

BROWN, ERDMAN & ASSOCIATES LTD.

1409 BEWICKE AVENUE, NORTH VANCOUVER, BRITISH COLUMBIA V7M 3C7
TELEPHONE 986-1557

92J-3-4

81-253

1982 05 12

Ker, Priestman & Associates Ltd.
402 - 1550 Alberni Street
Vancouver, B.C.
V6G 1A5

ATTENTION: Mr. Paul Turje, P. Eng.

SUBJECT: **Well Drilling Program
Garibaldi Relocation**

Dear Sirs:

Introduction

The drilling of three test wells on the subject property was completed on April 6, 1982. A report on Well No. 1 was covered in our Groundwater Development/Garibaldi Relocation Status Report.

Site 2

After the writing of the status report, this well was drilled to a depth of 76 m (250 ft) without encountering any water-bearing fractures. At that depth, drilling was terminated and the well sealed with a steel plate welded on top of the casing. The hole was not test pumped as sufficient water was not obtained during drilling.

Site 3

Site 3 was selected in the southeast corner of D.L. 4102. It was necessary to do some blasting and bulldozing work to obtain access to the site. Drilling commenced on March 29 and was completed on April 6, 1982. The well was drilled 20.3 cm (8-inch) diameter to a total depth of 136 m (447 feet). The 20.3 cm surface casing was set in a 30.5 cm hole and cemented in place.

Water-bearing fractures were recorded at depths of 24.4 m (80 feet), 100.6 m (330 feet), 109.7 m (360 feet) and 118.9 m (390 feet) at which depth the total flow from the well while blowing was 1.26 L/sec (20 gpm). The free flow from the well was estimated at .25 L/sec (4 gpm).

continued...

Ker, Priestman & Associates Ltd.
Mr. Paul Turje, P. Eng.
1982 05 12
Page 2

The water flowing over the top of the casing, while clean, had a carbonaceous nature to it and the quality was suspect. Because of the question of the water quality, the decision was made not to test pump the well until a chemical analysis had been run.

A chemical analysis performed by Can Test Ltd. showed that the following constituents of the water were very high:

Conductivity (micromhos/cm)	7250
Hardness (mg/L)	3110
Total Dissolved Solids (mg/L)	6740
Alkalinity: Bicarbonate (mg/L)	2060
Chlorides (mg/L)	1000
Sulphates (mg/L)	1700
Total Iron (mg/L)	42.6

On April 15, ten days after the first sample was collected, a second sample was obtained and sent to Chemex Labs to check constituents that had been very high in the first case. These results are as follows:

Conductivity	6700
Total Dissolved Solids	6000
Chlorides	950
Sulphates	1370
Total Iron	15

It can be seen by the comparison of the two samples that, while there appears to be a slight improvement, this may have only been due to a difference in testing methods. A third water sample was collected on April 29 and forwarded to Can Test Ltd. again. The results of a partial test indicate that the conductivity has not declined so the chemical quality of the water has not improved by allowing the well to flow.

It is therefore recommended that Wells 2 and 3 be backfilled and cemented. Well 1 may be retained for use in peak periods.

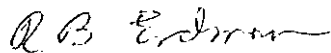
continued...

Ker, Priestman & Associates Ltd.
Mr. Paul Turje
1982 05 12.
Page 3

If any of the above needs clarification or amplification, please do not hesitate to contact us.

Yours truly,

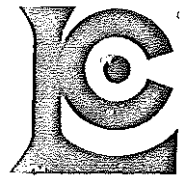
BROWN, ERDMAN & ASSOCIATES LTD.



R. B. Erdman

RBE/dh

Enclosure: Lab reports/Chemex



CHEMEX LABS LTD.

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: (604)984-0221
TELEX: 043-52597

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

TO : BROWN, ERDMAN & ASSOCIATES LTD.
INTERNATIONAL GROUNDWATER CONSULTANTS
1409 BEWICKE AVENUE
NORTH VANCOUVER, B.C.
V7M 3C7

CERT. # : A8210864-001-A
INVOICE # : 18210864
DATE : 28-APR-82
P.O. # : NONE
81-253

* CORRECTED COPY *

ATTN: R.B. ERDMAN , SAMPLE DATED APRIL 15/82

Parameter Description	Sample # 1
Sample preparation code	221
Bicarbonate (mg/L CaCO3)	1900.0
Conductivity (umhos/cm)	6700
Tot diss solids (mg/L)	6000
Chloride (ppm)	950.0
Sulphate/SO2/SO3 (mg/L)	1370.00
Fe ppm (total)	15.000

Sample description information
Sample # 1 GARIBALDI RELOC.

