PACKAGE ID - 000562IPCAT00 GWELL,GWNACL,HOLA

KWIC TITLE - Multi-Component, Multi-Feedzone Geothermal Wellbore Simulators

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LIMITATION CODE -UNL **AUDIENCE CODE -** UNL

COMPLETION DATE - 10/01/1991 **PUBLICATION DATE -** 10/10/1991

DESCRIPTION - The simulators are designed to reproduce the measured flowing temperature and pressure profiles in flowing geothermal wells, and determine the relative contribution, fluid properties (e.g. enthalpy, temperature) and fluid chemical composition (e.g. CO2, NaCl) of each feedzone. Each simulator is designed to handle a specific problem: HOLA, GWNACL, and GWELL simulate 'pure' water, presence of dissolved solids and presence of non condensable gases respectively. The codes can model multiple feedzones and heat loss to the formation.

PACKAGE CONTENTS - Software Abstract; LBL-31428; LBL-32907; Media Includes Source, Executable, Sample Problem Input and Output;

SOURCE CODE INCLUDED? - Yes

MEDIA QUANTITY - 1 CD Rom

METHOD OF SOLUTION - The simulators solve numerically the differential equations that describe the steady-state energy, mass and momentum flow in a pipe. The codes allow for multiple feedzones, variable grid spacing and well radius. The codes can model flow starting from wellhead or wellbottom depending on available data.

COMPUTER - IBM PC/AT

OPERATING SYSTEMS - UNIX system

PROGRAMMING LANGUAGES - FORTRAN 77

SOFTWARE LIMITATIONS - At present the codes can handle a maximum of 400 grid nodes. If the user wants to increase the number of grid nodes, the dimension statements of the variables WELL, WELL ST and STORE in the source codes have to be changed.

SOURCE CODE AVAILABLE (Y/N) - Y

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UNIQUE FEATURES - These set of simulators allow for the presence of dissolved solids and non condensable gases. They can model wells with multiple fluid entry, and heat transfer between the fluid in the well and the surrounding formation. The codes can start calculation at wellhead or at wellbottom. They can handle injection of fluid into a well. They also have an option for estimating output of wells prior to drilling. An option for sorting output data for plotting is also included.

RELATED SOFTWARE - Any graphics software can be used for plotting.

OTHER PROG/OPER SYS INFO - The input and output files in the sample problems provided are designated as follows: (filename).in indicates an input file; (filename).out indicates an output file; (filename).ite indicates iteration process; (filename).log indicates a printout of error messages.

HARDWARE REQS - A PC of the level of AT will be sufficient.

TIME REQUIREMENTS - Simulations are usually very fast. Some problems may require a longer CPU time.

REFERENCES - Z.P. Aunzo, G. Bjornsson, and G.S. Bodvarsson, Wellbore Models GWELL, GWNACL, and HOLA User's Guide, LB;-31428, 1991; T. Hadgu and Bodvarsson, Supplement to Wellbore Models GWELL, GWNACL, and HOLA User's Guide, LBL-32907, September 1992.

ABSTRACT STATUS - Submitted February 1993.

SUBJECT CLASS CODE - T

KEYWORDS -
COMPUTER PROGRAM DOCUMENTATION
G CODES
GEOTHERMAL WELLS
COMPUTERIZED SIMULATION
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THERMODYNAMIC PROPERTIES

EDB SUBJECT CATEGORIES -
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