

EARTH PHYSICS BRANCH
RECORDS MANAGEMENT

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REF. *Alan Taylor*

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GESTION DES DOCUMENTS

ABANDONMENT OF ARCTIC WELLS
PRESERVED
FOR
SUBSURFACE TEMPERATURE OBSERVATIONS: A STATUS REPORT

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Geothermal Service of Canada

INTERNAL REPORT 81 - 4

Division of Seismology and Geothermal Studies

Earth Physics Branch

Department of Energy, Mines & Resources

1981

SUMMARY

As part of a continuing northern program of the Geothermal Service of the Earth Physics Branch, subsurface temperatures are measured at over 100 sites in the permafrost region of Canada. Data are usually gathered at resource exploration holes in cooperation with the companies involved. By agreement with the regulatory bodies, the Geothermal Service is responsible for certain completion procedures at a number of sites at the end of the science program. Since the mid-1960's, EMR has assumed responsibility to carry out final abandonment procedures at 31 sites; 17 of these are now abandoned and most of the remaining require only a simple bullplug to be placed. Since Geothermal Service Internal Report 76-1 was written, EMR has accepted responsibility to abandon, by the placement of a suitable surface plug, four more wells following completion of the temperature measurements.

This report lists the wells for which EMR is responsible and describes in detail the sites abandoned by Branch personnel or by contract.

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Introduction

The Geothermal Service is undertaking subsurface temperature measurements at many sites in northern Canada at depths greater than 125m. Data are available at over 100 sites within the permafrost region of Canada (Judge, Taylor and Burgess, 1979).

In all but a couple of cases, these data are taken at wells drilled in the course of resource exploration. While a number of mining holes have been used to obtain deep temperature measurements, most of the data comes from wells drilled for petroleum exploration. Judge and Taylor (1976) describe the preservation techniques used at many of these wells to accommodate subsequent measurements and the responsibility assumed by EMR to complete the final abandonment at some oil exploration sites, as required by the Department of Indian and Northern Affairs. At present, no responsibility has been assumed by EMR for mining holes that are used, although changing regulations may require some procedures at mining sites accepted in the future. Major data gaps exist in the hard rock areas of Canada and every effort is being made to utilize mining holes.

Costs involved in preserving sites for our use, and for their abandonment where required, are described in Judge and Taylor (1976) and depicted in Figure 1. Preservation costs have exceeded abandonment costs by far, a result of the several tens of thousands of litres of diesel fuel often used to displace the drilling mud in arctic wells. On the other hand, the companies have left a large number of wells in this condition, at no cost to us.

For most petroleum wells completed prior to 1973, final abandonment is achieved with the placing of a cement plug in the top 10 m of the surface casing. After 1973, a bullplug closing off the open hole is normally adequate. However, prior to abandoning a site for which EMR holds

responsibility, details of the particular completion are discussed with the Department of Indian and Northern affairs.

This report describes abandonments that have been completed and lists remaining wells that EMR has responsibility to abandon at the completion of the science program.

Abandonments completed

Of the 31 wells for which EMR accepted responsibility for final abandonment since the 1960's, 17 were abandoned by August, 1980. (Table 1, part 1). Of these, responsibility for seven abandonments was assumed by the companies involved, usually a result of a blockage developing that prevented adequate logging (e.g. EPB file numbers 87, 97, 98, 174). Four were abandoned through contracts let to nearby general contractors (\$9415). The remaining six were completed by EPB personnel during routine logging trips, three being abandoned during the 1980 field season. In these cases, the cost is usually no more than the hardware required, if the aircraft expenses and personnel time are assigned to our routine data accumulating account.

Of the 17 sites now abandoned, ten yielded a fully satisfactory data set. Blockages or surface completion damage at five sites terminated our measurements prematurely. No data was obtained at two sites (EPB file numbers 93 and 174).

Abandonments remaining to be done

Table 1, part 2 lists the 14 wells for which the Branch has a continuing responsibility eventually to abandon. Only four require cement plugs. Locations are shown in Figure 2.

Attempts were made by Branch personnel to abandon four of these remaining wells during the 1980 field season. The size of coupling and bullplug required to complete site 271, North Ellice J-23, is still to be established due to the use of non-standard tubing by the original operator. Site 169, Louise Bay 0-25, was covered by two or more metres of snow during the visit in May. It proved impossible to separate the valve from the sign and riser at site 175, Gemini E-10; a short pup joint is ready to take next time to unite the accepted abandonment hardware to the valve - sign assembly at Gemini. The completion originally left by Panarctic and EPB at site 92, Garnier 0-21, was found altered upon a visit to abandon in August; this was not anticipated and a further trip is required to install a new riser and identification sign.

It is intended that further abandonments will be carried out during routine logging trips supported by PCSP. Most of the specific hardware listed in Table 1 (pt. 2), has been purchased in 1980 and is being held in storage.

Abandonments Planned for 1981

Provided we continue with manpower and logistic support similar to the past, we propose abandoning the following sites during well logging trips in 1981:

- No. 86 Hoodoo H-37 (cement plug)
- No. 90 Amund Central H-40 (bullplug)
- No. 92 Garnier 0-21 (riser and sign)
- No. 158 Brock I-20 (cement plug)
- No. 169 Louise 0-25 (bullplug)
- No. 271 North Ellice J-23 (bullplug)

As most of the hardware is on hand, the additional costs are expected to be less than \$1000. We have requested from PCSP the use of a welding unit and mechanic for sites No. 86 and 158.

Acknowledgements

Aircraft and other logistic support have been provided by PCSP. In 1980, we were assisted by Mr. Bill Presley of PCSP, Resolute, in the Rowley and Cornwallis abandonments.

Bibliography

1) General

Judge, Alan and Alan Taylor, 1976.

Preservation of arctic wells for subsurface temperature observations. Geothermal Service of Canada, Internal report 76-1.

Judge, Alan, 1978.

Preservation and Abandonment of Northern Wells. Memo to Dr. M.J. Berry, May 15, 1978 (file 6210-5).

2) Northern Data Collections

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Canadian Geothermal Data Collection - Northern Wells, 1955 to February 1974. Geothermal Series Number 1, Earth Physics Br., EMR, 171 p.

Taylor, A.E. and Judge, A.S., 1975.

Canadian Geothermal Data Collection - Northern Wells, 1974. Geothermal Series Number 3, Earth Physics Br., EMR, 127 p.

Taylor, A.E. and Judge, A.S., 1976.

Canadian Geothermal Data Collection - Northern Wells, 1975. Geothermal Series Number 6, Earth Physics Br., EMR, 142 p.

Taylor, A.E. and Judge, A.S., 1977.

Canadian Geothermal Data Collection - Northern Wells, 1976-77. Geothermal Series Number 10, Earth Physics Br., EMR, 194 p.

Judge, A.S., Taylor, A.E. and Burgess, M., 1979.

Canadian Geothermal Data Collection - Northern Wells 1977-78. Geothermal Series Number. 11, 187 pp.

Judge, A.S., Taylor, A.E. & Rutledge, L., 1979.

Supplement to Canadian Geothermal Data Collection - Northern Wells
1977-78. Open file of the Earth Physics Branch, number 79-13, 64 p.

Judge, A.S., Taylor, A.E., Burgess, M. and Allen, V.S., 1981.

