

APPENDICES

Table A-1. Average annual water and sediment discharges at selected USGS gauging stations on the main stem of the Colorado River, 1934-1997.

	Colorado River at Glenwood Springs		Colorado River near Cameo		Colorado River at CO-UT state line		Colorado River near Cisco, UT	
	(9072500)		(9095500)		(9163500)		(9180500)	
	Q (m ³ /s)	Q _s (10 ⁶ t/yr)	Q (m ³ /s)	Q _s (10 ⁶ t/yr)	Q (m ³ /s)	Q _s (10 ⁶ t/yr)	Q (m ³ /s)	Q _s (10 ⁶ t/yr)
1934	40.3	0.12	72.7	0.50			86.8	1.26
1935	63.4	0.58	111.9	2.18			183.1	5.40
1936	89.1	0.93	141.9	3.04			225.3	6.19
1937	57.2	0.28	99.3	0.89			182.4	4.68
1938	95.2	1.15	158.9	3.34			290.3	11.26
1939	67.6	0.47	105.8	1.33			166.3	4.51
1940	51.1	0.23	78.0	0.88			135.3	3.11
1941	66.1	0.47	115.8	1.25			257.3	8.60
1942	76.1	0.71	141.2	2.76			301.4	15.46
1943	69.5	0.46	112.8	1.29			200.9	6.22
1944	58.9	0.32	105.9	1.28			230.7	5.91
1945	67.2	0.34	115.7	1.83			211.5	4.73
1946	60.9	0.23	100.8	1.44			158.8	4.73
1947	88.5	0.71	146.6	2.92			236.7	7.93
1948	75.6	0.56	129.7	1.76			256.0	8.45
1949	80.1	0.62	130.7	2.26			246.0	8.28
1950	57.7	0.24	100.0	1.41			165.7	4.31
1951	72.3	0.46	113.9	1.80			153.4	3.27
1952	95.2	1.00	161.1	3.44	267.1	9.05	301.3	11.24
1953	62.1	0.32	100.6	1.37	147.6	2.95	157.9	4.08
1954	34.7	0.04	60.7	0.26	81.6	0.49	91.1	2.04
1955	40.2	0.08	77.3	0.65	113.5	1.31	126.8	2.85
1956	57.3	0.29	94.3	1.38	130.5	2.52	140.8	3.61
1957	94.2	1.06	164.8	4.33	294.4	7.81	331.9	13.31
1958	67.4	0.51	113.5	1.78	212.2	5.87	248.6	9.97
1959	50.7	0.16	85.6	0.87	116.4	1.45	121.7	2.45
1960	58.5	0.21	96.0	1.01	146.2	2.35	161.5	4.18
1961	43.1	0.09	73.8	0.50	108.0	1.07	120.6	3.37
1962	93.6	0.63	156.5	2.22	242.4	5.07	261.9	8.13
1963	41.8	0.06	68.4	0.35	101.1	0.80	110.3	2.09
1964	39.5	0.09	74.2	0.50	121.4	1.52	131.2	2.82
1965	65.0	0.30	123.3	1.78	223.5	5.20	250.5	9.44
1966	43.8	0.06	76.5	0.39	115.7	0.99	137.2	3.17
1967	45.9	0.10	82.6	0.46	111.9	0.85	118.2	1.26
1968	52.5	0.16	94.1	0.83	145.2	1.92	159.8	3.68

1969	55.3	0.15	100.7	0.92	169.3	2.94	186.2	2.53
1970	74.4	0.47	128.2	1.46	214.7	3.43	228.4	7.04
1971	80.5	0.41	131.5	2.21	210.2	3.88	220.3	4.68
1972	59.2	0.19	99.8	1.09	134.8	1.69	138.1	2.20
1973	73.7	0.38	127.0	1.83	211.0	4.67	251.8	7.77
1974	75.3	0.39	114.5	1.34	170.0	2.09	176.6	2.53
1975	62.4	0.22	113.1	1.12	185.5	3.02	204.2	4.17
1976	49.9	0.11	88.7	0.75	130.1	1.52	136.5	1.57
1977	32.6	0.03	54.9	0.21	72.5	0.41	74.5	0.14
1978	60.7	0.29	100.5	1.36	151.2	2.75	177.3	4.20
1979	69.9	0.36	120.7	1.33	221.4	4.04	257.8	6.49
1980	68.2	0.33	118.6	1.84	204.3	4.81	242.9	5.88
1981	36.3	0.05	60.7	0.35	105.4	0.93	104.4	0.67
1982	56.8	0.20	102.0	1.15	176.9	2.83	193.6	2.68
1983	93.9	0.86	172.1	3.95	314.2	10.50	359.6	13.54
1984	118.5	1.41	215.4	4.10	381.5	11.08	423.6	13.76
1985	86.4	0.47	168.4	3.36	302.6	5.87	342.7	8.81
1986	87.4	0.53	162.6	2.71	293.9	7.10	315.1	10.54
1987	51.3	0.11	101.6	0.83	203.6	3.36	245.1	7.11
1988	52.8	0.13	84.0	0.72	136.9	1.32	143.9	1.99
1989	43.4	0.07	72.7	0.44	110.0	0.95	111.4	0.81
1990	40.4	0.06	64.3	0.37	87.7	0.58	89.1	0.46
1991	48.9	0.14	85.0	0.93	137.2	2.01	139.4	2.50
1992	43.5	0.06	72.8	0.41	129.8	1.33	138.5	1.53
1993	68.8	0.40	132.2	1.78	240.5	5.46	268.9	7.99
1994	45.2	0.08	81.0	0.62	131.1	1.56	136.7	1.58
1995	70.7	0.48	150.7	2.36	276.9	6.75	297.1	8.66
1996	79.2	0.44	135.1	1.62	216.5	3.42	215.6	3.87
1997	91.2	0.80	162.5	2.81	278.3	6.20	301.1	9.86

average =	64	0.37	111	1.53	180	3.43	200	5.43
stdev =	19	0.30	33	1.02	72	2.67	76	3.67
Cv =	0.29	0.82	0.30	0.66	0.40	0.78	0.38	0.68

Drainage Area (km^2)	11800	20800	46200	62400
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Table A-2. Size distributions of surface sediment at individual sampling localities on the Colorado River

RKM	percent finer than size indicated (mm)												
	512	360	256	180	128	90	64	45	32	22	16	11	8
368.7			100	99	91	68	50	36	21	8	3		
365.1			100	97	73	50	30	18	8	2	1	1	
361.4				100	99	89	73	40	18	2	1		
355.2			100	99	95	81	66	46	23	11	3	3	1
354.0						100	91	69	44	22	8	3	
350.2				100	96	84	61	32	14	9	5	3	
347.3				100	98	91	73	50	29	12	5	4	2
342.1			100	98	83	61	43	31	21	12	5	2	
337.5					100	98	87	78	45	15	3	3	2
332.0			100	99	94	75	51	33	14	5	1	1	
327.2				100	98	96	83	66	35	12	5		
324.1					100	97	89	76	53	33	13	2	1
322.8			100	97	89	67	42	28	15	5	3		
320.6				100	96	84	58	27	7	1			
318.0	100	99	99	98	89	72	51	30	10	2			
297.9				100	100	91	72	55	44	33	18	10	4
292.2			100	98	84	62	43	30	15	3			
287.4					100	90	75	39	20	3	2	1	
285.5			100	98	92	80	62	42	24	14	9	7	6
284.2				100	99	84	60	36	21	7	3	1	
283.4			100	97	87	74	58	38	23	16	11	7	
282.6				100	91	58	41	28	15	9	3		
271.9				100	98	89	71	50	30	18	9	5	4
267.6				100	97	86	62	32	15	6	2	0	
265.3			100	99	97	83	64	45	22	9	2		
261.5			100	96	92	77	60	34	24	9	6		
257.4				100	97	87	63	44	34	28	24	21	21
256.8			100	99	94	85	60	51	27	14	3	1	
256.0				100	97	84	69	49	31	12	4	1	1
255.2				100	92	63	53	30	21	10	2		
251.2					100	97	87	65	42	22	8		
247.9			100	94	81	62	47	28	11	7	4	4	4
236.7				100	99	93	76	47	23	8	1		
231.8				100	99	92	75	60	37	13	4		
229.7				100	94	67	22	8	1	0	0		
224.6				100	99	84	64	42	24	11	4	1	
215.7				100	99	90	71	41	12	3			
209.3				100	99	97	95	84	76	60	34	20	9
177.1					100	99	92	65	40	18	6	1	
174.7					100	89	68	45	24	13	5	1	
169.9						100	92	66	39	15	5	1	
167.3					100	93	75	56	36	18	8	2	
164.4						100	96	76	46	22	7	1	
159.4					100	99	88	75	49	25	10	2	1
155.8					100	96	84	66	48	26	15	4	2
150.5					100	99	89	69	44	24	10	2	1
142.6					100	99	95	75	47	22	5	1	
138.6					100	99	92	73	49	28	7	3	

Table A-2 (cont.)

