabin Creek	RL	June		X	X	X						X																						4½
				X	X	X						X															½							
Hunger	RL	June					X											X	X	X							½							4½
							X											X	X	X													
Highrock & Alexander Creek	RL	June								X																								1½
								½		X																								
Regional Recy./ Prospecting, etc.	RL	June											X			X	X																	3
													X			X	X																	
Cabin East	RL	June							X					X																				2
									X					X																				
Visiting U.S. Phosphates	RL	June																				X	X	X	X	X								5
																						X	X	X	X	X								
Bighorn	RL	June																										X						1
																												X						
Total chargeable																																		

LOCATION	CODE	MONTH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Time Total
Office Work/ Expediting/Demob, etc.	JP	JULY	½					X				X	½						X					X										5½
								X				X							X					X									
Cabin Creek	JP	JULY															½	X		X	X		X											4½
																		X		X	X		X										
Hunger	JP	JULY		X	X	½	X		X	X				½		X																		8
			½	X	X		X		X	X					½	X																	
Bighorn	JP	JULY									X																							1
											X																						
Cabin East	JP	JULY																				X												1
																						X											
Total chargeable																																		

LOCATION	CODE	MONTH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Time Total
Expediting/ Demob., etc.	RM	JULY																					X	X	½	X	X	½						6
														½							½		X	X		X	X							
Cabin Creek	RM	JULY															X			X	½													3
																	X			X					½								
Hunger	RM	JULY	X	X	X	X	X	X	X	X	X	X	X	½	X	X																		13½
			X	X	X	X	X	X	X	X	X	X	X		X	X																		
Cabin East	RM	JULY																				X												1
																						X											
Trenching for Westrock	RM	JULY																X	X															2
																		X	X															
Total chargeable																																		

LOCATION	CODE	MONTH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Time Total
Expediting/ Demob., etc.	RL	JULY	X																					X	½	X	X	½						5½
			X																½					X		X	X							
Cabin Creek	RL	JULY															X	X	½	X	X		X											6
																	X	X		X	X		X		½									
Hunger	RL	JULY		X	X	X	X	X	X	X		X	X	X	X	X																		12½
				X	X	X	X	X	X	X	½	X	X	X	X	X																		
Bighorn	RL	JULY									½																							½
Cabin East	RL	JULY																				X												1
																						X											
Total chargeable																																		

TRENCHING RECLAMATION
W/JD SS5 BACKHOE

TIME SHEET SUMMARY

Year 1989

LOCATION		MONTH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Time Total
Mob/Demobilization etc.		JUNE																												X	X	X		
																														X	X	X		
HUNGER		JULY				X	X	X	X	X	X	X	X	X	X	½																			
						X	X	X	X	X	X	X	X	X	X																				
CABIN CREEK		JULY															X			X	X		X		½									
																½	X			X	X		X											
CABIN EAST		JULY																				X												
																						X												
IDLE		JULY			X																			X										
					X																			X										
MOBILIZATION/ DEMOBILIZATION		JULY	X	X																							X							
			X	X																						½	X							
Contracted to WESTROCK		JULY																X	X															
																		X	X															
Total chargeable																																		

CABIN CREEK CLAIMS

STAKED

STAKED BY WESTROCK

114° 40'

49° 05'

STORM CREEK

JF

PI

TRS

MR

TR89-14

CBC89-18
TR89-10

CBC89-TR1
CBC 89-1

CBC89-607

CBC89-22
TR89-11

TR89-12

CBC89-35

CBC89-611
CBC-TR-611

CBC89-610

CBC-89-32

0 200 400 600 800 1000 METRES
SCALE 1:12,500

LEGEND:

KK — JURASSIC & (?) CRETACEOUS KOOTENAY 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.

JURASSIC FERNIE GROUP - BASAL PHOSPHORITE BEDS

TRS — TRIASSIC SPRAY RIVER GROUP - GREY DOLOMITE SILTSTONE & SANDSTONE, BROWN SILTSTONE & SILTY SHALE.

PI — PERMIAN ISHBEL GROUP - WHITE & GREY SILTSTONE, SHALE CHERT, FINEGRAINED SANDSTONE, MINOR DOLOMITE, SOME NODULAR PHOSPHATE ROCK.

MR — MISSISSIPPIAN RUNDLE GROUP - LIMESTONE, DOLOMITE, MINOR SHALE, SANDSTONE, CHERTY LIMESTONE.