Canadian Geothermal Data Collection - Northern Wells 1978-80.

Geothermal Series Number 12, to be published early in 1981.

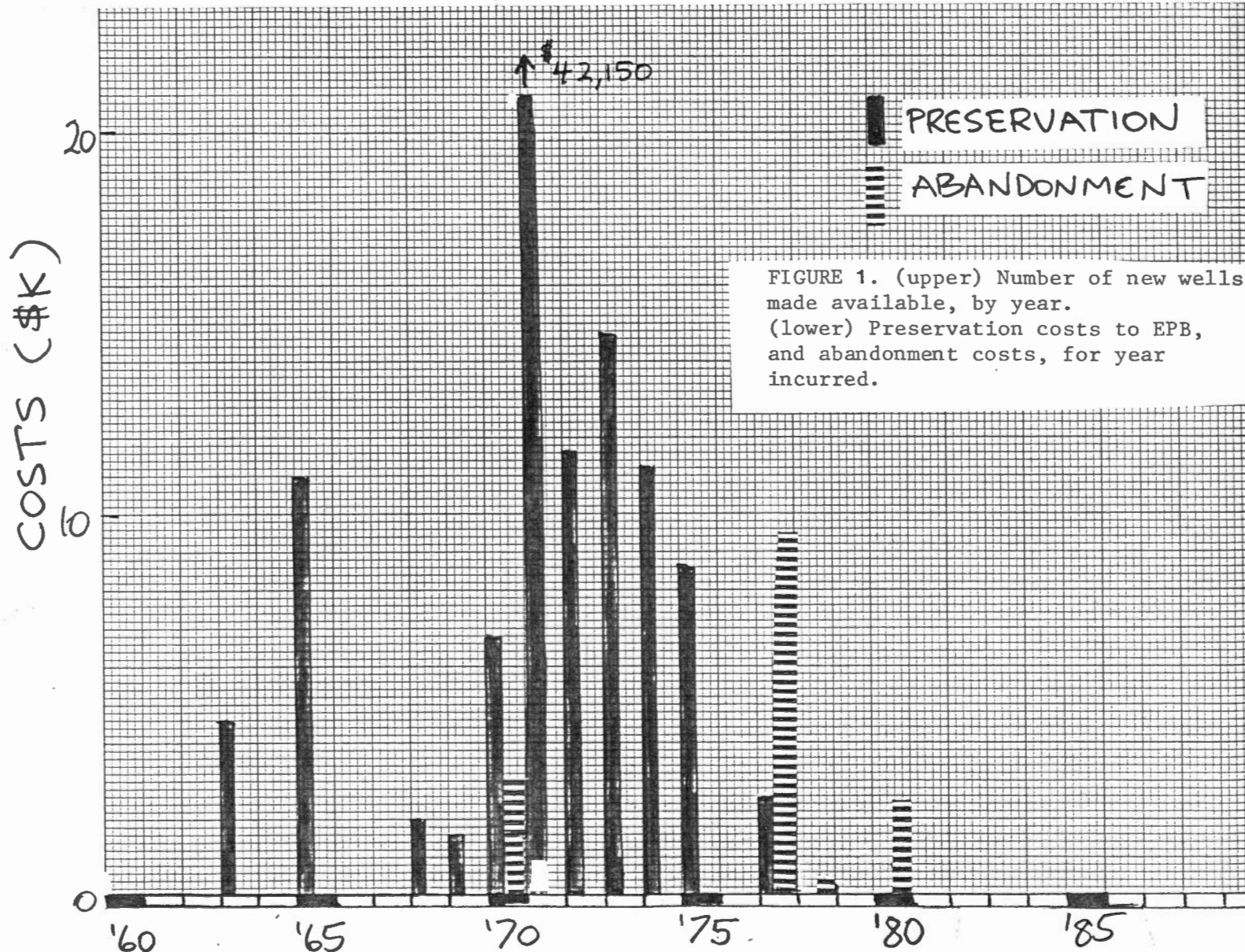
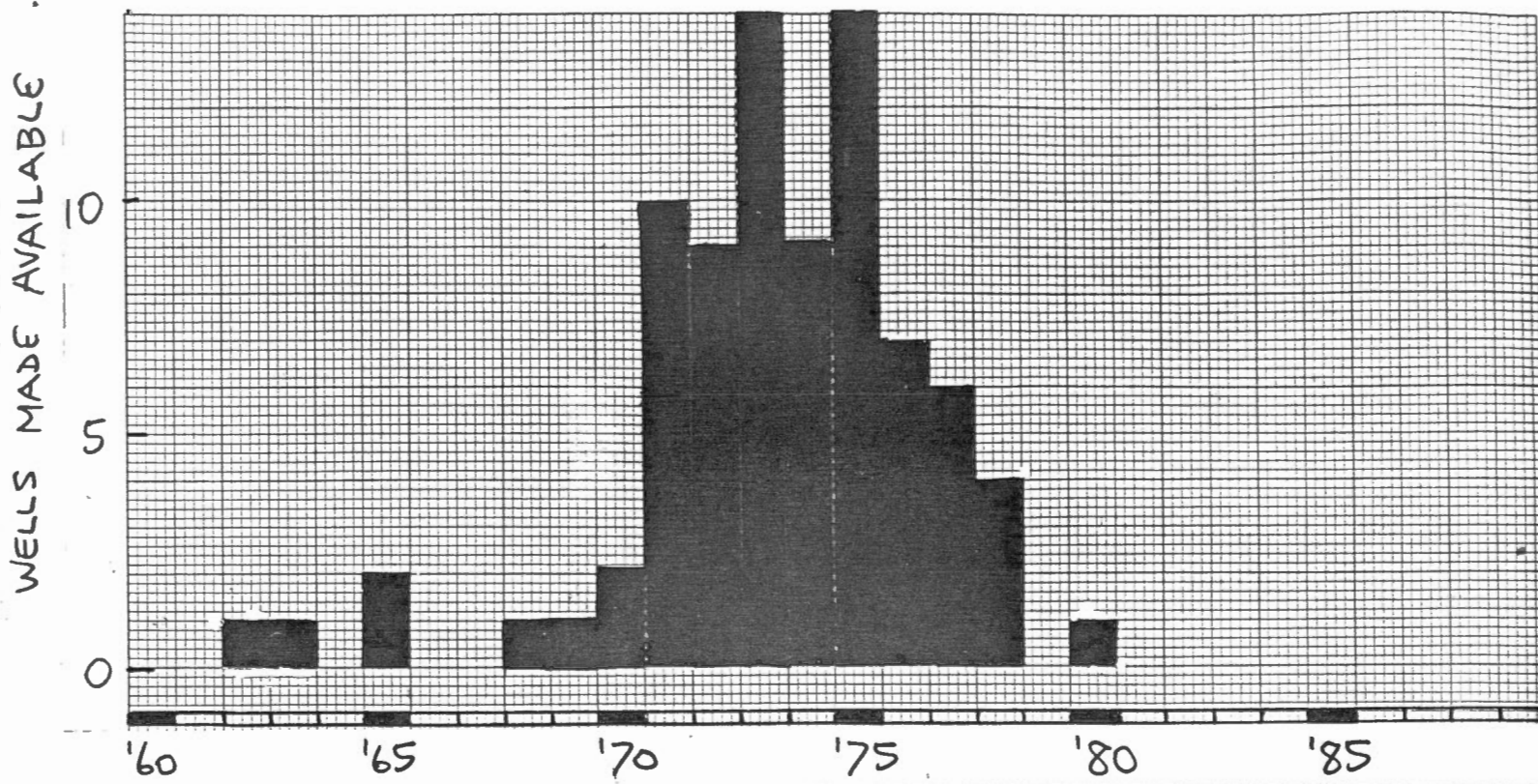


FIGURE 1. (upper) Number of new wells made available, by year. (lower) Preservation costs to EPB, and abandonment costs, for year incurred.