RKM	percent finer than size indicated (mm)												
	512	360	256	180	128	90	64	45	32	22	16	11	8
135.7			100	98	89	80	68	50	32	14	5		
132.8			100	95	76	56	43	28	16	5	4		
129.0					100	94	87	71	48	26	13	5	2
124.8		100	98	75	52	40	32	19	9	2	1		
120.6				100	89	75	56	27	7	2			
117.7			100	93	62	44	34	27	20	15	6	1	
116.9					100	99	91	82	59	37	15	4	2
107.5					100	99	98	92	74	35	13	4	1

Table A-3. Size distributions of subsurface sediment at individual localities on the Colorado River.

RKM	percent finer than size indicated (mm)																					
	256	128	64	32	16	8	4	2	1	0.5	0.25											
	180	90	45	22	11	5.6	2.8	1.4	0.7	0.35												
368.7	100	89	77	68	60	52	44	35	31	25	22	18	15	14	13	12	10	6	4	2		
361.8	100	96	77	64	55	47	41	37	29	25	20	19	16	14	13	12	10	8	5	3	2	
350.2		100	96	87	69	52	44	40	34	31	27	24	21	18	16	14	12	10	7	4	2	
337.5		100	97	85	70	48	39	32	27	24	21	19	17	16	15	14	13	12	8	5	3	
320.7		100	91	82	64	46	39	36	23	20	18	18	17	16	15	14	14	13	11	7	4	
296.6	100	93	88	76	68	62	55	46	39	33	29	25	23	21	19	16	14	10	7	4	3	
285.5			100	95	84	66	52	37	31	28	26	24	23	22	21	19	18	17	15	13	10	
284.2		100	93	80	71	63	52	43	33	30	25	23	20	18	17	15	13	11	8	5	3	
271.9			100	96	75	54	35	23	17	14	14	14	14	14	14	14	14	13	12	9	6	
267.3			100	95	84	70	52	39	34	28	24	21	19	18	17	16	15	15	13	10	6	
265.3			100	92	76	61	50	41	31	27	21	20	17	16	15	14	14	13	9	6	3	
261.5		100	96	90	81	75	66	57	50	45	41	37	32	29	25	23	21	20	16	11	7	
251.0				100	91	77	60	49	30	22	18	18	18	17	17	17	16	15	12	7	4	
231.8			100	89	75	63	55	48	42	34	28	24	20	17	15	14	14	13	12	10	6	
215.7			100	89	71	48	33	25	16	13	12	11	11	10	10	10	10	10	9	9	7	
209.3			100	90	82	69	57	47	34	27	22	19	17	15	13	13	13	12	11	8	4	
177.1				100	89	75	55	48	32	28	26	26	25	25	25	25	24	24	22	17	8	
167.3				100	95	81	68	60	51	44	40	31	28	22	18	17	15	14	13	11	7	4
159.4		100	96	95	88	71	57	50	36	32	25	23	20	18	17	16	15	15	14	11	5	
150.5			100	96	80	66	56	44	37	32	28	26	24	21	19	16	14	13	12	11	8	
142.6				100	98	86	73	60	45	34	27	23	20	18	16	14	12	11	9	7	4	
138.5				100	93	80	70	59	49	40	34	30	27	25	22	20	17	13	11	9	5	
129.0		100	95	94	84	74	65	59	45	41	34	31	27	25	23	19	16	12	8	6	3	
120.6				100	89	72	51	38	30	27	25	23	22	20	19	18	16	13	10	7	4	
117.7	100	67	60	54	52	47	42	37	33	27	22	19	17	15	14	13	12	11	10	7	5	
116.6			100	98	93	85	73	57	47	39	33	29	26	22	19	16	14	10	6	3	2	
107.5			100	98	93	85	74	61	54	45	40	35	32	29	28	26	24	21	16	10	5	

Table A-4. Hydraulic geometry data for individual cross sections on the upper Colorado River.

RM	RKM	Stratum	Reach Type	w_b (m)	h_b (m)	slope (m/m)	D_{50} (m)	τ_b (kN/m ²)	τ_b^*
227	365	11	alluvial	122	2.29	0.00210	0.057	47.2	0.051
226	364	11	alluvial	116	3.06	0.00210	0.057	63.0	0.068
225	362	11	alluvial	115	2.22	0.00210	0.057	45.7	0.050
224	361	11	alluvial	103	2.24	0.00210	0.057	46.1	0.050
223	359	11	alluvial	114	2.16	0.00210	0.057	44.5	0.048
222	357	11	alluvial	98	2.15	0.00210	0.057	44.3	0.048
221	356	11	alluvial	115	2.39	0.00210	0.057	49.2	0.053
220	354	11	alluvial	158	1.64	0.00210	0.057	33.8	0.037
219	353	11	alluvial						
218	351	11	alluvial	120	2.43	0.00210	0.057	50.1	0.054
217	349	11	alluvial	81	2.94	0.00210	0.057	60.6	0.066
216	348	11	alluvial	89	2.71	0.00210	0.057	55.8	0.061
215	346	11	alluvial	107	2.61	0.00210	0.057	53.8	0.058
214	345	11	alluvial	96	2.92	0.00180	0.057	51.6	0.056
213	343	11	alluvial	96	3.22	0.00180	0.057	56.9	0.062
212	341	11	alluvial	109	3.01	0.00180	0.057	53.2	0.058
211	340	11	alluvial	89	2.76	0.00180	0.057	48.7	0.053
210	338	11	alluvial	101	2.92	0.00180	0.057	51.6	0.056
209	336	11	alluvial	101	2.29	0.00180	0.057	40.4	0.044
208	335	11	alluvial	208	1.72	0.00180	0.057	30.4	0.033
207	333	11	alluvial	82	2.07	0.00180	0.057	36.6	0.040
206	332	11	alluvial	143	1.92	0.00180	0.057	33.9	0.037
205	330	11	alluvial	89	2.92	0.00180	0.057	51.6	0.056
204	328	11	alluvial	159	1.79	0.00180	0.057	31.6	0.034
203	327	10	quasi-alluvial	73	3.28	0.00150	0.052	48.3	0.057
202	325	10	quasi-alluvial	78	2.75	0.00150	0.052	40.5	0.048
201	324	10	quasi-alluvial	62	3.52	0.00150	0.052	51.8	0.062
200	322	10	quasi-alluvial	73	3.32	0.00150	0.052	48.9	0.058
199	320	10	quasi-alluvial	87	3.13	0.00150	0.052	46.1	0.055
198	319	10	quasi-alluvial	79	2.70	0.00150	0.052	39.7	0.047
197	317	10	quasi-alluvial	77	3.14	0.00150	0.052	46.2	0.055
196	316	10	quasi-alluvial	85	3.12	0.00150	0.052	45.9	0.055
(no data collected in inaccessible parts of DeBeque Canyon, between RM 195 and 183)									
185	298	9	alluvial	249	2.29	0.00175	0.058	39.3	0.042
184	296	9	alluvial	101	3.15	0.00175	0.058	54.1	0.058
183	295	9	alluvial	101	2.51	0.00175	0.058	43.1	0.046
182	293	9	alluvial	102	2.43	0.00175	0.058	41.7	0.044
181	291	9	alluvial	97	3.27	0.00175	0.058	56.1	0.060
180	290	9	alluvial	99	3.85	0.00175	0.058	66.1	0.070
179	288	9	alluvial	102	3.14	0.00175	0.058	53.9	0.057
178	287	9	alluvial	82	2.99	0.00175	0.058	51.3	0.055

