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ACTION:

FILE NO:

A Report on Some Test Results from Zeolite Samples

from the
BV Claims

Similkameen Mining Division, B.C.

NTS No. 92H 7E

Latitude 49° 24'N

Longitude 120° 35'W

Owner:

S. Cook
940 Pyrford Road
West Vancouver, B.C. V7S 2A1

Operator:

Nevin Sadlier-Brown Goodbrand Ltd./
Princeton Industrial Minerals Joint Venture
Suite 500 - 342 Water Street
Vancouver, B.C. V6B 1B6

By

T.L. Sadlier-Brown

Date: **GEOLOGICAL BRANCH**
June 15, 1992 **ASSESSMENT REPORT**

22,367

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1.0 INTRODUCTION

1.1 Terms of Reference and Scope

This report summarizes results of a sampling program conducted on the BV Claims on March 5, 1992. The samples were taken to augment existing data on the cation exchange capacities of a deposit of the zeolite mineral "clinoptilolite", which occurs on the claim group.

1.2 Claims and Ownership

The BV Group consists of four two-post mineral claims recorded in the Similkameen Mining Division as follows:

Table 1

Claim Name	Record No.	Record Date	Current Expiry Date
BV 1	3615	Dec. 14/89	1993
BV 2	3616	" " "	"
BV 3	3638	Apr. 6/90	"
BV 4	3639	" " "	"

The claims were recorded in the name of Stuart A.S. Croft and transferred to Shirley Cook of 940 Pyrford Road, West Vancouver, B.C., who is the present owner of record.

1.3 Location and Access

The BV Claims are centred in the Bromley Vale area, approximately 4 km south of the town of Princeton, B.C. The area is depicted on NTS Sheet 92H 7E.

Access from Princeton is south via Highway 3 to Wrights Road, then westerly to the Maynard Ranch at Bromley Vale. From the ranch, a bush road leads westerly up the hill, approximately 0.7 km to the site of several old underground coal mining



FIGURE 1: MAP SHOWING THE LOCATION OF THE BV 1-4 AND TAW CLAIMS. PRINCETON AREA, SIMILKAMEEN M.D., B.C. Scale: 1:50,000 (part of NTS Sheet 92 H 7/e)

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operations which constitute the Bromley Vale mine. The zeolite deposits under study are in the immediate area of the coal workings and, in part, enclose the coal measures.

1.4 Historical Background

The Bromley Vale area was explored and mined for coal during the early 1900's but the area's potential for other industrial minerals was not recognized until the mid-1980's. At that time, the B.C. Ministry of Energy, Mines and Petroleum Resources initiated an industrial mineral evaluation of several Tertiary sedimentary basins in the interior of British Columbia. Zeolite deposits were identified in a number of these basins, with the most promising being found in the Princeton Basin. In 1986 the B.C. Geological Survey commissioned Dr. Peter B. Read to conduct detailed mapping in the Princeton Basin, and this work delineated the known deposits.

A preliminary evaluation of the Bromley Vale zeolites was conducted by Blackberry Resources in 1986 (Borovik, 1987). The property was optioned by Hillside Energy Corp., who conducted detailed mapping and sampling (Sadlier-Brown, 1988). Blackberry Resources subsequently allowed the claims covering the deposits to lapse and, in 1989 the BV Claims were staked by the Princeton Industrial Minerals Joint Venture. This group optioned the property to Mrs. Shirley Cook who has carried out market research, and permitted and bonded the property for physical work.

1.5 Geological Setting

The B.V. Claims are underlain by a conformable sequence of clastic sedimentary rocks locally interbedded with coal measures and at least one mappable unit of felsic tuff. The strata in the area of interest strike at approximately 010° and dip easterly at about 35° . They are assigned (by Read 1987) to the Allenby formation of the mid-Eocene Princeton Group.

The felsic tuff unit is approximately 20 m thick where it is exposed in the narrow canyon of Bromley Creek. It is massive but well-jointed and, in its central part, the abundant

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feldspathic material appears to be uniformly altered to the zeolite mineral clinoptilolite.

Clinoptilolite is one of a number of zeolite minerals which have an open crystal structure in which certain cations at specific sites are weakly held and can be exchanged for other cations with similar ionic radii. This ability to exchange cations makes zeolites useful in a number of applications in industry, waste management and agriculture. The measure of the facility with which the zeolite can exchange cations is called the "cation exchange capacity" (CEC). Conventional CEC units are Mili equivalents per 100 grams (Meq/100 g). Pure clinoptilolite has a theoretical maximum CEC of about 220 Meq/100 g but values in excess of 100 Meq/100 g may have commercial applications.

2.0 SAMPLING PROGRAM

2.1 Sampling Method

Although a number of samples have been taken and tested in the past, continued work is considered important in order to compile a comprehensive characterization of the deposit. In late 1991, some trenching conducted on the property without the owner's knowledge, uncovered some impure zeolitized tuff in the apparent footwall of the deposit. Two samples of this material were taken for CEC determination and one sample was taken for comparative purposes from the vicinity of the old Bromley Vale coal mine portal.

