40681

GROUNDWATER DEVELOPMENT ARBUTUS RIDGE (HATCH POINT, B.C.)

FOR

CRC CANADIAN RETIREMENT CORPORATION

AND

APLIN & MARTIN ENGINEERING LTD.

DOMESTIC WELL NO. 6

W.L. Brown, P. Eng.

May, 1990

1.0 INTRODUCTION

- 1.1 Location Domestic Well 6 is located in the west central area of Arbutus Ridge Estates approximately 60 m (200 feet) north of Hutchinson Road and 280 m (900 feet) west of Ratcliffe Road. Domestic Well No. 6 lies approximately 175 m (575 feet) southeast of Domestic Well 5 and 303 m (995 feet) southeast of Domestic Well 4. Please see Well Location Map Fig. 1 in pocket.
- 1.2 Drilling and Testing This well was constructed and tested during February and March 1990.

2.0 GEOLOGY

- 2.1 Bedrock Domestic Well 6 was drilled to a depth of 108.2 m (355 feet) or to approximately sea level without encountering the bedrock that was found in Domestic Wells 1 and 2.
- 2.2 Unconsolidated Sediments Domestic Well 6 encountered artesian sand and gravel aquifers that are capped by 84 metres (275 feet) of relatively impervious gravels, sands, silts, and clays. The static water level in the screened intervals was approximately 45 m (148 feet) below present ground surface at an elevation of 63 m (208 feet). The screened intervals in Domestic Wells 4, 5 and 6 are all in the same geologic setting so that all three wells affect each other during pumping.

3.0 CONSTRUCTION

Domestic WEll 6 was drilled by an air rotary rig. Reference to the well log will show that this well is cased with 203 mm (8-inch) diameter steel casing and that the screen assembly consists of two 203 mm (8-inch) telescopic diameter stainless steel well screens capped and separated by 178 mm (7-inch) diameter steel pipe. A 178 mm (7-inch) diameter pump sump bottoms the screen assembly. The well screens have 10 and 20/1000 inch slot openings.

The screened water-bearing zones were developed by air blowing.

4.0 PUMP TESTING

This well was tested at a pumping rate of 175 Igpm (211 U.S. gpm) for the first 1350 minutes of the test and at a rate of 158 Igpm (190 U.S. gpm) for the remainder of the test. The well was pumped for a total of 4350 minutes (72.5 hours). Two Hundred Fifty (250) minutes of recovery measurements were taken after the pump had been shut off. Please see attached pump test data for details.

5.0 PUMP TEST ANALYSIS

Reference to Fig. 2, the semi-log plot of water level drawdown during pumping will show that the cones of influence around this well encountered water-bearing zones with a transmissivity value of approximately 7000 and 3200 U.S. qpd/ft.

The lower value of 3200 U.S. gpd/ft is judged to be the effective transmissivity for productivity analysis.

6.0 PRODUCTIVE CAPACITY

6.1 General Statement

The productive capacities of Domestic Wells 4 and 5 are recalculated in this section using the data obtained from the pump testing of Domestic Well 6 because all three wells affect each other when they are being pumped.

Please see Figures 3, 4 and 5, the distance - drawdown charts used to calculate the interference between these wells.

6.2 Domestic Well 4 - the productive capacity of this well is calculated as follows:

Depth to Top of Screen	94.5 metres	310 feet
Static Water Level	19.9	65
Total Available Drawdown	74.6	245

Specific Capacity 0.26 (51/199) U.S. gpm/foot of drawdown.

Interference from Domestic Wells 5 and 6 (Fig. 5) 20 + 16 = 36 feet

Productive Capacity at 70% of Total Available Drawdown 0.7(245-36)0.26 = 38 U.S. gpm or 32 Igpm

6.3 Domestic Well 5 - Calculated as above:

Depth to Top of Screen Static Water Level	104.5 metres 39.9	343 feet 131
Static Mater Fever		121
Total Available Drawdown	64.6	212

Specific Capacity 1.6 U.S. gpm/foot of drawdown.

