

Fontenelle Operational Rules Outline for Probabilistic Midterm Model

Data

Data Object

July 1 Target Elevation = 6500 ft
August 1 Target Elevation = 6505.5 ft
April 1 Target Elevation = 6468 ft
Max Elevation = 6506 ft
Min Flow = 300 cfs
Safe Channel Capacity = 11500 cfs

Rules

In order of priority.

Min Flow

If release is below “Min Flow”
♦ Set release to “Min Flow”

Max Elevation

If Elevation > “Max Elevation”
♦ Set release so “Max Elevation” is not violated
♦ Use GetMaxOutflowGivenHW

Safe Channel Capacity

If Release is above “Safe Channel Capacity”
♦ Set Release to “Safe Channel Capacity”

Set September-November Baseflow

Execution Constraint: Month is September

Set to September-March to outflow that will meet “April 1 Target Elevation”

Compute change in volume given “April 1 Target Elevation” and current elevation
Add volume gain from forecasts September-March (7 months)
Compute max steady flow over September-March (7 months)

Set Baseflow in off-month

Execution Constraint: Month is October, November, January, February, March

Set release in current month to release in previous month. Handles case when model is started in any of these months, in those cases the release will be set to past observed release.

Set December-March Baseflow

Execution Constraint: Month is December

Set December-March outflow to steady value that will meet “April 1 Target Elevation”

Compute change in volume given “April 1 Target Elevation” and current elevation
Add volume gain from forecasts December-March (4 months)
Compute max steady flow over December-March (4 months)

Set April-May Release

Execution Constraint: Month is April

Set April Release to “Power Plant Capacity”

Use GetMaxReleaseGivenInflow
♦ Incorporates PeakPowerCalc method
♦ Incorporates monthlySpillCalc method

Set May Release to April Release

Set June Release

Execution Constraint: Month is June

Set June release to meet “July 1 Target Elevation”

Use GetMaxOutflowGivenHW

Set July Release

Execution Constraint: Month is July

Set July release to meet “August 1 Target Elevation”

Use GetMaxOutflowGivenHW

Set August Release

Execution Constraint: Month is August

Set August release to “Power Plant Capacity”

Use GetMaxReleaseGivenInflow
♦ Incorporates PeakPowerCalc method
♦ Incorporates monthlySpillCalc method

Last Edited: 8-28-09 Cameron Bracken