Geothermal Energy
March - June 1983

COORDINATION OF GEOTHERMAL RESEARCH

Alan M. Jessop and Malcolm J. Drury

Internal Report No. 83-7

Crustal Studies
Division of Gravity, Geothermics and Geodynamics
Earth Physics Branch
Department of Energy, Mines and Resources
1983

During the period March to June 1983 the Programme Coordinator, A.M. Jessop, and M.J. Drury visited various people and institutions, in both eastern and western Canada. The Coordinator also attended an information meeting on geothermal development from sedimentary basins in Paris, France, but that is the subject of a separate report.

Discussions and developments are presented here in chronological sequence rather than geographical arrangement.

Halifax, 22-25 March 1983

On the afternoon of 22 March 1983 Drury visited the offices of the Nova Scotia Department of Mines and Energy (NSDME) in Halifax. Present were Peter Giles, Director of Mineral Resources, Rick Hornby, Director of Energy Resources, and J. Watt, a provincial geologist who is now, apparently, the provincial contact for the geothermal programme. Drury brought the N.S. representatives up to date, and asked about the possibilities of drilling holes in the Wedgeport and Sangster Lake granites, both of which have anomalously high heat generation, for the measurement of temperature gradients in potential areas for hot, dry rock exploitation. No problems were foreseen, particularly with regard to possible concern by anti-uranium-exploration activists. Examination of a map of staked exploration claims, however, showed that only the Wedgeport granite, in the south-west of the province, had free areas.

It has subsequently been decided to postpone drilling in Nova Scotia in order to drill a test well in Charlettetown (see next section).

On the morning of 23 March, 1983, Drury visited the offices of Noval Technologies Ltd., in Halifax, at the invitation of G. Isenor, project engineer. Both the geothermal energy programme coordinator and Drury have discussed various aspects of the programme of geothermal assessment of the Atlantic region with Isenor in the past, and Noval have been very cooperative with us in allowing our contractor to obtain temperature logs of holes they have drilled for other purposes.

Isenor had, earlier in the month, telephoned Drury to discuss the possibility of Noval receiving federal government funding to drill a deep hole for the utilization of geothermal energy on the campus of University of Prince Edward Island (UPEI) in Charlettetown. Drury pointed out during that telephone conversation that the few data we had were not encouraging, and he reiterated this point in a follow-up letter dated 15 March, 1983.

At the 23 March meeting, Isenor told Drury that a group, whom he would identify only as 'influential and powerful Nova Scotians' wished to see such a project proceed. Noval appears to be acting as a consultant for this group. Drury again stated that he would not be prepared to recommend such a project before a geological feasibility study had been performed. Isenor had done some energy cost comparisons (with oil-fired electrical power generation) that seemed favourable until Drury pointed out that his numbers were based on the assumption that a 2000 m well would encounter 50°C water in an aquifer bearing approximately 90 m^3/h, and that only one (production) well would be necessary. There are no data at present that indicate that any one of those

values is valid. The scant data for PEI that are available and that have been collected for EPB under contract indicate that the geothermal gradient at Charlottetown is likely to be approximately 17-20 mK/m. A geothermal well would probably need to be at least 3000 m deep in order to produce water at 50-60°C.

Subsequently, Noval have approached Mr. John Waller, of EMR's Renewable Energy Division (RED), with a proposal to drill such a well in order to provide hot water to heat a proposed veterinary college to be built on the campus of the University of Prince Edward Island. The authors have learned indirectly that RED has rejected the Noval proposal.

No comments are made here on specific details of the proposal by Noval. However, it is the intention of the project leader for the Atlantic Region geothermal assessment to have a 500 m test well drilled on the campus of UPEI, if possible, in order to obtain high quality temperature data. Further a contract for an economic analysis of the ramifications of the Noval proposal is to be let by Brian Larkin (NRC), leader of the applications and technology project. These are felt by the federal scientists concerned to be essential studies before a costly, full-scale geothermal drilling programme is undertaken. Such studies are expected to cost less than $100K, compared with an estimated $1.25M required to drill a 3000 m production well; they will not, however, provide any information on deep aquifers or flow rates. That information can only be obtained by deep drilling, which is the ultimate test of any geothermal exploration programme.