177	285	9	alluvial	76	2.97	0.00175	0.058	51.0	0.054
176	283	9	alluvial	143	2.07	0.00175	0.058	35.5	0.038
175	282	9	alluvial	213	1.50	0.00175	0.058	25.8	0.027
174	280	9	alluvial	147	2.16	0.00175	0.058	37.1	0.039
173	279	9	alluvial	133	2.13	0.00175	0.058	36.6	0.039
172	277	9	alluvial	223	1.75	0.00175	0.058	30.0	0.032
171	275	9	alluvial	142	1.93	0.00175	0.058	33.1	0.035
170	274	8	alluvial	128	3.19	0.00130	0.052	40.7	0.048
169	272	8	alluvial	254	2.15	0.00130	0.052	27.4	0.033
168	270	8	alluvial	108	4.31	0.00130	0.052	55.0	0.065
167	269	8	alluvial	158	2.77	0.00130	0.052	35.3	0.042
166	267	8	alluvial	107	3.40	0.00130	0.052	43.4	0.052
165	266	8	alluvial	303	2.34	0.00130	0.052	29.8	0.035
164	264	8	alluvial	259	2.12	0.00130	0.052	27.0	0.032
163	262	8	alluvial	159	2.70	0.00130	0.052	34.4	0.041
162	261	8	alluvial	118	3.64	0.00130	0.052	46.4	0.055
161	259	8	alluvial	179	2.39	0.00130	0.052	30.5	0.036
160	258	8	alluvial	145	2.90	0.00130	0.052	37.0	0.044
159	256	8	alluvial	150	2.78	0.00130	0.052	35.5	0.042
158	254	8	alluvial	162	3.76	0.00130	0.052	48.0	0.057
157	253	8	alluvial	141	4.18	0.00130	0.052	53.3	0.063
156	251	8	alluvial	219	2.26	0.00130	0.052	28.8	0.034
155	250	8	alluvial	166	3.12	0.00130	0.052	39.8	0.047
154	248	8	alluvial	176	4.33	0.00130	0.052	55.2	0.066
153	246	8	alluvial	226	1.89	0.00130	0.052	24.1	0.029
152	245	7	quasi-alluvial	130	3.34	0.00100	0.047	32.8	0.043
151	243	7	quasi-alluvial	152	3.75	0.00100	0.047	36.8	0.048
150	242	7	quasi-alluvial	127	4.07	0.00100	0.047	39.9	0.052
149	240	7	quasi-alluvial	135	3.60	0.00100	0.047	35.3	0.046
148	238	7	quasi-alluvial	128	3.88	0.00100	0.047	38.1	0.050
147	237	7	quasi-alluvial	102	3.83	0.00100	0.047	37.6	0.049
146	235	7	quasi-alluvial	112	3.74	0.00100	0.047	36.7	0.048
145	233	7	quasi-alluvial	138	4.25	0.00100	0.047	41.7	0.055
144	232	7	quasi-alluvial	235	5.55	0.00100	0.047	54.4	0.072
143	230	7	quasi-alluvial	156	2.81	0.00100	0.047	27.6	0.036
142	229	7	quasi-alluvial	99	4.40	0.00100	0.047	43.2	0.057
141	227	7	quasi-alluvial	126	3.60	0.00100	0.047	35.3	0.046
140	225	7	quasi-alluvial	167	2.91	0.00100	0.047	28.5	0.038
139	224	7	quasi-alluvial	151	3.88	0.00100	0.047	38.1	0.050
138	222	7	quasi-alluvial	141	3.07	0.00100	0.047	30.1	0.040
137	221	7	quasi-alluvial	80	2.83	0.00100	0.047	27.8	0.036
136	219	7	quasi-alluvial						
135	217	7	quasi-alluvial	113	4.85	0.00100	0.047	47.6	0.063
134	216	7	quasi-alluvial	129	3.53	0.00100	0.047	34.6	0.046
133	214	7	quasi-alluvial	110	4.50	0.00100	0.047	44.1	0.058
132	213	7	quasi-alluvial	80	3.14	0.00100	0.047	30.8	0.040

131	211	7	quasi-alluvial	92	3.91	0.00100	0.047	38.4	0.050
130	209	7	quasi-alluvial	114	2.47	0.00100	0.047	24.2	0.032
129	208	7	quasi-alluvial	130	3.26	0.00100	0.047	32.0	0.042
128	206	7	quasi-alluvial	147	2.20	0.00100	0.047	21.6	0.028
(no data collected in Westwater Canyon, between RM 127 and 111)									
112	180	6	alluvial	133	4.32	0.00066	0.038	28.0	0.045
111	179	6	alluvial	216	3.02	0.00066	0.038	19.6	0.032
110	177	6	alluvial						
109	175	6	alluvial	138	3.75	0.00066	0.038	24.3	0.039
108	174	6	alluvial	127	4.41	0.00066	0.038	28.6	0.046
107	172	6	alluvial	136	3.58	0.00066	0.038	23.2	0.038
106	171	6	alluvial	82	5.85	0.00066	0.038	37.9	0.062
105	169	6	alluvial	108	4.29	0.00066	0.038	27.8	0.045
104	167	6	alluvial	116	3.39	0.00066	0.038	21.9	0.036
103	166	6	alluvial	181	5.28	0.00066	0.038	34.2	0.056
102	164	6	alluvial	165	4.88	0.00066	0.038	31.6	0.051
101	163	6	alluvial	198	3.39	0.00066	0.038	21.9	0.036
100	161	6	alluvial	200	3.74	0.00066	0.038	24.2	0.039
99	159	6	alluvial						
98	158	6	alluvial	87	6.20	0.00066	0.038	40.1	0.065
97	156	6	alluvial	123	4.91	0.00066	0.038	31.8	0.052
96	155	6	alluvial	190	5.79	0.00066	0.038	37.5	0.061
95	153	6	alluvial	148	5.00	0.00066	0.038	32.4	0.053
94	151	5	quasi-alluvial	113	5.80	0.00047	0.034	26.7	0.049
93	150	5	quasi-alluvial	199	4.53	0.00047	0.034	20.9	0.038
92	148	5	quasi-alluvial	141	5.86	0.00047	0.034	27.0	0.049
91	147	5	quasi-alluvial	142	4.67	0.00047	0.034	21.5	0.039
90	145	5	quasi-alluvial	110	5.42	0.00047	0.034	25.0	0.045
89	143	5	quasi-alluvial	97	5.77	0.00047	0.034	26.6	0.048
88	142	5*	quasi-alluvial	96	5.32	0.00047	0.034	24.5	0.045
87	140	5*	quasi-alluvial	162	3.73	0.00047	0.034	17.2	0.031
86	138	4	quasi-alluvial	364	3.96	0.00149	0.070	57.9	0.051
85	137	4	quasi-alluvial						
84	135	4	quasi-alluvial						
83	134	4	quasi-alluvial	196	3.47	0.00149	0.070	50.7	0.045
82	132	4	quasi-alluvial	219	4.74	0.00149	0.070	69.3	0.061
81	130	4	quasi-alluvial	148	5.66	0.00149	0.070	82.7	0.073
80	129	4	quasi-alluvial	196	5.40	0.00149	0.070	78.9	0.070
79	127	4	quasi-alluvial	124	5.41	0.00149	0.070	79.1	0.070
78	126	4*	quasi-alluvial	173	3.65	0.00149	0.070	53.4	0.047
77	124	3	quasi-alluvial	84	5.92	0.00098	0.063	56.9	0.056
76	122	3	quasi-alluvial	99	5.29	0.00098	0.063	50.9	0.050
75	121	3	quasi-alluvial	136	6.05	0.00098	0.063	58.2	0.057
74	119	3	quasi-alluvial	107	7.73	0.00098	0.063	74.3	0.073
73	118	3	quasi-alluvial	117	5.01	0.00098	0.063	48.2	0.047
72	116	3	quasi-alluvial	84	6.52	0.00098	0.063	62.7	0.061