FIGURE 2. Location of sites that EMR holds responsibility to abandon. Open symbol, bullplug required; Closed symbol, cement plug required.

LIST OF WELLS FOR WHICH E.M.R. HAS
ACCEPTED RESPONSIBILITY FOR
FINAL ABANDONMENT

1) ABANDONMENTS COMPLETED

<u>EPB File No.</u>	<u>Name of Well</u>	<u>Abandonment Details</u>
55	Lobitos et al Resolute L-41	EPB contract, 1977 (\$2415)
62	Socony Mobil N. Cath B-62	EPB personnel, 1970 (cost about \$2000)
70	IOE Providence A-47	EPB personnel, 1970 (cost about \$1000)
76	CPOG Kugaluk N-02	by company
87	Elf Wilkins E-60	(Company responsibility, letter from Robertson Sept. 17/74)
89	Shell Beaverhouse H-13	by company
91	Elf Jameson Bay C-31	by company (note 1)
93	Panarctic et al Cornwallis Central Dome K-40	EPB 1980 (\$1000, note 4)
94	Candex et al Dahadinni M-43A	EPB contract, 1977 (\$1700)
95	Aquitaine et al Rowley M-04	EPB 1980 (\$1400, note 4)
97	Panarctic Fosheim N-27	by company (note 2)

98	Elf et al Storkeson A-15	(company responsibility, letter from Robertson, Sept. 17/74)
100	Arco Clarke et al Hume River D-57	EPB contract, 1977 (\$2650)
151	Arco West Whitefish H-34	EPB contract 1977 (\$2650)
168	Panarctic Dundas C-80	EPB 1980 (\$100, note 3)
174	Highland Lake I-23	Company responsibility (letter from Chizelle, July 12, 1973)
276	Shell Ulu A-35	EPB 1978 (\$100, note 3)

Notes

1. Observed cemented to surface during logging trip of 1976
2. By agreement, EPB cable remains through the cement plug. Cable failed shortly after installation
3. Abandonments by EPB personnel done normally during routine temperature logging; cost represents any material used, such as couplings and bullplugs.
4. as for note 3. Special trip from Ottawa required to do these jobs in summer conditions. Includes share of \$800 airfare and \$1000 salary estimate.

2) REMAINING TO BE ABANDONED

<u>EPB File No.</u>	<u>Name of Well</u>	<u>Hardware Required</u>	<u>Status</u>
63	BA Shell 10E Reindeer D-27	cement plug	A (note 1)
77	Elf Horton River G-02	cement plug	A (note 2)
86	Panarctic Hoodoo Dome H-37	cement plug	R
90	Panarctic Amund Central Dome H-40	2-2 3/8 inch J-55 EVE coupling 1 - as above bullplug	R (note 4)
92	Panarctic Garnier 0-21	install sign	R (note 3)
158	Panarctic Brock I-20	cement plug	R
169	Panarctic Louise Bay 0-25	2-2" NPT coupling 1-2" NPT bullplug	R
175	Panarctic Gemini E-10	2-3" NPT coupling 1-3" NPT bullplug 1-3" pup joint (4 ft. length)	R
197	Gulf WC et al Neil 0-15	2-3" NPT coupling 1-3" NPT bullplug	A
257	Panarctic et al Pedder Pt D-49	? coupling ? bullplug	A
258	Panarctic et al Pat Bay A-72	2-3" NPT coupling 1-3" NPT bullplug	A

<u>EPB</u> <u>File No.</u>	<u>Name of Well</u>	<u>Hardware</u> <u>Required</u>	<u>Status</u>
271	SOBC Can. Sup. et al North Ellice J-23	? coupling ? bullplug	R
281	Mobil Gulf Sadene D-02	2-2" NPT coupling 1-2" NPT bullplug	A
291	Panarctic Cornwall 0-30	2-2" NPT coupling 1-2" NPT bullplug	A

A = active measurement site

R = measurements complete, ready to be abandoned.

NOTES:

1. extended term measurement site. Gulf carried out considerable additional rectification work in 1976. Letter from Blue, Oct. 2/74.
2. tentative plans are to install an automatic temperature recorder to monitor convective overturn.
3. company well completion discovered cut below ground surface subsequent to their abandonment. Letter from Hood, Aug. 27/80. Well casing filled with about 600m frozen drilling mud.
4. Discussion with Thomas suggested current state adequate for final abandonment. August, 1980.

Appendix 1. Well Abandonment Reports for
sites completed by EMR personnel
or EMR contract

<u>Site no.</u>	<u>Well</u>
55	Resolute L-41
62	N. Cath B-62
70	Providence A-47
93	Cornwallis Central Dome K-40
94	Dahadinni M-43A
95	Rowley M-04
100	Hume River D-57
151	West Whitefish H-34
168	Dundas C-80
276	Ulu A-35

WELL ABANDONMENT REPORT

WELL: Lobitos et al. Cornwallis Resolute Bay L-41

LOCATION: 74° 40.7'N 94° 44.6'W

ELEVATION: 61m

SPUD: 1963 September 04

COMPLETION BY COMPANY: 1963 December 15

SUBSEQUENT MEASUREMENTS BY EARTH PHYSICS BRANCH: Three temperature logs
to 172m over ten years, published in

Taylor, A.E. and Judge, A.S. 1974.

Canadian Geothermal Data Collection -
Northern Wells, 1955 to February 1974.
Geothermal Series Number 1, Earth Physics Branch,
EMR, 171p

PERMAFROST DEPTH: about 600m

ABANDONMENT BY EPB: (by contract, \$2415)

DATE: late summer, 1973.

TECHNIQUE: A contract was awarded to Narwhal Arctic Services, Resolute,
N.W.T. for this abandonment and site clean-up. The well was
plugged with 5 sacks of cement and a steel plate welded across
the top of the casing, and an identification sign was attached.
No pictures are available at present.

WELL ABANDONMENT REPORT

WELL: Socony Mobil Western Minerals N. Co. Yt B-62

LOCATION: 66° 11.2'N 138° 41.6'W

ELEVATION: 535m

SPUD: 1965 April 16

COMPLETION BY COMPANY: 1965 June 25

SUBSEQUENT MEASUREMENTS BY EARTH PHYSICS BRANCH: Four temperature logs

to 792m over five years, published in

Taylor, A.E. and Judge, A.S. 1974.

Canadian Geothermal Data Collection-
Northern Wells, 1955 to February 1974.

Geothermal Series Number 1, Earth Physics Branch,
EMR, 171p.