Calgary, 5 May 1983

On 5 May 1983 the Coordinator visited the office of Sproule Associates Ltd. in Calgary, to discuss the first phase of contracted work on the feasibility of mapping sedimentary geothermal reservoirs. Work in the first phase is limited to the grid of 225 wells established by a previous study, with substitutes where necessary. It was agreed that a minimum depth of 1500 m (5000 ft) of sediments is a first requirement for any further analysis. Tests showing a recovery of at least 200 m of water would be used for the calculation of pressures and permeabilities, but it was acknowledged that such data tends to give mimimum values, since the intervals tested are small and in the upper hydrocarbon bearing parts of reservoirs. Very few tests have been applied to broad zones of water-bearing reservoir. It was agreed that the Coordinator would return on or about 6 June, at which time a decision on the area to be studied in the second phase would be made.

Vancouver, 6 May 1983

On 6 May the Coordinator visited the offices of Nevin, Sadlier-Brown, Goodbrand Ltd. (NSBG) and British Columbia Hydro and Power Authority (BCH), the latter in company with J.G. Souther of the Geological Survey.

AT NSBG it was noted that the USA-based Geothermal Resources Council will be holding a Cascades Section meeting in Vancouver on 7-8 July 1983, including an excursion to the Mt Meager site. Owing to excessive travelling on behalf of the Energy Programme and the consequent neglect of other duties the Programme Coordinator will not be able to attend, but T.J. Lewis (PGC, Sidney, B.C.) and J.G. Souther (GSC Vancouver) will probably take part.

At BCH a meeting was held with J. Stauder to discuss operations at Mt. Meager during 1983. Following his appeal to EMR for funds in October 1982, Mr. Stauder had been asked to state what specific task he would like EMR to undertake. The first response came shortly before this meeting and specified the drilling of a true research hole in the peak of the temperature anomaly in the Meager Creek valley. This hole should be a slim hole to at least 600 m, drilled with diamond coring equipment, and should be cased and completed in a manner suitable for logging and flow tests over a long period of time. After some discussion it was agreed that there was a need for a research hole that could be kept open, and that this could advance our knowledge of the reservoir characteristics. The EMR representatives stated that the amount of money available would probably not complete this in one year, and that it was essential that BCH should provide the equipment so that EMR could pay for drilling operation only. It was agreed that EMR would let a contract to a consultant company that is acceptable to BCH for the management of the work. The most probable and most suitable company for this task is NSBG. The EMR representatives understated the amount of funds that can be made avalable in order to ensure that EMR funds are used for identifiable drilling and other technical work rather than being absorbed into camp costs and other peripheral items.

It has been learned later that senior management of BCH has not given approval for any EMR work at BCH leases, a matter that should have been settled before the appeal of October 1982. EMR personnel have alternative plans that do not depend on BCH agreement, and these plans have been put into operation.

Victoria, 9-13 May 1983

On 9-15 May 1983 the Coordinator and M.J. Drury visited Victoria, including the Pacific Geoscience Centre (PGC) at Sidney and the annual meeting of the Geological Association of Canada (GAC), which included a geothermal symposium.

AT PGC a manuscript on the deep tectonic implications of the shallow drilling project of 1981 has been prepared by E. Davis, who was brought in to manage that one project. Nothing has yet been prepared on the energy, implications of the work, but that is to be done to complete the project.

The BC Government has offered for lease under the Geothermal Act blocks of land in the Mt Cayley volcanic complex. It is understood that interest has been shown by commercial operators. The Public Notice is attached on Appendix 1. A map of geothermal features has also been released, as a first attempt to indicate the distribution of resources in the province.

At the meeting of the GAC several papers were the direct product of or of relevance to the Geothermal Energy Programme. The details of the geothermal symposium and other relevant paper are shown in Appendix 2.

Charlottetown, P.E.I.

On the morning of 19 May the authors and Brian Larkin (NRC) visited Mr. John de Grace, Director of Energy and Minerals, PEI Department of Energy and Forestry, and Mr. Arthur Hiscock, Operations Manager, PEI Energy

Corporation. The purpose was to discuss geological aspects of the Noval proposal, and the main points were as follows:

- a well at Charlottetown will penetrate the same strata as the Tyrone No. 1 well used as a model by Noval;
- little or no data on permeability, porosity and water chemistry exist;
- drilling of a deep well would be done under existing oil and gas regulations, the operator requiring a drilling permit;
- no permit would be required for a research hole of less than 1000 m;
- the ideal of a temperature observation well and magnetotelluric observations on the campus were favourably received by the provincial personnel;
- a geothermal production well would have to be at least 3000 m deep. The question of disposal of geothermal fluid from a production well was discussed. Hiscock thought that a drainage ditch along a CN right-of-way adjacent to the campus might be suitable for moving the fluid to the estuary. The authors later examined this drainage ditch and considered it to be unsuitable for that purpose.