Preparation code description
221 Water sample



MEMBER
CANADIAN TESTING
ASSOCIATION

Certified by *R. B. Erdman*

81-253

Ker, Priestman & Associates Ltd.
402 - 1550 Alberni Street
Vancouver, B.C. V6G 1A5

VIA COURIER

ATTENTION: Mr. Kaj Bronsro, P. Eng.

SUBJECT: **Groundwater Development
Garibaldi Relocation
STATUS REPORT**

Dear Sirs:

This letter outlines results to date of the subject program.

- A. Site 1, located in the northern part of the subdivision, was drilled to a depth of 145 m (475 feet) with an indication while drilling that it would produce 1 L/sec (15 gpm) of water.
- B. Site 1 was pump tested at 1 L/sec (15 gpm) for 1,450 minutes. Water level drawdown and recovery measurements were taken and recorded. Semi-log plots show a stepped pattern as the water-bearing zones were dewatered. The last leg indicates a transmissivity of 20 U.S. gpd/ft. with an indicated specific capacity of 0.01 gpm/ft. The total safe yield of such a well is probably close to 0.1 L/sec (2 gpm.)
- C. At Site 1, the basalt was encountered from ground surface to 33 meters at which point granite was encountered. The basalt, where seen in road cuts in the area, is highly fractured with open columnar joints. Unfortunately, these joints are so tightly closed below 5 to 10 meters that the basalt is essentially "dry." This unexpected feature of the basalt makes it necessary to explore the granite for water along well-defined fracture zones.
- D. Site 2 was located as close to a set of intersecting fracture zones as was possible on Lot 4102. To date, this hole has been drilled to 70 m (230 feet). Basalt was encountered to 10 m (23 feet), altered volcanics to 47 m (153 feet) at which point granite was encountered. No water-bearing fractures have been encountered.

Ker, Priestman & Associates Ltd.
Mr. Kaj Bronsro
1982 03 19
Page 2

- E. Reference to the attached xerox copy of an air photo will show the fracture zones which are readily visible on the mountain side above the B.C.R. tracks. The intersection of these zones is off Lot 4102 although a minor splay zone cuts across the lot some 100 to 150 m north of the existing house. (Note: the unmarked Xerox air photo copy is to allow you to see features that may be masked by red ink).
- F. Site 2, located as it was close to the various fracture zones, was expected to be close enough to these fractures to encounter tension joints accompanying such zones. To date, this has not been the case.

From the above, there appear to be four possible courses of action:

1. Continue to drill Site 2 to 145 m in the hope that fractures will be encountered at depth. The unfractured nature of the granite to date suggests that this has only a slight chance of success.
2. Move northwards from Site 2 and the existing house where the splay fracture zone crosses the existing road and drill 70 m to test for broken rock on Lot 4102.
3. Make arrangements to drill to the south of Lot 4102 where the main southeast-northwest trending fracture zone crosses the lake and marsh area between the B.C.R. and the southern nose of the basalt plateau. The most promising area is where the existing Pinecrest Road drops off the basalt nose and turns towards the B.C.R. tracks.
4. Develop a surface water source. The practical nature of this option is left to yourself to judge.

The drill crew has left the site for the weekend and expect to return on Tuesday, March 23, 1982.

81-253

1982 03 26

Ker, Priestman & Associates Ltd.
402 - 1550 Alberni Street
Vancouver, B.C. V8G 1A5

ATTENTION: Mr. Kaj Bronsro, P. Eng.

SUBJECT: **Groundwater Development
Garibaldi Relocation
Groundwater Quality**

Dear Sir:

Attached please find the chemical analysis of a sample of water from the first well at the subject site. You will note that this is a sodium chloride water with chloride at 280 mg/L, being slightly above the preferred level of 250 mg/L in the Canadian Drinking Water Standards. Total iron and manganese are high but this is probably due to turbidity common to new wells.

We would expect the proposed new well, which will be in granitic rocks, to have a slightly better water than the water tested. However, the waters should be similar.

Please check this analysis and assure yourself that this water will be acceptable before we drill the third well.

Yours truly,

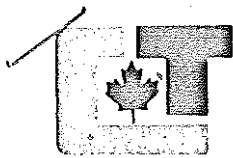
BROWN, ERDMAN & ASSOCIATES LTD.

W. L. Brown, P. Eng.

WLB/dh

Enclosure:

P.S. Attached also find twelve random snapshots of area of second well site and proposed third site with notes on back.



