IX.4.5B-FCRATING FORECAST COMPONENT DATA BASE FILE FCRATING

Purpose

File FCRATING contains the definitions of the Rating Curves used by the Forecast Component.

One Rating Curve definition is held in common block FRATNG [Hyperlink].

Description

ATTRIBUTES: fixed length 1200 byte binary records

RECORD STRUCTURE:

Variable	Type	Dimension	Word Position	Description
RTCVID	A8	1	1	Rating Curve identifier
RIVERN	A20	1	3	River name
RIVSTA	A20	1	8	Station name
RLAT	R*4	1	13	Latitude of station
RLONG	R*4	1	14	Longitude of station
FPTYPE	R*4	5	15	Code for type of forecast point. Codes indicates the forecast product generated for this point for each general type of forecast: Regular river forecast codes: 'DOAP' = optional daily 'DAMA' = mandatory daily 'FLUD' = flood only 'SPRT' = support (Tulsa RFC) Reservoir forecast codes: 'RSQ ' = reservoir elevation and inflow 'INF ' = reservoir inflow only Extended forecast codes: 'SOOP' = spring outlook; optional 'SOMA' = spring outlook; mandatory 'WSUP' = water supply Flash flood:

Variable	Type	Dimension	Word Pos.	Description
				'HWFF' = headwater table and flash flood index 'FFON' = flash flood index only 'HWON' = headwater table only
AREAT	R*4	1	20	Total drainage area (units of KM2)
AREAL	R*4	1	21	Local drainage area (units of KM2)
FLDSTG	R*4	1	22	Primary flood stage (units of M) -999. = not defined
FLOODQ	R*4	1	23	Flood flow for primary flood stage (units of CMS) -999. = not defined
PVISFS	R*4	1	24	Provisional flood stage indicator: 'P ' = primary flood stage is provisional ' ' = otherwise
SCFSTG	R*4	1	25	Secondary flood stage (units of M) -999. = not defined
WRNSTG	R*4	1	26	Warning or alert stage (units of M) -999. = not defined
GZERO	R*4	1	27	Gage zero datum (units of M) (elevation above Mean Sea Level corresponding to zero stage) -999. = missing
NRCPTS	I*4	1	28	Number of stage versus discharge points used to define the rating curve 0 = no rating curve included
LOCQ	I*4	1	29	Starting location of the rating curve discharge values in the XRC array 0 = none

Variable	Type	Dimension	Word Pos.	Description
LOCH	I*4	1	30	Starting location of the rating curve stage values in the XRC array 0 = none
STGMIN	R*4	1	31	Minimum allowable stage (units of M); not defined if NRCPTS=0
NCROSS	I*4	1	32	Number of values in cross-sectional data table 0 = not needed
LXTOPW	I*4	1	33	Starting location of the cross-sectional top width values in the XRC array; not defined if NCROSS=0
LXELEV	I*4	1	34	Starting location of the cross-sectional elevation values in the XRC array; not defined if NCROSS=0
ABELOW	R*4	1	35	Area below first cross-sectional elevation (units of M2); not defined if NCROSS=0
FLOODN	R*4	1	36	Manning's n for flood plain above uppermost cross-sectional elevation; not defined if NCROSS=0
SLOPE	R*4	1	37	Channel-bottom slope (units of M/M); not defined if NCROSS=0
FRLOOP	R*4	1	38	r term in dynamic loop computations; not defined if NCROSS=0
SHIFT	R*4	1	39	Shift factor used during log-log extrapolation of low flows (units of M); not defined if NRCPTS=0
OPTION	R*4	1	40	Type of units used when the rating curve was defined: 'ENGL' = English units 'METR' = metric units
LASDAY	R*4	1	41	Last day that rating curve should be used (Julian day); for calibration use only: 0 = no limit

Variable	Type	Dimension	Word Pos.	Description
IPOPT	I*4	1	42	Pointer to starting position in the XRC array where optional information is stored
				Flood of record information:
RFSTG	R*4	1	43	o stage (units of M) -999. = not defined
RFQ	R*4	1	44	o discharge (units of CMS) -999. = not defined
IRFDAY	I*4	1	45	o date (form is mmddyyyy; computed using yyyy+dd*10**4+mm*10**6) -999. = not defined
RFCOMT	R*4	5	46	o comment: none = blank
EMPTY	R*4	25	51	Array positions: 1 Pointer to starting location in the XRC array where information for the computation of FRLOOP is stored 2 Pointer to starting location in the XRC array where information on offset factors is stored 3 Stage below which the shift factor will be used (units of M); not defined if NRCPTS=0 4 Indicator for rating curve interpolation/extrapolation method: 0 = logarithmic 1 = linear 5-25 For future use
XRC	R*4	225	76	Space to hold: o Rating Curve stage and discharge values (starting at location LOCH with NRCPTS values of stage followed by NRCPTS values of discharge starting at location LOCQ) o Cross-sectional data (starting at location LXELEV with NCROSS values of elevations followed by NCROSS values of channel topwidth starting at location LXTOPW) o FRLOOP information 1/ o number of offset factors and

Variable	Type	Dimension	Word Pos.	Description
				the stage/offset-pairs 2/
				o optional information 3/

Notes:

1/ Space in the XRC array starting at the location defined by EMPTY(1) is used to store information which is used in the computation of FRLOOP.

The number of values is 8+2*NOCS and are:

Position	Contents
1	Time to peak for typical flood in hours
2	Discharge at beginning of typical flood
3	Peak discharge for typical flood
4	Stage at beginning of typical flood
5	Peak stage for typical flood
6	Minimum discharge below which loop effects will be ignored
7	Minimum stage below which loop effects will be ignored
8	Number of cross section points for off-channel storage (NOCS)
9 to 8+2*NOCS	Elevation-topwidth pairs to define off-channel storage cross sections (NOCS values of elevation followed by NOCS topwidth for off-channel storage)

If a loop rating is not used then FRLOOP=-999., EMPTY(1)=0 and no space is used in XRC to store this information.

2/ Space in the XRC array starting at the location defined by EMPTY(2) is used to store offset factors. The values stored are as follows:

Position	Contents
1	Number of offset factors defined (NOFF)
2	Stage above which offset is applied (units of M)
2+NOFF	Offset factor (units of M)

Positions 2 is repeated NOFF times followed by position 3 repeated NOFF times.

3/ Space in the XRC array starting at the location defined by IPOPT is used to store optional information for the forecast point. For each piece of information in this section, the following information will be stored.

Position	Contents
1	Number code for this piece of optional information (-1 indicates no more optional information in XRC)
2	Location of the next number code in the XRC array
3 to 2+L	The optional information, where L is the length of space used to store information

The following optional information is allowed in the Rating Curve

file:

Number Code	Character Code	Length of Entry (words)	Form	Item
1	COMMENT	Variable	A	General comment space
2	USGS-ID	2	A	USGS identifier
3	NWS-ID	2	A	NWS location identifier (5 characters)
4	BANKFUL-STG	1	R	Bankfull stage (units of M)
5	RIVER-LOC	1	R	River location; distance from mouth (units of KM)
6	MOB-STG	1	R	Mobilization stage (units of M)
7	HSA-ID	2	A	Hydrologic Service Area identifier
8	E-19	1	I	Date of latest E-19 update (mmyy)
9	E-19A	1	I	Date of latest E-19A update (mmyy)