71	114	3	quasi-alluvial	88	9.85	0.00098	0.063	94.7	0.093
70	113	3*	quasi-alluvial	131	5.06	0.00098	0.063	48.6	0.048
69	111	2	quasi-alluvial	82	6.89	0.00034	0.028	23.0	0.051
68	109	2	quasi-alluvial	169	4.52	0.00034	0.028	15.1	0.033
67	108	2	quasi-alluvial	190	4.22	0.00034	0.028	14.1	0.031
66	106	2	quasi-alluvial	143	5.05	0.00034	0.028	16.8	0.037
65	105	2	quasi-alluvial	172	4.97	0.00034	0.028	16.6	0.037
64	103	1	alluvial	134	6.09	0.00028	0.00025	16.7	4.1
63	101	1	alluvial	272	2.52	0.00028	0.00025	6.9	1.7
62	100	1	alluvial	164	5.35	0.00028	0.00025	14.7	3.6
61	98	1	alluvial	170	5.08	0.00028	0.00025	14.0	3.4
60	97	1	alluvial	207	3.34	0.00028	0.00025	9.2	2.3
59	95	1	alluvial	190	4.13	0.00028	0.00025	11.3	2.8
58	93	1	alluvial	158	4.17	0.00028	0.00025	11.5	2.8
57	92	1	alluvial	224	4.77	0.00028	0.00025	13.1	3.2
56	90	1	alluvial	188	3.32	0.00028	0.00025	9.1	2.3
55	89	1	alluvial	210	3.04	0.00028	0.00025	8.4	2.1
54	87	1	alluvial	299	4.07	0.00028	0.00025	11.2	2.8
53	85	1	alluvial	168	5.41	0.00028	0.00025	14.9	3.7
52	84	1	alluvial	143	6.09	0.00028	0.00025	16.7	4.1
51	82	1	alluvial	187	4.93	0.00028	0.00025	13.5	3.3
50	81	1	alluvial	156	5.81	0.00028	0.00025	16.0	3.9
49	79	1	alluvial	242	4.61	0.00028	0.00025	12.7	3.1
48	77	1	alluvial	239	4.01	0.00028	0.00025	11.0	2.7

Table A-5. Summary of parameter values used in calculating the critical discharge (Q_c) and bankfull discharge (Q_b) in individual reaches of the upper Colorado River. Additional data from Table A-3 were used in the calculations.

RM	RKM	Stratum	Reach Type	τ^*_c	n	Q_c	Q_b
227	365	11	alluvial	0.030	0.035	261	636
226	364	11	alluvial	0.030	0.035	248	980
225	362	11	alluvial	0.030	0.035	246	569
224	361	11	alluvial	0.030	0.035	221	517
223	359	11	alluvial	0.030	0.035	244	539
222	357	11	alluvial	0.030	0.035	210	460
221	356	11	alluvial	0.030	0.035	246	643
220	354	11	alluvial	0.030	0.035	338	472
219	353	11	alluvial				
218	351	11	alluvial	0.030	0.035	257	690
217	349	11	alluvial	0.030	0.035	174	640
216	348	11	alluvial	0.030	0.035	191	614
215	346	11	alluvial	0.030	0.035	229	693
214	345	11	alluvial	0.030	0.035	246	694
213	343	11	alluvial	0.030	0.035	246	817
212	341	11	alluvial	0.030	0.035	280	829
211	340	11	alluvial	0.030	0.035	228	586
210	338	11	alluvial	0.030	0.035	259	731
209	336	11	alluvial	0.030	0.035	259	487
208	335	11	alluvial	0.030	0.035	533	623
207	333	11	alluvial	0.030	0.035	210	334
206	332	11	alluvial	0.030	0.035	367	514
205	330	11	alluvial	0.030	0.035	228	644
204	328	11	alluvial	0.030	0.035	408	509
203	327	10	quasi-alluvial	0.030	0.035	199	585
202	325	10	quasi-alluvial	0.030	0.035	212	466
201	324	10	quasi-alluvial	0.030	0.035	169	559
200	322	10	quasi-alluvial	0.030	0.035	199	597
199	320	10	quasi-alluvial	0.030	0.035	237	645
198	319	10	quasi-alluvial	0.030	0.035	215	458
197	317	10	quasi-alluvial	0.030	0.035	210	574
196	316	10	quasi-alluvial	0.030	0.035	231	627
(no data collected in inaccessible parts of DeBeque Canyon, between RM 195 and 183)							
185	298	9	alluvial	0.030	0.035	679	1184
184	296	9	alluvial	0.030	0.035	276	817
183	295	9	alluvial	0.030	0.035	276	560
182	293	9	alluvial	0.030	0.035	278	536
181	291	9	alluvial	0.030	0.035	265	836
180	290	9	alluvial	0.030	0.035	270	1120
179	288	9	alluvial	0.030	0.035	278	821
178	287	9	alluvial	0.030	0.035	224	608

177	285	9	alluvial	0.030	0.035	207	558
176	283	9	alluvial	0.030	0.035	390	575
175	282	9	alluvial	0.030	0.035	581	500
174	280	9	alluvial	0.030	0.035	401	634
173	279	9	alluvial	0.030	0.035	363	561
172	277	9	alluvial	0.030	0.035	608	677
171	275	9	alluvial	0.030	0.035	387	508
170	274	8	alluvial	0.030	0.033	437	967
169	272	8	alluvial	0.030	0.033	867	994
168	270	8	alluvial	0.030	0.033	368	1348
167	269	8	alluvial	0.030	0.033	539	943
166	267	8	alluvial	0.030	0.033	365	899
165	266	8	alluvial	0.030	0.033	1034	1366
164	264	8	alluvial	0.030	0.033	884	990
163	262	8	alluvial	0.030	0.033	542	910
162	261	8	alluvial	0.030	0.033	403	1111
161	259	8	alluvial	0.030	0.033	611	836
160	258	8	alluvial	0.030	0.033	495	935
159	256	8	alluvial	0.030	0.033	512	901
158	254	8	alluvial	0.030	0.033	553	1610
157	253	8	alluvial	0.030	0.033	481	1672
156	251	8	alluvial	0.030	0.033	747	932
155	250	8	alluvial	0.030	0.033	566	1209
154	248	8	alluvial	0.030	0.033	600	2213
153	246	8	alluvial	0.030	0.033	771	714
152	245	7	quasi-alluvial	0.030	0.032	525	959
151	243	7	quasi-alluvial	0.030	0.032	614	1360
150	242	7	quasi-alluvial	0.030	0.032	513	1303
149	240	7	quasi-alluvial	0.030	0.032	545	1129
148	238	7	quasi-alluvial	0.030	0.032	517	1212
147	237	7	quasi-alluvial	0.030	0.032	412	945
146	235	7	quasi-alluvial	0.030	0.032	452	998
145	233	7	quasi-alluvial	0.030	0.032	557	1521
144	232	7	quasi-alluvial	0.030	0.032	949	4043
143	230	7	quasi-alluvial	0.030	0.032	630	863
142	229	7	quasi-alluvial	0.030	0.032	400	1156
141	227	7	quasi-alluvial	0.030	0.032	509	1053
140	225	7	quasi-alluvial	0.030	0.032	674	979
139	224	7	quasi-alluvial	0.030	0.032	610	1430
138	222	7	quasi-alluvial	0.030	0.032	569	904
137	221	7	quasi-alluvial	0.030	0.032	323	448
136	219	7	quasi-alluvial				
135	217	7	quasi-alluvial	0.030	0.032	456	1553
134	216	7	quasi-alluvial	0.030	0.032	521	1044
133	214	7	quasi-alluvial	0.030	0.032	444	1334
132	213	7	quasi-alluvial	0.030	0.032	323	533