In the afternoon of 19 May the authors and Brian Larkin visited the University of Prince Edward Island and met Peter Meincke, President, and Don MacEwen, Chairman of the Engineering Department. Present also were de Grace and Hiscock. MacEwen has been named, for the present, as the contact with the university. He said that the Provincial and Federal governments were about to sign a formal contract regarding the funding and building of a veterinary college on the campus, and as soon as this happens an architect will be retained. Current plans are to heat the building with a wood-burning system. Construction will start in 1984.

Meincke provided some information on the college. It is to have a floor area of approximately 21400 m^2, of which, he felt, 3300m^2 (representing a clinic) could be heated geothermally. Larkin pointed out that this was probably too small an area, referring to the recent report by Acres, who used 200,000 m^2 with a high utilization factor in their general economic assessment of space heating. Meincke mentioned some other possible uses for geothermal heat, including a projected sports complex, domestic hot water, marine biological research including aquaculture, and greenhouses, the latter possibly at a Federal Department of Agriculture experimental farm close to the campus.

The authors pointed out the need for more, site-specific, basic geological and geophysical research, and this concept was approved by all present. In particular Meincke could see no problem in our drilling a 500 m test well on the campus. It was also generally accepted that an economic study done independently of Noval is desirable. The authors were impressed by both the enthusiasm and the sense of realism of both the university and the provincial representatives.

Developments in Alberta

Prof. Jones of University of Alberta and John Sworder, now an independent consultant, have been cooperating on a contract to Alberta-Canada Energy Resources Research Fund (ACERRF) to search for possible demonstration projects for geothermal energy in Alberta. Two possibilities have been identified.

The first possibility concerns the jail at Bowden, just south of Red Deer. Expansion is a progress, and being a Federal institution, this could provide an opportunity for demonstration without the complexities of Provincial involvement. The site is about mid-way between Calgary and Edmonton, on the main highway, and is thus in an area where population and industry might be expected to increase. The sedimentary sequence in this area is about 3500 m thick, and thermal gradient is 25-27 mK/m, so that adequate temperature should be available. The locations of the institution are given as 36-34-1W5, 1-35-1W5 and 12-35-1W5. About one mile (one section) to the west is the edge of the Innisfail oil-field, an elevated outlier of the Leduc reef. It is probable that plentiful water is present in this and other formations.

The second possibility is a proposed resort development on the Edmonton-Jasper highway, a few kilometres northeast of the gate of the Jasper National Park. More information became available during visits to Calgary and Edmonton, as described below.

Calgary 6-7 June

On 6-7 June the Programme Coordinator visited Calgary to review progress of the Sproule contract and to make a joint decision on the area to be selected on a mapping feasibility steady.

The review of the original grid of 225 sites was almost completed, and the available data had been plotted on a series of small-scale charts covering

the entire Platform area. Only positive indications had been entered, so that the absence of an entry does not necessarily signify a low porosity, for example. The absence of data and the magnitude of the search needed to locate data are the major problems of mapping for geothermal resources based on data generated for hydrocarbon exploration.

The choice of area for the detailed study was constrained by the following considerations:

1. The sedimentary sequence must be at least 1500 m thick in order to provide reasonable temperature levels;
2. There must have been drilling in the area, in order to provide data sources;
3. The size must be such as to allow the selection of 50-60 good wells for data analysis.

Within these constraints there were three choices:

1. An area of continuous sandstone and limestone reservoirs that extend over long distances, giving a relatively simple mapping job;
2. An area of mixed reef and continuous reservoirs, giving a job of average complexity;
3. An area in the disturbed belt, where faulting creates very complex geological conditions.

The second of these options was chosen, and an area of 21 townships, including the towns of Bowden, Innisfail and Red Deer, was selected as the test area. This area includes the site of the Bowden jail and possible demonstration site as mentioned above.