PERMAFROST DEPTH: 89m

ABANDONMENT BY EPB:

DATE: 1970 July 18 (T. Lewis, V. Allen)

TECHNIQUE:

- 1) Removed all the fittings which had placed above the 3" API line collar welded to the plate which is welded to top of the casing.
- 2) Since we could not pump out any oil, and the oil level was nearly at the plate, we added one bucket of water, which brought the oil to the top of the collar.
- 3) Screwed the plug into the collar.
- 4) Welded the plug to the collar, and the name plate to the plug.
- 5) Filled the pit with rocks and put 10 bags of cement over them, as shown in the two photographs.





WELL ABANDONMENT REPORT

WELL: I.O.E. Providence A-47

LOCATION: 61° 26.2'N 117° 22.5'W

ELEVATION: 162m

SPUD: 1968 March 11

COMPLETION BY COMPANY: 1968 March 22

SUBSEQUENT MEASUREMENTS BY EARTH PHYSICS BRANCH: Three temperature logs to 510m over three years, published in Taylor, A.E. and Judge, A.S. 1974.

Canadian Geothermal Data Collection - Northern Wells, 1955 to February, 1974. Geothermal Series Number 1, Earth Physics Branch, EMR, 171p.

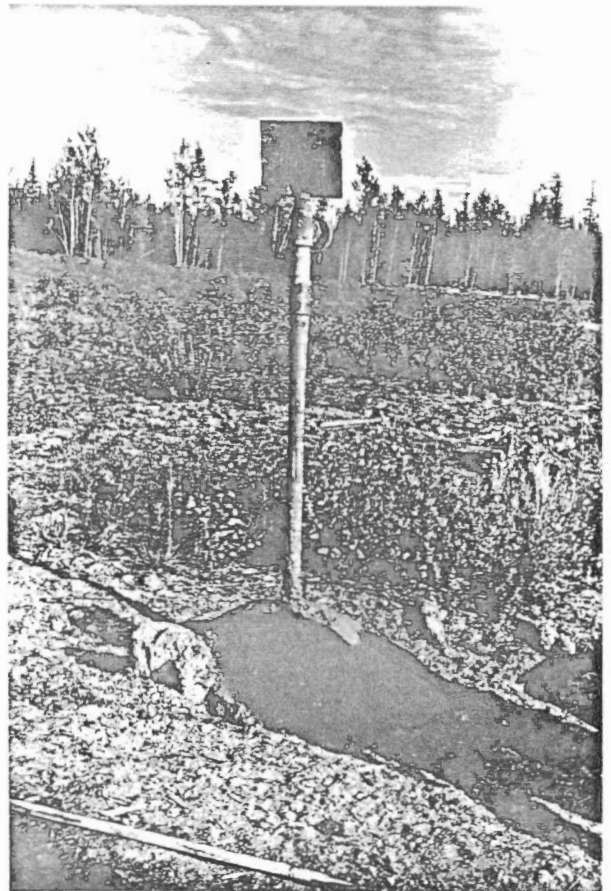
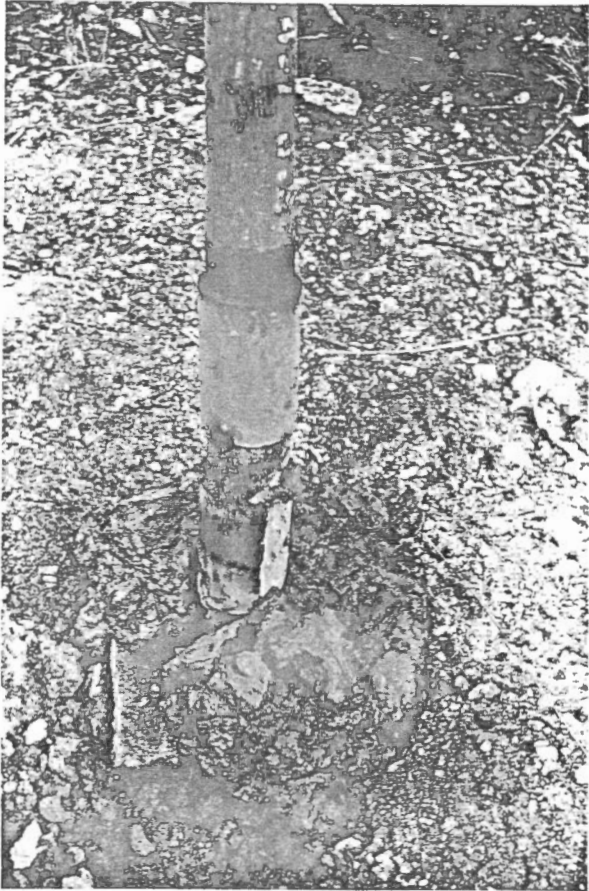
PERMAFROST DEPTH: 0m

ABANDONMENT BY EPB:

DATE: 1970 July 29 (T. Lewis, V. Allen)

TECHNIQUE:

- 1) Removed all fittings above the casing welded to the plate which is welded to the surface casing.
- 2) Added a bucket of water to bring the fluid level to the top of the casing.
- 3) Screwed a coupling to the casing and welded it to the casing around the threads.
- 4) Screwed a plug into the coupling and welded it to the casing around the threads.
- 5) Spot welded the fittings which had been removed to the top of the plug. The identification sign is at the top of these fittings above a valve.
- 6) Put 10 bags of cement over the top of the casing, as shown in the photograph.



WELL ABANDONMENT REPORT

WELL: Panarctic Deminex Cornwallis Central Dome K-40

LOCATION: 75° 09.7'N, 94' 43.2'W

ELEVATION: 187m

SPUD: 1971 May 26

COMPLETION BY COMPANY: 1971 August 2

SUBSEQUENT USE BY EARTH PHYSICS BRANCH: A 610m multiconductor thermistor
mud
cable was lowered into the well/immediately on completion
of the well. The riser was inadvertently broken off
during rigging out operations, severing the cable at the
top of the 9 5/8" casing. Attempts to splice this cable
were unsuccessful. Hence, no measurements were made at
at this site.

ABANDONMENT BY EPB:

DATE: 1980 August 22

TECHNIQUE: The sump around the riser contained water to a depth of more
than one metre, or about 10,000 litres. Most of this was
pumped out in order to reach the collar welded to the steel
plate topping the 9 5/8" casing.

A 3" NPT Bullplug was threaded into this coupling using
Loctite Pipe Sealant. The 3" x 6" swage that had been a part
of the completion for EPB use was discarded, and the riser
and sign was screwed into the 3" coupling welded to the top
of the bullplug.