OUTCROP

32 — BEDDING STRIKE & DIP

GEOLOGICAL CONTACT (approximate, assumed)

THRUST FAULT

SYNCLINE

ANTICLINE

TR89-11 — TRENCH NUMBER

CBC89-22 — SAMPLE NUMBER, HAND TRENCH

ROAD

GEOLOGICAL BRANCH
ASSESSMENT REPORT

19,954

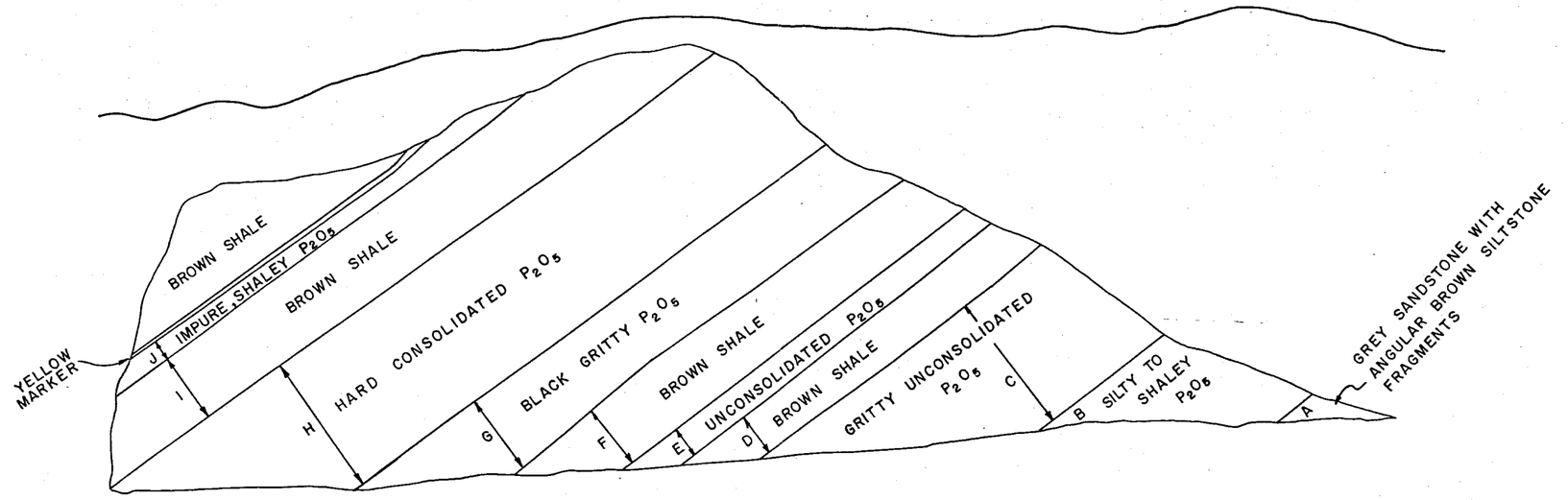
FORMOSA RESOURCES CORPORATION

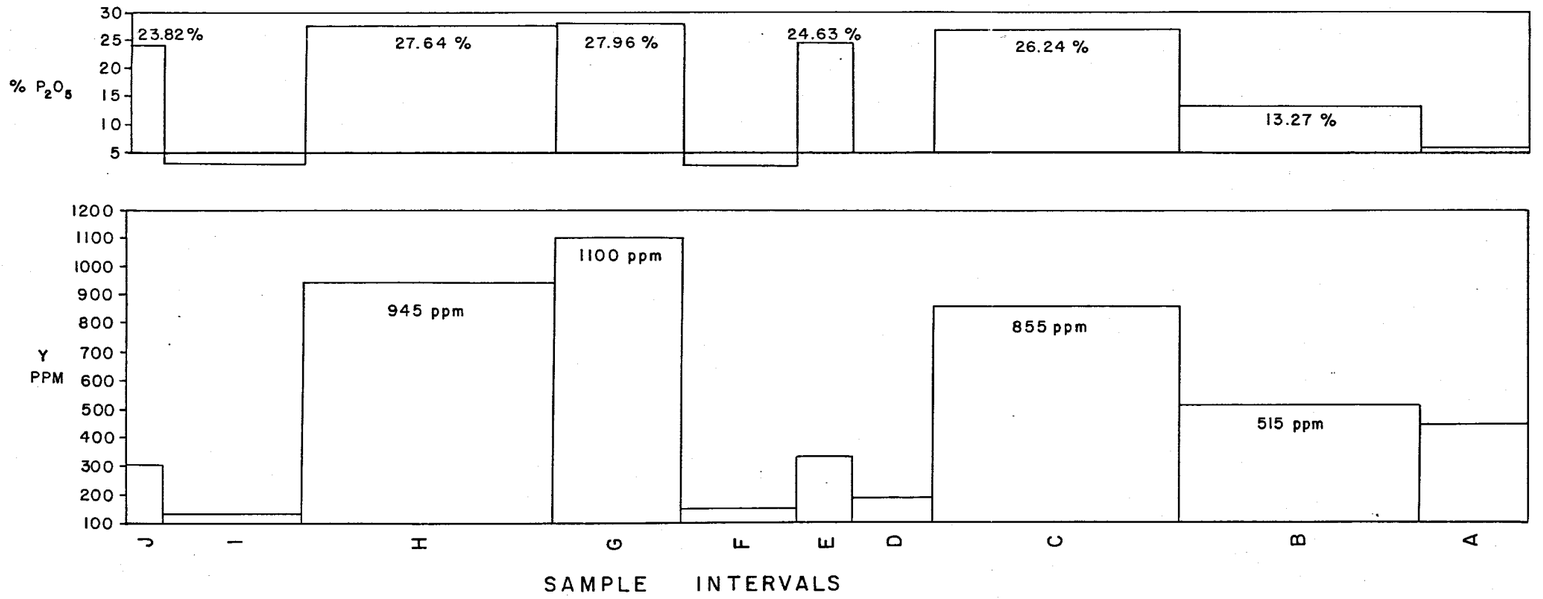
COLUMBIA PROJECT

CABIN CREEK CLAIMS

GEOLOGY MAP

NTS: 82 G/2	DRAWN BY: PELL /rwr
DATE: MARCH, 1990	FIGURE: 6





0 0.5 1.0 1.5 2.0 metres

GEOLOGICAL BRANCH
ASSESSMENT REPORT

19,954

FORMOSA RESOURCES CORPORATION

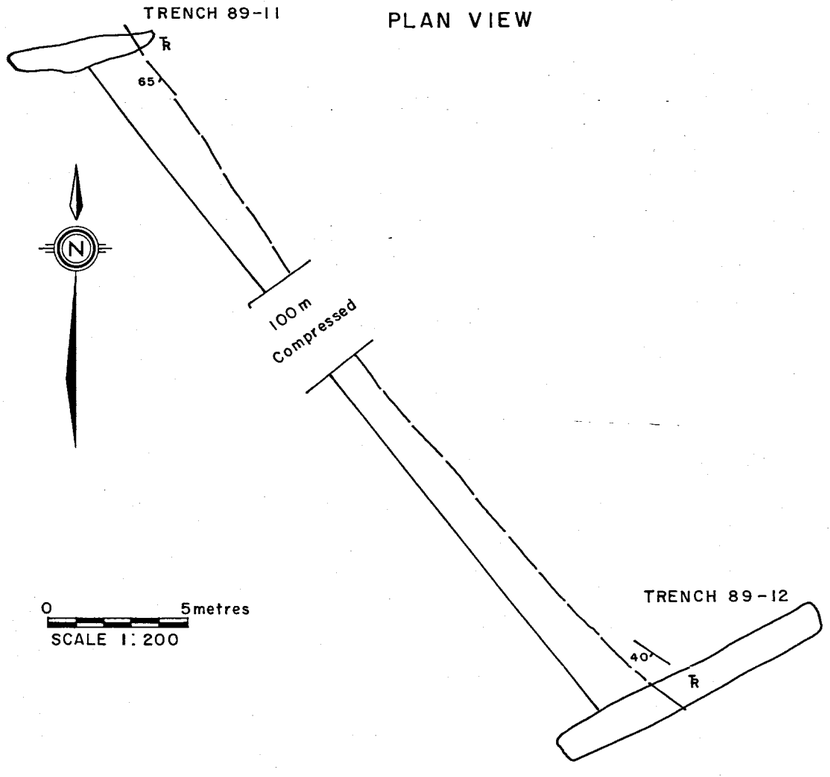
COLUMBIA PROJECT

CABIN CREEK CLAIMS

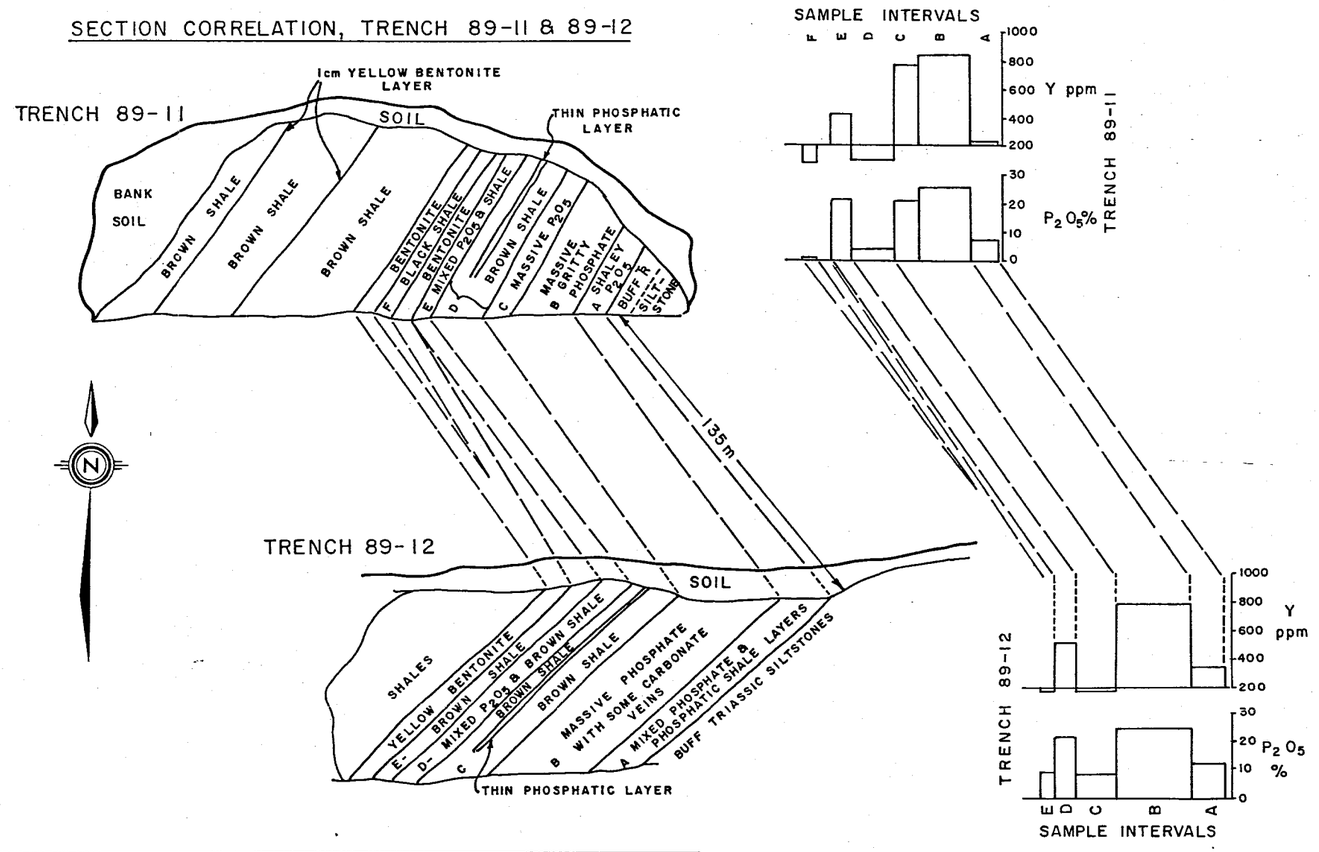
TRENCH CBC-89-35

