

Table 5. Streamflow estimates (fit) for selected annual exceedance probabilities and associated confidence intervals (lower and upper) and variance estimates for flood-frequency analysis under three different scenarios using U.S. Geological Survey PeakFQ software (Veilleux and others, 2014) version 7.2 for the lower reach of Rapid Creek, South Dakota, with comparisons to Harden and others (2011).

[PILF, potentially influential low flood; AEP, annual exceedance probability; ft³/s, cubic foot per second; PE3, Pearson type III distribution; NA, not applicable to method; --, not reported]

Analysis scenario	Number of peaks in record	Gaged peaks in analysis	Historical or paleoflood peak point estimates in analysis	Flow intervals in analysis ^a	Beginning year	Ending year	Historical period length	PILF threshold	Number of PILFs	Statistic	AEP of 0.1 (ft³/s)	AEP of 0.01 (ft³/s)	AEP of 1×10 ⁻³ (ft³/s)	AEP of 1×10 ⁻⁴ (ft³/s)	AEP of 1×10 ⁻⁵ (ft³/s)	AEP of 1×10 ⁻⁶ (ft³/s)
1. Systematic peaks with weighted skew	81	81	0	0	1929	2009	81	None	0	Lower	913	3,601	10,570	27,080	63,840	141,800
										Fit	1,323	7,156	30,880	119,600	433,300	1,493,000
										Upper	2,342	33,020	495,500	7,572,000	116,300,000	1,749,000,000
										Variance	0.0093	0.0424	0.1148	0.2318	0.3963	0.6094
2. Systematic and historical peaks, weighted skew	85	81	4	0	1878	2009	132	None	0	Lower	1,206	5,578	18,220	50,500	126,800	296,900
										Fit	1,775	10,960	51,730	214,700	823,500	2,976,000
										Upper	2,862	36,200	472,900	6,157,000	79,380,000	1,003,000,000
										Variance	0.0086	0.0351	0.0964	0.1979	0.3427	0.5321
3. Systematic and historical peaks and paleo-derived peaks and thresholds information with weighted skew	85	81	4	7	720	2009	1,290	None	0	Lower	1,585	8,424	28,780	79,250	191,900	425,300
										Fit	2,241	13,320	56,490	203,300	661,900	2,002,000
										Upper	3,055	21,190	132,000	776,700	4,351,000	23,310,000
										Variance	0.0052	0.0102	0.0269	0.0589	0.1079	0.1752
4. Harden and others (2011), PeakfqSA, PE3, EMA fitting, gaged peaks	86	86	0	0	1905	2009	105	NA	NA	Lower	--	4,070	--	--	--	--
										Fit	--	8,720	--	--	--	--
										Upper	--	104,000	--	--	--	--
5. Harden and others (2011), PeakfqSA, PE3, EMA fitting, gaged and historic peaks	90	86	4	0	1878	2009	132	NA	NA	Lower	--	5,630	--	--	--	--
										Fit	--	11,600	--	--	--	--
										Upper	--	87,400	--	--	--	--
6. Harden and others (2011), PeakfqSA, PE3, EMA fitting, gaged, historical, and paleo data	90	86	4	7	720	2009	1,290	NA	NA	Lower	--	8,350	--	--	--	--
										Fit	--	14,000	--	--	--	--
										Upper	--	24,600	--	--	--	--
7. Harden and others (2011), PeakfaSA, PE3, EMA fitting, gaged, historical, and paleo data, with top fitting ^b	47	43	4	7	720	2009	1,290	NA	NA	Lower	--	8,740	--	--	--	--
										Fit	--	14,400	--	--	--	--
										Upper	--	25,000	--	--	--	--
8. Harden and others (2011), FLDFRQ3, PE3, maximum likelihood estimation fitting, gaged peaks	86	86	0	0	1905	2009	105	NA	NA	Lower	--	4,250	--	--	--	--
										Fit	--	10,300	--	--	--	--
										Upper	--	41,800	--	--	--	--
9. Harden and others (2011), FLDFRQ3, PE3, maximum likelihood estimation fitting, gaged and historical peaks	90	86	4	0	1878	2009	132	NA	NA	Lower	--	5,610	--	--	--	--
										Fit	--	11,700	--	--	--	--
										Upper	--	32,400	--	--	--	--
10. Harden and others (2011), FLDFRQ3, PE3, maximum likelihood estimation fit-ting, gaged, historical, and paleo data	90	86	4	7	720	2009	1,290	NA	NA	Lower	--	7,640	--	--	--	--
										Fit	--	12,000	--	--	--	--
										Upper	--	19,500	--	--	--	--

^aIn keeping with PeakFQ results, flow intervals are not included in the number of peaks in record. Therefore, the total number of peak point and interval estimates is greater than or equal to the number of peaks in record.

^bTop fitting excluded values less than the median flow, 254 ft³/s.