(V)

Skagit River near Dedro-Woolley, Wash.

Proposed revision of historical flood peaks.

Measurements 4-10 were used in the definition of the rating table dated March 17, 1923, which was the only curve which was defined in the upper end before Bulling's Bend was cut-off by the river in 1911. A definite change is believed to have taken place after the bend was cut-off causing the rating curve to plot to the right. Due to this cut-off, it is believed that the most logical extension of rating table dated March 17, 1923 should be used to determine the discharges for those floods which occurred before 1911.

This curve has been drawn on log-log paper to try to determine a good extension but due to the lack of definition above 60,000 cfs, it is difficult to tell what would be the most logical extension of this curve. With the large flood plain below the station and overflows above the station, it is believed that the rating curve will have a tendency to bend to the right. Based somewhat on the discharges which were determined for Skagit River near Concrete and upon the elevations of the floods as determined by Stewart, a tentative curve has been drawn.

(7)

This curve shows less water than obtained at Lovelock because of the short duration and the intensity of the flood which due to channel storage reduced the peak at Palisa-Woolley. There is actually no basis for this extension except that it is not believed that the rating curve should break to the right and then back to the left as shown by the pleasure curve. It is possible that this curve could break more sharply to the right but due to the enormous flood plain below the station, the velocities would probably be slowed down enough not to cause such a sharp break to the right. On the basis of the tentative curve which is shown in red on the rating curve sheet, new estimates of discharges were made for all the floods which occurred before the Rawlins bend cut-off.

Year.	Stewart's figure	Revised figure	
		400 000	0%
1815	400,000	370,000	7.5%
		290	3.3
1856	300,000	260,000	13.3%
		165	10.8
1896	185,000	145,000	21.6%
		170	10.5
1897	190,000	145,000	23.7%
		165	8.3
1906	180,000	140,000	22.2%
		200	9.1%
1909	220,000	175,000	20.4%

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(3)

On the memo from Flynn and Benson, it has been stated that the flood of 1909 could have been as low as 165,000 cfs. On this basis, it is believed that this tentative extension is probably as logical as can be expected.

Measurement No 7, the highest measurement which defines the rating curve, has been checked for discharge and gage-height and there does not seem to be anything in error with this measurement.

For those floods after the Harling bend cut-off, the extension of the last rating curve, table dated , has been used. It is believed that the discharge estimated for the 1917 flood is correct and it checks the statement made by Stewart that this flood was remarkable for the length of time that it stayed up high. The discharge obtained for this flood at Concrete was 200,000 cfs while that at Sedro Woolley is 195,000 cfs. Due to the long duration of the flood, the peak discharge for the should be very nearly the same at the two stations because all the channel storage has had an opportunity to fill up and therefore allowing the peak to proceed

(E)

down the curve without any reduction.

The peak for 1921 should be revised on this basis to 200,000 cfs from 210,000 cfs. 4.8%

It is believed that the cut-off of Sterling Bend had enough effect to cause the entire rating to shift to the right and it is on this assumption that the ratings have been extended.

J. J. Wilson

Jan. 12, 1954