Interference from Domestic Wells 4 and 6 (Fig. 4) 20 + 19 = 39 feet

Productive Capacity at 70% of Total Available Drawdown 0.7(212-39)1.6 = 194 U.S. gpm or 162 Igpm

It is generally believed that the velocity of water through a well screen should not exceed 0.1 feet per second to prevent turbulent flow and the danger that such flow will move sand. A flow of 174 U.S. gpm will produce an entrance velocity of 0.1 feet per second and increasing the flow to 194 U.S. gpm will increase the entrance velocity of the water through the screen to 0.11 feet per second. Experience has shown that this slight increase in velocity will not make Domestic Well 5 a "sand pumper."

6.4 Domestic Well 6 - calculated as above:

Depth to Top of Screen Static Water Level	84.1 metres 45.1	276 feet 148
Total Available Drawdown	39.0	128

Specific Capacity 1.7 (190/113) U.S. gpm/foot of drawdown.

Interference from Domestic Wells 4 and 5 (Fig. 3) 15 + 17 = 32 feet

Productive Capacity at 70% of Total Available Drawdown 0.7(128-32)1.7 = 114 U.S. qpm or 95 Igpm

7.0 WATER QUALITY

Samples of water were collected prior to the end of each pump test. These were sent to a commercial laboratory for chemical analyses. These show that the groundwater from this well is potable and meets the Canadian and British Columbia drinking water guidelines for all parameters analysed. Please see the chemist's report attached.

8.0 RECOMMENDATIONS AND CONCLUSIONS

- 8.1 Based upon presently available information the safe productive potential of Domestic Well 6 is 114 U.S. gpm, 95 Igpm, or 620 m³/day including interference from wells 4 and 5.
- 8.2 The total proven capacity of the Arbutus Ridge Estates Domestic Well Field is now as follows when all wells are being pumped:

Domestic Well 1 Domestic Well 2 Domestic Well 3 Domestic Well 4 Domestic Well 5 Domestic Well 6	55 35 38 194	US US US US	gpm gpm gpm gpm	46 29 32 162	I I I	gpm gpm	300 190 207 1057	m^3/day m^3/day m^3/day m^3/day m^3/day m^3/day
Total Productive Capacity	502	US	gpm	419	Ι	gpm	3735	m ³ /day

- 8.3 If more groundwater is needed, more wells can be located south of Domestic Well 6. Also the deep bedrock channel indicated by the results of Domestic Well 4 drilling should be explored to determine the type and productivity of those sediments filling the channel.
- 8.4 It is important to note that the aquifer discovered in Domestic Wells 4, 5 and 6 is hydrogeologically separated from the aquifer developed in Domestic Wells Nos. 1, 2 and 3. These two sets of wells should not affect the productive potentials of each other.

8.5 These wells should NOT be

overpumped vibrated raw-hided sealed and put under vacuum

- 8.6 The new concrete cribbings that will be constructed around these new domestic wells will change the datum of the measuring point from that used on the well logs and pump tests attached to this and previous reports. The relationship between the original ground surface and the new top of cribbings should be established and recorded.
- 8.7 The pumps set in the pump sumps should be "shrouded" to ensure that the motors are properly cooled.
- 8.8 Water level measurements should be made and recorded in all wells during the first five years of operation. These records should be reviewed by the writer once a year with a view to increasing the safe productive potential of the well field.
- 8.9 When all the pumps are installed in all the wells the well field should be "tuned" to produce the maximum total safe production without dewatering the well screens.





CHEMICAL ANALYSIS REPORT

Date:

April 11, 1990

File No.

1003B

Report On:

Water Analysis

Report To:

Brown Erdman & Turner Ltd. 207 - 132 West 15th Street

North Vancouver, B. C.

V7M 1R5

DATE OF SUBMISSION:

Mar. 26/90

SAMPLE IDENTIFICATION

Labelled as shown in RESULTS section.

METHODOLOGY

Analysed in accordance with "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, 1985.

RESULTS OF ANALYSIS

Results are presented in the table(s) attached.

REMARKS

The water as represented by the sample "Arbutus Ridge DW #6 can be characterized as moderate with respect to dissolved mineralization.