A.T. CAN TEST LTD.

1650 PANDORA STREET, VANCOUVER, B.C. V5L 1L6 • TELEPHONE 254-7278 • TELEX 04-54210

Report On Water analysis File No. 5552E
Reported To Brown, Erdman & Associates Ltd. Report No. _____
1409 Bewicke Avenue P.O. # _____
North Vancouver, B.C. Date March 22, 1982
Attention: Dick Erdman

We have tested the sample of water submitted by B.C. Aquifer Testing and Equipment on March 5, 1982 and report as follows:

PROJECT: GARIBALDI

SUMMARY:

The water represented by the sample submitted can be characterized as a hard water, also very high with respect to dissolved mineralization.

For the parameters tested, the sample met the limits set by "Guidelines for Canadian Drinking Water Quality, 1978", published by the authority of Health and Welfare, Canada with the exception of turbidity (limit = 5.0 J.T.U.), total dissolved solids (limit = 500 mg/L), dissolved chlorides (limit = 500 mg/L) and dissolved manganese (limit = 0.05 mg/L). Significant concentrations of total suspended solids, total iron and total manganese were also noted.

Turbidity, suspended solids, total iron and total manganese are inter-related. High values are often associated with new wells. These parameters, and dissolved manganese are of concern for aesthetic (appearance, taste, staining) reasons.

Total dissolved solids is evaluated depending to its components, in this case mainly alkalinity, hardness, chlorides and sodium (the latter two present probably as sodium chloride, salt). These parameters are of concern for aesthetic (taste, incrustation in water systems) reasons.

SAMPLE IDENTIFICATION:

The sample was submitted in a plastic bottle labelled:

<u>CTL#</u>	<u>IDENTIFICATION</u>
1	Garibaldi Test March 3/82 @1110

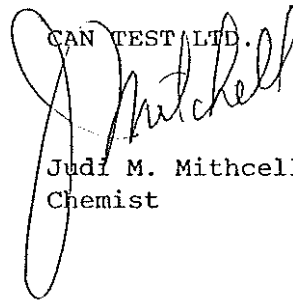
.... /2

METHOD OF TESTING:

The analyses were carried out in accordance with procedures described in "Standard Methods for the Examination of Water and Wastewater (15th Edition)" published by the American Public Health Association, 1980.

RESULTS OF TESTING:

See page 3

CAN TEST LTD.

Judi M. Mithcell, B.Sc.,
Chemist

/cs

RESULTS OF TESTING:

SAMPLE # 1
CLIENT SAMPLE I.D. GARIBALDI TEST

PHYSICAL TESTS

pH		7.50
Conductivity (micromhos/cm)		1450.
Colour [Pt-Co scale] (CU)		5.
Turbidity (JTU)		7.0
Hardness (mg/L)	CaCO3	255.

SOLIDS (mg/L)

Total Suspended		22.5
Total Dissolved		1060.

DISSOLVED ANIONS (mg/L)

Alkalinity: Bicarbonate	HCO3	285.
Alkalinity: Carbonate	CO3	Nil
Alkalinity: Hydroxide	OH	Nil
Chlorides	Cl	280.
Sulfates	SO4	149.
Nitrates and Nitrites	N	0.004
Ortho Phosphates	P	< 0.010
Fluorides	F	0.42

DISSOLVED METALS (mg/L)

Cadmium	Cd	< 0.001
Calcium	Ca	62.2
Copper	Cu	0.029
Iron	Fe	< 0.030
Lead	Pb	< 0.001
Magnesium	Mg	22.6
Manganese	Mn	0.27
Potassium	K	6.22
Silicon	SiO2	30.6
Sodium	Na	219.
Zinc	Zn	0.014

TOTAL METALS (mg/L)

Iron	Fe	1.51
Manganese	Mn	0.28

mg/L = milligrams per liter

< = Less than = Not Detected

MAR 05 1982



B.C. Aquifer Testing & Equipment

Complete Water Well Services

588 Mehta Place, Victoria, B.C. V8Z 6C5 - Ph 479-4132
5275 S. Island Hwy., Box 171, Duncan, B.C. V9L 1N8 - Ph 248 4041

PUMPING TEST DATA

CUSTOMER'S NAME BROWN, ERDMAN & ASSOC.

CUSTOMER'S ADDRESS 101 BONHICK AVE N. VAN.