With John Sworder of Edmonton in attendance, the possibilities of a demonstration project near Hinton were discussed, and some readily available well data were examined. The site is in the disturbed belt, and local wells show faulting and repeated formation sequences as sections from the west have been pushed upwards and over rocks to the east. Prediction of aquifers is likely to be difficult and drilling costs are likely to be high. Temperature gradients from uncorrected data seem to be 20-22 mK/m, so that wells of at least 2500 m will probably be needed.

Edmonton 8-9 June

On 8-9 June the Programme Coordinator visited Edmonton to review progress at the University of Alberta and to visit, with Prof. Jones, Hinton to meet the proposers of the demonstration project. On Wednesday 8 June a meeting was held at Hinton with Dale Gilbertson of Underwood McLellan Ltd. The aim of the developers is to build a resort, with accommodation and hot pool for all-season use. The site is in section 19-49-26W5, on the main Edmonton-Jasper highway, a few kilometres from the gate of the national park. The site is only about 10 km in a straight line from Miette hot springs, but the distance by road is about 25 km, and Miette is not accessible in winter.

The complexities of the subsurface condition were explained to Gilbertson, and discussion turned to operational approach. Gilbertson had thought of a direct application to ACERRF for funding for a demonstration project. It was our view that a preliminary feasibility study would be advisable, to provide information on which to base a demonstration proposal. We recommended that he prepare a proposal for a study to examine existing well data in the area to define as well as possible underground conditions (75%) and to examine the possible ways of using the heat in a resort (25%). Such a study would fall within the general field of 'R and D', and it was recommended that he send the proposal to DSS. The cost is roughly estimated at about K$50.

On the following day Jacek Majorowicz, at the University of Alberta commented that the temperature gradient is probably 26-28 mK/m, the increase being calculated from a statistical correction to all well-data for the effects of temperature measurement immediately after circulation. However, in the disturbed belt it is difficult to make any accurate temperature prediction, since the paths of water are not predictable.

After the Hinton meeting there was time to visit the Miette hot spring. The springs are in a narrow valley in the eastern ranges of the Rocky Mountains. The water emerges at about 58°C, a temperature at which one can just hold one's hand in the stream. The water has very little dissolved solids, mainly calcium sulphate with a very faint hint of hydrogen sulphide. The water is mixed with cold creek water to provide a hot pool. which has been constructed of concrete and is complete with changing rooms and a spectators' gallery.

Developments in Ottawa

On 16th June a meeting was held in order to establish the components of the Extraction Technology Project. Present were J. Legg, Chairman of Geothermal Programme Committee, B. Larkin, Project Leader Extraction Technology and A. Jessop, Programme Coordinator. The following items were decide upon:

1. The Acres study of the previous area should be extended to consider specifically the requirements of the Atlantic margin, with particular reference to Charlottetown. k$50
2. A study of the social, legal and legislative requirements should be made, to include controlling legislation, leasing, licensing, government incentives, taxes, insurance, liabilities, safety, and international comparison. k$ 50
3. Contribution to Hinton feasibility study k$ 10
4. DSS charges, operating and travel k$ 15

k$125

During the period of this report administrative changes have been made as follows:

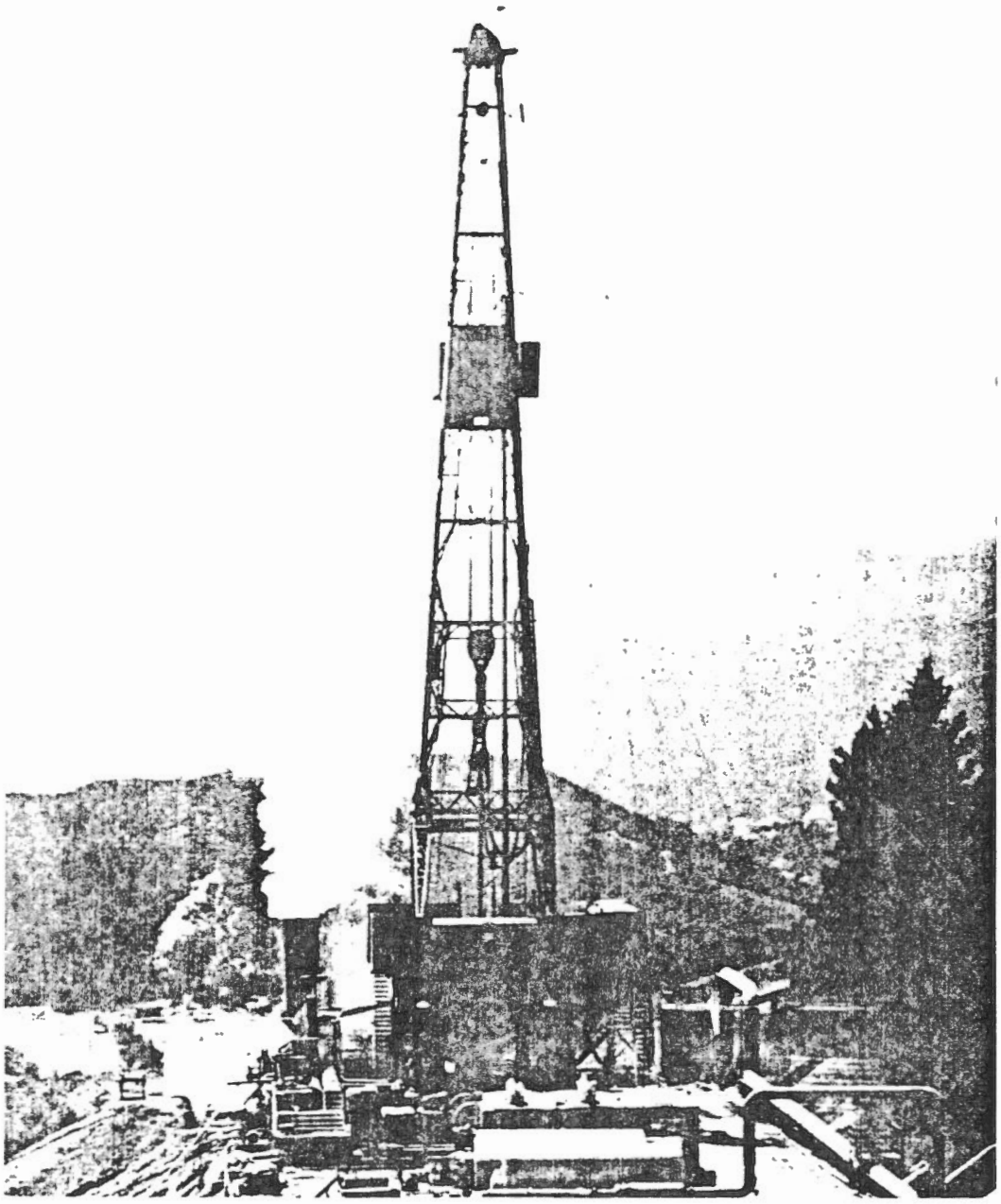
1. It was announced that no new person-year would be available to the Geothermal Programme in 1983-84;
2. The National Research Council, without consulting with or notifying the chairman or coordinator of the Programme or their own Project Leader, cancelled the funds for the Extraction Technology Project, but in response to protests have reinstated them;
3. Funds coded as salaries for new person-year will be converted to operating funds and will be available in the autumn.

