GEOLOGICAL INVESTIGATION

OF CUP I AND CUP II MINERAL CLAIMS

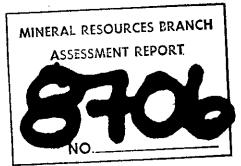
AND ADJOINING AREA

OMINECA MINING DIVISION

HAZELTON, B.C.

NTS 93M 5E & 6W

PREPARED FOR SHORT STAUN MINERALS CORPORATION



JAMES M. LOGAN

GEOLOGIST

LOCKE B. GOLDSMITH, P. ENG.

CONSULTING GEOLOGIST

GEORGE L. MILL, P. ENG.

CONSULTING ENGINEER

ARCTEX ENGINEERING SERVICES

SEPTEMBER, 1980

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ABSTRACT

The Cup I and Cup II claims are located 13 kilometers northeast of Hazelton and are owned by Short Staun Minerals Corporation. Underlying rocks of the Hazelton Group (Upper Jurassic to Lower Cretaceous age) have been folded into anticlines and synclines and intruded by the Early Tertiary(?) Nine Mile granodiorite stock. Ore deposits are true quartz-filled fissure-veins containing jamesonite, galena and sphalerite of economic importance.

Further assessment is required consisting specifically of detailed mapping and sampling of 'the second vein' and trenching of favourable veins located above the Silver Cup Basin rim. Regional mapping and prospecting should also be planned to cover the remainder of the property to the east.

INTRODUCTION

A program of regional geological mapping and prospecting was carried out during early August, 1980 over the Cup I and Cup II mineral claims and surrounding areas. The objective being a regional assessment to determine if economic deposits were contained within the property and whether further work was required.

The claims lie in the Omineca Mining Division, 13 kilometers north east of Hazelton, B.C. (figure 1). The two Cup claims are located on the top of Nine Mile Mountain extending down the northern slope into the Shegunia River valley.

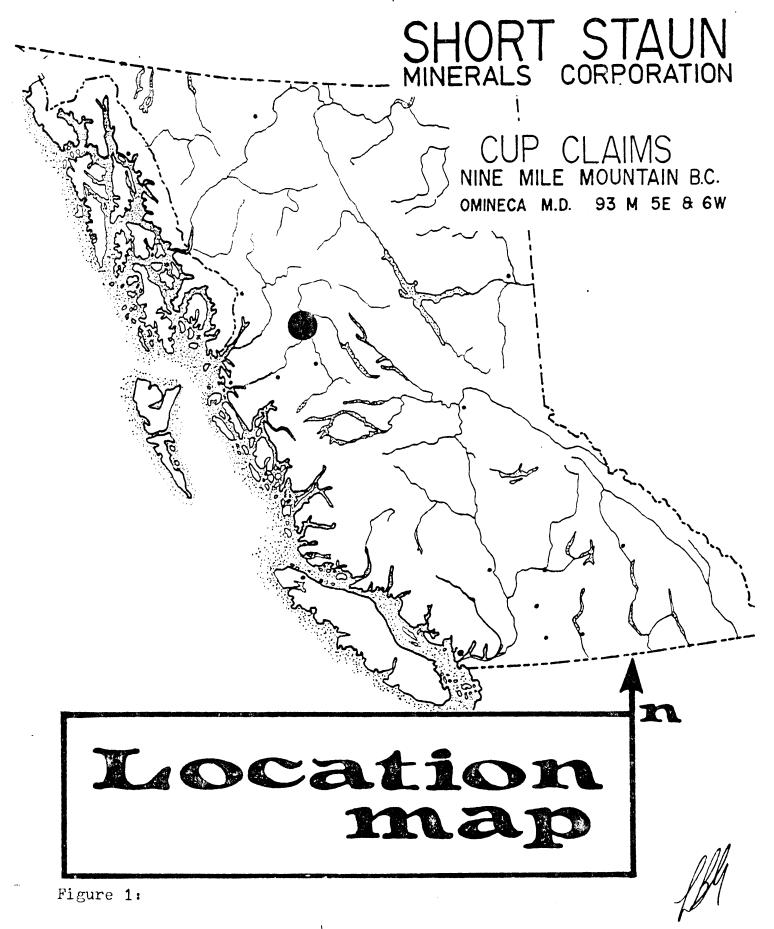
Mineral deposits were discovered on Nine Mile Mountain in 1909 and the area has been heavily prospected with numerous open cuts and adits. The Silver Cup and Sunrise properties located adjacent to the claim group were past ore producers.