CUSTOMER'S PHONE NUMBER 9861657 DATE MAR. 3/82

LOCATION OF PUMPED WELL GARIBALDI

WELL TO BE USED FOR? DOMESTIC WATER SUPPLY

CONSULTANT OR ENGINEER BILL BROWN

DEPTH OF WELL 144.40 m. DIA. OF WELL 8"

AMOUNT OF CASING ABOVE GROUND LEVEL 0.280 m.

IF APPLICABLE

LENGTH OF SCREEN(S) NIL DIA. OF SCREENS NIL

DISTANCE TO TOP OF SCREEN (FROM GROUND LEVEL) NIL

IF THERE ARE BLANKS USED WITH SCREENS- USE SPACE PROVIDED TO DETAIL.

TYPE OF PUMP USED SUBMERSIBLE

HORSEPOWER 5 DIA. 3 5/8"

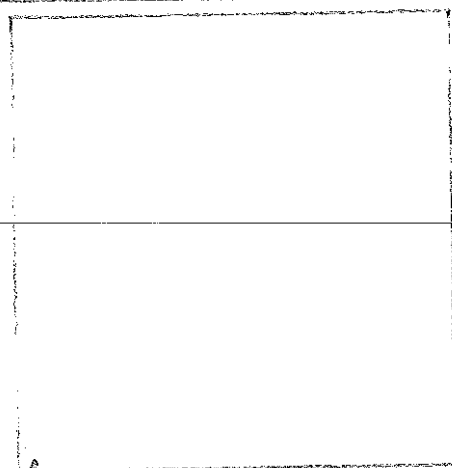
INTAKE SET AT 61.712 m.

BOTTOM OF PUMP AT 62.012 m.

TYPE OF MEASURING DEVICE 45 MP GAGE OLSON

AMOUNT OF DISCHARGE PIPE USED 30 m.

SIZE OF DISCHARGE PIPE USED 2"



S.W.L. (BEFORE TEST) 9.391 m. (AFTER TEST AND RECOVERY) 14.132

TOTAL DRAWDOWN 41.266 m. TOTAL RECOVERY 36.525 m.

DAMAGE OR LOSS

ANY DAMAGE MUST BE NOTED ON THE BILL OF LADING AT THE TIME OF DELIVERY OTHERWISE CONSIGNEE'S SIGNATURE WILL CONSTITUTE CONCLUSIVE PROOF OF GOODS HAVING BEEN RECEIVED IN GOOD ORDER AND CONDITION. CARRIER WILL NOT BE LIABLE FOR ANY DAMAGE OR LOSS UNLESS WRITTEN NOTICE THEREOF IS GIVEN TO CARRIER AT ITS REGION OR HEAD OFFICE WITHIN 10 DAYS AFTER THE SHIPMENT WAS RECEIVED BY THE CARRIER FOR CARRIAGE.

CHARGES AND RATES

FREIGHT CHARGES ARE PREPAID UNLESS OTHERWISE STATED. THIS BILL OF LADING SHALL BE DEEMED TO INCORPORATE SUCH TERMS AND CONDITIONS AS MAY BE REQUIRED TO BE INCORPORATED BY THE LEGISLATION OF ANY JURISDICTION TO WHICH IT IS SUBJECT. ON COLLECT SHIPMENTS IF CONSIGNEE DOES NOT PAY FULL CHARGES, SHIPPER AGREES TO PAY ALL CHARGES.

DELAY AND LIMITATION OF LIABILITY

UNLESS ESPECIALLY AGREED TO IN WRITING PRIOR TO SHIPMENT, CARRIER WILL NOT BE LIABLE IN EXCESS OF THE DECLARED VALUE OR \$500.00, WHICHEVER IS LESS FOR ANY AND ALL DAMAGES WHATSOEVER ARISING FROM THE FAILURE OR DELAY IN DELIVERY OF ANY SHIPMENT OR FOR ANY OTHER REASON INCLUDING THE NEGLIGENCE OF THE CARRIER, ITS SERVANTS OR AGENTS. 2. TRANSPORT ANY DOCUMENTS OR GOODS DECLARED TO HAVE A VALUE IN EXCESS OF \$500. 3. TRANSPORT ANY SPECIE. IF NO VALUE IS DECLARED ON THE FACE HEREOF, OR IF A SHIPMENT HAS A DECLARED VALUE IN EXCESS OF \$500.00 AND NO PRIOR SPECIAL AGREEMENT IN WRITING HAS BEEN OBTAINED, THIS SHALL BE DEEMED TO BE AN AGREEMENT THAT THE VALUE OF THE GOODS SHIPPED IS \$200.00 (\$4.41/KG) AND CARRIER SHALL NOT BE LIABLE FOR ANY DAMAGES IN EXCESS THEREOF. UNDER NO CIRCUMSTANCES WILL CARRIER BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES.

