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Water Investigations Branch

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Groundwater Section

February 4 77

Monitoring of Hughes well - Corner of
McTavish and Cresswell Roads (Site 1401378)

0239013

Further to the memorandums of October 7, 1976 (File 0183613-B) and November 17, 1976 (File 0239013) a final plot showing water level movement in the Hughes well (Range 1E, Section 6, #22) corner Cresswell and McTavish Roads, North Saanich, has been prepared. During the period August 23, 1976 and December 21, 1976 an automatic water level recorder was installed and was geared for a hydrograph change every 8 days. This installation allowed for a closer examination of the pattern of water level movement than the usual 31 day chart commonly used for observation wells allows.

The Sidney Waterworks well (76-1) was shut-down on August ¹⁵26, 1976. A recording of water level in the Hughes well is not known at this time, however manual readings were taken on the Hughes well August 19 and August 20, 1976 and were 106.00 and 102.00 respectively from the datum point (the datum point being 1' above ground levels).

As the Hughes well was in a flowing state December 25, 1976 the recorder was removed on January 5, 1977 and replaced with a manometer. A water level reading was taken on February 2, 1977 and reported to be approximately 6' above ground level. The Hughes well is continuing to be read manually with water level readings taken once every month.

The attached plot of water levels, shows a comparison between the apparent recovery of the Hughes well (106+ ft) with other bedrock observation wells on the Saanich Peninsula. It can readily be seen from this plot, that the other bedrock observation wells (72-3, WR 118-75, WR 119-75) all show a very slight seasonal fluctuation compared to the extreme rise in water level seen in the Hughes well during the same period.

Precipitation data has been obtained from the Saanich Dominion Observatory for the period September 1 to December 31, 1976 and is attached.

The distance between the Hughes well and the Sidney well (76-1) is approximately 450-500'. The difference in well head elevation between the two wells has been established as 26.25' from a level circuit run on January 5, 1977; the Sidney well being situated 26.25' higher than the Hughes well.

A cross section comparing elevations, water levels and total depths of these and adjacent wells in the area is to be prepared at a later date. This will allow for a more detailed analysis regarding the degree of influence the pumping of Sidney Waterworks well (76-1) appears to be having on the Hughes and other adjacent wells in the area.

W.S. Hodge.

W.S. Hodge
Engineering Assistant

WSH/dmc

figure filed on NTS

CLIMATOLOGICAL STATION REPORT STATION CLIMATOLOGIQUE

OBSERVATION 6:30 A.M. DU MATIN 5:00 P.M. DU SOIR
OBSERVATEUR Kevin Haggren DEPT. OF ENERGY, MINES & RESOURCES PROVINCE B.C. MONTH September 1976