The water sample met Canadian and British Columbia drinking water guidelines for all parameters analysed.

ASL ANALYTICAL SERVICE LABORATORIES LTD.

Barbara Szczachor, B.Sc.

Supervisor

Water Quality Laboratory

Nelida Parreno, B.Sc.



BS/NP/dmc

analytical service laboratories ltd.

RESULTS OF ANALYSIS

File No. 1003B Page 2 of 2

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		Arbutus Ridge DW #6 Har 23/90	Drinking *1 Water Guidelines	
Physical Tests				
pH Conductivity Colour Turbidity Suspended Solid Dissolved Solid Total Hardness		7.83 145. <5.0 <0.1 <1.0 120. 60.6	6.5-8.5 	
Anions				
Alkalinity Sulfate Chloride Fluoride Silicate NO3/NO2	CaCO3 SO4 C1 F SiO2 N	70.2 3.3 3.2 0.06 21.1 0.092	500. 250. 1.5 10.0	
Total Metals				
Iron Manganese	T Fe T Mn	<0.03 <0.005	0.30 0.05	
Dissolved Meta	<u>ls</u>			
Arsenic Barium Cadmium Chromium Copper	D As D Ba D Cd D Cr D Cu	0.0031 <0.010 <0.0002 <0.015 <0.010	0.05 1.0 0.005 0.05 1.0	
Iron Lead Manganese Zinc	D Fe D Pb D Mn D Zn	<0.03 <0.001 <0.005 <0.005	0.05 5.0	
Calcium Magnesium Potassium Sodium	D Ca D Mg D K D Na	15.5 5.20 0.76 6.52	- - - *3	
Other Tests				
Coliform Tota Feca	; =	ND ND	Ξ	

< = Less than T = Total D = Dissolved
NO;/NO; = Nitrate/nitrite nitrogen
ND = Not Detected
Results expressed as milligrams per litre except for pH,
Conductivity (\(\mu\mathrm{m}\)hos/cm), Colour (CU), Turbidity (NTU), and
Coliform Bacteria (colonies/100 ml).</pre>

^{*1 &}quot;Maximum acceptable concentration" as published by Health & Welfare Canada, 1985
*2 Maximum level not established - water supplies with a hardness exceeding 200 mg/L are considered poor but will be tolerated.
Not a health consideration
*3 Maximum level not established - of concern to consumers with sodium restricted diet. Levels exceeding 20 mg/L may be of concern in this circumstance.

HATCH POINT

DOMESTIC WELL NO. 6

(Test Well "D")

Depth below gro Metres	und surface Feet	Description
0 - 47.5 47.5 - 55.8	0 - 156 156 - 183	Silt and gravel Sand and gravel some silt
55.8 - 70.1	183 - 230	Sand and gravel, bits of wood
70.1 - 73.5	230 - 241	Sand and gravel with silt beds
73.5 - 76.8	241 - 252	Silt and clay, grey
76.8 - 83.8	252 - 275	Sand and gravel with silt
83.8 - 90.2	275 - 296	Sand and gravel, brown water-bearing
90.2 - 93.9	296 - 308	Silt, grey
93.9 - 98.1	308 - 322	Sand, fine, with silt interbed
98.1 - 104.2	322 - 342	Sand, fine to medium with silt, water-bearing
104.2 - 108.2	342 - 355 T.D.	
Construction De	tails	Depth Below Ground Metres Feet
178 mm (7-inch)	diameter casing diameter riser telescopic diameter	+0.80 - 82.9 +2.6 - 272 82.9 - 84.1 272 - 276
178 mm (7-inch)	screen 10 slot diameter blank	84.1 - 90.2 276 - 296 90.2 - 101.1 296 - 332
203 mm (8-inch) 178 mm (7-inch)	telescopic diameter screen 20 slot diameter sump	101.2 - 104.2 332 - 342 104.2 - 107.3 342 - 352
•	•	