DANGEROUS GOODS

CARRIER WILL NOT BE LIABLE FOR ANY LOSS, DAMAGE, FAILURE TO PERFORM OR DELAY FOR GOODS THAT ARE PROHIBITED, RESTRICTED OR REQUIRED TO BE CARRIED IN SPECIAL CONTAINERS BY IATA, OR OTHERWISE, UNLESS SHIPPER FULLY DISCLOSES NATURE OF DANGEROUS GOODS AND SAME HAVE BEEN PROPERLY CONTAINED. SHIPPER AGREES TO INDEMNIFY CARRIER FOR ALL COSTS AND DAMAGES CAUSED BY ITS FAILURE TO DISCLOSE AND/OR PROPERLY CONTAIN DANGEROUS GOODS.

NOTE: CARRIER DOES NOT GUARANTEE DELIVERY TIMES.

DOMMAGES OU PERTE

TOUT DOMMAGE DOIT ETRE INDIQUE SUR LA FACTURE AU MOMENT DE LA LIVRAISON AUTREMENT LA SIGNATURE DU CONSIGNATAIRE CONSTITUERA PREUVE CONCLUANTE QUE LA MARCHANDISE A ETE RECUE EN BON ETAT ET EN BONNE CONDITION. LE PORTEUR NE SERA PAS TENU RESPONSABLE POUR TOUT DOMMAGE OU PERTE SAUF SI UN AVIS ECRIT D'UN TEL DOMMAGE OU D'UNE TELLE PERTE EST DONNE AU PORTEUR A SON BUREAU REGIONAL OU SIEGE SOCIAL DANS LES DIX JOURS SUIVANT LA RECEPTION DE LA MARCHANDISE PAR LE PORTEUR POUR FIN D'EXPECTION.

FRAIS ET TAUX

LES FRAIS DE TRANSPORT SONT PAGES A L'AVANCE SAUF SOUS AVIS CONTRAIRE CETTE FACTURE SERA CONSIDEREE COMME INCORPORANT LES MODALITES QUI PEUVENT ETRE REQUISES PAR LA LOI DE TOUTE JURIDICTION A LAQUELLE ELLE EST ASSUJETTEE. EN CE QUI A TRAIT A LA MARCHANDISE ENVOYEE A FRAIS VIBES OU PAYABLE SUR RECEPTION SI LE CONSIGNATAIRE NE PAIE PAS LES FRAIS COMPLETS, L'EXPEDITEUR ACCEPTE DE PAYER TOUTS LES FRAIS.

DELAI ET LIMITE DE RESPONSABILITE

SAUF SOUS ACCORD ECRIT PREALABLE A L'EXPECTION DE LA MARCHANDISE, LE PORTEUR:

1. NE SERA PAS TENU RESPONSABLE EN SUS DE LA VALEUR DECLAREE OU \$500.00, LEQUEL MONTANT EST LE MOINS ELEVE, POUR TOUT DOMMAGE QUELCONQUE PROVENANT DE FAUTE OU DE DELAI DE LIVRAISON DE TOUTE MARCHANDISE EXPEDIEE, OU POUR TOUTE AUTRE RAISON Y COMPRIS LA NEGLIGENCE DU PORTEUR, SES EMPLOYES OU AGENTS.
2. NE TRANSPORTERA PAS TOUTS DOCUMENTS OU MARCHANDISES DECLAREES, COMME AYANT UNE VALEUR DEPASSANT \$500.
3. NE TRANSPORTERA PAS TOUTES ESPECES. SI AUCUNE VALEUR EST DECLAREE A L'ENDROIT DE CE DOCUMENT, OU SI LA MARCHANDISE EXPEDIEE A UNE VALEUR DECLAREE SUPERIEURE A \$500.00 ET QU'UN ACCORD PREALABLE SPECIAL A ETE CONCLU ET OBTENU PAR ECRIT, CE CI SERA CONSIDERE COMME UN ACCORD AU FAIT, QUE LA VALEUR DE LA MARCHANDISE EST DE \$200.00 (\$4.41/KG) ET LE PORTEUR NE SERA PAS TENU RESPONSABLE POUR TOUT DOMMAGE EN SUS DE CE MONTANT. DANS AUCUNE CIRCONSTANCE LE PORTEUR SERA TENU RESPONSABLE POUR TOUT DOMMAGE INCIDENTEL OU SECONDAIRE.