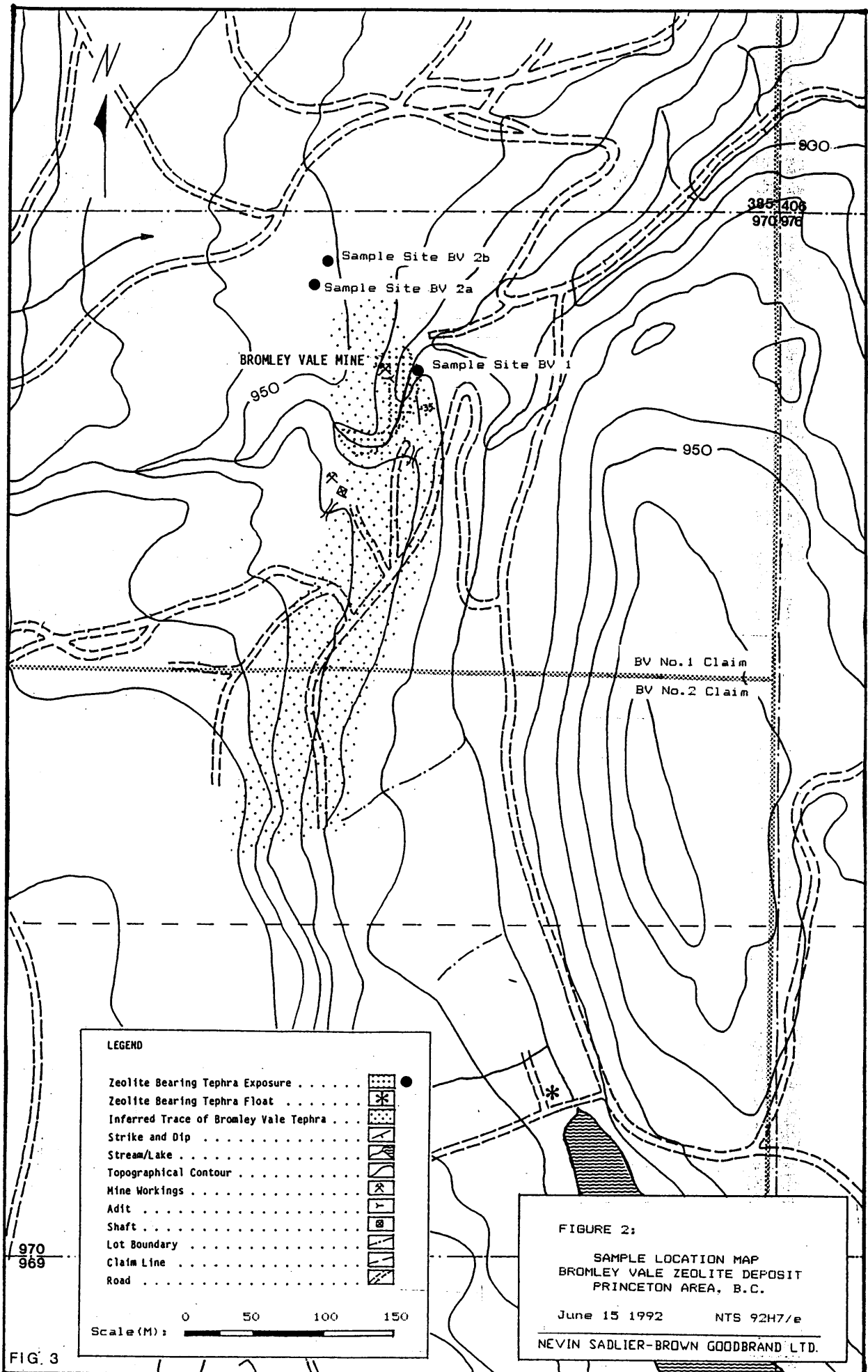
The samples were crushed, screened and a -50 mesh fraction of each sample was sent to Norwest Labs of Langley, B.C. for CEC determination using the ammonium acetate method.

2.2 Test Results

Analytical results are provided in their entirety in Appendix A and summarized in Table 2 below.

Table 2

Sample No.	Lab No.	Location	Cation Exchange Capacity (Meg/100 gm)
BV 1	924118	BV Mine	69.7
BV 2a	024119	FW Trench(S)	64.3
BV 2b	924120	FW Trench(N)	46.8



LEGEND

Zeolite Bearing Tephra Exposure	.....	●
Zeolite Bearing Tephra Float	.....	✱
Inferred Trace of Bromley Vale Tephra	.....	✱
Strike and Dip	.....	↘
Stream/Lake	.....	~
Topographical Contour	.....	—
Mine Workings	.....	✱
Adit	.....	→
Shaft	.....	⊕
Lot Boundary	.....	—
Claim Line	.....	—
Road	.....	—

Scale (M): 0 50 100 150

FIGURE 2:
SAMPLE LOCATION MAP
BROMLEY VALE ZEOLITE DEPOSIT
PRINCETON AREA, B.C.
 June 15 1992 NTS 92H7/e
 NEVIN SADLIER-BROWN GOODBRAND LTD.