Access

The main access to the property, via the Nine Mile
Mountain road from New Hazelton to the Silver Cup Basin
(13 miles) has been made impassable by several rock slides
approximately three miles from the Silver Cup Basin. A
second (four-wheel drive) road provides access to the
mountain top and east as far as the legal corner post.
This road leaves the Nine Mile Mountain road approximately

184

seven miles from Hazelton, heading northeast to the Cindy Lou claim block.



CLAIM STATUS

The Cup I (2440[1]) and Cup II (2441[1]) mineral claims are situated to the east of the Silver Cup group of four crown granted claims and west of the Sunrise Silver property. Both claims share a common corner post, located as shown in Figure 2. Topographic conditions prevented any other than the legal corner post to be fixed.

At the time of staking and uncorrected to date, is the location of crown granted mineral claims: L593, L594, L595, L596, and L597. These are located east of the claims on topographic map 93M/6 but the Ministry of Energy, Mines, and Petroleum Resources map 93M/6W has these situated in the center of the claim group. As a result, four fractions only (in the eastern portion) are included in the claim group.

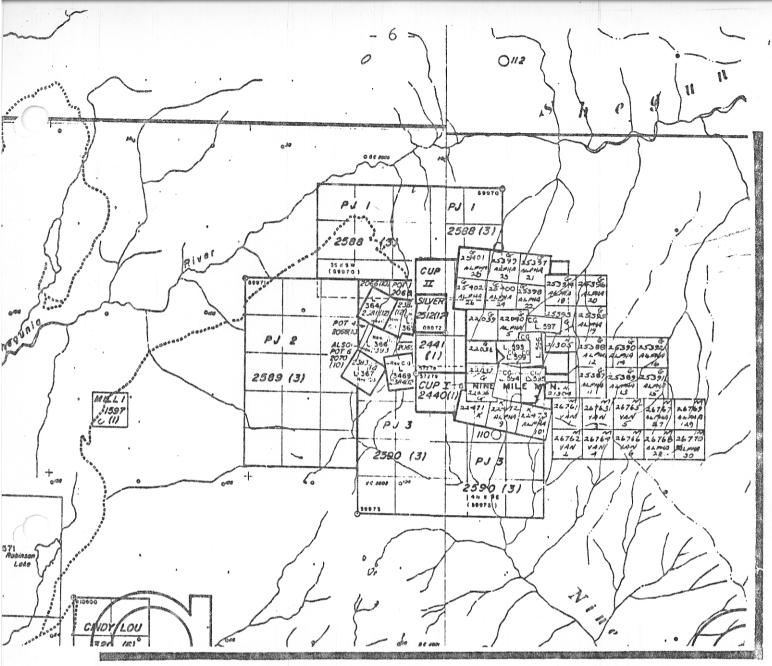


Figure 2:



SHORT STAUN MINERALS CORPORATION

CUP CLAIMS

NINE MILE MOUNTAIN B.C.

OMINECA M.D. 93 M 5E & 6W

ARCTEX ENGINEERING SERVICES

SEPTEMBER 1980

GENERAL GEOLOGY

The Nine Mile Mountain area is underlain by a series of sedimentary rocks belonging to the Hazelton Group of Upper Jurassic to Lower Cretaceous age. These sedimentary rocks have been intruded and altered by a large (four miles by one half mile wide) granodiorite stock. The stock of Early Tertiary(?) age is emplaced in the northern part of Nine Mile Mountain orientated perpendicular to the regional folding of the sedimentary series.

The sediments consist of tuffaceous sandstone, grey-wacke, arkose, argillite, conglomerate and shale. At or near the contact with the granodiorite and/or alaskite dykes the sediments have been altered to hornfels, slate and quart-zite. The most abundant altered sediment is a hard grey to black coloured, even-grained rock.

The intrusives consist predominently of granodiorite, although several dykes of alaskite and diorite extend out from the main intrusive stock. The granodiorite was reported (Dept. Min. Pet. Res. assessment Rept. #5134) to consist of 20% quartz, 15% altered biotite, 60% oligoclase feldspar and a little orthoclase. E.D. Kindle (G.S.C. Memoir 223) reports the granodiorite to consist of about 10% hornblende, 10% quartz, 10% orthoclase, 10% biotite and 60% andesine feldspar.