DOMESTIC WELL NO. 6

Date: March 20-23, 1990

Time of Day hr/min.	Elapsed Time Minutes	Depth to Water Metres	Comments
Mar. 20/90 1610	0.0 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0	45.944 58.463 62.534 64.965 66.110 66.731 67.250 68.155 68.573	Pump intake 80.50 m Discharge 82.9 m of 6-inch discharge line 4x3 orifice Top casing 0.93 m above ground surface
1615	4.5 5.0 6.0 7.0 8.0 9.0 10.0 12.0 14.0	68.716 68.835 68.950 69.118 69.270 69.418 69.503 69.710 69.913	211 U.S. gpm
	16.0 18.0 20.0 25.0 30.0 35.0 40.0 45.0 50.0 60.0	70.102 70.212 70.320 70.586 70.818 70.948 71.103 71.180 71.365 71.600 71.741	211 U.S. gpm
1740	80.0 90.0	71.913	211 U.S. gpm



DOMESTIC WELL NO. 6

Date: March 20-23, 1990

Discharge Rate:

Day 1 - 211 U.S. gpm Days 2 & 3 - 190 U.S. gpm - 175 Igpm - 158 Igpm - 1034 m³/day

		. <u></u>	
Time	Elapsed	Depth to	Comments
of Day	Time	Water	
hr/min.	Minutes	Metres	
Mar. 20/90			
1750	100.0	72.574	Water temp. 9.6° C
1815	125.0	72.919	Madda dompt 100
1840	150.0	73.180	
1930	200.0	73.655	Slightly slow - increased
2020	250.0	74.380	32191102) 02011
2110	300.0	74.658	
2200	350.0	74.945	
2250	400.0	75.202	· ,
2340	450.0	75.362	211 U.S. gpm
Mar. 21/90	4,70.0	,,,,,,,,,	The state of the s
0030	500.0	75.494	New Observer
0120	550.0	75.708	
0210	600.0	76.066	·
0300	650.0	76.202	
0350	700.0	76,356	
0440	750.0	76.442	Slightly low - increased
0530	800.0	76.758	}
0620	850.0	76.872	
0710	900.0	76.993	
0800	950.0	77.112	New Observer
0850	1000.0	77.190	1211 U.S. gpm
0940	1050.0	77.300	Water temp. 9.6° C
1030	1100.0	77.386	Y
			1
	4450.0	77 447	
1120	1150.0	77.443	
1210	1200.0	77.765	
1300	1250.0	77.856	
		77.907	Decreasing rate
1350	1300.0	1 //.90/	Inectedarilà racc



DOMESTIC WELL NO. 6

Date: March 20-23, 1990

			· · · · · · · · · · · · · · · · · · ·
Time	Elapsed	Depth to	Comments
of Day	Time	Water	
hr/min.	Minutes	Metres	
		·	
<u> </u>			
Mar. 21/90			
1440	1350.0	77.266	190 U.S. gpm
1530	1400.0	75.296	
1620	1450.0	75.311	
1710	1500.0	75.272	•
1800	1550.0	75.286	
1850	1600.0	75.308	
1940	1650.0	75.308	
2030	1700.0	75.338	New Observer
2120	1750.0	75.328	
2210	1800.0	75.37	
2300	1850.0	75.387	
2350	1900.0	75.416	
Mar 22/90			
0040	1950.0	75.439	190 U.S. gpm
0130	2000.0	75.451	i.
0220	2050.0	75.426	
0310	2100.0	75.423	
0400	2150.0	75.453	
0450	2200.0	75.492	•
0540	2250.0	75.528	
0630	2300.0	75.551	
0720	2350.0	75.559	
0810	2400.0	75.604	New Observer
0900	2450.0	75.653	
0950	2500.0	75.672	
1040	2550.0	75.694) .
1130	2600.0	75.709	
1220	2650.0	75.730	
1310	2700.0	75.758	190 U.S. gpm
1400	2750.0	75.758	
1450	2800.0	75.760	1
	1	1	



DOMESTIC WELL NO. 6

Date: March 20-23, 1990

Discharge Rate:

Day 1 - 211 U.S. gpm Days 2 & 3 - 190 U.S. gpm - 175 Igpm - 158 Igpm - 1034 m³/day