FIG. 3

3.0 CONCLUSION

3.1 Observations and Discussion

Sample No. BV 1 was obtained from the vicinity of the Bromley Vale adit portal - within the main part of the deposit. The CEC value of 69.7 meg/100 gm is somewhat lower than expected. Past sampling for the same general area returned values ranging from 82.1 to 120.4 meg/100 gm. The samples taken from the pit in the footwall region of the deposit were both somewhat contaminated with carbonaceous material and silicate impurities. BV 2a was the more strongly contaminated but returned a higher CEC value (64.3 vs 46.8 meg/100 gm) than the cleaner sample (BV 2b).

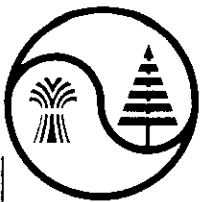
3.2 Conclusions and Recommendations

Results indicate that, although BV 2a and BV 2b were taken from the footwall region of the zone, they still contain a significant zeolite component based upon the CEC values. These would probably lie in the range of 20% to 30% which, although low for most contemplated industrial applications, might be useful in agriculture.

REFERENCES

- Read, Peter B., 1986: Industrial Minerals in Some Tertiary Basins of Southern British Columbia; B.C. Ministry of Energy, Mines and Petroleum Resources. Paper 1987-1.
- 1987: Tertiary Stratigraphy and Industrial Minerals, Princeton and Tulameen Basins, British Columbia; B.C. Ministry of Energy, Mines and Petroleum Resources. Open File 1987-19.
- 1987: Zeolites, Exchangeable Cation Analyses and Cation Exchange Capacity, Bromley Vale, Southern British Columbia; unpublished report for Blackberry Gold Resources Ltd.
- Sadlier-Brown, T.L. 1989: A Report on the Geology and Mineralization of the Zeolite Occurrence on the STIK Claims, Similkameen M.D., B.C., Nevin Sadlier-Brown Goodbrand Ltd; unpublished report prepared for Hillside Energy Corporation.
- Sand, L.B. and Mumpton, F.A., 1976: Natural Zeolites - Occurrence, Properties, Use; Pergamon Press, Selection of Papers.
- Slim, Bryan A., 1988: STIK Zeolite Claims, Princeton, British Columbia; unpublished report for Hillside Energy Corporation.
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APPENDIX A
ANALYTICAL CERTIFICATE



NORWEST LABS

"Keeping B.C. Growing"

TELEPHONE (604) 530-4344
FACSIMILE (604) 534-9996

W.O. # : 6297

DATE : June 11, 1992

PRINCETON ZEOLITE PRODUCTS
500 - 342 WATER STREET
VANCOUVER, B.C. V6B 1B6

ATTENTION: T. SADLER-BROWN

<u>LAB. #</u>	<u>SAMPLE ID</u>	<u>CATION EXCHANGE CAPACITY</u> <u>me/100 grams</u>
	Crushed, Screened Zeolite	
924118	BV 1	69.7
924119	BV 2 a	64.3
924120	BV 2 b	46.8

APPENDIX B

SCHEDULE OF EXPENDITURES

Re: Sampling and Analytical Work, BV Claims

Fees/Wages

T. Sadlier-Brown:		
Field work (March 5/92; 3.5 hrs @ \$40/hr)	140.00	
Travel (prorated; 4 hrs @ \$40/hr)	160.00	
Data evaluation and report preparation		
March 6,7; April 19; June 12/92 (4 hrs @ \$40/hr)	160.00	
J. Renwick:		
Report preparation (1.5 hr @ \$24/hr)	<u>36.00</u>	
Sub Total: Fees/Wages	<u>496.00</u>	<u>496.00</u>

Disbursements

Analyses: three CEC tests @ \$21.40/test	64.20	
Meals (prorated)	7.00	
Transportation (prorated 362 km @ \$0.32/km)	<u>115.84</u>	
Sub Total: Disbursements	<u>187.04</u>	<u>187.04</u>
 TOTAL		 <u>683.04</u> =====

APPENDIX C

CERTIFICATE AND STATEMENT OF QUALIFICATIONS

I, Timothy L. Sadlier-Brown of 2004 Cliffwood Lane, North Vancouver, B.C., hereby certify that:

1. I am a partner with the firm of Nevin Sadlier-Brown Goodbrand Ltd., Consulting Geologists, with offices at Suite 500, 342 Water Street, Vancouver, B.C.
2. I am a Fellow of the Geological Association of Canada.
3. I was educated at Carleton University, Ottawa, Ontario, Faculty of Geological Sciences to BSc. Geology.
4. I have been employed as an exploration geologist in positions of responsibility since 1965 and have been a principal in the firm of Nevin Sadlier-Brown Goodbrand Ltd. since 1972.
5. I personally examined and sampled the BV Property, as described in this report, on March 5, 1992.



T.L. Sadlier-Brown, F.G.A.C.

Vancouver, B.C.
June 15, 1992