131	211	7	quasi-alluvial	0.030	0.032	371	883
130	209	7	quasi-alluvial	0.030	0.032	460	509
129	208	7	quasi-alluvial	0.030	0.032	525	921
128	206	7	quasi-alluvial	0.030	0.032	594	541
(no data collected in Westwater Canyon, between RM 127 and 111)							
112	180	6	alluvial	0.025	0.030	481	1305
111	179	6	alluvial	0.025	0.030	780	1165
110	177	6	alluvial				
109	175	6	alluvial	0.025	0.030	501	1072
108	174	6	alluvial	0.025	0.030	458	1286
107	172	6	alluvial	0.025	0.030	494	979
106	171	6	alluvial	0.025	0.030	297	1334
105	169	6	alluvial	0.025	0.030	392	1050
104	167	6	alluvial	0.025	0.030	421	762
103	166	6	alluvial	0.025	0.030	656	2486
102	164	6	alluvial	0.025	0.030	598	1985
101	163	6	alluvial	0.025	0.030	717	1298
100	161	6	alluvial	0.025	0.030	724	1542
99	159	6	alluvial				
98	158	6	alluvial	0.025	0.030	316	1565
97	156	6	alluvial	0.025	0.030	447	1500
96	155	6	alluvial	0.025	0.030	690	3046
95	153	6	alluvial	0.025	0.030	536	1853
94	151	5	quasi-alluvial	0.025	0.028	542	1641
93	150	5	quasi-alluvial	0.025	0.028	951	1907
92	148	5	quasi-alluvial	0.025	0.028	675	2081
91	147	5	quasi-alluvial	0.025	0.028	678	1430
90	145	5	quasi-alluvial	0.025	0.028	528	1428
89	143	5	quasi-alluvial	0.025	0.028	466	1399
88	142	5*	quasi-alluvial	0.025	0.028	459	1204
87	140	5*	quasi-alluvial	0.025	0.028	777	1126
86	138	4	quasi-alluvial	0.025	0.035	1210	3981
85	137	4	quasi-alluvial				
84	135	4	quasi-alluvial				
83	134	4	quasi-alluvial	0.025	0.035	651	1720
82	132	4	quasi-alluvial	0.025	0.035	727	3229
81	130	4	quasi-alluvial	0.025	0.035	491	2929
80	129	4	quasi-alluvial	0.025	0.035	650	3586
79	127	4	quasi-alluvial	0.025	0.035	410	2272
78	126	4*	quasi-alluvial	0.025	0.035	575	1651
77	124	3	quasi-alluvial	0.025	0.030	455	1689
76	122	3	quasi-alluvial	0.025	0.030	539	1660
75	121	3	quasi-alluvial	0.025	0.030	738	2844
74	119	3	quasi-alluvial	0.025	0.030	583	3380
73	118	3	quasi-alluvial	0.025	0.030	636	1789
72	116	3	quasi-alluvial	0.025	0.030	456	1991

71	114	3	quasi-alluvial	0.025	0.030	479	4155
70	113	3*	quasi-alluvial	0.025	0.030	711	2034
69	111	2	quasi-alluvial	0.020	0.025	318	1501
68	109	2	quasi-alluvial	0.020	0.025	659	1539
67	108	2	quasi-alluvial	0.020	0.025	741	1543
66	106	2	quasi-alluvial	0.020	0.025	557	1564
65	105	2	quasi-alluvial	0.020	0.025	672	1839
64	103	1	alluvial	0.020	0.025	n/a	1820
63	101	1	alluvial	0.020	0.025	n/a	850
62	100	1	alluvial	0.020	0.025	n/a	1797
61	98	1	alluvial	0.020	0.025	n/a	1709
60	97	1	alluvial	0.020	0.025	n/a	1034
59	95	1	alluvial	0.020	0.025	n/a	1353
58	93	1	alluvial	0.020	0.025	n/a	1143
57	92	1	alluvial	0.020	0.025	n/a	2028
56	90	1	alluvial	0.020	0.025	n/a	930
55	89	1	alluvial	0.020	0.025	n/a	897
54	87	1	alluvial	0.020	0.025	n/a	2077
53	85	1	alluvial	0.020	0.025	n/a	1876
52	84	1	alluvial	0.020	0.025	n/a	1945
51	82	1	alluvial	0.020	0.025	n/a	1788
50	81	1	alluvial	0.020	0.025	n/a	1962
49	79	1	alluvial	0.020	0.025	n/a	2069
48	77	1	alluvial	0.020	0.025	n/a	1620

Table A-2. previous data

RKM	percent finer than size indicated (mm)												
	512	360	256	180	128	90	64	45	32	22	16	11.2	8
362.9			100	97	73	50	30	18	8	2	1	1	
359.2				100	99	89	73	40	18	2	1		
353.6			100	99	95	81	66	46	23	11	3	3	1
351.8						100	91	69	44	22	8	3	
345.1				100	98	91	73	50	29	12	5	4	2
340.0		100	100	98	83	61	43	31	21	12	5	2	
335.4					100	98	87	78	45	15	3	3	2
329.9			100	99	94	75	51	33	14	5	1	1	
325.1				100	98	96	83	66	35	12	5		
322.1					100	97	89	76	53	33	13	2	1
320.8			100	97	89	67	42	28	15	5	3		
318.6				100	96	84	58	27	7	1			
316.0	100	99	99	98	89	72	51	30	10	2			
296.0				100	100	91	72	55	44	33	18	10	4
290.4			100	98	84	62	43	30	15	3			
285.6					100	90	75	39	20	3	2	1	
283.7			100	98	92	80	62	42	24	14	9	7	6
281.6			100	97	87	74	58	38	23	16	11	7	
280.8				100	91	58	41	28	15	9	3		
270.2				100	98	89	71	50	30	18	9	5	4
265.9				100	97	86	62	32	15	6	2	0	
263.7			100	99	97	83	64	45	22	9	2		
259.8			100	96	92	77	60	34	24	9	6		
255.8				100	97	87	63	44	34	28	24	21	21
255.2			100	99	94	85	60	51	27	14	3	1	
254.4			100	100	97	84	69	49	31	12	4	1	1
253.6				100	92	63	53	30	21	10	2		
249.6				100	100	97	87	65	42	22	8		
246.4			100	94	81	62	47	28	11	7	4	4	4
235.2			100	100	99	93	76	47	23	8	1		
230.4				100	99	92	75	60	37	13	4		
228.3				100	94	67	22	8	1	0	0		
223.2				100	99	84	64	42	24	11	4	1	
214.4				100	99	90	71	41	12	3			
208.0				100	99	97	95	84	76	60	34	20	9
176.0				100	100	99	92	65	40	18	6	1	
173.6				100	100	89	68	45	24	13	5	1	
168.8						100	92	66	39	15	5	1	
166.2					100	93	75	56	36	18	8	2	
163.4					100	100	96	76	46	22	7	1	
158.4					100	99	88	75	49	25	10	2	1

154.9			100	96	84	66	48	26	15	4	2
149.6			100	99	89	69	44	24	10	2	1
141.8			100	99	95	75	47	22	5	1	
137.8			100	99	92	73	49	28	7	3	
119.8		100	89	75	56	27	7	2			
117.0	100	93	62	44	34	27	20	15	6	1	
116.2			100	99	91	82	59	37	15	4	2
106.9			100	99	98	92	74	35	13	4	1

Table A-3. previous data

RKM	percent finer than size indicated (mm)																				
	256	128	64	32	16	8	4	2	1	0.5	0.25										
	180	90	45	22	11	5.6	2.8	1.4	0.7	0.35											
296.6	100	93	88	76	68	62	55	46	39	33	29	25	23	21	19	16	14	10	7	4	3
285.5		100	95	84	66	52	37	31	28	26	24	23	22	21	19	18	17	15	13	10	
271.9		100	96	75	54	35	23	17	14	14	14	14	14	14	14	14	13	12	9	6	
267.3		100	95	84	70	52	39	34	28	24	21	19	18	17	16	15	15	13	10	6	
265.3		100	92	76	61	50	41	31	27	21	20	17	16	15	14	14	13	9	6	3	
261.5	100	96	90	81	75	66	57	50	45	41	37	32	29	25	23	21	20	16	11	7	
251.0		100	91	77	60	49	30	22	18	18	18	17	17	17	16	15	12	7	4		
231.8		100	89	75	63	55	48	42	34	28	24	20	17	15	14	14	13	12	10	6	
215.7		100	89	71	48	33	25	16	13	12	11	11	10	10	10	10	10	9	9	7	
209.3		100	90	82	69	57	47	34	27	22	19	17	15	13	13	13	12	11	8	4	
177.1		100	89	75	55	48	32	28	26	26	25	25	25	25	24	24	22	17	8		
167.3		100	95	81	68	60	51	44	40	31	28	22	18	17	15	14	13	11	7	4	
159.4	100	96	95	88	71	57	50	36	32	25	23	20	18	17	16	15	15	14	11	5	
150.5		100	96	80	66	56	44	37	32	28	26	24	21	19	16	14	13	12	11	8	
142.6		100	98	86	73	60	45	34	27	23	20	18	16	14	12	11	9	7	4		
138.5		100	93	80	70	59	49	40	34	30	27	25	22	20	17	13	11	9	5		
120.6		100	89	72	51	38	30	27	25	23	22	20	19	18	16	13	10	7	4		
117.7	100	67	60	54	52	47	42	37	33	27	22	19	17	15	14	13	12	11	10	7	5
116.6		100	98	93	85	73	57	47	39	33	29	26	22	19	16	14	10	6	3	2	
107.5		100	98	93	85	74	61	54	45	40	35	32	29	28	26	24	21	16	10	5	

