

Geothermal Energy

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Geothermal Energy in Atlantic Canada: Report  
on Visit to St. John's, Nfld. and Halifax, NS.

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## Newfoundland

The author visited the offices of the Newfoundland Department of Mines and Energy (NDME) on Monday, 3rd November, 1980. The first meeting was with Mr. Nat French, Manager, Conservation and Renewables. Mr. French had previously been sent a copy of the technical specifications for the contract for the assessment of geothermal energy potential in Nova Scotia and Prince Edward Island, and some publications on current geothermal energy work in Canada. The author answered some questions on these, and on the geothermal potential of Canada as a whole. It was pointed out that the types of resource that might be available in NS and PEI could also, by virtue of its similar geological setting, be found in Newfoundland. The rationale behind the technical specifications for the NS/PEI contract - the collation of existing data and acquisition of cheap new data on an opportunity basis - was discussed, and it was agreed that such an initial programme would be appropriate in Newfoundland. However, Mr. French thought that not much useful information might be on file in the Province.

The Province would not be able to provide any funding for this operation as, being research, it does not fall under the terms of reference of the Federal-Provincial Agreement (FPA). Should there prove to be a usable geothermal resource in Newfoundland, the Province would be interested in a demonstration project, funded under the FPA. At present Mr. French gives such a project a low priority, comparable to that given to wave energy. No FPA funding would be available until F.Y. 1983-4 at the earliest. The question of funding of a demonstration project is premature at present as the first aim would be to establish the feasibility of such a project.

The question of technical expertise within NDME was raised. Mr. French thought that there was none. The author said that for the NS/PEI work a

technical steering committee consisting of the contractor, an EMR representative and representatives of both the NS and PEI Governments has been set up. If a contract is let for a similar programme in Newfoundland we would wish to set up a similar committee in order that the Provincial Government could be kept fully informed on developments.

The second meeting was with Dr. Rex Gibbons, Senior Geologist with the Mineral Development Division of NDME. The author briefly outlined current geothermal energy activities in Canada and discussed what data would be needed for a preliminary assessment of the geothermal energy potential in Newfoundland. Dr. Gibbons also thought that it is unlikely that much of the required information is stored in provincial files. Apart from the heat flow work of Dr. J. Wright of Memorial University, he is not aware of any temperature measurements in boreholes having been made. On-shore drilling is going on in Newfoundland as part of a mineral exploration programme, for example in a uraniferous granitic body in the Burin Peninsula. Most holes drilled are probably too shallow, less than 150m, for reliable measurements of geothermal gradients to be made. NDME stores all core not required by the exploration companies, and this would be available for thermal conductivity and heat production determinations.

Dr. Gibbons noted that a drilling company had been exploring for artesian water sources in the sediments of the west coast of the island. One of the representatives of the drilling company had suggested that NDME explore for geothermal energy resources. Dr. Gibbons was not sure what had prompted this suggestion. The author will contact the drilling company.

The discussion ended with a query by the author about likely contractors in Newfoundland. He explained that while EMR must abide by the regulations

of DSS for contract letting, it is obviously advantageous to have a local person or company do the work. Dr. Gibbons provided a short list of possible contractors in Newfoundland. He added that John Leslie of Bedford, NS, who has been awarded the NS/PEI contract, has also done a great deal of work for NDME and is familiar with the provincial data files.

The author concludes that there is interest in NDME and there are potential contractors in the region, and recommends that a contract be let in F.Y. 1981-2 for the compilation of existing data and acquisition of new data on an opportunity basis. After the two meetings the author learned from a newspaper report that the Provinces of Newfoundland and Prince Edward Island hope to sign an agreement by the end of 1980 pledging close co-operation in development of their renewable resources. Details of the proposed agreement would be worked out by the departments involved. It is not possible at this stage to anticipate what, if any, effect this might have on the geothermal energy programme.

#### Nova Scotia

The author visited John Leslie, of John A. Leslie and Associates Ltd. of Bedford, N.S., who is the contractor for the data compilation and acquisition work in Nova Scotia and Prince Edward Island. Mr. Leslie will use heat flow equipment on loan from the Geothermal Service of Canada to acquire new temperature data as the opportunity arises. The author explained how the equipment is used and how the data obtained are reduced.

The specifications of the contract were discussed point by point. Mr. Leslie has been in contact with several exploration companies regarding logging new boreholes. It was agreed that he and his assistant should

attempt to log suitable holes as soon as possible, before winter weather conditions begin to cause difficulties. Priorities for some parts of the programme were discussed, and the author suggested that for the hot dry rock assessment Mr. Leslie should first attempt to obtain new data from the uraniferous granites of the Devonian South Mountain batholith, where exploration drilling is being carried out. This should be followed by a study of the younger (Carboniferous) granitic intrusives of the Cobequid Mountains. Lowest priority should be given at this stage to the older (Ordovician) intrusives of Cape Breton, although data certainly should be acquired if possible. There may be problems in acquiring data from these locations, as most exploration holes drilled are less than 150m deep.

For the acquisition of new data from sedimentary basins it was agreed that any available hole in the Province should be logged (within the limits of the degree of effort expected). In particular Mr. Leslie will attempt to obtain data in the Annapolis Valley, which is flanked by the North Mountain basalts on one side and the South Mountain granites on the other.

It was agreed that a meeting of the technical steering committee should be called for a date convenient for all concerned in mid-December.