Time	Elapsed	Depth to	Comments
of Day	Time	Water	
hr/min.	Minutes	Metres	
Mar. 22/90			
1540	2850.0	75.711	190 U.S. gpm
1630	2900.0	75.784	•
1720	2950.0	75.801	
1810	3000.0	75.829	
1900	3050.0	75,839	
1950	3100.0	75.846	
2040	3150.0	75.852	New Observer
2130	3200.0	75.868	
2220	3250.0	75.895	
2310	3300.0	75.900	
Mar. 23/90			
0000	3350.0	75.934	
0050	3400.0	75.940	
0140	3450.0	75.955	
0230	3500.0	75.963 .	
0320	3550.0	75.977	
0410	3600.0	75.983	
0500	3650.0	75.988	
0550	3700.0	76.009	
0640	3750.0	75.984	
0730	3800.0	75.988	Maria Obasania
0820	3850.0	76.018	New Observer
0910	3900.0	76.024	190 U.S. gpm
1000	3950.0	76.036	
1050	4000.0	76.042	
1140	4050.0	76.073	
1230	4100.0	76.096	
1320	4150.0	76.124	
1410	4200.0	76.136	100
1500	4250.0	76.146	190 U.S. gpm
1550	4300.0	76.153	
1640	4350.0	76.160	Water samples taken;
	'	•	
'	·		.Chut dawn

|Shut down

DOMESTIC WELL NO. 6

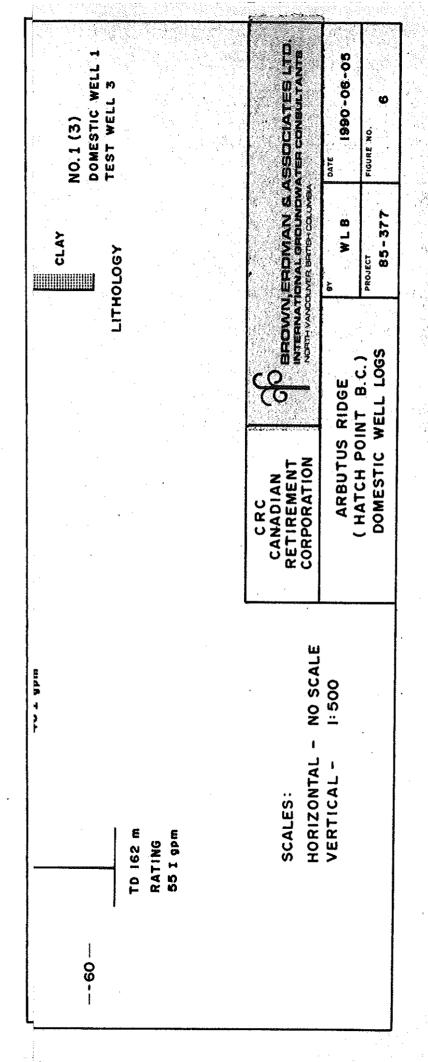
Date: March 20-23, 1990

Time	Elapsed	Depth to	Comments
of Day	Time	Water	
hr/min.	Minutes	Metres	
		R E C O V E	RY
Mar. 23/90	[
1640	0.0	76.160	
	0.5	67.298	
1641	1.0	62.232	·
	1.5	60.086	
1642	2.0	58.788	
i	2,5	58.026	
1643	3.0	57.634	
	3.5	57.285	
1644	4.0	57.041	
	4.5	56.837	
1645	5.0	56.654	
1646	6.0	56.412	
1647	7.0	56.220	
1648	8.0	56.038	<i>:</i>
1649	9.0	55.908	
1650	10.0	55.761	
1652	12.0	55.545	
1654	14.0	55.387	'
1656	16.0	55.206	
1658	18.0	55.050	
1700	20.0	54.869	
1705	25.0	54.634	
1710	30.0	54.430	
1715	35.0	54.220	
1720	40.0	54.062	
1725	45.0	53.908	
1730	50.0	53.787	
1740	60.0	53.503	
1750	70.0	. 53.270	
1800	80.0	53.070	
, 555	}		

DOMESTIC WELL NO. 6

Date: March 20-23, 1990

Time of Day hr/min.	Elapsed Time Minutes	Depth to Water Metres	Comments
Mar. 23/90 1810 1820 1910 2000 2050 Mar. 26/90 1020	90.0 100.0 150.0 200.0 250.0 3940.0	52.875 52.700 52.032 51.520 51.039 46.095	
·			





CHEMICAL ANALYSIS REPORT

Date:

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1003B

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Water Analysis

Report To:

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DATE OF SUBMISSION:

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Results are presented in the table(s) attached.

