



CURRICULUM VITAE

Hagen HOLE:

With a mechanical engineering background, Hagen commenced his involvement in the geothermal industry carrying out research on geothermal two phase fluid flow, under a New Zealand Energy Research and Development Fellowship at the University of Auckland, and has since accumulated some 32 years specialist experience in geothermal development projects, and in particular geothermal drilling.

In 1978 he joined Geothermal Energy New Zealand Ltd. (GENZL) and acted as Measurements Engineer, and then Steamfield Manager with responsibilities for direction and management of the drilling and well testing of the production drilling phase of the Kamojang Geothermal Project for the New Zealand Government funded Kamojang Geothermal Development Project in Indonesia. In 1980 Hagen was appointed as UNDP Chief Technical Advisor for the Aluto - Langanu exploration drilling programme in Lakes district of Ethiopia which he fulfilled until the completion of the project in 1985.

From late 1985 to 1991, he then filled the position of Senior Drilling Engineer for the World Bank funded, Olkaria development project and the Eburru exploration project in the Rift Valley of Kenya.

Between April 1991 and March 1997 Hagen was the sole manager for the Ulumbu Mini Geothermal Power Project, in western Flores, Indonesia. In addition, he was Supervisor for the United Nations Revolving Fund for Natural Resources Exploration, on the St Lucia Geothermal Development Project at Sulphur Springs / Soufriere, St Lucia; Aerated drilling assistance and training to Commission Federal de Electricad at the Los Humeros and Tres Virgenes Fields in Mexico; drilling supervision services at the Darajat Geothermal Field, Indonesia for Amoseas Indonesia Inc.; Consulting supervisor for drilling and well testing operations on the Island of Sao Miguel, Azores; for The Consorcio Geotermico de Sao Miguel; Consulting services for aerated drilling operations at the Nigorikawa geothermal field, Hokkaido, and at the Sumikawa geothermal Field, Honshu, Japan; for Japan Metals and Chemicals, Japan.

Between March 1997 and October 2000 Hagen acted as Steamfield Services Manager / Principal Consultant, PB Power – GENZL Division, and was involved in the implementation of the OrPower 4 development of the West Olkaria Field in Kenya; the Oserian Development Company mini geothermal power plant and greenhouse heating system, Olkaria Kenya; Rural electrification pre-feasibility studies for development of Mini geothermal power plants at Hu'u in Sumbawa, and Sukoria in Flores, Indonesia; and Wayang Windu Geothermal Project, central Java, Indonesia.

In October 2000, Hagen resigned from PB Power – GENZL and formed Geothermal Consultants New Zealand Ltd. (GCNZL) From this time to the present he has continued consultancy work specialising in geothermal drilling and related activities in many countries around the world, including Germany, Mexico, Kenya, Iran, New Zealand, Indonesia, Philippines, Iceland, and United Arab Emirates

Responsibilities have included the management and technical specification of all phases of projects from site selection and preparation, design and specification of wells, procurement of materials and drilling services, supervision of drilling activities, well testing and preparation of a Feasibility Study reports.

In addition, Hagen has been integrally involved in the development of aerated drilling systems, and has also participated as a guest lecturer for the Auckland University Geothermal Institute Diploma course, the United Nations University, Geothermal Training Programme, Reykjavik, Iceland; Petroleum Engineering Summer School, Dubrovnic, Croatia; UNIDO-ICS, Geothermal Training Programmes, Trieste, Italy.