Summary of USGS Work to Document A Version of the INFIL3 Computer Code

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Objective

- Produce a documented version of the INFIL3 net-infiltration model that includes user instructions and sample problems.

Tasks

- Restructure the FORTRAN code. (Pollock)

- Check computational algorithms. (Barlow, Pollock)

- Write a model documentation and user's guide. (Barlow)

- Develop a set of sample problems to test performance and illustrate use. (Pollock, Barlow)

Restructure the FORTRAN Code

- Use INFIL3 version 5p (November, 2005) as the basis for our modifications.

- Expand and improve the modularity of the code.

- Remove dead-end code and unused variables.

- Rename some key variables to increase the clarity of the code.

- Simplify and standardize input and output file formats.

Model Documentation and Algorithm Checking

- Most aspects of the INFIL3 model have been documented in previous reports, but the current report will contain a more detailed description of the principal algorithms than any of the previous reports.

- As part of the documentation report preparation, each computational algorithm is being checked to assure that its implementation in the code matches the description in the documentation and is consistent with the original published source.

- The model documentation report is approximately 75 percent complete.

Sample Problems

- We are in the early stages of testing the modified code. Testing will be conducted concurrently with the USGS internal technical review of the model documentation report.

- We are designing a realistic sample problem based on a small subset of an actual INFIL3 data set developed by the USGS California Water Science Center for the Big Bear Lake watershed. Most of our tests and examples will be based on this data set.

- Several simpler test problems designed to test specific components of the INFIL model are also being developed. Many of these test problems will be similar, if not identical, to the test problems developed for the INFIL2 model verification analysis.