REMARKS

The water as represented by the sample "Arbutus Ridge DW #6 can be characterized as moderate with respect to dissolved mineralization.

The water sample met Canadian and British Columbia drinking water guidelines for all parameters analysed.

ASL ANALYTICAL SERVICE LABORATORIES LTD.

Barbara Szczachor, B.Sc.

Supervisor

Water Quality Laboratory

n Paneno, B.Sc.



BS/NP/dmc analytical service laboratories ltd.

HATCH POINT

DOMESTIC WELL NO. 6

(Test Well "D")

Depth below grou Metres	ınd surface Feet	Description
0 - 47.5 47.5 - 55.8	0 - 156 156 - 183	Silt and gravel Sand and gravel some silt
55.8 - 70.1	183 - 230	Sand and gravel, bits of wood
70.1 - 73.5	230 - 241	Sand and gravel with silt beds
73.5 - 76.8 76.8 - 83.8	241 - 252 252 - 275	Silt and clay, grey Sand and gravel with
83.8 - 90.2	275 – 296	silt Sand and gravel, brown water-bearing
90.2 - 93.9 93.9 - 98.1	296 - 308 308 - 322	Silt, grey Sand, fine, with silt
98.1 - 104.2	322 - 342	interbed Sand, fine to medium with silt,
104.2 - 108.2	342 - 355 T.D.	water-bearing
Construction Det	ails	Depth Below Ground Metres Feet
178 mm (7-inch)	diameter casing diameter riser telescopic diameter	+0.80 - 82.9 +2.6 - 272 82.9 - 84.1 272 - 276
178 mm (7-inch)	screen 10 slot diameter blank	84.1 - 90.2 276 - 296 90.2 - 101.1 296 - 332
203 mm (8-inch) 178 mm (7-inch)	telescopic diameter screen 20 slot diameter sump	101.2 - 104.2 332 - 342 104.2 - 107.3 342 - 352

RESULTS OF ANALYSIS

File No. 1003B Page 2 of 2

		Arbutus Ridge DW #6 Mar 23/90	Drinking *1 Water Guidelines
Physical Tests			
pH Conductivity Colour Turbidity Suspended Solid Dissolved Solid Total Hardness		7.83 145. <5.0 <0.1 <1.0 120. 60.6	6.5-8.5
Anions			
Alkalinity Sulfate Chloride Fluoride Silicate NO3/NO2	CaCO ₃ SO ₄ C1 F SiO ₂ N	70.2 3.3 3.2 0.06 21.1 0.092	500. 250. 1.5
Total Metals			
Iron Manganese	T Fe T Mn	<0.03 <0.005	0.30 0.05
Dissolved Metal	<u>.8</u>		
Arsenic Barium Cadmium Chromium Copper	D As D Ba D Cd D Cr D Cu	0.0031 <0.010 <0.0002 <0.015 <0.010	0.05 1.0 0.005 0.05 1.0
Iron Lead Manganese Zinc	D Fe D Pb D Mn D Zn	<0.03 <0.001 <0.005 <0.005	0.05 5.0
Calcium Magnesium Potassium Sodium	D Ca D Mg D K D Na	15.5 5.20 0.76 6.52	- - - *3
Other Tests			
Coliform Total Fecal		ND ND	-

T = Total D = Dissolved < = Less than NO₃/NO₂ = Nitrate/nitrite nitrogen ND = Not Detected Results expressed as milligrams per litre except for pH, Conductivity (μ mhos/cm), Colour (CU), Turbidity (NTU), and Coliform Bacteria (colonies/100 ml).