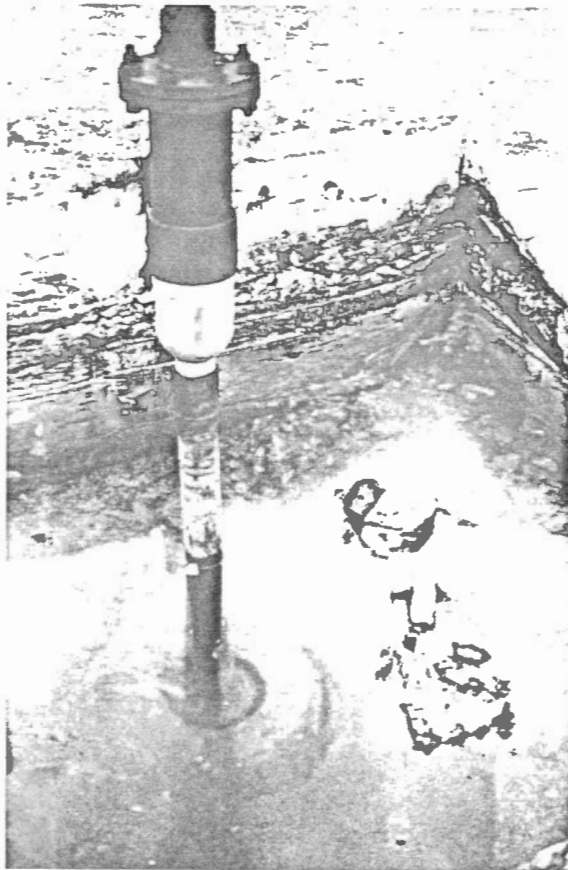
The crumbling cement walls around the sump were pushed inwards,
and the hole partially filled with gravel. Note that the
casing is filled with frozen drilling mud to the permafrost
base (about 600m).

PICTURES

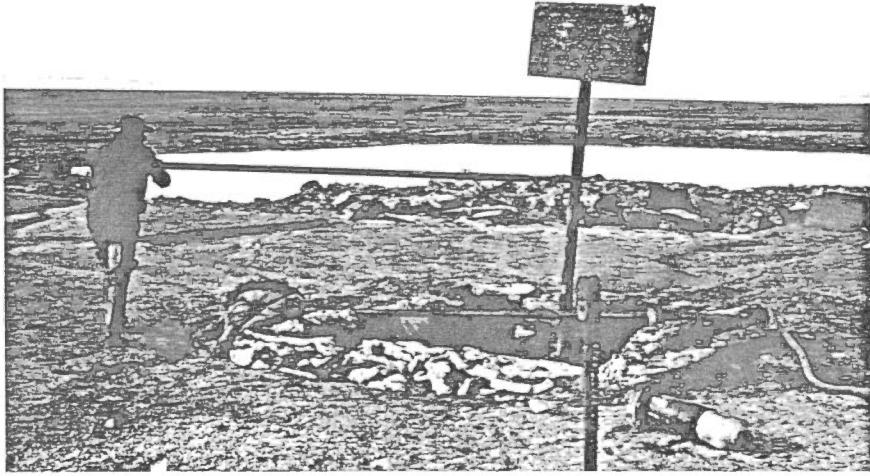
1. General site area. Well riser has been dropped, but well is just to the left of the figure.
2. Well sump as found. Casing may be seen under about one metre of water.
3. Swage was removed and riser and sign screwed into bullplug/coupling at casing flange.
4. Cement walls around sump were pushed in and some gravel fill thrown on top, after abandonment.
5. As above
6. As above



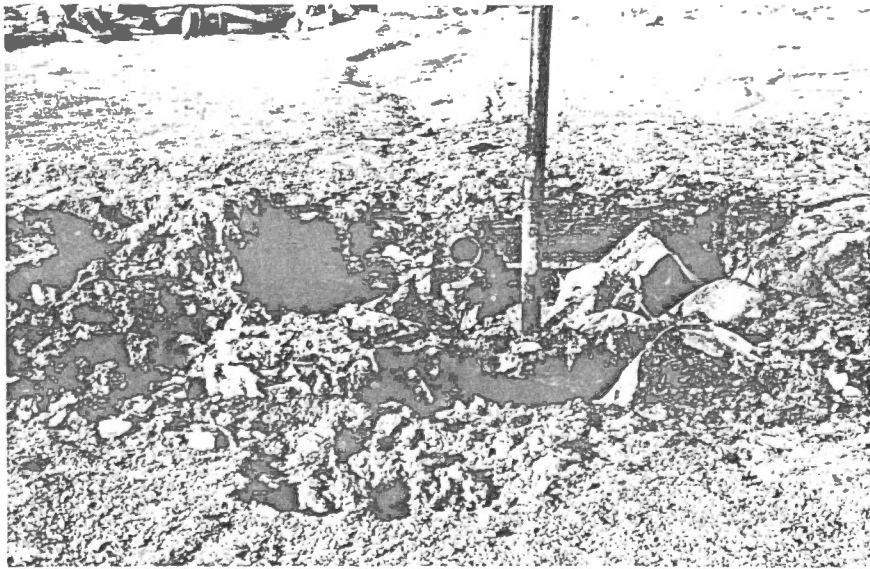
1



2



3



4



5



6

WELL ABANDONMENT REPORT

WELL: Candex et al Dahadinni M-43A

LOCATION: 63° 53.0'N 124° 39.3'W

ELEVATION: 248m

SPUD: 1971 February 02

COMPLETION BY COMPANY: 1971 September 04

SUBSEQUENT MEASUREMENTS BY EARTH PHYSICS BRANCH: Four temperature logs to 229m over three years, published in Taylor, A.E. and Judge, A.S. 1975.

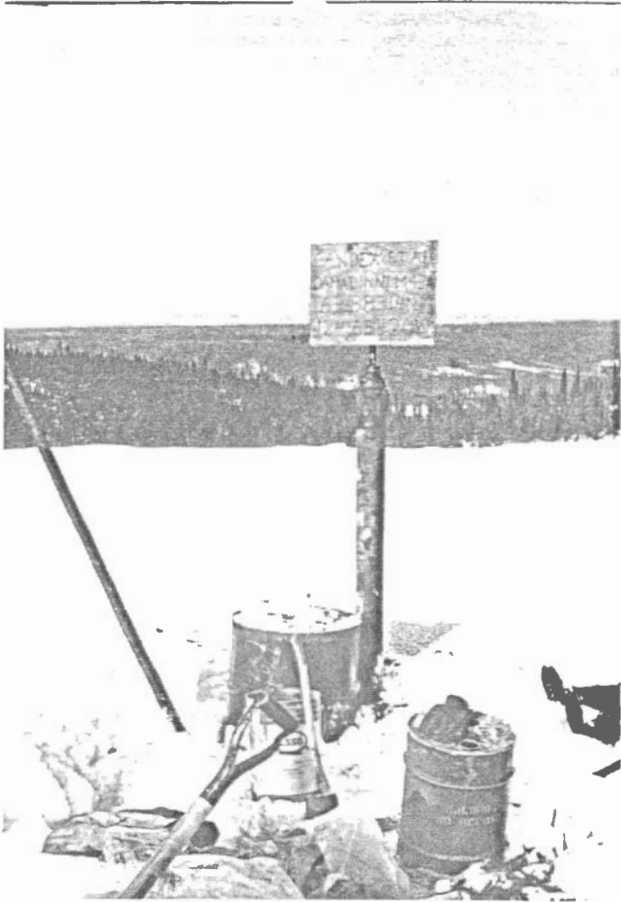
Canadian Geothermal Data Collection -
Northern Wells, 1974.
Geothermal Series Number 3, Earth Physics Br.,
EMR, 127p.