MATIERES DANGEREUSES

LE PORTEUR NE SERA PAS TENU RESPONSABLE POUR TOUT DELAI DE LIVRAISON DE DOMMAGE POUR TOUTE FAUTE DE LIVRER OU POUR TOUT DELAI DE LIVRAISON DE MARCHANDISE QUI EST INTERDITE SOUMISE A DES RESTRICTIONS OU QUI DOIT ETRE TRANSPORTEE DANS DES CONTENANTS SPECIAUX SELON LA COMMISSION CANADIENNE DES TRANSPORTS (CTO), LIATA, OU AUTREMENT, SAUF SI L'EXPEDITEUR DECLARE COMPLETEMENT LA NATURE DES PRODUITS DANGEREUX ET QUE CES PRODUITS SONT CONTENUS ET EMPAQUETES CORRECTEMENT. L'EXPEDITEUR ACCEPTE DE DEDOMMAGER LE PORTEUR POUR TOUTS LES COUTS ET DOMMAGES CAUSES PAR SON OMISSION DE DECLARER ET/OU D'EMPAQUETER CORRECTEMENT DES MATIERES DANGEREUSES.

AVIS: LA DATE ET L'HEURE DE LIVRAISON NE SONT PAS GARANTIES PAR LE PORTEUR.



B.C. AQUIFER TESTING & EQUIPMENT

DRAWDOWN

READINGS

Actual time of day	Elapsed Time (MINUTES)	Water Level (METERS)	Flow Rate (IMP. G.P.M.)	Remarks
1100	0	9.391		WELL DEPTH - 144.40 M.
30	.5	11.100		PUMP INTAKE @ 61.712 M.
1101	1	12.431		MEASURING PT - 0.280 M. AGL.
30	1.5	13.472		100' - 2" DISCHARGE DOWNGRADE
1102	2	14.563		
30	2.5	15.130		
1103	3	15.855	18.9	14 SEC FOR 4.4 IMP. GAL
30	3.5	16.601		RATE DECREASED SLIGHTLY WATER SLIGHTLY GRAY COLORED
1104	4	17.420		
30	4.5	18.140		
1105	5	18.660		
1106	6	19.739	16.5	16 SEC FOR 4.4 IMP GAL
1107	7	20.590		RATE DECREASED SLIGHTLY
1108	8	21.330		
1109	9	21.915		
1110	10	22.415	15.5	17 SEC FOR 4.4 IMP. GAL
1112	12	23.372		WATER CLEAR + NO SACTINSE
1114	14	24.144		
1116	16	24.823		
1118	18	25.364		
1120	20	25.816		
1125	25	26.811	15.4	175 SEC FOR 45 IMP GAL
1130	30	27.517		
1135	35	28.034		
1140	40	28.517		
1145	45	28.929		
1150	50	29.312	15.4	175 SEC FOR 45 IMP GAL
1200	60	29.960		