^{*1 &}quot;Maximum acceptable concentration" as published by Health & Welfare Canada, 1985
*2 Maximum level not established - water supplies with a hardness exceeding 200 mg/L are considered poor but will be tolerated.
Not a health consideration

^{*3} Maximum level not established - of concern to consumers with sodium restricted diet. Levels exceeding 20 mg/L may be of concern in this circumstance.

DOMESTIC WELL NO. 6

Date: March 20-23, 1990

Time	Elapsed	Depth to	Comments
of Day	Time	Water	
hr/min.	Minutes	Metres	
111/11111	l lizhadod	110010.0	(
Mar. 20/90			
1610	0.0	45.944	Pump intake 80.50 m
1010	0.5	58.463	Discharge 82.9 m of 6-inch
	1.0	62.534	discharge line
	1.5	64.965	4x3 orifice
	2.0	66.110	Top casing 0.93 m above
	2.5	66.731	
	3.0		ground surface
		67.250	
	3.5	68.155	}
	4.0	68.573	
	4.5	68.716	
1615	5.0	68.835	
	6.0	68.950	211 U.S. gpm
	7.0	69.118	}
	8.0	69.270	
	9.0	69.418	
	10.0	69.503	
	12.0	69.710	
	14.0	69.913	
	16.0	70.102	211 U.S. gpm
	18.0	70.212	1
	20.0	70.320	
	25.0	70.586	1
	30.0	70.818	
	35.0	70.948	
	40.0	71.103	
	45.0	71.180	
	1	•	
	50.0	71.365	
	60.0	71.600	
	70	71.741]
	80.0	71.913	1
1740	90.0	72.318	,211 U.S. gpm
	•	1	12, 1 0.0. 9pm

DOMESTIC WELL NO. 6

Date: March 20-23, 1990

Time	Elapsed	Depth to	Comments
of Day	Time	Water	
hr/min.	Minutes	Metres	
	minacoo	1,00100	
7,			
Mar. 20/90		,	
1750	100.0	72.574	Water temp. 9.6° C
1815	125.0	72.919	
1840	150.0	73.180	1
1930	200.0	73.655	Slightly slow - increased
2020	250.0	74.380	Singhery Sight Interested
2110	300.0	74.658	Į.
2200	350.0	74.945	L.
2250	400.0	75.202	
2340	450.0	75.362	211 U.S. gpm
Mar. 21/90	470.0	77.702	211 0.3. gpm
0030	500.0	75.494	New Observer
0120	550.0	75.708	New Observer
0210	600.0	76.066	
0300	650.0	76.202	
	700.0	76.356	
0350	750.0	76.442	Slightly low - increased
0440	800.0	76.758	Jirghery 10w - Increased
0530	850.0	76.872	
0620	900.0	76.993	
0710	950.0	77.112	New Observer
0800	1000.0	77.112	211 U.S. gpm
0850	1050.0	77.190	Water temp. 9.6° C
0940	r e		water temp. 7.6 t
1030	1100.0	77.386	
		ŀ	
4400	1150.0	77 //7	
1120	1120.0	77.443	
		ĺ	
	4000 0	1 77 7/2	
1210	1200.0	77.765	
1300	1250.0	77.856	1
1350	1300.0	77.907	Decreasing rate
	•	•	-

DOMESTIC WELL NO. 6

Date: March 20-23, 1990

Time	Elapsed	Depth to	Comments
of Day	Time	Water	
hr/min.	Minutes	Metres	
Mar. 21/90			
1440	1350.0	77.266	190 U.S. gpm
1530	1400.0	75.296	
1620	1450.0	75.311	
1710	1500.0	75.272	
1800	1550.0	75.286	
1850	1600.0	75.308	
1940	1650.0	75.308	
2030	1700.0	75.338	New Observer
2120	1750.0	75.328	
2210	1800.0	75.37	
2300	1850.0	75.387	
2350	1900.0	75.416	
Mar 22/90	4050 0	75 470	100 U.C
0040	1950.0	75.439	190 U.S. gpm
0130	2000.0	75.451	
0220	2050.0	75.426	
0310	2100.0	75.423	
0400	2150.0	75.453	
0450	2200.0	75.492 75.528	
0540	2250.0 2300.0	75.551	
0630	2350.0	75.559	
0720 0810	2400.0	75.604	New Observer
0900	2450.0	75.653	How obderver
0950	2500.0	75.672	
1040	2550.0	75.694	
	2600.0	75.709	
1130	2650.0	75.730	
1220	2700.0	75.758	190 U.S. gpm
1310	i e	f	1 120 0:2: Ahm
1400	2750.0	75.758	
1450	2800.0	75.760	1

