

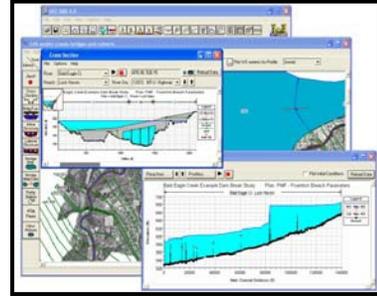


## TIPS

Technical Innovation  
And Professional  
Services



US Army Corps  
of Engineers®



# HEC-RAS

Determination of basic water-quality and quantity estimates of natural and constructed channels are necessary for the proper design of engineering structures such as ponds, diversions, and culverts. The U.S. Army Corps of Engineers' **Hydrologic Engineering Center River Analysis System** (HEC-RAS) allows the user to model several aspects of concentrated surface flows (rivers, streams, diversions, etc.) ubiquitous to areas of mine-sites. With this software, the user can determine the size and design of these water features to be sure that they will hold the flow or storage necessary for the characteristics of the site and the predicted runoff of surface water. The model design process offers flexibility—the user can divide a stream/diversion into as many sections as necessary to attain the desired level of accuracy. Models are graphical and can be developed easily for one-dimensional steady or unsteady flow. Using the model, the user can obtain sediment-transport/mobile-bed estimates and water-surface profiles.

### SELECTED FEATURES:

- Employs a graphical user interface (GUI) for ease of use
- Calculates water-surface profiles for steady, gradually varied flow; simulates one-dimensional unsteady flow through network of open channels
- Models network of channels, dendritic system or single river reach
- Models of subcritical, supercritical and mixed flow regimes
- Considers floodplain obstructions (bridges, culverts, weirs, structures, etc.) in computations
- Includes multiple plan analyses, multiple profile computations, multiple bridge and/or culvert-opening analyses, and split-flow optimization
- Performs analyses of dam breaks, levee breaching and overtopping, pumping stations, navigation dam operations, and pressurized pipe systems
- Simulates sediment transport/movable boundary calculations resulting from scour and deposition
- Riverine water quality analyses

### HEC-RAS

#### Obtaining Software

This software is free! OSM recommends you visit the U.S. Army Corps of Engineers HEC-RAS support site at:

<https://www.hec.usace.army.mil/software/hec-ras/>

#### SMCRA Benefits and Uses

- \* Investigating impacts of encroachment upon floodplains
- \* Evaluating the effects of various obstructions (bridges, culverts, etc.)
- \* Simulating sediment transport and deposition in stream channels from proposed mining operations
- \* Analyzing flooding potential

#### TIPS Training Classes

There are no TIPS training classes currently offered for HEC-RAS. OSM is evaluating a plan to offer a HEC-RAS course in the future.

#### Need Help????

Contact HEC-RAS Software Manager  
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