

## Dam example problem

The Dam example problem is a two-dimensional (2D), saturated-unsaturated problem that simulates flow through a dam with vertical sides. The seepage face through which water exits is modeled using generalized-flow boundary conditions. The problem setup is described in detail in the SUTRA 3.0.0 documentation:

Provost, A.M., and Voss, C.I., 2019, SUTRA, a model for saturated-unsaturated, variable-density groundwater flow with solute or energy transport—Documentation of generalized boundary conditions, a modified implementation of specified pressures and concentrations or temperatures, and the lake capability: U.S. Geological Survey Techniques and Methods, book 6, chap. A52, 62 p., <https://doi.org/10.3133/tm6A52>.

### Input files

A complete set of input files for the example problem is provided:

- SUTRA.FIL – Contains file assignments for the remaining input and output files.
- Dam.inp – Main input (INP) file.
- Dam.inp21A – Contains INP dataset 21A and is referenced in the INP file using the “INSERT” command.
- Dam.ics – Initial conditions (ICS) file.

### Output files

The output files generated by this example problem are listed below:

- Dam.lst – Main output (LST) file.
- Dam.nod – Nodewise results output (NOD) file.
- Dam.ele – Elementwise results output (ELE) file.
- Dam.bcop – Specified-pressure boundary condition output (BCOP) file.
- Dam.bcopg – Generalized-flow boundary condition output (BCOPG) file.
- Dam.rst – Restart output (RST) file.
- Dam.smy – Summary output (SMY) file.

### Execution

Before running the example problem, you may wish to save the existing output files for later comparison with your new results. To run the simulation, run the batch file “RUNSUTRA.BAT” (which calls the SUTRA executable in the “SUTRA\_3\_0/bin” subdirectory).