SCALE 1:25	DRAWN BY: PELL / rwr
DATE: OCTOBER, 1989	FIGURE: 8B

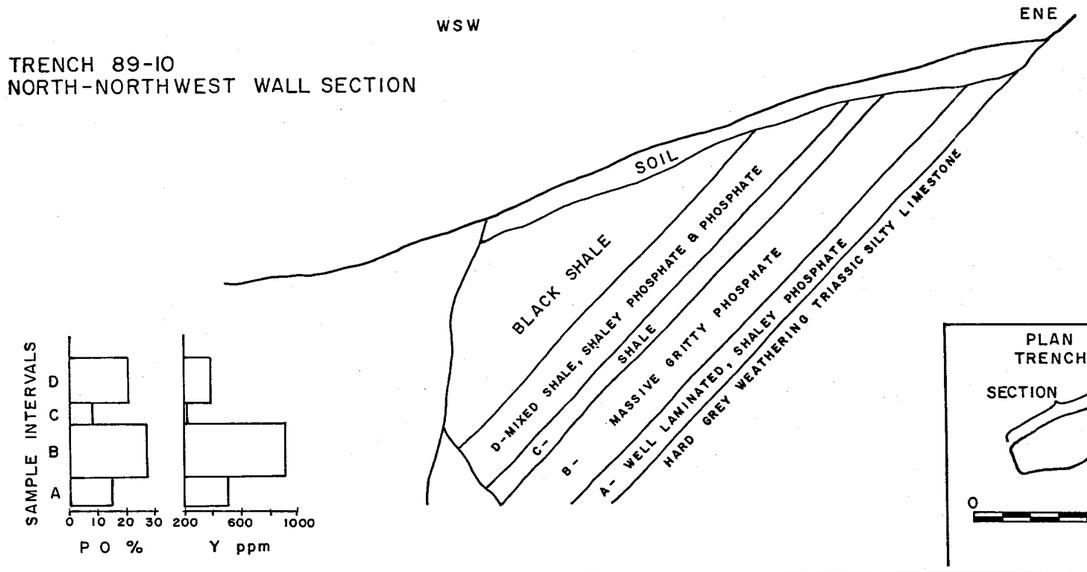
PLAN VIEW



SECTION CORRELATION, TRENCH 89-11 & 89-12



TRENCH 89-10
NORTH-NORTHWEST WALL SECTION



GEOLOGICAL BRANCH
ASSESSMENT REPORT
19,954

0 1 2 3 METRES
SCALE 1:50

FORMOSA RESOURCES CORPORATION

COLUMBIA PROJECT

CABIN CREEK CLAIMS

TRENCHES 89-10, 11 & 12

NTS: 82 G/2	DRAWN BY: PELL / rwr
DATE: MARCH, 1990	FIGURE: 8a

114° 45'

114° 40'

49° 10'

HUNGER CLAIMS

BIGHORN CLAIMS

CABIN CREEK CLAIMS

CABIN EAST CLAIMS

TR89-8,9
HGR89-1

HGR89-28
TR89-6

TR89-7

TR89-5
HGR89-24

HGR89-23
TR89-4

HGR89-21
TR89-3

TR89-1,2
HGR89-19

INV89-2

INV89-1

TR89-14

CBC89-18
TR89-10

CBC89-22