TEMPERATURE (°C) TEMPÉRATURE (°C)							PRECIPITATION (INCHES) PRÉCIPITATION (POUCHES)					TIMES OF PRECIPITATION (CALENDAR DAY) DURÉE DE LA PRÉCIPITATION (JOUR CIVIL)		WEATHER (CALENDAR DAY) TEMPS (JOUR CIVIL)				REMARKS/REMARQUES
MAXIMUM		MINIMUM		WIND DIRECTION DIRECTION DU VENT	WIND SPEED VITESSE DU VENT	WIND GUST RALE	RAIN PLUIE		SNOW NEIGE		TOTAL FOR DAY (11-12) TOTAL DU JOUR	BEGAN DÉBUT	ENDED FIN	DEPTH OF SNOW ON GROUND ÉPAISSEUR DE LA NEIGE AU SOL	THUNDERSTORM ORAGE	FALLING RAIN PLUIE SE CONSÉQUENT	HAIL GRÊLE	
1	2	3	4				9	10	11	12								
																		sunny
																		"
76	76	50	64	56	64													overcast
69			49		53													
70	70	53	49		50													overcast
69			53		51						.02							overcast
72	72	60	53		61						.02							cloudy
64			56		58						.01							
62	62	57	56		54													sunny
51			51		56						.17							"
63	64	52	51		50													"
64			46		54													sunny
65	65	52	46		58													"
58			44		44													sunny
64	64	44	49		57													"
57			48		50													sunny
68	68	44	48		64													"
64			53		54													sunny (cloudy periods)
74	74	54	53		65													cloudy
65			54		58													cloudy
74	74	56	54		64													cloudy
69			55		57													cloudy
72	72	56	55		57													cloudy
57			50		57													cloudy
65	65	52	50		53													cloudy
53			52		52						.43							cloudy
61	61	52	52		59													sunny
59			52		57						.06							"
66	66	53	52		58													cloudy
53			51		54													afternoon sunny
69	69	52	50		61													sunny
61			52		54													sunny
71	71	54	52		63													overcast
63			53		53													overcast
58			52		56													sunny
56			52		56													sunny
69	69	56	52		63													overcast
69			56		75													overcast
79	79	67	56		75													sunny
75			58		75													sunny
82	82	68	58		75													overcast
75			55		57						.04							overcast
78	78	57	55		63													sunny
59			54		57						.07							sunny
70	70	54	54		57													sunny
57			55		57													"
70	70	55	55		54													"
54			53		61													"
70	70	54	53		64													"
64			55		61													"
75	75	60	55		69													"
70			56		71													"
72	72	61	56		71													"
71			51		60													"
73	73	60	51		65													"
65			53		60													"
75	75	60	53		67													sunny
67			55		61													
68	68	55	55		57													
57			50		53													
65	65	51	50		55													
55																		

SUMS
SOMMES

2097 ✓ 1581 ✓

MEANS
MOYENNE

69.9 ✓ 52.7 ✓

7 7

85 85

TEMPERATURE EXTREMES
TEMPÉRATURES EXTRÊMES

HIGHEST
MAXIMUM

82 20

LOWEST
MINIMUM

46 6

TEMPERATURE/TEMPÉRATURE

MEAN MAX.
MAXIMUM MOYENNE

69.9 ✓

MEAN MIN.
MINIMUM MOYENNE

52.7 ✓

MEAN
MOYENNE DU MOIS

61.3 ✓

CLIMATOLOGICAL STATION REPORT
RAPPORT DE STATION CLIMATOLOGIQUE

STATIONANICH DOM ASTRO OBS

NAME OF OBSERVATION
HEURE DE L'OBSERVATION7:00A.M. DU MATIN5:00P.M. DU SOIR

OBSERVER
OBSERVATEURK. W. H. Eppner

PROVINCEB. C.