B.C. AQUIFER TESTING & EQUIPMENT

DRAWDOWN

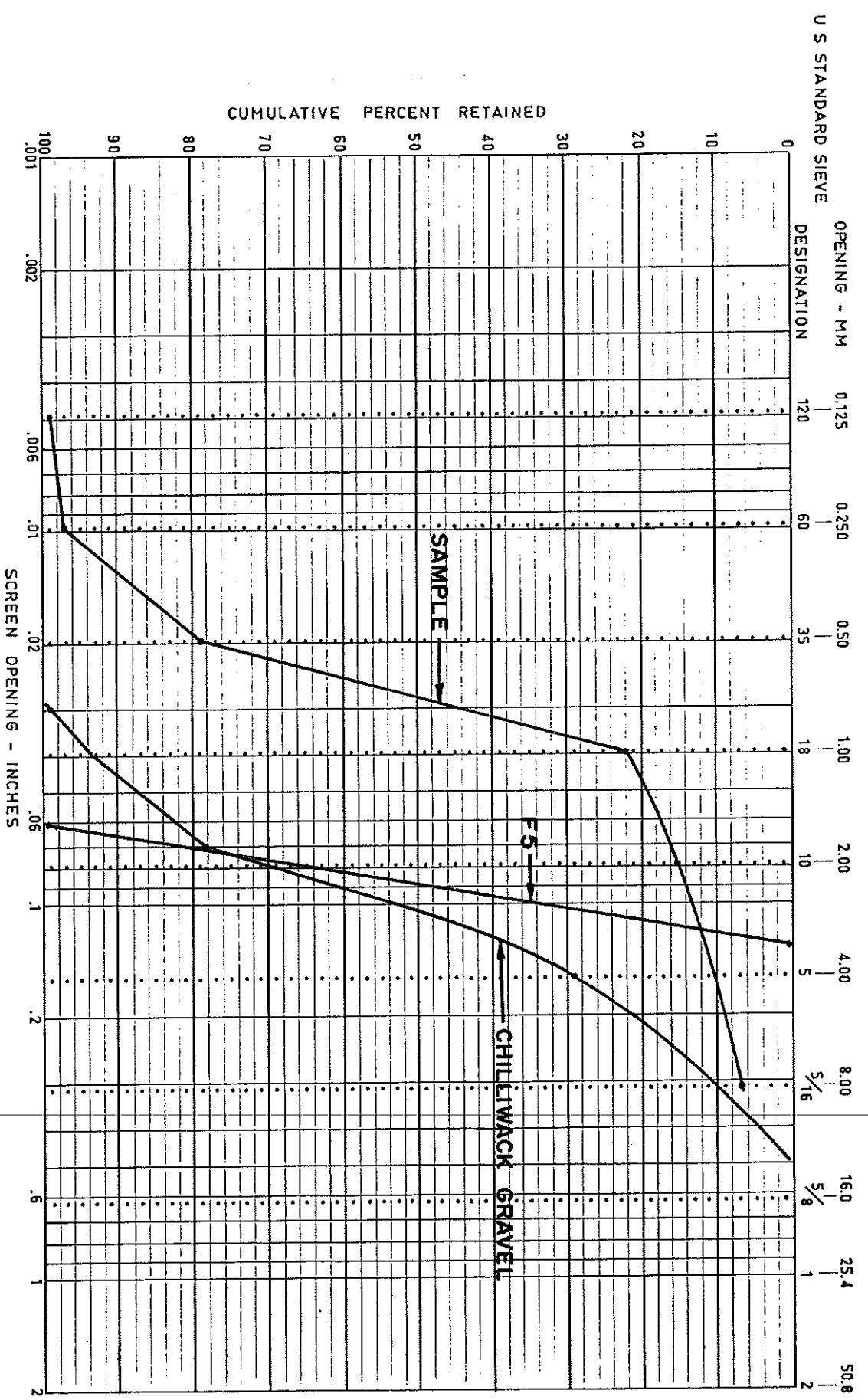
READINGS

Actual time of day	Elapsed Time (MINUTES)	Water Level (METERS)	Flow Rate (IMP. G.P.M.)	Remarks
12:10	70	30.414		
12:20	80	30.129		
12:30	90	31.001	15.4	175 sec TO FILL 45 IMP. DRUM.
12:40	100	31.272		
13:05	125	31.180	15.4	175 SECS.
13:30	150	32.151		
14:20	200	32.767	15.4	RATE OK.
15:10	250	35.231		RATE 175 SECS CHECKED 3 X.
16:00	300	35.481	15.4	175 SECS FOR 45 IMP GAL DRUM.
16:50	350	35.755		
17:40	400	36.835	15.4	NEW OBSERVER 175 SEC RATE OFF; ADJUSTED SLIGHTLY
18:30	450	37.288		NOTE: RATE TAKEN WITH PUMP TEST CLOCK WHICH IS 2 SECS DIFFERENT FROM WRIST WATCH BY WHICH PRIOR RATES WERE TAKEN. WRIST WATCH WILL BE USED EXCLUSIVELY
19:20	500	40.499		
20:10	550	41.064	15.4	NEW OBSERVER BE USED EXCLUSIVELY
21:00	600	41.445	15.4	WATER SLIGHTLY CLOUDY @ 20:10
21:50	650	41.121		175 SECS WATER STILL CLOUDY
22:40	700	43.745	15.4	RATE OK WATER SLIGHTLY MURKY.
23:30	750	44.197		
MAR. 3/82 00:20	800	44.457	15.4	175 SEC NEW OBSERVER
01:10	850	44.680		
02:00	900	44.866	15.4	RATE OK WATER SLIGHTLY CLOUDY
02:50	950	45.059		
03:40	1000	45.238	15.4	175 SEC FOR 45 IMP. GAL
04:30	1050	45.487		
05:20	1100	45.883	15.4	RATE OK
06:10	1150	46.301		
07:00	1200	46.636	15.4	175 SEC FOR 45 IMP GAL
07:50	1250	47.062	15.4	175 SECS - WATER ALMOST CLEAR

