



Fact Sheet

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Project Title: Spreadsheet SELECT

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SELECT is a one-dimensional (1-D) numerical model that predicts the vertical extent and distribution of withdrawal from a reservoir of known density (usually temperature driven) and quality distribution for a given discharge from a specified elevation. Using this prediction for the withdrawal zone, SELECT computes the quality of the release for user-specified parameters (such as temperature, dissolved oxygen (DO), turbidity, or iron). These release constituents are assumed conservative through the selective withdrawal structure because the retention time in the structure is short compared with the time required for the constituents to physically or chemically change. For example, there would be insufficient time for the water temperature to change significantly. However, chemical oxidation may occur, but is not included as a process in the SELECT model. Oxygen transfer can also occur, but SELECT can predict the improvement in DO that would occur due either to natural reaeration, as flow passes through gated-conduit outlet works, or due to turbine venting at a hydropower project.

SELECT is a numerical 1-D model of selective withdrawal developed at the U.S. Army Engineer Research and Development Center. SELECT v1.0 Beta uses Microsoft Excel spreadsheet software to compute withdrawal characteristics and release water quality for various operational alternatives. The spreadsheet implementation of the SELECT model provides a highly interactive environment for the application of the model. The complete documentation of this spreadsheet program can be found in the US Army Engineer Research and Development Center Report SR-04-1, *SELECT Version 1.0 Beta: A One-Dimensional Reservoir Selective Withdrawal Model Spreadsheet*.

SELECT was developed based on the philosophy that the field office users require a tool to compute the withdrawal and release quality characteristics of a structure for given values of density stratification, outlet geometry, and discharge. SELECT is that tool. SELECT is not a water quality or thermal simulation model. It does not consider all the hydrodynamic and biochemical processes ongoing in a reservoir. Its purpose is to estimate withdrawal and release quality characteristics.

[Download Spreadsheet SELECT](#)

Corresponding documentation: [US Army Engineer Research and Development Center Report SR-04-1](#)