MONTH
MOISOctober

1976

JOUR DU MOIS	TIME OF OBSERVATION HEURE DE L'OBSERVATION	TEMPERATURE (°F) TEMPÉRATURE (°F)						PRECIPITATION (INCHES) PRÉCIPITATION (POUNCES)						TIMES OF PRECIPITATION (CALENDAR DAY) DURÉE DE LA PRÉCIPITATION (JOUR CIVIL)		DEPTH OF SNOW CONTOUR DE LA NEIGE AU SOL	WEATHER (CALENDAR DAY) TEMPS (JOUR CIVIL)			REMARKS/REMARQUES	
		MAXIMUM			MINIMUM			RAIN PLUIE		SNOW NEIGE		TOTAL FOR DAY TOTAL DU JOUR	BEGAN DÉBUT	ENDED FIN	THUNDERSTORM ORAGE		FALLING RAIN PLUIE EN CONSÉQUENT	HAIL GRÊLE			
		OBSERVED OBSERVÉ	FOR DAY DU JOUR	FOR DAY DU JOUR	OBSERVED OBSERVÉ	FOR DAY DU JOUR	FOR DAY DU JOUR	MEASURED MÉRÉ	FOR DAY DU JOUR	MEASURED MÉRÉ	FOR DAY DU JOUR	MEASURED MÉRÉ							FOR DAY DU JOUR		
1	a.m.			47		50															
	p.m.	62	62	50	47	54		-	T				T								
2	a.m.	55		48		52		T													
	p.m.	58	58	50	48	54		0.3	0.3				0.3								
3	a.m.	54		47		53		-													
	p.m.	60	60	53	47	55															
4	a.m.	55		45		50															
	p.m.	61	61	50	45	51															
5	a.m.	51		44		47															
	p.m.	53	53	46	44	52		0.4	0.4				0.4								
6	a.m.	52		49		51		-													
	p.m.	65	65	50	49	55															
7	a.m.	55	✓	50		50															
	p.m.	68	68	50	50	56															
8	a.m.	56		50		50															
	p.m.	67	67	50	50	61															
9	a.m.	62		50		52															
	p.m.	57	62	51	50	53		0.4	0.4				0.4								
10	a.m.	62		51		57		0.4													
	p.m.	65	65	50	51	57															
11	a.m.	57		49		50															
	p.m.	63	63	50	49	51															
12	a.m.	59		49		51															
	p.m.	64	64	51	49	57															
13	a.m.	57		47		52															
	p.m.	60	60	49	47	56															
14	a.m.	56		45		46															
	p.m.	60	60	46	45	55															
15	a.m.	55		45		48															
	p.m.	60	60	48	45	51															
16	a.m.	51		46		50															
	p.m.	58	58	50	46	53															
17	a.m.	53		43		52															
	p.m.	60	60	51	43	51															
18	a.m.	51		43		45															
	p.m.	60	60	45	43	51															
19	a.m.	51		44		46															
	p.m.	62	62	46	44	50															
20	a.m.	50		43		45															
	p.m.	61	61	45	43	52															
21	a.m.	52		41		45															
	p.m.	56	56	44	41	47															
22	a.m.	47		35	✓	41															
	p.m.	45	45	41	35	43															
23	a.m.	43		41		43															
	p.m.	48	50	43	41	46		-	0.6				0.6								
24	a.m.	50		44		50		0.6													
	p.m.	50	50	45	45	49		0.20	0.20				0.20								
25	a.m.	41		36		46		-													
	p.m.	56	56	46	36	49															
26	a.m.	48		40		47															
	p.m.	50	50	43	40	49		0.12	0.12				0.12								
27	a.m.	41		41		43		-													
	p.m.	50	50	43	41	48		0.14	0.14				0.14								
28	a.m.	48		46		46		0.14													
	p.m.	58	58	46	46	47															
29	a.m.	47		43		46															
	p.m.	54	54	46	43	46															
30	a.m.	46		40		46															
	p.m.	48	48	46	40	48		-	0.5				0.5								
31	a.m.	48		43		47		0.5													
	p.m.	55	55	50	43	52		0.05	0.05				0.05								
	a.m.	52		-		-		-													
SUMS SOMMES		✓			✓			✓		✓		✓		✓		✓		✓		✓	
MEANS MOYENNES		1801			1386			2.18		2.18		9		9		68		7th		58.1	
		58.1			44.7			9		9		35		22		58.1		44.7		51.4	

CLIMATOLOGICAL STATION REPORT

RAPPORT DE STATION CLIMATOLOGIQUE

STATION SAANICH DOM ASTRO OBS

TIME OF OBSERVATION 7:00

A.M. DU MATIN 7:00

P.M. DU SOIR

PROVINCE B.C.