PERMAFROST DEPTH: 51m

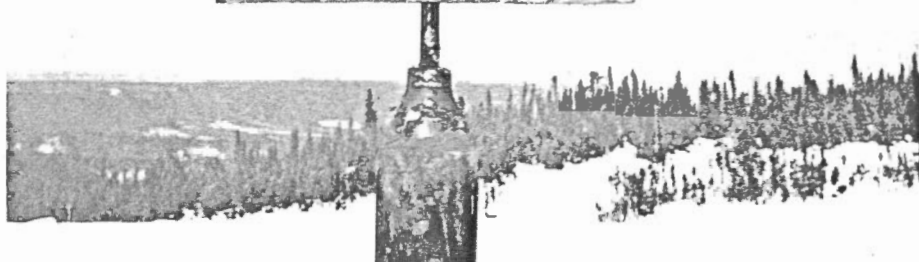
ABANDONMENT BY EPB: (by contract, \$1700)

DATE: 1975 March 05

TECHNIQUE: A contract was awarded to Norman Wells Transportation Ltd., Norman Wells, N.W.T. for abandonment. The diesel fuel in the casing was swabbed out of 5 inch casing to 6m depth and was filled with neat cement. The riser and identification plate were reinstalled. See photos.



CANDEX ET AL
DAHADINNI M43A
63-88314N
124-65420W



WELL ABANDONMENT REPORT

WELL: Aquitaine et al. Rowley M-04

LOCATION: 69° 04.0'N, 79° 03.8'W

ELEVATION: 48m

SPUD: 1971 August 5

COMPLETION BY COMPANY: 1971 September 2

SUBSEQUENT MEASUREMENTS BY EARTH PHYSICS BRANCH: Five temperature logs
to 455m over nine years, published in

Taylor, A.E. and Judge, A.S. 1975.

Canadian Geothermal Data Collection -
Northern Wells, 1974.
Geothermal Series Number 3, Earth Physics Br.,
EMR, 127p.

(also in 1980 volume, in preparation).

PERMAFROST DEPTH: 400m

ABANDONMENT BY EPB:

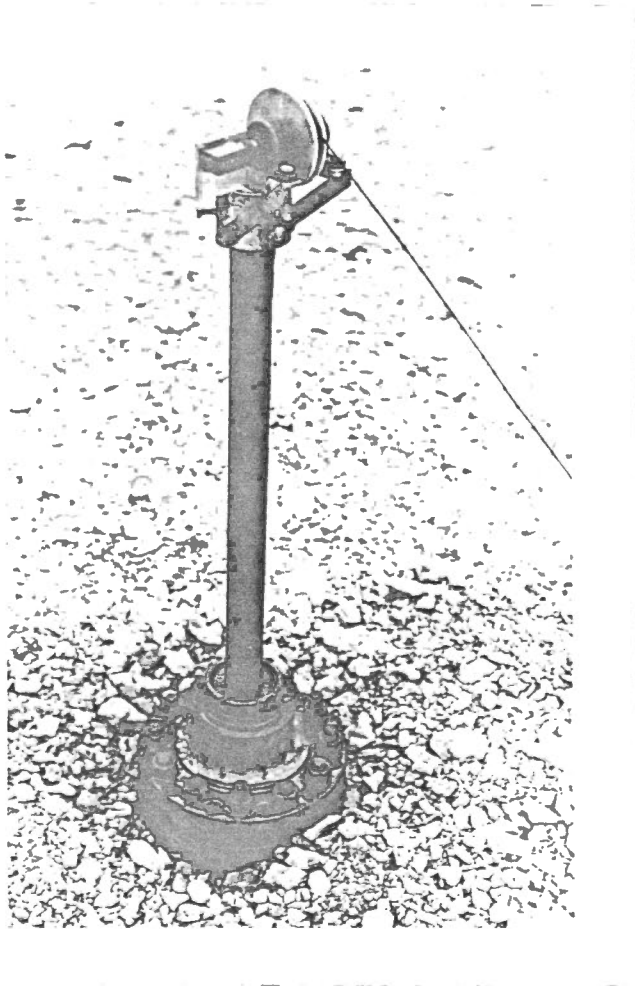
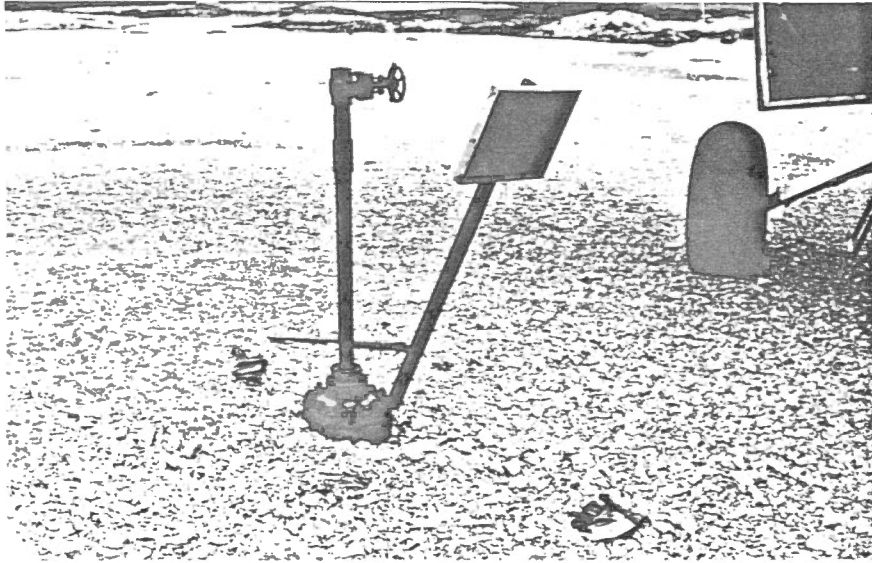
DATE: 1980 August 20

TECHNIQUE: The 7" casing extends several centimetres above the normal
gravel contour at this site, not a metre below ground level
as had been expected. The 2 3/8" EVE tubing had been
terminated with a gate valve about one metre above the
7" casing.

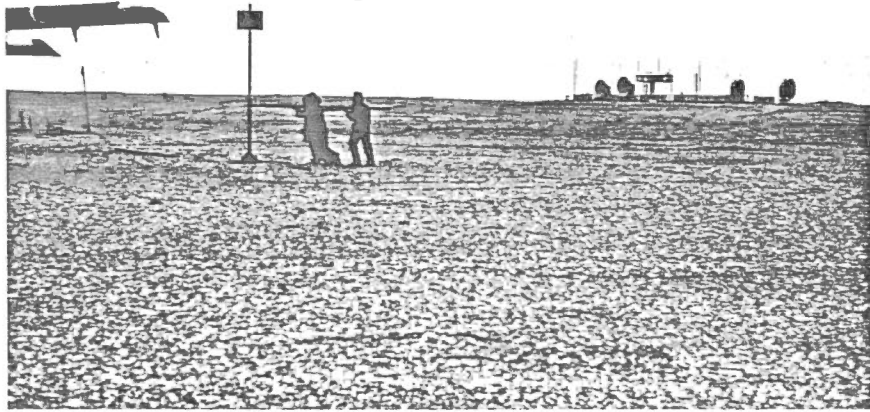
To abandon, the gate valve was removed and a 2" EVE coupling
and bullplug were screwed into the tubing using Loctite Pipe
Sealant. A 7 foot 2 3/8' pup joint riser and sign welded to
it, prepared by EPB, was threaded into a collar previously
welded to the bullplug.