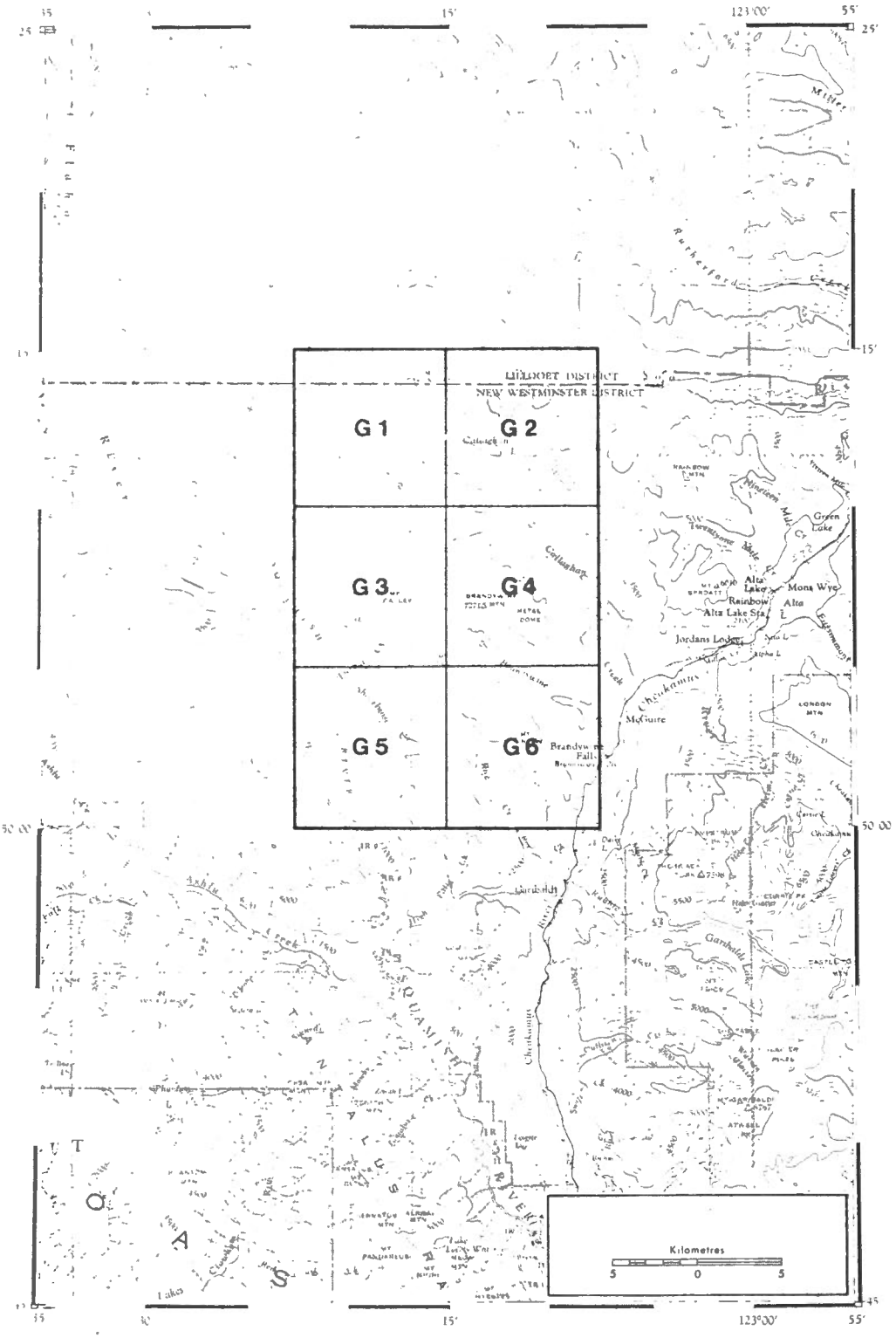
The results of these changes will become apparent as the year progresses.

Province of British Columbia
Ministry of Energy, Mines and Petroleum Resources

GEOTHERMAL RESOURCES DISPOSITION

15th June 1983

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Province of British Columbia
Ministry of Energy, Mines and Petroleum Resources

PUBLIC NOTICE

COMPETITION FOR THE RIGHT TO EXPLORE AND DEVELOP CROWN GEOTHERMAL RESOURCES

Pursuant to Section 5 of the Geothermal Resources Act, sealed tenders addressed to the Minister of Energy, Mines and Petroleum Resources, and mailed or delivered to the office of the Deputy Minister of Energy, Mines and Petroleum Resources, Room 406 Douglas Building, 617 Government Street, Victoria, British Columbia, V8V 1X4, will be received up to 12:00 noon, Wednesday, June 15, 1983, for the privilege of obtaining permits covering geothermal resources rights as outlined in this notice. The results will be announced at 11:00 a.m., Thursday, June 30, 1983. The permits will be issued as of June 30, 1983 and will be awarded on the basis of what is, in the Minister's opinion, the best geothermal exploration work program.

The work program proposed should be described in sufficient detail so as to clearly define the type and extent of the work commitment including an estimate of the cost broken down by type of work and the period of time when the work will be done.

Tenders may be submitted on the basis of the entire area or portions thereof, providing parcels are not subdivided and parcels grouped in a bid are contiguous. Any priorities must be clearly identified.

The Minister may wish to contact any bidder for clarification purposes prior to determining the successful bid for any parcel.

A performance deposit equal to the accepted work tender for each parcel or group of parcels must be provided by 12:00 noon, Thursday, July 7, 1983. Failure to provide the deposit will invalidate the tender.