Structure

The sedimentary rocks have been folded into broad, open anticlines and synclines with axes orientated in a NNE-SSW direction.

Fractures have been studied in detail (J.F. Ariz, 1973) and classified into three major groups:

- (1) Strike E-W; Dip 10-20°S Mineralized
- (2) Strike NE-SW; Dip 45°SW Mineralized
- (3) Strike N-S; Dip 60-65°E Unmineralized

Type 1 fractures/veins are related to flat-lying tension fractures (major shearing). Type 2 fractures are related to reverse(?) faulting. Type 3 are related to minor shearing occuring after the mineralization period. Type 1 therefore are the most important economically.

Faults

Numerous small faults with minor throws occur within the Silver Cup workings. Displacement of the vein indicates post mineralization faulting. A normal fault with a displacement of approximately three feet striking N25°E, dipping 65°E is present along the steep wall of the Silver Cup Basin. This fault cuts a mineralized E-W fracture group. Slickensides and shears are coated with serpentine and/or chlorite.

Mineralization

The general types of ore-deposits in the area are more or less true quartz-filled fissure-veins. The metallic minerals or these veins include jamesonite, galena, sphalerite and tetrahedrite and minor cosalite (sulphide of lead and bismuth).

Field evidence indicated a direct genetic relationship between the mineral deposits and the emplacement of the granodiorite stock, the mineralization occurring within or in close proximity to the granodiorite body.

The Silver I (formerly Barber Bill) showing at elevation of 4100 feet is located just off the property on the east slope of the Silver Cup Basin. The mineralization consists of finely-crystalline jamesonite, antimonial galena, and zinc-blende with some arseno-pyrite and small amounts of quartz and pyrite. The veins strike N20°W, dips 180°-25°E in bedded greywacke just north of the granodiorite stock. The vein varies from four inches to four feet in width. Midway along the strike, a 45 foot adit had been cut into the vein (sample N-26-1 at portal across two foot mineralized width). A 24 inch channel sample taken 40 feet from the portal (G.S.C. Memoir 223) assayed at: gold, 0.045 ounces/ton; silver, 14.89 ounces/ton; antimony, 2.22%; arsenic, 8.15%; and cadmium, 0.1%.

'A second vein' (G.S.C. Memoir 223) at an elevation

of 4750 feet is exposed for over 250 feet on the Cup II claim, running E-W along the steep slope of the Silver Cup Basin. The vein is located along the contact of horn-felsic sediments and the granodiorite stock. It pinches and swells and branches, the width varying from ten inches to two feet over the entire length. The vein is displaced slightly by a post mineralized fault. The mineralization consists of jamesonite, antimonial galena and sphalerite (zinc-blende), quartz and pyrite. The vein was sampled, N-9.3, N-9-4 and N-9-5 from east to west respectively. Whether sample N-9-2 is on a faulted extension is unknown at this time. Eighteen samples collected from the second vein gave the following uncut averages of silver, 8.32 ounces/ton; lead, 3.02%; and zinc, 5.37% (G.S.C. Memoir 223)

Samples N-6-1 to N-6-3 inclusive are located along the east wall of the Silver Cup Basin (see sample location map). All are taken from narrow shear zones in the granodiorite striking NNW and dipping 35°-45°W, within the Cup II claim.

On Cup I, a mineralized vein (sample N-29-1) located

1000 feet southwest of Nine Mile Mountain peak is exposed

by two trenches for approximately 200 feet. The vein

strikes at N10°E, dips 50°E and consists mainly of anti
mony(?)/jamesonite(?), pyrite and minor galena and sphalerite.

Slumping of the trenches made accurate measurements of vein

dimensions and representative sampling impossible. N-29-1

and N-29-2 were therefore grab samples taken from the trench bottoms.

A small quartz vein located along a shear (N80°E/66°N) in quartzite sediments, is located 1000 feet further west (sample N-29-2).

A narrow shear zone, $(N38^{\circ}W/42^{\circ}W)$ heavily mineralized by pyrite, also on Cup I, located 150 feet north of Nine Mile Mountain peak, comprises sample N-3-2.

Sample N-7-1 is located on the Silver I claim approximately 450 feet south of the main Barber Bill showing. The vein strikes N45°E and dips 60°N with a width of 1 to 1.5 feet containing galena and large masses of sphalerite, quartz, and siderite gangue (jamesonite(?)/antimony(?)).