DOMESTIC WELL NO. 6

Date: March 20-23, 1990

Discharge Rate:

Day 1 - 211 U.S. gpm Days 2 & 3 - 190 U.S. gpm - 175 Igpm - 158 Igpm - 1145 m³/day - 1034 m³/day

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Time	Elapsed	Depth to	Comments
of Day	Time	Water	
hr/min.	Minutes	Metres	
•	<u> </u>		
		ļ.	
Mar. 22/90	1	1	***************************************
1540	2850.0	75.711	190 U.S. gpm
1630	2900.0	75.784	
1720	2950.0	75.801	
1810	3000.0	75.829	
1900	3050.0	75.839)
1950	3100.0	75.846	· ·
2040	3150.0	75.852	New Observer
2130	3200.0	75.868)
2220	3250.0	75.895	1
2310	3300.0	75.900	1
Mar. 23/90	Ì		j
0000	3350.0	75.934	
0050	3400.0	75.940	}
0140	3450.0	75.955	}
0230	3500.0	75.963	
0320	3550.0	75.977	j
0410	3600.0	75.983	
0500	3650.0	75.988	
0550	3700.0	76.009	
0640	3750.0	75.984	
0730	3800.0	75.988	1
0820	3850.0	76.018	New Observer
0910	3900.0	76.024	190 U.S. gpm
1000	3950.0	76.036	
1050	4000.0	76.042	
1140	4050.0	76.073	
1230	4100.0	76.096	}
1320	4150.0	76.124	
1410	4200.0	76.136	
1500	4250.0	76.146	190 U.S. gpm
1550	4300.0	76.153	
1640	4350.0	76.160	Water samples taken;
	1	ı	

|Shut down

DOMESTIC WELL NO. 6

Date: March 20-23, 1990

Discharge Rate:

Day 1 - 211 U.S. gpm Days 2 & 3 - 190 U.S. gpm - 175 Igpm - 158 Igpm

1145 m ³ /day - 1034 m ³ /day	1,7 -95	120 ±9P
	1145 m³/day	- 1034 m ³ /day

Time	Elapsed	Depth to	Comments
of Day	Time	Water	
hr/min.	Minutes	Metres	
<u> </u>			
		RECOVER	Υ
Mar. 23/90			
1640	0.0	76.160	
	0.5	67.298	
1641	1.0	62.232	
	1.5	60.086	
1642	2.0	58.788	
	2.5	58.026	
1643	3.0	57.634	
	3.5	57.285	
1644	4.0	57.041	
	4.5	56.837	
1645	5.0	56.654	
1646	6.0	56.412	
1647	7.0	56.220	
1648	8.0	56.038	
1649	9.0	55.908	
1650	10.0	55.761	
1652	12.0	55.545	
1654	14.0	55.387	
1656	16.0	55.206	
1658	18.0	55.050	
1700	20.0	54.869	
1705		54.634	
1710	30.0	54.430	
1715	35.0	54.220	
1720	40.0	54.062	
1725	,	53.908	
1730	50.0	53.787	
1740	60.0	53.503	
1750	70.0	53.270	
1800	80.0	53.070	

DOMESTIC WELL NO. 6

Date: March 20-23, 1990

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Time of Day hr/min.	Elapsed Time Minutes	Depth to Water Metres	Comments
Mar. 23/90 1810 1820 1910 2000 2050 Mar. 26/90 1020	90.0 100.0 150.0 200.0 250.0 3940.0	52.875 52.700 52.032 51.520 51.039 46.095	