TABLE A-4, previous data

227	365	11	alluvial	122	2.29	0.00210	0.055	47.2	0.053
226	364	11	alluvial	116	3.06	0.00210	0.055	63.0	0.071
225	362	11	alluvial	115	2.22	0.00210	0.055	45.7	0.051
224	361	11	alluvial	103	2.24	0.00210	0.055	46.1	0.052
223	359	11	alluvial	114	2.16	0.00210	0.055	44.5	0.050
222	357	11	alluvial	98	2.15	0.00210	0.055	44.3	0.050

221	356	11	alluvial	115	2.39	0.00210	0.055	49.2	0.055
220	354	11	alluvial	158	1.64	0.00210	0.055	33.8	0.038
219	353	11	alluvial						
218	351	11	alluvial	120	2.43	0.00210	0.055	50.1	0.056
217	349	11	alluvial	81	2.94	0.00210	0.055	60.6	0.068
216	348	11	alluvial	89	2.71	0.00210	0.055	55.8	0.063
215	346	11	alluvial	107	2.61	0.00210	0.055	53.8	0.060
214	345	11	alluvial	96	2.92	0.00180	0.057	51.6	0.056
213	343	11	alluvial	96	3.22	0.00180	0.057	56.9	0.062
212	341	11	alluvial	109	3.01	0.00180	0.057	53.2	0.058
211	340	11	alluvial	89	2.76	0.00180	0.057	48.7	0.053
210	338	11	alluvial	101	2.92	0.00180	0.057	51.6	0.056
209	336	11	alluvial	101	2.29	0.00180	0.057	40.4	0.044
208	335	11	alluvial	208	1.72	0.00180	0.057	30.4	0.033
207	333	11	alluvial	82	2.07	0.00180	0.057	36.6	0.040
206	332	11	alluvial	143	1.92	0.00180	0.057	33.9	0.037
205	330	11	alluvial	89	2.92	0.00180	0.057	51.6	0.056
204	328	11	alluvial	159	1.79	0.00180	0.057	31.6	0.034
203	327	10	quasi-alluvial	73	3.28	0.00150	0.052	48.3	0.057
202	325	10	quasi-alluvial	78	2.75	0.00150	0.052	40.5	0.048
201	324	10	quasi-alluvial	62	3.52	0.00150	0.052	51.8	0.062
200	322	10	quasi-alluvial	73	3.32	0.00150	0.052	48.9	0.058
199	320	10	quasi-alluvial	87	3.13	0.00150	0.052	46.1	0.055
198	319	10	quasi-alluvial	79	2.70	0.00150	0.052	39.7	0.047
197	317	10	quasi-alluvial	77	3.14	0.00150	0.052	46.2	0.055
196	316	10	quasi-alluvial	85	3.12	0.00150	0.052	45.9	0.055
(no data collected in inaccessible parts of DeBeque Canyon, between RM 195 and 183)									
185	298	9	alluvial	249	2.29	0.00175	0.058	39.3	0.042
184	296	9	alluvial	101	3.15	0.00175	0.058	54.1	0.058
183	295	9	alluvial	101	2.51	0.00175	0.058	43.1	0.046
182	293	9	alluvial	102	2.43	0.00175	0.058	41.7	0.044
181	291	9	alluvial	97	3.27	0.00175	0.058	56.1	0.060
180	290	9	alluvial	99	3.85	0.00175	0.058	66.1	0.070
179	288	9	alluvial	102	3.14	0.00175	0.058	53.9	0.057
178	287	9	alluvial	82	2.99	0.00175	0.058	51.3	0.055
177	285	9	alluvial	76	2.97	0.00175	0.058	51.0	0.054
176	283	9	alluvial	143	2.07	0.00175	0.058	35.5	0.038
175	282	9	alluvial	213	1.50	0.00175	0.058	25.8	0.027
174	280	9	alluvial	147	2.16	0.00175	0.058	37.1	0.039
173	279	9	alluvial	133	2.13	0.00175	0.058	36.6	0.039
172	277	9	alluvial	223	1.75	0.00175	0.058	30.0	0.032
171	275	9	alluvial	142	1.93	0.00175	0.058	33.1	0.035
170	274	8	alluvial	128	3.19	0.00130	0.052	40.7	0.048
169	272	8	alluvial	254	2.15	0.00130	0.052	27.4	0.033
168	270	8	alluvial	108	4.31	0.00130	0.052	55.0	0.065
167	269	8	alluvial	158	2.77	0.00130	0.052	35.3	0.042
166	267	8	alluvial	107	3.40	0.00130	0.052	43.4	0.052
165	266	8	alluvial	303	2.34	0.00130	0.052	29.8	0.035
164	264	8	alluvial	259	2.12	0.00130	0.052	27.0	0.032

163	262	8	alluvial	159	2.70	0.00130	0.052	34.4	0.041
162	261	8	alluvial	118	3.64	0.00130	0.052	46.4	0.055
161	259	8	alluvial	179	2.39	0.00130	0.052	30.5	0.036
160	258	8	alluvial	145	2.90	0.00130	0.052	37.0	0.044
159	256	8	alluvial	150	2.78	0.00130	0.052	35.5	0.042
158	254	8	alluvial	162	3.76	0.00130	0.052	48.0	0.057
157	253	8	alluvial	141	4.18	0.00130	0.052	53.3	0.063
156	251	8	alluvial	219	2.26	0.00130	0.052	28.8	0.034
155	250	8	alluvial	166	3.12	0.00130	0.052	39.8	0.047
154	248	8	alluvial	176	4.33	0.00130	0.052	55.2	0.066
153	246	8	alluvial	226	1.89	0.00130	0.052	24.1	0.029
152	245	7	quasi-alluvial	130	3.34	0.00100	0.047	32.8	0.043
151	243	7	quasi-alluvial	152	3.75	0.00100	0.047	36.8	0.048
150	242	7	quasi-alluvial	127	4.07	0.00100	0.047	39.9	0.052
149	240	7	quasi-alluvial	135	3.60	0.00100	0.047	35.3	0.046
148	238	7	quasi-alluvial	128	3.88	0.00100	0.047	38.1	0.050
147	237	7	quasi-alluvial	102	3.83	0.00100	0.047	37.6	0.049
146	235	7	quasi-alluvial	112	3.74	0.00100	0.047	36.7	0.048
145	233	7	quasi-alluvial	138	4.25	0.00100	0.047	41.7	0.055
144	232	7	quasi-alluvial	235	5.55	0.00100	0.047	54.4	0.072
143	230	7	quasi-alluvial	156	2.81	0.00100	0.047	27.6	0.036
142	229	7	quasi-alluvial	99	4.40	0.00100	0.047	43.2	0.057
141	227	7	quasi-alluvial	126	3.60	0.00100	0.047	35.3	0.046
140	225	7	quasi-alluvial	167	2.91	0.00100	0.047	28.5	0.038
139	224	7	quasi-alluvial	151	3.88	0.00100	0.047	38.1	0.050
138	222	7	quasi-alluvial	141	3.07	0.00100	0.047	30.1	0.040
137	221	7	quasi-alluvial	80	2.83	0.00100	0.047	27.8	0.036
136	219	7	quasi-alluvial						
135	217	7	quasi-alluvial	113	4.85	0.00100	0.047	47.6	0.063
134	216	7	quasi-alluvial	129	3.53	0.00100	0.047	34.6	0.046
133	214	7	quasi-alluvial	110	4.50	0.00100	0.047	44.1	0.058
132	213	7	quasi-alluvial	80	3.14	0.00100	0.047	30.8	0.040
131	211	7	quasi-alluvial	92	3.91	0.00100	0.047	38.4	0.050
130	209	7	quasi-alluvial	114	2.47	0.00100	0.047	24.2	0.032
129	208	7	quasi-alluvial	130	3.26	0.00100	0.047	32.0	0.042
128	206	7	quasi-alluvial	147	2.20	0.00100	0.047	21.6	0.028
(no data collected in Westwater Canyon, between RM 127 and 111)									
112	180	6	alluvial	133	4.32	0.00066	0.038	28.0	0.045
111	179	6	alluvial	216	3.02	0.00066	0.038	19.6	0.032
110	177	6	alluvial						
109	175	6	alluvial	138	3.75	0.00066	0.038	24.3	0.039
108	174	6	alluvial	127	4.41	0.00066	0.038	28.6	0.046
107	172	6	alluvial	136	3.58	0.00066	0.038	23.2	0.038
106	171	6	alluvial	82	5.85	0.00066	0.038	37.9	0.062
105	169	6	alluvial	108	4.29	0.00066	0.038	27.8	0.045
104	167	6	alluvial	116	3.39	0.00066	0.038	21.9	0.036
103	166	6	alluvial	181	5.28	0.00066	0.038	34.2	0.056
102	164	6	alluvial	165	4.88	0.00066	0.038	31.6	0.051
101	163	6	alluvial	198	3.39	0.00066	0.038	21.9	0.036