The following are acceptable by the Minister of Finance as performance deposits:

1. Cash

2. An assignable security guaranteed by the Government of British Columbia with a maturity date of not longer than three years.

3. An assignable security guaranteed by the Government of Canada or the government of any other province of Canada with a maturity date of not longer than three years.

4. A receipt and agreement form executed by a chartered bank, credit union or trust company, verifying that assignable securities as outlined above, in the amount designated by the ministry, are being held in safekeeping and the rights and claims to the securities have been assigned to the Minister of Finance.

5. A certificate of deposit or term deposit redeemable at par value before maturity, issued by a chartered bank, credit union or trust company, accompanied by an absolute and unconditional assignment to the Minister of Finance.

6. An irrevocable letter of credit with a termination date beyond the required term of the security, issued by a chartered bank, credit union or trust company, payable to the Minister of Finance.

7. Bid bonds, performance bonds, and/or labour and material bonds issued by a bonding company registered to do business in British Columbia under the Insurance Act.

. . . 2

The work obligation represented by the deposit will be reduced annually on the basis of the approval of an affidavit of expenditure and supporting exhibits as detailed in Section 12 of the Geothermal Resources Administrative Regulations (B.C. Reg. 132/83).

Work expenditure in each year must be at least the amount required by Section 9(3) of B. C. Reg. 132/83. Approved expenditures on a single permit or group of permits in excess of those required under Section 9(3) of B.C. Reg. 132/83 can be used for the purposes of Section 10 of B.C. Reg. 132/83. Areas may be grouped for work purposes in accordance with Section 10(2) of B.C. Reg. 132/83.

Failure to meet the committed work obligations may result in the forfeiture of all or a portion of the performance deposit.

Parcel	N.T.S. Map No.	Block	Units	Hectares
G1	92-J-3	K	1-100, incl.	8 272
G2	92-J-3	J	1-100, incl.	8 272
G3	92-J-3	F	1-100, incl.	8 286
G4	92-J-3	G	1-100, incl.	8 286
G5	92-J-3	C	1-100, incl.	8 300
G6	92-J-3	B	1-100, incl.	8 300

FEE AND RENT FOR Parcels

FEE: $500.00
RENT: 1st Year - $1.00 per hectare

The Permittee shall keep the Permitter indemnified against all actions, claims and demands that may be brought or made against the Permitter by reason of anything done by the Permittee, his servants, workmen, or agents, in the exercise or purported exercise of the rights, powers and privileges hereby granted.

Separate tenders enclosed in sealed envelopes marked "Tender for Parcel ....." must be submitted.

Each tender submitted must provide the correct names of bidders and must be accompanied by a certified cheque, bank draft or money order made payable to the Minister of Finance, in an amount to cover fee and rental. Instructions are to be included for the return of cheques, bank drafts or money orders covering unsuccessful bids.

Anyone may ask that if an offer on one or more parcels is not accepted, it be considered on another parcel or parcels, providing that the intent and order of choice are clearly stated, and the amount of the remittance is sufficient to satisfy the fee and rental on the further choice.

The right to reject any or all offers received is reserved.

Inquiries regarding this disposition should be directed to the Commissioner, Petroleum Titles Branch, Ministry of Energy, Mines and Petroleum Resources, telephone (604) 387-1908.

DATED at Victoria, British Columbia
this 11th day of April, 1983.

Honourable Brian R. D. Smith,
Minister of Energy, Mines and Petroleum
Resources, Province of British Columbia.

Appendix 2

Papers at Geological Association of Canada meeting resulting from or of interest to the Geothermal Energy Programme.

THERMAL STRUCTURE OF THE CRUST

T.J. Lewis* W.H. Benthowski and E.E. Davis: The variation in measured heat flow, Jervis Inlet, British Columbia.

W.H. Bentkowski* and T.J. Lewis: Geothermal gradients in the Garibaldi volcanic belt.

J.G. Souther: Geothermal exploration of the Mt. Cayley area, British Columbia.

B.D. Fairbank* and J.F. Reader: Heat flow in the vicinity of the Meager volcanic complex, southern British Columbia.

E.E. Davis* and T.J. Lewis: A region of uniform heat flow across the Intermontane Belt, southern Canadian Cordillera.

A.M. Jessop*, J.G. Souther, T.J. Lewis and A.S. Judge: Geothermal measurements in northern British Columbia and the southern Yukon Territory.

