Hydrologic Engineering Center
September 2003

Reservoir System Simulation, HEC-ResSim
Version 2.0, September 2003
Release Notes

HEC-ResSim has been designed and developed by the Hydrologic Engineering Center of the U.S. Army Corps of Engineers to perform Reservoir System Simulation. It is intended to meet the needs of real-time reservoir regulators for a decision support tool, as well as the needs of modelers doing reservoir projects studies.

The first releases (Versions 1.0 and 1.1) of ResSim were within the water control management community of the Corps. Their reviews, experience, and feature requests have helped make ResSim a powerful tool for reservoir operations modeling. The features of ResSim 2.0 include:

- A map based schematic development environment.
- A complex reservoir element that can include multiple dams and outlets.
- An operations scheme that can define the reservoir's operating goals and constraints in terms of pool zones and zone dependent rules.
- A set of operation rule types that include:
  - Release Requirements and Constraints
  - Downstream Control Requirements and Constraints
  - Pool Elevation or Inflow Rate-of-Change Limits
  - Hydropower Requirements
  - Induced Surcharge (Emergency Gate Operation)
- Operation of multiple reservoirs for a common downstream control, including storage balancing.
- Powerful alternative builder to allow for a wide range of "what if" analysis.
- Computation timesteps from 15min to 1day.
- Release Overrides of the reservoir's release decisions timestep by timestep.
- Configurable plots.
- Summary Reports and a Release Decision Report.
- HEC-DSS for storage of input and output data.
- HEC-DSSVue for access to all computed results.
- Familiar Windows look and feel.

Several significant new features are currently under development, with a planned release targeted for Summer 2004. These planned features include:

- System Hydropower (operating multiple reservoirs for a common hydropower requirement).
- Pumps and Pumpback Storage.
- Period-Average Release Requirements (currently, the requirements are "instantaneous").
- Release Allocation (control over which outlets get the flow first, next, and so on).
- Scheduled Outlet Outages and Outlet Capacity Overrides.
- If-Then-Else logic for rule validation.
- User-Defined State Variables (include your own variable into the computation scheme and make If-Then-Else conditions even more powerful).
- Scripting and Scripted Rules.
- Critical Period and Firm Yield Analysis.
- Enhancements for Period of Record simulations.

Current releases and known issues will be posted on HEC's website, http://www.hec.usace.army.mil.