Sample N-7-2 was taken across an old open cut along a shear in hornfelsic sediments. No visible mineralization was present.

The area situated above the cliff face extending north (approximately 400 feet) and west (*1000 feet) from the legal corner post of Cup I and II has been heavily prospected by open cuts and by stripping. These exposures (described below) are on the Silver Cup lapsed crown grants.

A mineralized vein is exposed for about 100 feet, striking N22°W and dipping 16°W along the rim of the bluff.

Mineralization consists of galena, sphalerite, antimony(?)/
jamesonite(?), and minor tetrahedrite and pyrite. The prospect has been trenched (60 feet long by 8 feet deep) and a short

adit driven into the side of the bluff. The vein was sampled just east of the adit, N-5-1.

Samples N-5-2 through N-5-6 inclusive were taken from trenches and pits located traversing west from the above mentioned trench (see sample location map). All of these veins are highly mineralized mainly with galena, sphalerite pyrite and minor tetrahedrite, and do not appear to be fully exposed.

Sample N-3-1 is also well mineralized with galena and sphalerite although occupying only 3-4 inches along a fracture (N25°W/ 20° E).

Thin veins and fractures containing only minor amounts of mineralization located along the west side of the basin constitute samples N-8-2 to N-8-4 inclusive (see sample location map).

Sample N-8-5 was taken across a narrow vein mineralized with galena, jamesonite and sphalerite in a fracture (N13°E/70°E) exposed by a small open cut (at 4700 feet).

Sample N-8-1 was taken from a narrow vein (N37°E/80°E) located east of the main upper adit on the Silver Cup property.

The Silver Cup vein is exposed along the steep east rim of the Silver Cup Basin between elevations of 4600 and 5000 feet. The vein is located on a fault along the crest of an anticlinal fold. It has been thoroughly discussed by E.D. Kindle in the G.S.C. Memoir 223 (Revised Edition), p. 64-67 and reiteration here is unwarranted.

DISCUSSION

The assay certificates for samples taken from the Cup I and Cup II claims and surrounding area are located in Appendix A. The samples prefixed with the letter 'N' pertain to the Cup I and Cup II property.

The 'second vein' located on the Cup II claim returned the most promising assay results. An uncut average of the three samples gives the following values: silver, 12.71 oz./ton; lead, 6.91%; and zinc, 11.0%. These are noticeably higher than the values reported by E.D. Kindle (Mem.223), who averaged 18 samples over the strike length (see Mineralization section).

The mineralized shear located along the southern rim of the basin which extends into the Cup II claim returned assay values of: silver, 1.36 oz./ton; lead, 0.92%; and zinc, 3.21%. These values are rather low to explain all the development work along this showing unless all the economic ore was removed.

Shears sampled (N-6-1 and N6-2) east and southeast of the 'second vein', also on Cup II, contained only negligible amounts of silver, lead and zinc.

On Cup I, the two grab samples N-29-1 and N-29-2 contained less than 0.50 oz. silver per ton and only minor lead and zinc. Both samples consisted of highly oxidized and leached pyrite mineralized vein material.

The main showing on the Silver I claim, sample N-26-1 assayed: silver, 2.90 oz./ton; lead, 10.3%; and zinc, 11.5%. The silver values are markedly lower than E.D. Kindle's reported 14.89 oz./ton silver (Mem. 223). Sample N-7-1 also on the Silver I claim assayed: silver, 13.72 oz./ton; lead, 1.12%; and zinc, 12.2%. This vein was poorly exposed, consisting of large broken pieces of bedrock and talus. It was sampled across the widest mineralized portion.

The assay values for the samples located on the Silver Cup lapsed crown grants range widely, from not appreciable to, in the case of sample N-8-4: silver, 33.10 oz./ton; lead, 22.1%; and zinc, 13.5%. Most of the samples were taken from old trenches and/or pits which have had all or most of the high-grade silver bearing ore removed from the areas exposed. In several cases though, the true width and strike have not been completely exposed.

CONCLUSIONS AND RECOMMENDATIONS

The claim area covers the intrusive-sedimentary contact and also a set of anticlinal/synclinal folds, both of which carry economic values of silver, lead and zinc. The entire western portion of the claims (study area) shows good indicators of finding additional ore bodies.

To date the most economically interesting areas are:

- (1) 'the second vein' and
- (2) the mineralized shear located along the southern rim of the basin, due north of the legal corner post.