100	161	6	alluvial	200	3.74	0.00066	0.038	24.2	0.039
99	159	6	alluvial						
98	158	6	alluvial	87	6.20	0.00066	0.038	40.1	0.065
97	156	6	alluvial	123	4.91	0.00066	0.038	31.8	0.052
96	155	6	alluvial	190	5.79	0.00066	0.038	37.5	0.061
95	153	6	alluvial	148	5.00	0.00066	0.038	32.4	0.053
94	151	5	quasi-alluvial	113	5.80	0.00047	0.034	26.7	0.049
93	150	5	quasi-alluvial	199	4.53	0.00047	0.034	20.9	0.038
92	148	5	quasi-alluvial	141	5.86	0.00047	0.034	27.0	0.049
91	147	5	quasi-alluvial	142	4.67	0.00047	0.034	21.5	0.039
90	145	5	quasi-alluvial	110	5.42	0.00047	0.034	25.0	0.045
89	143	5	quasi-alluvial	97	5.77	0.00047	0.034	26.6	0.048
88	142	4	quasi-alluvial	96	5.32	0.00047	0.034	24.5	0.045
87	140	4	quasi-alluvial	162	3.73	0.00047	0.034	17.2	0.031
86	138	4	quasi-alluvial	364	3.96	0.00147	0.064	57.1	0.055
85	137	4	quasi-alluvial						
84	135	4	quasi-alluvial						
83	134	4	quasi-alluvial	196	3.47	0.00147	0.064	50.0	0.048
82	132	4	quasi-alluvial	219	4.74	0.00147	0.064	68.4	0.066
81	130	4	quasi-alluvial	148	5.66	0.00147	0.064	81.6	0.079
80	129	4	quasi-alluvial	196	5.40	0.00147	0.064	77.9	0.075
79	127	4	quasi-alluvial	124	5.41	0.00147	0.064	78.0	0.075
78	126	3	quasi-alluvial	173	3.65	0.00147	0.064	52.6	0.051
77	124	3	quasi-alluvial	84	5.92	0.00098	0.064	56.9	0.055
76	122	3	quasi-alluvial	99	5.29	0.00098	0.064	50.9	0.049
75	121	3	quasi-alluvial	136	6.05	0.00098	0.064	58.2	0.056
74	119	3	quasi-alluvial	107	7.73	0.00098	0.064	74.3	0.072
73	118	3	quasi-alluvial	117	5.01	0.00098	0.064	48.2	0.046
72	116	3	quasi-alluvial	84	6.52	0.00098	0.064	62.7	0.061
71	114	2	quasi-alluvial	88	9.85	0.00098	0.064	94.7	0.091
70	113	2	quasi-alluvial	131	5.06	0.00098	0.064	48.6	0.047
69	111	2	quasi-alluvial	82	6.89	0.00033	0.028	22.3	0.049
68	109	2	quasi-alluvial	169	4.52	0.00033	0.028	14.6	0.032
67	108	2	quasi-alluvial	190	4.22	0.00033	0.028	13.7	0.030
66	106	2	quasi-alluvial	143	5.05	0.00033	0.028	16.3	0.036
65	105	2	quasi-alluvial	172	4.97	0.00033	0.028	16.1	0.036
64	103	1	alluvial	134	6.09	0.00028	0.00025	16.7	4.134
63	101	1	alluvial	272	2.52	0.00028	0.00025	6.9	1.711
62	100	1	alluvial	164	5.35	0.00028	0.00025	14.7	3.632
61	98	1	alluvial	170	5.08	0.00028	0.00025	14.0	3.448
60	97	1	alluvial	207	3.34	0.00028	0.00025	9.2	2.267
59	95	1	alluvial	190	4.13	0.00028	0.00025	11.3	2.803
58	93	1	alluvial	158	4.17	0.00028	0.00025	11.5	2.831
57	92	1	alluvial	224	4.77	0.00028	0.00025	13.1	3.238
56	90	1	alluvial	188	3.32	0.00028	0.00025	9.1	2.254
55	89	1	alluvial	210	3.04	0.00028	0.00025	8.4	2.064
54	87	1	alluvial	299	4.07	0.00028	0.00025	11.2	2.763
53	85	1	alluvial	168	5.41	0.00028	0.00025	14.9	3.672
52	84	1	alluvial	143	6.09	0.00028	0.00025	16.7	4.134

51	82	1	alluvial	187	4.93	0.00028	0.00025	13.5	3.346
50	81	1	alluvial	156	5.81	0.00028	0.00025	16.0	3.944
49	79	1	alluvial	242	4.61	0.00028	0.00025	12.7	3.129
48	77	1	alluvial	239	4.01	0.00028	0.00025	11.0	2.722

TABLE A-5, previous data

227	365	11	alluvial	0.030	0.035	246	636
226	364	11	alluvial	0.030	0.035	234	980
225	362	11	alluvial	0.030	0.035	232	569
224	361	11	alluvial	0.030	0.035	208	517
223	359	11	alluvial	0.030	0.035	230	539
222	357	11	alluvial	0.030	0.035	198	460
221	356	11	alluvial	0.030	0.035	232	643
220	354	11	alluvial	0.030	0.035	319	472
219	353	11	alluvial				
218	351	11	alluvial	0.030	0.035	242	690
217	349	11	alluvial	0.030	0.035	163	640
216	348	11	alluvial	0.030	0.035	180	614
215	346	11	alluvial	0.030	0.035	216	693
214	345	11	alluvial	0.030	0.035	246	694
213	343	11	alluvial	0.030	0.035	246	817
212	341	11	alluvial	0.030	0.035	280	829
211	340	11	alluvial	0.030	0.035	228	586
210	338	11	alluvial	0.030	0.035	259	731
209	336	11	alluvial	0.030	0.035	259	487
208	335	11	alluvial	0.030	0.035	533	623
207	333	11	alluvial	0.030	0.035	210	334
206	332	11	alluvial	0.030	0.035	367	514
205	330	11	alluvial	0.030	0.035	228	644
204	328	11	alluvial	0.030	0.035	408	509
203	327	10	quasi-alluvial	0.030	0.035	199	585
202	325	10	quasi-alluvial	0.030	0.035	212	466
201	324	10	quasi-alluvial	0.030	0.035	169	559
200	322	10	quasi-alluvial	0.030	0.035	199	597
199	320	10	quasi-alluvial	0.030	0.035	237	645
198	319	10	quasi-alluvial	0.030	0.035	215	458
197	317	10	quasi-alluvial	0.030	0.035	210	574
196	316	10	quasi-alluvial	0.030	0.035	231	627
(inaccessible parts of DeBeque Cyn.)							
185	298	9	alluvial	0.030	0.035	679	1184
184	296	9	alluvial	0.030	0.035	276	817
183	295	9	alluvial	0.030	0.035	276	560
182	293	9	alluvial	0.030	0.035	278	536
181	291	9	alluvial	0.030	0.035	265	836
180	290	9	alluvial	0.030	0.035	270	1120
179	288	9	alluvial	0.030	0.035	278	821
178	287	9	alluvial	0.030	0.035	224	608
177	285	9	alluvial	0.030	0.035	207	558
176	283	9	alluvial	0.030	0.035	390	575
175	282	9	alluvial	0.030	0.035	581	500
174	280	9	alluvial	0.030	0.035	401	634
173	279	9	alluvial	0.030	0.035	363	561
172	277	9	alluvial	0.030	0.035	608	677
171	275	9	alluvial	0.030	0.035	387	508
170	274	8	alluvial	0.030	0.033	437	967
169	272	8	alluvial	0.030	0.033	867	994
168	270	8	alluvial	0.030	0.033	368	1348
167	269	8	alluvial	0.030	0.033	539	943