OBSERVER

WILLIAM J. JONES

DEPT. OF ENERGY,
MINES & RESOURCES

MONTH

November

1976

JOUR DU MOIS	HEURE DE L'OBSERVATION	TEMPERATURE (°F)						PRECIPITATION (INCHES)						TIMES OF PRECIPITATION		DEPTH OF SNOW ON GROUND	WEATHER			REMARKS/REMARQUES	
		MAXIMUM			MINIMUM			RAIN		SNOW		TOTAL		BEGAN	ENDED		TEMPERATURE	PRECIPITATION	HAIL		
		1	2	3	4	5	6	7	8	9	10	11	12								13
1	a.m.																				
	p.m.	53	53	41	41	32															
2	a.m.	60		41		43															
	p.m.	64	54	47	41	43															
3	a.m.	43		41		45															
	p.m.	60	60	47	41	51															
4	a.m.	61		41		46															
	p.m.	62	62	45	41	45															
5	a.m.	64		47		43															
	p.m.	57	58	45	42	50															
6	a.m.	57		41		45															
	p.m.	58	58	45	41	46							.02								
7	a.m.	56		42		42															
	p.m.	56	56	42	42	40															
8	a.m.	46		46		41															
	p.m.	62	52	47	46	44							.08								
9	a.m.	64		44		43															
	p.m.	60	60	46	48	52															
10	a.m.	60		43		44															
	p.m.	54	54	44	42	47															
11	a.m.	47		41		45															
	p.m.	52	52	43	41	46															
12	a.m.	43		42		46															
	p.m.	55	55	46	42	40															
13	a.m.	44		37		40															
	p.m.	53	53	40	37	45															
14	a.m.	45		34		44															
	p.m.	60	60	44	38	43							.07								
15	a.m.	60		44		44															
	p.m.	51	51	45	43	40							.60								
16	a.m.	46		36		46															
	p.m.	56	56	41	38	50							.41								
17	a.m.	60		46		52															
	p.m.	53	53	44	44	44															
18	a.m.	44		34		42															
	p.m.	47	47	42	39	43															
19	a.m.	42		34		41															
	p.m.	47	47	34	39	41							.02								
20	a.m.	42		36		42															
	p.m.	45	45	42	36	42															
21	a.m.	42		37		47															
	p.m.	52	52	40	37	47							.07								
22	a.m.	47		41		42															
	p.m.	46	46	41	40	42															
23	a.m.	42		34		40															
	p.m.	46	46	40	39	42							.01								
24	a.m.	42		41		42															
	p.m.	45	45	42	41	45							.60								
25	a.m.	45		33		43															
	p.m.	47	47	34	38	40															
26	a.m.	45		34		34															
	p.m.	44	44	22	22	33															Heavy frost
27	a.m.	45		20		20															" "
	p.m.	45	45	20	20	32															
28	a.m.	32		15		20															
	p.m.	31	31	15	15	15															Heavy Frost
29	a.m.	32		16		16															
	p.m.	45	45	16	16	22															light frost.
30	a.m.	24		14		19															
	p.m.	47	47	14	18	19															
31	a.m.	19																			
	p.m.																				
	a.m.																				

7:00

A.M.
DU MATIN

P.M.
DU SOIR

PROVINCE.

C.