'The second vein' is located along the steep south wall at an almost inaccessable elevation of 4800 feet but shows good continuity (+250 feet) and requires further investigation.

The mineralized shear affords ready access and also requires further attention.

The following recommendations are herewith offered:

- (1) Detailed mapping of 'the second vein' to elucidate continuity of mineralization and possible extension along strike.
- (2) Trenching and open cutting above the Silver Cup Basin rim to expose and sample favourable veins (present access adequate).
- (3) Regional mapping and prospecting of the remainder of the property to the east, with specific detail regarding fracture zones and contact zones.

COST ESTIMATE

Detailed geological mapping, and assistant	geologist	\$ 6,000
Trenching, pitting; possibly bulldozer	some with a	10,000
Regional mapping and prospec	ting	6,000
Assays, analyses		1,000
Vehicle, room, board, supplie	ខន	5,000
Supervision, engineering		5,000
Reporting		2,000
	Sub Total	\$ 35,000
Contingencies, @ 10%		3,500
	TOTAL	\$ 38,500

All of which is respectfully submitted

James M. Logan

Geologist

Locke B. Goldsmith, P. Eng.

Consulting Geologist

Vancouver, B.C.

September, 1980

George L. Mill. P. Eng.

Consulting Engineer

GEOLOGIST'S CERTIFICATE

- I, James M. Logan, have a B.Sc. (Honours) degree in Geology from Brock University, Ontario. My address is #1 1133
 Harwood St., Vancouver, B.C. V6E 1R9.
- 2. I have been engaged in mining exploration for 5 years.

 I have co-authored the report entitled "Geological Investigation of the Cup I and Cup II Mineral Claims and Adjoining Areas, Omineca Mining Division, Hazelton, B.C.", dated September 1980. The report is based upon research and field work conducted and supervised by the author.
- 4. I have no ownership in the property, nor do I own shares of Short Staun Minerals Corporation.
- 5. I consent to the use of this report in a prospectus or in a statement of material facts related to the raising of funds.

Respectfully submitted

Vancouver, B.C.

September, 1980

Jame's M. Logan,

Geologist

ENGINEER'S CERTIFICATE

- I, Locke B. Goldsmith, am a Registered Professioal Engineer in the Province of Ontario and a Registered Professional Geologist in the State of Oregon. My address is #301 1855 Balsam St., Vancouver, B.C. V6K 3M3
- 2. I have a B.Sc. (Honours) degree in Geology from Michigan Technological University and have done post-graduate study in Geology at Michigan Tech., University of Nevada and the University of British Columbia. I am a graduate of the Haileybury School of Mines and am a Certified Mining Technician. I am a member of the Society of Economic Geologists, the AIME, and the Australasian Institute of Mining and Metallurgy.
- 3. I have been engaged in mining exploration for the past 21 years.
- 4. I have co-authored the report entitled "Geological Investigation of Cup I and Cup II Mineral Claims and Adjoining Areas, Omineca Mining Division, Hazelton, B.C.", dated September, 1980. The report is based upon research and field work conducted and supervised by the author.
- 5. I have no ownership in the property, nor do I own shares of Short Staun Minerals Corporation.
- 6. I consent to the use of this report in a prospectus or in a statement of material facts related to the raising of funds.

Respectfully submitted

Locke. B. Goldsmith, P. Eng.

Consulting Geologist

Vancouver, B.C.

September 30, 1980

CERTIFICATION

- I, George L. Mill, hereby certify:
- 1 That I am a Mining and Metallurgical Engineer residing at 255-5936 Willow Street, Vancouver, BC. V5Z 3S6.
- 2 That I am a graduate of Queen's University, B.Sc. and a registered member of the Corporation of Professional Engineers of the Province of British Columbia.
- 3 That I have practised my profession for 49 years.
- 4 That I have no financial interest, direct or indirect, in the shares of Short Staun Minerals Corporation, in the CUP-1 and CUP-2 mineral claims, in any other claims in the area and that I do not expect to obtain any such interest.
- 5 That I have not examined the subject claims but that I am familiar with the general area and have discussed its potential with Mr. L.B. Goldsmith, P.Eng., co-author of the report. Certainly the average grade in silver content reported in the appendix appears to warrant investigation. It should be stressed, however, that the claims are non-contiguous and, if initial exploratory work so indicates, the acquisition of contiguous ground on a reasonable basis should be given consideration.
- 6 That I am in complete accord with the Exploratory program as outlined in the report, with the stipulation that initial emphasis be directed to the determination of the strike and dip of the mineralized zone or zones.

