GEO-SLOPE INTERNATIONAL

SOFTWARE PER LA SCIENZA E IL BUSINESS
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AIR/W 2007

TEMP/W 2007

SEEP/W 2007

SLOPE/W 2007

SIGMA/W 2007

CTRAN/W 2007

VADOSE/W 2007

QUAKE/W 2007

TEMP/W results in AIR/W
Temperatures can be used to change air density.

Convective Heat Flow
TEMP/W can use water or air velocities to model heat flow.

AIR/W completes the (u_a-u_w) matric suction phenomenon.

SIGMA/W coupled with SEEP/W
SIGMA/W essentially solves equations of equilibrium while SEEP/W solves equations of continuity. A consolidation analysis solves both sets of equations simultaneously and results in both deformation and pore-water pressure changes with time. Running SIGMA/W and SEEP/W at the same time makes it possible to do fully coupled consolidation analyses.

SIGMA/W pore-water pressures in SEEP/W
Excess pore-water pressures generated during any kind of loading (fill placement, for example) can be taken into SEEP/W to study how long it will take for the excess pore-water pressure to dissipate. This can help with specifying the rate of loading.

QUAKE/W results in SIGMA/W
Stress and liquefaction results from QUAKE/W can be used in a SIGMA/W stress redistribution analysis.

SEEP/W results in SLOPE/W
Using SEEP/W finite element computed pore-water pressures in SLOPE/W makes it possible to deal with highly irregular saturated/unsaturated conditions or transient pore-water pressure conditions in a stability analysis. From a transient analysis, we know the pore-water pressure conditions at various points in time. Using these time-varying pore-water pressure results in SLOPE/W makes it possible to look at the changes in stability with time.

SIGMA/W pore-water pressures in SLOPE/W
Simulating the placement of fill in SIGMA/W, for example, may create excess pore-water pressures in the foundation. These SIGMA/W excess pore-water pressures can be used in SLOPE/W to analyze the stability during construction and at the end of construction. This could help with deciding the need for staged loading.

SIGMA/W stresses in QUAKE/W
Establishing insitu static stresses can be done simplistically in QUAKE/W. Alternatively, you can use the load sequencing and non-linear constitutive soil models in SIGMA/W to improve the estimation of the static stress conditions, and then use them as the initial static stresses in a QUAKE/W dynamic analysis.

Density-Dependent Flow
In density dependent fluid flow, the velocity of the water is dependent on the solute concentration. The water velocity in turn influences the movement of the solute. SEEP/W and CTRAN/W therefore need information from each other. The iterative transfer of water velocity from SEEP/W to CTRAN/W and the transfer of concentration from CTRAN/W to SEEP/W makes it possible to do density dependent fluid flow analyses.

SEEP/W results in CTRAN/W
One of the major components in a contaminant transport analysis is the velocity of the water, which can be obtained from a SEEP/W analysis. Once this velocity is known, it can be used in CTRAN/W to study the transport of contaminants.

SIGMA/W stresses in SLOPE/W
There are many geotechnical cases where it is desirable to not only perform a deformation analysis, but also to look at stability. In other instances, a SLOPE/W limit equilibrium stability analysis alone is inadequate. For cases like this, the SIGMA/W computed stresses can be used in SLOPE/W to compute the safety factors.

VADOSE/W results in SLOPE/W
Using VADOSE/W computed pore-water pressures in SLOPE/W makes it possible to model the effects of climate-controlled, evaporative flux on stability.

QUAKE/W results in SEEP/W-SIGMA/W Consolidation
The dissipation of excess pore-water pressures generated during earthquake shaking may lead to some consolidation after the earthquake. Using the QUAKE/W computed pore-water pressures in a SEEP/W-SIGMA/W coupled analysis makes it possible to look at the deformation that may occur as a result of the post-earthquake consolidation.

QUAKE/W results in SLOPE/W
Earthquake shaking of ground structures creates inertial forces that may affect the stability of the structures. The shaking may also generate excess pore-water pressures. Both the dynamic stress conditions and the generated pore-water pressures can be taken into SLOPE/W to study how an earthquake affects the earth structure stability and deformation.

VADOSE/W results in CTRAN/W
Water velocities computed by a VADOSE/W evaporative flux analysis can be used in CTRAN/W to study the transport of contaminants. For example, you can then analyze contaminant flow from waste ponds that have soil covers.

QUAKE/W results in SEEP/W
The QUAKE/W computed excess pore-water pressures generated during an earthquake can be taken into SEEP/W to study how long it will take for the excess pore-water pressure to dissipate.

GeoStudio™ 2007 Product Integration