TR89-11

TR89-12

CBC-89-35

DLY89-1,13

Δ DALLY HILL

STORM CREEK THRUST

MACDONALD THRUST

CABIN PASS

LESLIE CREEK

STORM CREEK

CABIN CREEK

STAKED

Mr Pl Rs JF Kk

LEGEND

- Kk — JURASSIC & (?) CRETACEOUS KOOTENAY 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.
- JURASSIC FERNIE GROUP - BASAL PHOSPHORITE BEDS.
- Rs — TRIASSIC SPRAY RIVER GROUP - GREY DOLOMITE SILTSTONE & SANDSTONE, BROWN SILTSTONE & SILTY SHALE.
- Pl — PERMIAN ISHBEL GROUP - WHITE & GREY SILTSTONE, SHALE, CHERT, FINEGRAINED SANDSTONE, MINOR DOLOMITE, SOME NODULAR PHOSPHATE ROCK.
- Mr — MISSISSIPPIAN RUNDLE GROUP - LIMESTONE, DOLOMITE, MINOR SHALE, SANDSTONE & CHERTY LIMESTONE
- THRUST FAULT (approximate, assumed)
- FAULT
- GEOLOGICAL CONTACT (approximate)
- ROAD, TRAIL
- xTR89-5 TRENCH
- xHGR89-23 HAND TRENCH

LOCATION MAP

0 10 20 30 kilometres

COLUMBIA RIVER
INVERMERE
B.C. ALTA.
HIGH ROCK CLAIMS
OLDMAN RIVER
KIMBERLEY
KOOTENAY RIVER
ELK RIVER
COLEMAN
CRANBROOK
FERNIE
HUNGER CLAIMS
CABIN EAST CLAIMS
BIGHORN CLAIMS
B.C.
U.S.A.
CABIN CREEK CLAIMS
FLATHEAD

MAPPING BY: PELL, MORRIS & LOWERY, 1989; HARTLEY, 1982 & PRICE, 1965. COMPILED BY: PELL, 1989

GEOLOGICAL BRANCH
ASSESSMENT REPORT

19,954

FORMOSA RESOURCES CORPORATION

COLUMBIA PROJECT
FERNIE, BRITISH COLUMBIA

GEOLOGY OF THE HUNGER LAKE-CABIN CREEK AREA S.E. BRITISH COLUMBIA

0 500 1000 1500 2000

SCALE 1: 25,000	DRAWN BY:
DATE: OCTOBER, 1989	FIGURE: 5