George L. Mill, P. Eng.

To accompany report on the CUP claims Omineca Mining Division For Short Staun September, 1980

REFERENCES

- Ariz, J.F.
 - Report on the Sunrise Silver Mines Property, 1973: Unpublished Company Report for New Jersey Zinc Exploration Co. (Can.) Ltd., p. 3.
- Basco, D.M.
 - 1974: Report on the Geological Reconnaisance of Area Covered by the Beta Claims, Nine Mile Mountain, Hazelton, B.C. for Spectrum Industries Res. Ltd.
- Carter, N.C. and Kirkham, R.V.
 - Geological Compilation Map of Smithers, Hazelton and Terrace Areas, B.C.; B.C. Dept. Mines Pet., 1969: Map 69-1.
- Kindle. E.D.
- Mineral Resources, Hazelton and Smithers Area, B.C.; 1954: Geol. Surv. Can. (Rev. Ed.) Mem. 223, p.p. 29-30, 54-55, 64-67.

COST STATEMENT

PERSONNEL				
NAME	POSITION	RATE	DAYS	COST
J.M. Logan	Field	\$ 200	10	\$ 2000
J.P. Ursel	Geologist Field Assistant	90	10	900
ROOM AND BOARD				
20 Man Days @ \$2	22. per day			440
TRANSPORTATION				
Automobile(4x4)	10 Day	/s @ \$10. p	er day	100
ASSAYING				
26 Rock Samples	analysed for \$18.50 per s	r Ag, Zn, P sample	b	481.
REPORT WRITING				
3 Da y s @ \$200. I	per day			600
DRAFTING				
				420
REPORT TYPING				
18 Pages @ \$2. I	per page			36
		TOTAL		\$ 4977





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· ANALYTICAL CHEMISTS

• GEOCHEMISTS

• REGISTERED ASSAYERS

CERTIFICATE OF ASSAY

CERTIFICATE NO.

70242

Mr. Logan TO:

INVOICE NO.

39356

Apt. 1 - 1133 Harwood VANCOUVER, B.C.

RECEIVED

Sept. 24/80

ANALYSED

Oct. 3/80

ATTN:

CAMBLE NO	*	%	*	Z	Oz/Ton	Oz/Ton
SAMPLE NO. :	Cu	Мо	Pb	Zn	Ag	Au
F 4-1			12.6	1.13	4.70	
4-2			5.87	0.52	4.87	
4-3			5.61	1.49	2.72	
2-1			0.50	0.07	2.85	
2-2			0.25	0.89	0.22	
30-1			0.01	0.01	0.17	
F 30-2			0.94	5.40	9.82	
T 13-4			1.24	9.39	8.44	
13-5			11.2	9.20	167.60	
14-1			6.17	11.1	19.44	
25-1			0.14	0.46	1.80	
19 -1			0.36	0.82	34.74	
T 19-3			14.0	14.4	47.22	
N 3-1			11.9	11.5	18.88	
3-2			0.08	0.04	0.26	
5-1			0.92	3.21	1.36	
52			1.83	1.22	4.02	
5-3			3.80	7.16	3.73	
5-4			5.71	26.2	14.02	
5-5			2.20	3.58	2,40	
5-6			33.8	2.22	6.68	
6-1			0.16	0.31	0.36	
6-2			0.06	0.19	0.12	
6-3			1.60	1.56	2.26	
7-1			1.12	12.2	13.72	
			0.68	3.10	1.20	
R-1			0.00	0.29	0.20	
8-2			0.02	0.02	0.06	
8 -3			0.02	0.02	0.26	
8-4			22.1	13.5	33.10	
8-5				12.0	24.26	
9-1			20.9 2.00	1.95	5.48	
9-1 9-2			2.50 9.79	8.68	21.96	
9-2 9-3					17.58	
			7.08	15.3		
9-4 9-5			1.65	10.3	5.50 15.06	
			12.0	7.56	0.40	
2 9 -1			0.16	0.14		
29-2			0.02	0.01	0.36 2.90	
N 26-1	1 06	- 0.001	10.3	11.5	2.90	0.046
T 13-1	1.86	< 0.001	the second of the second of the second	THE LANDSCOTT STREET, STORES		
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MEMBER CANADIAN TESTING ASSOCIATION