OBSERVER
OBSERVATEUR

DEPT. ENERGY

MINES & RESOURCES

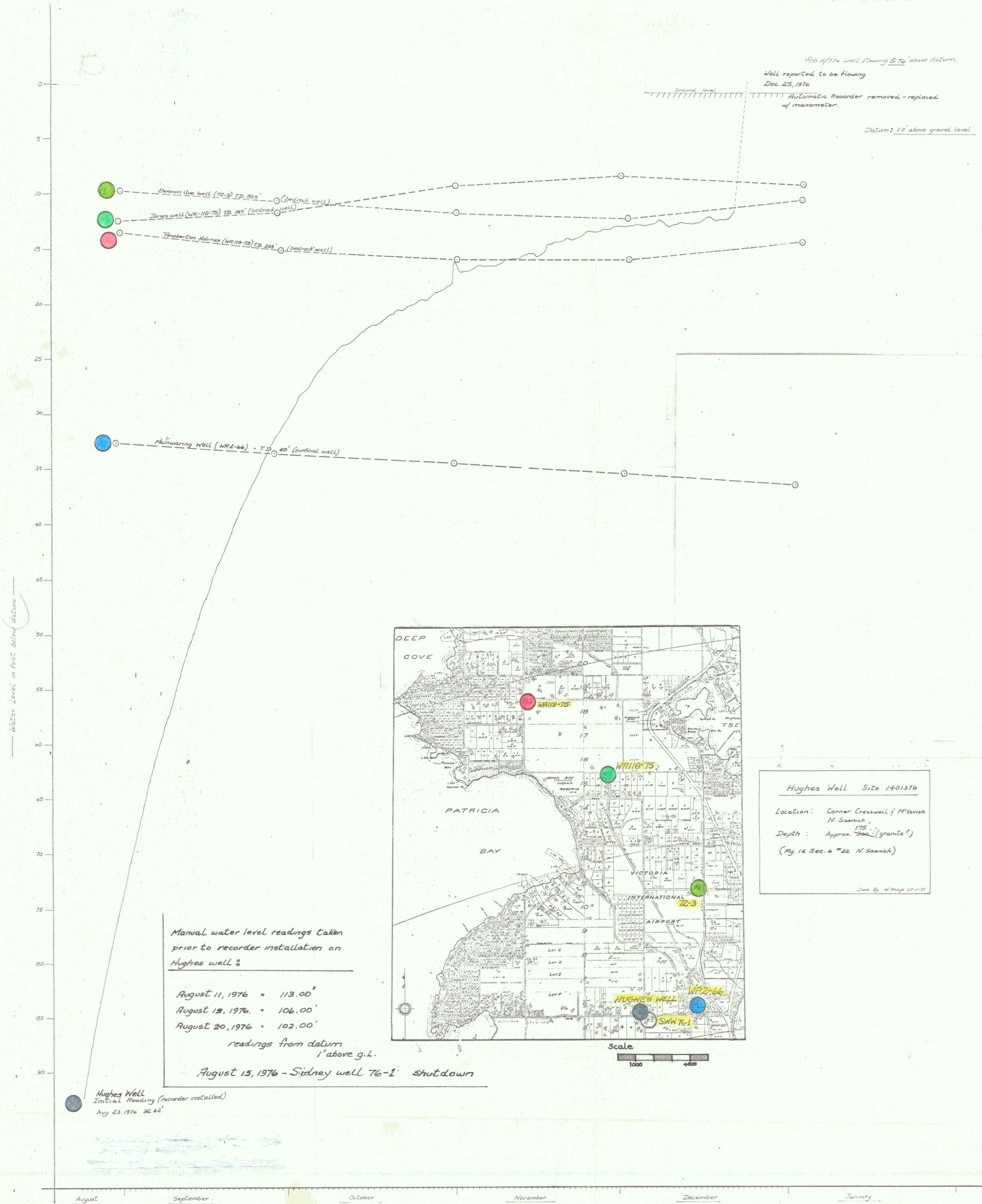
MONTH
MOIS

December

19

1A

Rev. 2/73 AE 0063-2304



Feb. 5/77 - well flowing 5.76' above datum.
 Well reported to be flowing
 Dec. 25, 1976
 Automatic Recorder removed - replaced
 w/ manometer.
 Datum: 1.0' above ground level

Manual water level readings taken
 prior to recorder installation on
 Hughes well :

August 11, 1976 = 113.00'
 August 19, 1976 = 106.00'
 August 20, 1976 = 102.00'

readings from datum
 1' above g.l.

August 15, 1976 - Sidney well 76-1 shutdown

Hughes Well
 Initial Reading (recorder installed)
 Aug 23, 1976 92.42'

Hughes Well Site 14-01379

Location: Corner Cresswell & McEwen
 N. Saanich
 Depth: Approx. 175' (granite?)
 (Pg. 1E Sec. 6 #22 N. Saanich)

Drawn By: W. Hodge 21-1-77