PICTURES

1. Casing, 2 3/8" tubing and old sign prior to abandonment
2. as above, with pully counter used in geothermal logging.
3. Tightening sign into bullplug/coupling. Bullplug is just
below level of pipe wrench/cheater, about one metre above ground level.
4. Detail of bullplug abandonment.
5. Abandonment, looking towards runway
6. Sign (24" x 18"), welded to riser, was painted orange at an
auto body shop.



2



3



4



5



6

WELL ABANDONMENT REPORT

WELL: Arco Clarke et al. Hume River D-53

LOCATION: 65° 52.0'N 129° 11.0'W

ELEVATION: 84m

SPUD: 1972 January 20

COMPLETION BY COMPANY: 1972 February 11

SUBSEQUENT MEASUREMENTS BY EARTH PHYSICS BRANCH: Three temperature logs to 282m over two years, published in Taylor, A.E. and Judge, A.S. 1974.

Canadian Geothermal Data Collection -
Northern Wells, 1955 to February 1974.
Geothermal Series Number 1, Earth Physics Br.,
EMR, 171p.

PERMAFROST DEPTH: 35m

ABANDONMENT BY EPB: (by contract, \$2,650)

DATE: 1977 September 06

TECHNIQUE: A contract was awarded to Norman Wells Transportation Ltd., Norman Wells, N.W.T. for abandonment. Diesel Fuel was swabbed to approximately 10m and replaced with neat cement. A one metre riser and identification plate was threaded into the 2" well tubing.

WELL ABANDONMENT REPORT

WELL: Arco West Whitefish River H-34

LOCATION: 65° 33.4'N 124° 35.7'W

ELEVATION: 227m

SPUD: 1972 March 14

COMPLETION BY COMPANY: 1972 April 08

SUBSEQUENT MEASUREMENTS BY EARTH PHYSICS BRANCH: Three temperature logs to 355m over three years, published in Taylor, A.E. and Judge, A.S. 1975.

Canadian Geothermal Data Collection - Northern Wells, 1974.
Geothermal Series Number 3, Earth Physics Br., EMR, 127p.

PERMAFROST DEPTH: 112m

ABANDONMENT BY EPB: (by contract, \$2,650)

DATE: 1977 September 05.

TECHNIQUE: A contract was awarded to Norman Wells Transportation Ltd., Norman Wells, N.W.T. for abandonment. Diesel Fuel was swabbed to approximately 10m and replaced with neat cement. A one metre riser and identification plate was threaded into the 2" well tubing.

WELL ABANDONMENT REPORT

WELL: Panarctic Dome Dundas C-80

LOCATION: 74° 39.0'N, 113° 23.0' W

ELEVATION: 240m

SPUD: 1972 October 14

COMPLETION BY COMPANY: 1973 January 19

SUBSEQUENT MEASUREMENTS BY EARTH PHYSICS BRANCH: Six temperature logs to 660m over seven years, published in

Judge, A.S., Taylor, A.E. and Burgess, M.
1979

Canadian Geothermal Data Collection -
Northern Wells, 1977-78.
Geothermal Series Number 11, Earth
Physics Br., EMR, 187 p.

(also in 1980 volume, in preparation)

PERMAFROST DEPTH: 577m

ABANDONMENT BY EPB:

DATE: 1980 May 12

TECHNIQUE: The 2' ball valve and riser were removed from the 9-5/8" x 2" swage. A 2" NPT collar was installed on the swage using Loctite Pipe Sealant. A bullplug was threaded into this collar using the same sealant. The riser and sign, as left by the Company upon their abandonment gives the well name and coordinates; it was threaded into the collar that had previously been welded to the top of the bullplug.

PICTURE:

1. The abandonment as carried out by the Earth Physics Branch. The 2" valve was discarded. The bullplug is approximately a half metre above ground level.



WELL ABANDONMENT REPORT

WELL: Shell Ulu A-35

LOCATION: 68° 44.0' N 135° 52.9' W

ELEVATION: 3 m

SPUD: 1976 March 15

COMPLETION BY COMPANY: 1976 September 20

SUBSEQUENT MEASUREMENTS BY EARTH PHYSICS BRANCH: Three temperature logs
to 167m over 2 years, published in
Judge, A.S., Taylor, A.E. and Burgess, M., 1979
Canadian Geothermal Data Collection 1977-78
Geothermal Series #11, Earth Physics Br., EMR, 187p.

PERMAFROST DEPTH: 90m.

ABANDONMENT BY EPB: (EPB personnel)

DATE: late August 1978

TECHNIQUE:

To abandon, the gate valve was removed and a 2" EVE coupling and bullplug were screwed into the tubing using Loctite pipe sealant.

The valve and riser were then replaced.

A small sump remains around the well-head and a number of wood pilings protrude above present ground level.

Appendix 2. Supporting correspondence for sites abandoned by companies or for which companies have assumed responsibility.



EPB# 63

Oil & Gas Section
P. O. Box 2020
Inuvik, N.W.T.
October 2, 1974

Your file Votre référence

Our file Notre référence

Dr. Alan Judge
Earth Physics Branch
Seismology Division
1 Observatory Crescent
Ottawa, Ontario K1A 0E4

Dear Alan:

Re: B.A. Shell IOE Reindeer D-27
D-27-69-10-134-30 D.A. 179

Your letter of September 26, 1974 concerning the condition of the above temperature observation well was appreciated. An inspection of the well site on September 19, 1974 showed the faults that you mentioned in your letter. We would have no objections to Gulf Oil doing the minor repairs to the small hole in the riser tube. I was preparing a letter to Gulf asking them to install the signs that you mentioned they would be installing. Please ask Gulf to inform us when the work is completed. I would suggest that Gulf be asked to burn or bury scrap wood and bury any scrap metal at the well site.

There are no objections to the continued use of this well as a temperature observation well.

I would appreciate being notified of any of the following that you may notice on temperature observation well locations:

1. Well signs not in place.
2. Gas leaks or bubbles from or around the casing.
3. Sumps or cellars not filled in.

Yours truly,

G. E. Blue
District Conservation Engineer
District 3

GEB/1b



elf OIL EXPLORATION AND PRODUCTION CANADA LTD.

#1700, 202 - 6TH AVENUE S.W.
CALGARY, ALBERTA, CANADA T2P 2R9

TELEPHONE: (403) 263-7300
TELEX: 038-22661
CABLE: ELFCAN

17 September 1974

EPB# 87
98

Energy, Mines and Resources
Earth Physics Branch
Seismology Division
1 Observatory Crescent
Ottawa, Ontario
K1A 0E4

Attention: Mr Alan Judge

Dear Sir:

Re: Wilkins and Storkerson Observation Wells

During August of this year, Elf visited the subject temperature observation wells with the intention of installing a marker at Storkerson Bay and repairing the wellhead riser at Wilkins.

Upon inspection of these wellhead installations, we found in both cases that the steel plate which had been welded over the 13-3/8" and 9-5/8" casing stubs had been broken off. In considering this matter, there was no evidence that these plates or attached risers had in fact been broken off by heavy machinery or in any way was caused by our people. It is our feeling that the likely cause of this problem resulted from the contraction of the casing strings as they cooled after abandonment of the well, causing stresses that resulted in the breaking of the weld around the 9-5/8" casing. The 9-5/8" casing may well have also collapsed at some point near the surface, in the permafrost zone. In any case, the uneven contraction of the casing strings in both wells has resulted in the weld between the surface plate and riser breaking away from the casing.