J.A. Majorowicz*, F.W. Jones, H.L. Lam and A.M. Jessop: Terrestrial heat flow in southern Alberta, western Canada

M. Rahman*, H.L. Lam and F.W. Jones: Spatial comparisons of thermal conductivities within formations

ENERGY POTENTIAL OF THE CANADIAN CORDILLERA

J.G. Souther: An overview of geothermal research in the Quarternary volcanic belts of western Canada.

POSTER SESSION

B.N. Church and W.M. Young*: Geothermal potential map of British Columbia.

DEEP OCEAN MINERAL DEPOSITS AND THE CYPRUS PROJECT

A. MODERN DEPOSITS

S.E. Calvert: Ferromanganese nodules on the abyssal sea floor: Metal sources and mechanisms of formation.

R.R. Hessler and W.M. Smithey*: What's important about hydrothermal vent animal communities?

A. Malahoff* and R.W. Embley: The Galapagos rift polymetallic sulfide deposit - A possible marine structural analogue to the Cyprus ore bodies.

W.R. Normark: Studies of sulfide mineralization on the southern Juan de Fuca Ridge: A review.

J.R. Delaney, H.P. Johnson and M.J. Kingston*: Sulfide samples from the Juan de Fuca Ridge at 47° 57'N and 129° 06'W.

H. Backer: Red Sea metalliferous mud deposits, progress and prospects.

S.D. Scott*, P.F. Lonsdale, J.M. Edmond and B.R.T. Simoneit: Guaymas Basin, Gulf of California: Example of a ridge-crest hydrothermal system in a sedimentary environment.

HYDROGEOLOGY

G. van der Kamp* and R.N. Betcher: Dimensionless numbers to characterize interactions between heat flow and groundwater flow.

DEEP OCEAN MINERAL DEPOSITS AND THE CYPRUS PROJECT

B. ANCIENT DEPOSITS

K.M. Gillis: Low temperature alteration of the extrusive sequence, Troodos ophiolite, Cyprus.

G. Constantinou* and P.T. Robinson: The formative environment of the massive sulphide ores of the Troodos ophiolite complex, Cyprus.

P.T. Robinson* and J.M. Hall: Hydrothermal circulation and base metal sufide deposition in oceanic crust: Results of research drilling in the Agrokipia ore deposits, Cyprus.

N. Adamides; Diverse modes of occurrence of Cyprus sulphide deposits and comparison with recent analogues.

J.W. Lydon: Comparison of a volcanogenic massive sulphide deposit of Cyprus with one of a Canadian Archean greenstone belt.

D.H. Watkinson*, H.L. Bison and D.H. Watkins: Comparison of Cyprus - and Noranda-type volcanogenic sulfide deposits.

T. Alabaster: Genesis of massive sulphide deposits in the northern Oman ophiolite.

Government of Canada / Gouvernement du Canada

MEMORANDUM NOTE DE SERVICE

TO / A: Dr. J. G. Tanner
Director-General
Earth Physics Branch

FROM / DE: Gravity, Geothermics & Geodynamics Division

Theresa - I believe we have this!

SECURITY - CLASSIFICATION - DE SÉCURITÉ	
OUR FILE — N / RÉFÉRENCE	4150
YOUR FILE — V / RÉFÉRENCE	
DATE	20 September, 1983

SUBJECT / OBJET: INTERNAL REPORT: COORDINATION OF GEOTHERMAL RESEARCH

The attached report by Dr. A.M. Jessop and Dr. M.J. Drury outlines geothermal energy coordination activities carried out in the period March to June, 1983. These activities established the framework for the principal geothermal energy initiatives for 1983 in the Maritimes, Alberta and British Columbia. Of these plans the 500 m test well at the University of Prince Edward Island is presently the most advanced, with drilling due to commence in the near future.

Proposals to use operating funds in lieu of the 3 PY's which were denied to the program have been developed in anticipation of the funds being available shortly. However it is clear that in a relatively small and developing field such as geothermal energy it is extremely difficult to find through contracts expertise of the type the requested positions could have provided. The imbalance between supervision of contracted work and thorough analysis and synthesis of results remains a matter of concern which we will continue to address.

M. R. Dence
Director

MRD:cl

c.c. Dr. W. W. Hutchison
Dr. K. W. Whitham
Dr. R. D. Hyndman
Dr. M. J. Berry