166	267	8	alluvial	0.030	0.033	365	899
165	266	8	alluvial	0.030	0.033	1034	1366
164	264	8	alluvial	0.030	0.033	884	990
163	262	8	alluvial	0.030	0.033	542	910
162	261	8	alluvial	0.030	0.033	403	1111
161	259	8	alluvial	0.030	0.033	611	836
160	258	8	alluvial	0.030	0.033	495	935
159	256	8	alluvial	0.030	0.033	512	901
158	254	8	alluvial	0.030	0.033	553	1610
157	253	8	alluvial	0.030	0.033	481	1672
156	251	8	alluvial	0.030	0.033	747	932
155	250	8	alluvial	0.030	0.033	566	1209
154	248	8	alluvial	0.030	0.033	600	2213
153	246	8	alluvial	0.030	0.033	771	714
152	245	7	quasi-alluvial	0.030	0.032	525	959
151	243	7	quasi-alluvial	0.030	0.032	614	1360
150	242	7	quasi-alluvial	0.030	0.032	513	1303
149	240	7	quasi-alluvial	0.030	0.032	545	1129
148	238	7	quasi-alluvial	0.030	0.032	517	1212
147	237	7	quasi-alluvial	0.030	0.032	412	945
146	235	7	quasi-alluvial	0.030	0.032	452	998
145	233	7	quasi-alluvial	0.030	0.032	557	1521
144	232	7	quasi-alluvial	0.030	0.032	949	4043
143	230	7	quasi-alluvial	0.030	0.032	630	863
142	229	7	quasi-alluvial	0.030	0.032	400	1156
141	227	7	quasi-alluvial	0.030	0.032	509	1053
140	225	7	quasi-alluvial	0.030	0.032	674	979
139	224	7	quasi-alluvial	0.030	0.032	610	1430
138	222	7	quasi-alluvial	0.030	0.032	569	904
137	221	7	quasi-alluvial	0.030	0.032	323	448
136	219	7	quasi-alluvial				
135	217	7	quasi-alluvial	0.030	0.032	456	1553
134	216	7	quasi-alluvial	0.030	0.032	521	1044
133	214	7	quasi-alluvial	0.030	0.032	444	1334
132	213	7	quasi-alluvial	0.030	0.032	323	533
131	211	7	quasi-alluvial	0.030	0.032	371	883
130	209	7	quasi-alluvial	0.030	0.032	460	509
129	208	7	quasi-alluvial	0.030	0.032	525	921
128	206	7	quasi-alluvial	0.030	0.032	594	541
(Westwater Canyon)							
112	180	6	alluvial	0.025	0.030	481	1305
111	179	6	alluvial	0.025	0.030	780	1165
110	177	6	alluvial				
109	175	6	alluvial	0.025	0.030	501	1072
108	174	6	alluvial	0.025	0.030	458	1286
107	172	6	alluvial	0.025	0.030	494	979
106	171	6	alluvial	0.025	0.030	297	1334
105	169	6	alluvial	0.025	0.030	392	1050
104	167	6	alluvial	0.025	0.030	421	762
103	166	6	alluvial	0.025	0.030	656	2486
102	164	6	alluvial	0.025	0.030	598	1985
101	163	6	alluvial	0.025	0.030	717	1298
100	161	6	alluvial	0.025	0.030	724	1542

99	159	6	alluvial				
98	158	6	alluvial	0.025	0.030	316	1565
97	156	6	alluvial	0.025	0.030	447	1500
96	155	6	alluvial	0.025	0.030	690	3046
95	153	6	alluvial	0.025	0.030	536	1853
94	151	5	quasi-alluvial	0.025	0.028	542	1641
93	150	5	quasi-alluvial	0.025	0.028	951	1907
92	148	5	quasi-alluvial	0.025	0.028	675	2081
91	147	5	quasi-alluvial	0.025	0.028	678	1430
90	145	5	quasi-alluvial	0.025	0.028	528	1428
89	143	5	quasi-alluvial	0.025	0.028	466	1399
88	142	4	quasi-alluvial	0.025	0.028	459	1204
87	140	4	quasi-alluvial	0.025	0.028	777	1126
86	138	4	quasi-alluvial	0.025	0.033	1122	4194
85	137	4	quasi-alluvial				
84	135	4	quasi-alluvial				
83	134	4	quasi-alluvial	0.025	0.033	604	1812
82	132	4	quasi-alluvial	0.025	0.033	675	3402
81	130	4	quasi-alluvial	0.025	0.033	455	3085
80	129	4	quasi-alluvial	0.025	0.033	603	3777
79	127	4	quasi-alluvial	0.025	0.033	381	2394
78	126	3	quasi-alluvial	0.025	0.033	533	1739
77	124	3	quasi-alluvial	0.025	0.030	455	1689
76	122	3	quasi-alluvial	0.025	0.030	539	1660
75	121	3	quasi-alluvial	0.025	0.030	738	2844
74	119	3	quasi-alluvial	0.025	0.030	583	3380
73	118	3	quasi-alluvial	0.025	0.030	636	1789
72	116	3	quasi-alluvial	0.025	0.030	456	1991
71	114	2	quasi-alluvial	0.025	0.030	479	4155
70	113	2	quasi-alluvial	0.025	0.030	711	2034
69	111	2	quasi-alluvial	0.020	0.025	330	1478
68	109	2	quasi-alluvial	0.020	0.025	682	1516
67	108	2	quasi-alluvial	0.020	0.025	767	1521
66	106	2	quasi-alluvial	0.020	0.025	577	1541
65	105	2	quasi-alluvial	0.020	0.025	696	1812
64	103	1	alluvial	0.020	0.025	n/a	1820
63	101	1	alluvial	0.020	0.025	n/a	850
62	100	1	alluvial	0.020	0.025	n/a	1797
61	98	1	alluvial	0.020	0.025	n/a	1709
60	97	1	alluvial	0.020	0.025	n/a	1034
59	95	1	alluvial	0.020	0.025	n/a	1353
58	93	1	alluvial	0.020	0.025	n/a	1143
57	92	1	alluvial	0.020	0.025	n/a	2028
56	90	1	alluvial	0.020	0.025	n/a	930
55	89	1	alluvial	0.020	0.025	n/a	897
54	87	1	alluvial	0.020	0.025	n/a	2077
53	85	1	alluvial	0.020	0.025	n/a	1876
52	84	1	alluvial	0.020	0.025	n/a	1945
51	82	1	alluvial	0.020	0.025	n/a	1788
50	81	1	alluvial	0.020	0.025	n/a	1962
49	79	1	alluvial	0.020	0.025	n/a	2069
48	77	1	alluvial	0.020	0.025	n/a	1620