**B.C. AQUIFER TESTING & EQUIPMENT**RECOVERY

READINGS

Actual time of day	Elapsed Time (MINS.)	Water Level (METERS.)	Flow Rate ()	Remarks
MARCH 3/82 1110	0	50.651		
30	05	49.802		
1111	1	48.970		
30	15	47.970		
1112	2	47.042		
30	25	46.151		
1113	3	45.335		
30	35	44.430		
1114	4	43.685		
30	45	42.786		
1115	5	42.148		
1116	6	40.670		
1117	7	39.241		
1118	8	37.844		
1119	9	36.762		
1120	10	35.829		
1122	12	35.252		
1124	14	34.065		
1126	16	32.370		
1128	18	30.193		
1130	20	28.151		
1135	25	24.670		
1140	30	22.085		
1145	35	20.587		
1150	40	19.182		
1155	45	18.325		
1200	50	17.611		
1210	60	16.820		



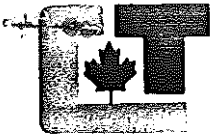
SILT	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE
SAND			GRAVEL			

M.I.T. GRAIN SIZE CLASSIFICATION



BROWN, ERDMAN & ASSOCIATES LTD.

GARIBALDI RELOCATION		GRAIN SIZE ANALYSIS		BY:	DATE:
BROW CREEK GRAVEL				JOB:	30-06-82
				81-253	DWG:



can test ltd.

1650 PANDORA STREET, VANCOUVER, B.C. V6L 1L6 • TELEPHONE 254-7278 • TELEX 04-54210

Report On Water Analysis File No. 6203E
Reported to Brown, Erdman & Associates Ltd. Report No. _____
1409 Bewicke Avenue Date May 20, 1982
North Vancouver, B.C.
Att'n: Dick Erdman

We have tested the sample of water submitted by you on May 3, 1982 and report as follows:

SUMMARY:

The water represented by the sample "Brew Creek" (Sample CTL#1) submitted can be characterized as a soft water, also low iwth respect to dissolved mineraliztation.

SAMPLE IDENTIFICATION:

The sample was received in plastic and glass bottles, and a sterilized containers labelled as:

PROJECT:	GARIBALDI RED
PROJECT NO.:	81-253
DATE SAMPLED:	April 29, 1982
CTL#	IDENTIFICATION
1	Brew Creek
2	Well #3

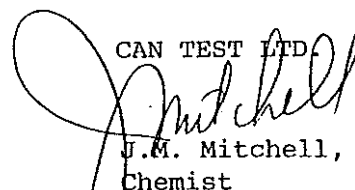
METHOD OF TESTING:

The analyses were carried out in accordance with procedures described in: "Standard Methods for the Examination of Water and Wastewater" 15th Edition, 1980, and 14th Edition, 1975; published by the American Public Health Association.

The metals were determined by using Inductively Coupled Plasma Spectrographic analysis, direct or graphite furnace atomic absorption spectro-photometry, or hydride generation.

RESULTS OF TESTING:

See page 2.

CAN TEST LTD.

J.M. Mitchell, B.Sc.
Chemist

RESULTS OF TESTING:

SAMPLE # CLIENT SAMPLE I.D.	1 BREW CREEK	2 WELL #3
PHYSICAL TESTS		
pH	7.25	7.50
Conductivity (micromhos/cm)	66.2	7150.
Colour [Pt-Co scale] (CU)	5.	-
Turbidity (JTU)	0.55	-
Hardness (mg/L) CaCO3	29.5	-
SOLIDS (mg/L)		
Total Suspended	0.5	-
Total Dissolved	58.	-
DISSOLVED ANIONS (mg/L)		
Alkalinity: Bicarbonate HCO3	32.3	2120.
Alkalinity: Carbonate CO3	Nil	Nil
Alkalinity: Hydroxide OH	Nil	Nil
Chlorides Cl	1.86	1090.
Sulfates SO4	3.0	550.
Nitrates and Nitrites N	0.083	-
Ortho Phosphates P	< 0.010	-
Fluorides F	< 0.03	-
DISSOLVED METALS (mg/L)		
Cadmium Cd	< 0.001	-
Calcium Ca	10.5	-
Copper Cu	0.004	-
Iron Fe	0.037	-
Lead Pb	< 0.001	-
Magnesium Mg	0.79	-
Manganese Mn	< 0.003	-
Potassium K	0.19	-
Silicon SiO2	4.59	-
Sodium Na	1.96	-
Zinc Zn	< 0.010	-
TOTAL METALS (mg/L)		
Iron Fe	0.12	0.068
Manganese Mn	0.007	0.002

mg/L = milligrams per liter

< = less than = not detected