

V.3.3-RES-SNGL-SPEC-RULECURVE SINGLE RESERVOIR REGULATION OPERATION
SCHEME RULE CURVE

Purpose

This reservoir regulation Scheme uses a rule curve to determine future pool elevations. A typical application of the rule curve might be for a reservoir serving the multiple uses of power generation, recreation and flood control. The rule curve in this case would be designed to maintain the pool level for maximum power generation without hindering flood retention capacity during flood prone times and to keep pool fluctuations to a minimum during periods of high recreational use. This Scheme brings the pool elevation back to rule curve (or adjusted rule curve) elevation at the end of each time interval, except for special situations described later. Since a power dam is normally brought back to the rule curve elevation either once a day or once a week this Scheme is not usually used for a power dam.

Simulation of a reservoir that operates by closely following the rule curve consists of maintaining the pool elevation equal to the rule curve elevation. The mean dam discharge is computed for a time interval from the change in pool storage and inflow.

The period ending instantaneous discharge is set equal to the mean period discharge value. Since the reservoir might be kept above or below the rule curve elevation for a period of time, a rule curve adjustment Utility has been provided to compute the average deviation of the observed elevations from rule curve elevations for a specified number of past time intervals (see RULEADJ). This permits the rule curve to be adjusted in accordance with actual operations when the rule curve is not being followed closely. When this Scheme is combined with the ADJUST Utility, the chance exists that the last observed pool elevation (storage) is considerably higher than the rule curve or adjusted rule curve elevation (storage). To prevent extreme outflows in this case, a blending period can be specified for returning to the scheduled elevation along with an upper limiting discharge.

Input Summary

<u>Keyword</u>	<u>Definition and Format</u>
RULECURVE <u>1</u> /	Input opening keyword for scheme
<u>PARMS</u>	Parameter opening keyword for scheme
CURVE	Rulecurve definition: If defined here: - 'j' dates followed by 'j' values of elevation - dates: - integer - ascending order

<u>Keyword</u>	<u>Definition and Format</u>
	<ul style="list-style-type: none"> - between 1 and 366 - elevations: <ul style="list-style-type: none"> - real - within ELVSSTOR curve <u>2</u>/ If referenced to original definition: <ul style="list-style-type: none"> - name and level number of scheme in which it was originally defined
[RULETIME]	Time of hydrologic day rulecurve is set: <ul style="list-style-type: none"> - needed only if CURVE is defined in this scheme - integer - between 0 and 24 inclusive
[BLEND]	Number of periods to blend back into rulecurve: <ul style="list-style-type: none"> - integer - value > 0 - default is 1
QMAX	Maximum discharge above which rulecurve is not in use: <ul style="list-style-type: none"> - real - value > 0.0
<u>ENDPARMS</u>	Parameter ending keyword for scheme
ENDRULE	Input ending keyword for scheme

Notes:

- 1/ No time series or carryover is needed for this scheme.
- 2/ ELVSSTOR is the elevation versus storage curve defined in the general parameter section.