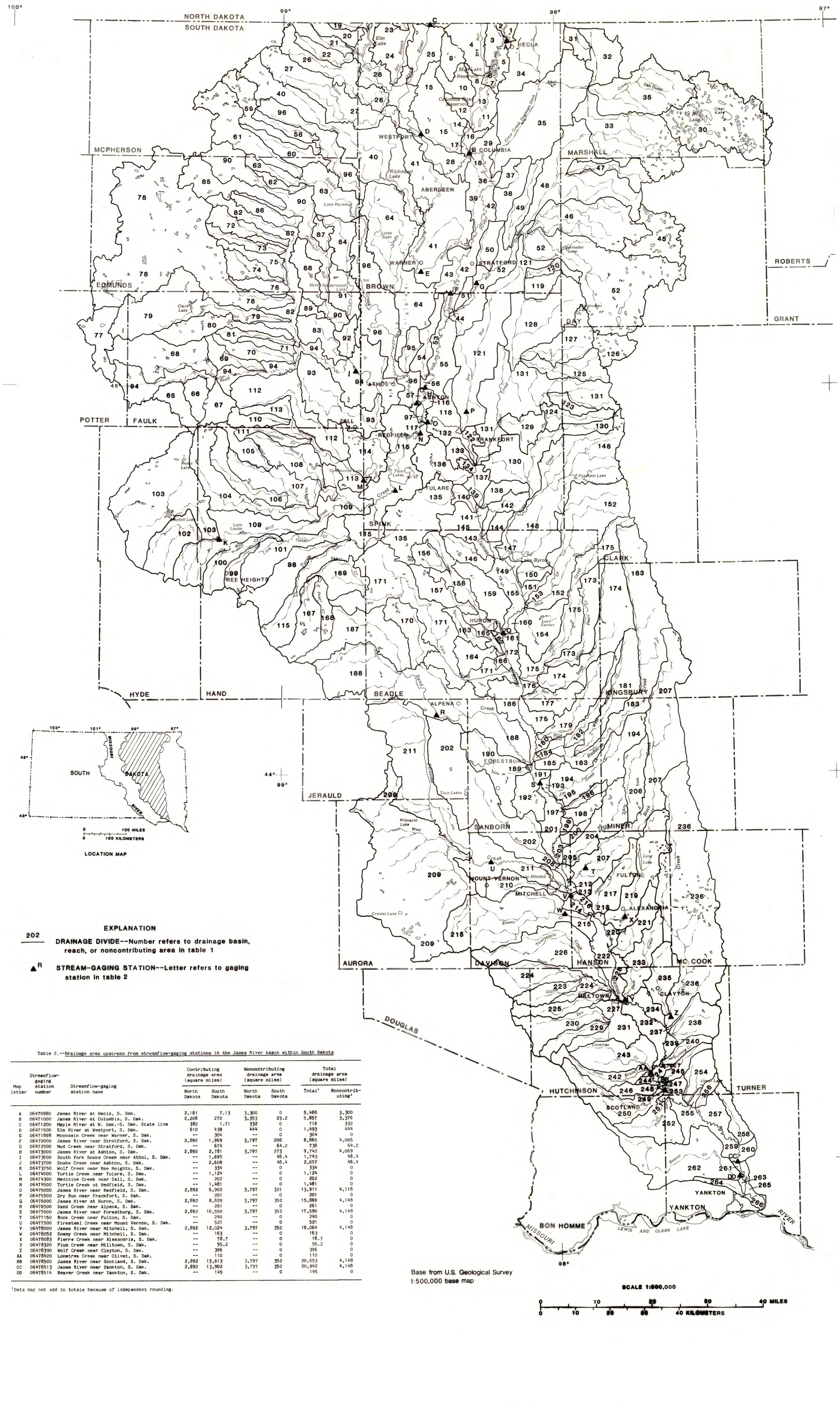

LOCATION MAP

EXPLANATION

202 — **DRAINAGE DIVIDE**--Number refers to drainage basin, reach, or noncontributing area in table 1

▲R **STREAM-GAGING STATION**--Letter refers to gaging station in table 2

Table 2.--Drainage area upstream from streamflow-gaging stations in the James River basin within South Dakota