In both wells, ice was found at surface in the 9-5/8" casing, and was chipped down as far as possible by hand, with no end to the ice plug evident. The water, during summer periods, had flowed into the casing through the broken welds, and later froze. It now appears that the use of these wells for your purposes or the restoration of the wells would be impossible without

Energy, Mines and
Resources
Earth Physics Branch
Seismology Division

17 September 1974

incurring prohibitive costs.

Elf Oil will undertake to complete the final surface abandonment of these two wells in conjunction with direction from the Conservation Engineer of the Oil and Gas Section of Indian and Northern Affairs. Also, if at some future date, Elf has the necessary equipment in the area of these wells, we will undertake to rework and place the wells back in service.

We express our disappointment and apologies for the inconvenience caused to your department by the difficulties encountered at these wells.

Yours very truly

ELF OIL EXPLORATION AND
PRODUCTION CANADA LTD.

A large, stylized handwritten signature in black ink, appearing to read 'Bryan Robertson'. The signature is written over the printed name and title.

Bryan Robertson
Arctic Operations Supervisor

LINDSAY J. FRANKLIN
Vice-President
Operations

EP8#92

703-6th AVENUE S.W., CALGARY, ALBERTA • P.O. BOX 190 • T2P 2H6 • PHONE (403) 269-0311 • TELEX 038-24687

August 27, 1980
GLH-284-WF

Dept. of Energy, Mines & Resources
Earth Physics Branch
Seismology Division
1 Observatory Crescent
OTTAWA, Ontario
K1A 0Y3

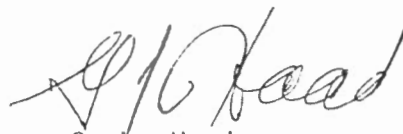
Attn: Mr. Al Taylor

Gentlemen:

Subject: Garnier 0-21

I have checked with our personnel and in our well file and we have no knowledge of any of our people having changed the condition of the well since initial abandonment.

Yours truly,
PANARCTIC OILS LTD.



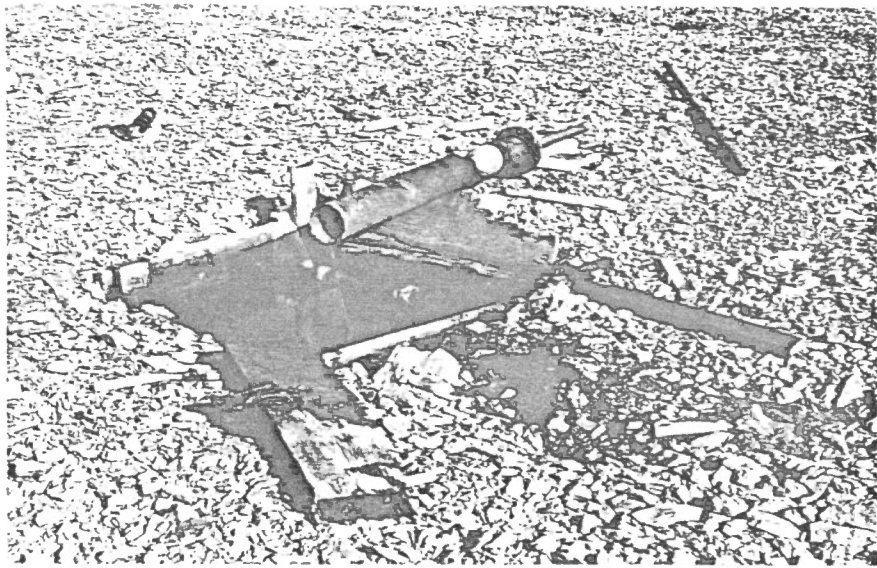
G. L. Hood
Chief Engineer

GLH/jk

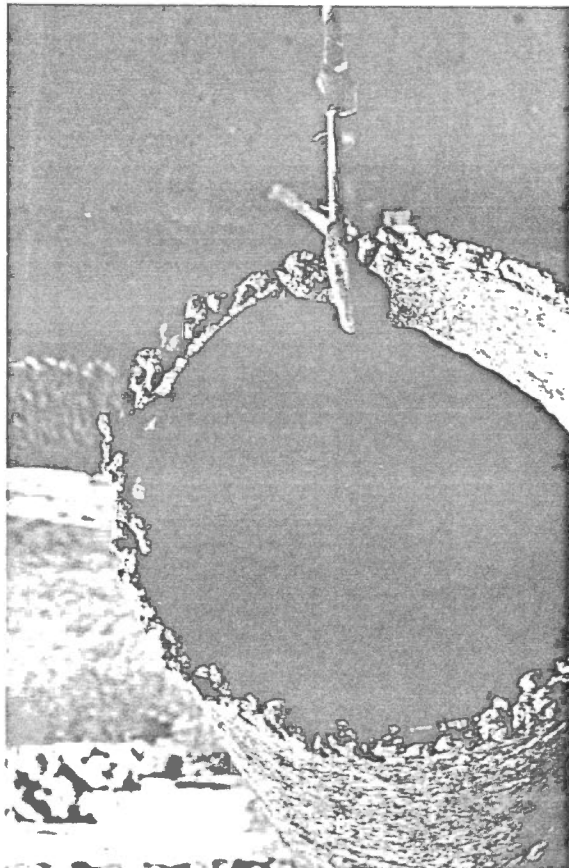
GARNIER 0-21

PICTURES

1. Sump around drillhole with section of casing, swage and riser as found at site. Note EPB cable still attached.
2. Detail of cut on casing.
3. View of site from about 200m to the east of the well.



1



2



3

EPB # 174

AQUITAINE COMPANY OF CANADA LTD.

2000 AQUITAINE TOWER · 540-5TH AVENUE S.W.

PHONE: 267-8111 · AREA CODE: 403 · TELEX: 038-22649 PETRAKI CGY · CABLES: PETRAKI CALGARY

CALGARY, ALBERTA, CANADA

T2P 0M4

Date: July 12, 1973

File: WF

Re: Your Letter Dated July 4th, 1973
(Aquit Highland Lake I-23)

Department of Energy Mines and Resources
Earth Physics Branch
Ottawa, Ontario
K1A 0E4

Attention: Mr. Alan Judge

Dear Sir:

We are presently making an inquiry with Halliburton, the service company which cemented the 2 3/8 tubing of the well referred to above. At present we do not see any reason for the blockage. The tubing was not flushed out with diesel fuel after cementing as we used an Omega latch down plug followed by diesel. The specific purpose of this plug is to remove any cement left in the tubing. Such flushing was not included in our program, a copy of which was sent to your attention on March 12, 1973.

It will help if you can give us some more information on how your logging survey was done:

- type of wire line unit.
- how many and what size of sinker bars were used, if any?
- did you run impression block or sample catcher?
- (how did your representative have the impression that drilling mud was left in the tubing - could it be cement?)

...../2

Our intent is to restore this well if economically feasible or to bear the whole cost of the completion.

No decision can be made now as we do not know yet if we will be drilling again in the Highland Lake area this winter or later on. In any case, we are returning your cheque for the completion costs until the problem is solved. We are very sorry for the inconvenience this has caused.

Yours very truly,

AQUITAINE COMPANY OF CANADA LTD.


G. Kuhn de Chizelle
Drilling Superintendent

GKC:ls
Attachment