

Fontenelle Operational Rules Outline for Probabilistic Midterm Model

In rough order of priority.

Data

Data Object

Power Plant Capacity Above Trigger = 1700 cfs
Power Plant Capacity Below Trigger = 1200 cfs
July 1 Target Elevation = 6500 ft
August 1 Target Elevation = 6505.5 ft
April 1 Target Elevation = 6468 ft
April 1 Target Elevation Tolerance = ??? ft
Min Elevation = 6468 ft (Flexible)
Max Elevation = 6506 ft
Power Plant Capacity Trigger = 6476 ft
Steady Baseflow Release Range = 1000 — 1200 cfs
Min Flow = 300 cfs

Rules

Min Flow

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

Max Elevation

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

Safe Channel Capacity

If release is above “Safe Channel Capacity”
♦ Set 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
If model is started this year, Look at forecast ??? criteria
Compute max steady flow over September-March months

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
If model is started this year, look at forecast ??? criteria
Compute max steady flow over December-March months

Set April-May Release

Execution Constraint: Month is September

Set April and May release to “Power Plant Capacity”

Set June Release

Execution Constraint: Month is June

Set June release to meet “July 1 Target Elevation”

Solve outflow given forecast and the change in storage necessary to meet the “July 1 Target Elevation”

Set July Release

Execution Constraint: Month is June

Set July release to meet “August 1 Target Elevation”

Solve outflow given forecast and the change in storage necessary to meet the “August 1 Target Elevation”

Set August Release

Execution Constraint: Month is August

Set August release to “Power Plant Capacity”

Functions

Get “Power Plant Capacity”

If Elevation > “Power Plant Capacity Trigger”
 ♦ return “Power Plant Capacity Above Trigger”
If Elevation < “Power Plant Capacity Trigger”
 ♦ return Power Plant Capacity below Trigger

Last Edited: 8-27-09 Cameron Bracken