Map letter	Streamflow-gaging station number	Streamflow-gaging station name	Contributing drainage area (square miles)		Noncontributing drainage area (square miles)		Total drainage area (square miles)	
			North Dakota	South Dakota	North Dakota	South Dakota	Total[1]	Noncontributing[1]
A	06470980	James River at Hecla, S. Dak.	2,181	7.13	3,300	0	5,488	3,300
B	06471000	James River at Columbia, S. Dak.	2,208	272	3,353	23.2	5,857	3,376
C	06471200	Maple River at N. Dak.-S. Dak. State line	382	1.71	332	0	716	332
D	06471500	Elm River at Westport, S. Dak.	610	439	444	0	1,493	444
E	06471898	Moccasin Creek near Warner, S. Dak.	--	304	--	0	304	0
F	06472000	James River near Stratford, S. Dak.	2,892	1,969	3,797	208	8,865	4,005
G	06472500	Mud Creek near Stratford, S. Dak.	--	674	--	64.2	738	64.2
H	06473000	James River at Ashton, S. Dak.	2,892	2,781	3,797	273	9,742	4,069
I	06473500	South Fork Snake Creek near Athol, S. Dak.	--	1,695	--	48.4	1,743	48.4
J	06473700	Snake Creek near Ashton, S. Dak.	--	2,609	--	48.4	2,657	48.4
K	06473750	Wolf Creek near Bee Heights, S. Dak.	--	334	--	0	334	0
L	06474000	Turtle Creek near Tulare, S. Dak.	--	1,124	--	0	1,124	0
M	06474300	Medicine Creek near Zell, S. Dak.	--	202	--	0	202	0
N	06474500	Turtle Creek at Redfield, S. Dak.	--	1,481	--	0	1,481	0
O	06475000	James River near Redfield, S. Dak.	2,892	6,902	3,797	321	13,911	4,118
P	06475500	Dry Run near Frankfort, S. Dak.	--	201	--	0	201	0
Q	06476000	James River at Huron, S. Dak.	2,892	8,829	3,797	352	15,869	4,148
R	06476500	Sand Creek near Alpena, S. Dak.	--	261	--	0	261	0
S	06477000	James River near Forestburg, S. Dak.	2,892	10,550	3,797	352	17,590	4,148
T	06477150	Rock Creek near Fulton, S. Dak.	--	240	--	0	240	0
U	06477500	Firesteel Creek near Mount Vernon, S. Dak.	--	521	--	0	521	0
V	06478000	James River near Mitchell, S. Dak.	2,892	12,024	3,797	352	19,064	4,148
W	06478052	Enemy Creek near Mitchell, S. Dak.	--	163	--	0	163	0
X	06478083	Pierre Creek near Alexandria, S. Dak.	--	78.7	--	0	78.7	0
Y	06478320	Plum Creek near Milltown, S. Dak.	--	55.2	--	0	55.2	0
Z	06478390	Wolf Creek near Clayton, S. Dak.	--	396	--	0	396	0
AA	06478420	Lonetree Creek near Olivet, S. Dak.	--	110	--	0	110	0
BB	06478500	James River near Scotland, S. Dak.	2,892	13,613	3,797	352	20,653	4,148
CC	06478513	James River near Yankton, S. Dak.	2,892	13,902	3,797	352	20,942	4,148
DD	06478514	Beaver Creek near Yankton, S. Dak.	--	145	--	0	145	0

[1]Data may not add to totals because of independent rounding.

Base from U.S. Geological Survey
1:500,000 base map

SCALE 1:500,000

0 10 20 30 40 MILES
0 10 20 30 40 KILOMETERS

DRAINAGE AREAS IN THE JAMES RIVER BASIN IN EASTERN SOUTH DAKOTA

By Rick D. Benson, Mark E. Freese, Frank D. Amundson, and Verlyn J. Wipf

1987

INTRODUCTION

Proposed water-resource development has prompted numerous hydrologic studies of the James River within South Dakota. Several of these hydrologic studies identified the need for drainage area data within the basin. Drainage area data are useful in determining hydrologic characteristics of stream basins such as the rates and volumes of runoff.

Previous determination of the drainage areas of portions of the basin was done prior to the availability of U.S. Geological Survey 7½ minute topographic maps. Thus, the original drainage area data lacked the degree of accuracy which the 7½ minute topographic maps now make possible.

PURPOSE AND SCOPE

This map report identifies drainage areas for both named and unnamed tributaries within the James River basin in South Dakota which have drainage areas larger than 10 mi². The drainage areas upstream from all U.S. Geological Survey streamflow-gaging stations within the basin in South Dakota are also identified.

The drainage area boundaries were delineated by visual interpretation of contour information shown on U.S. Geological Survey 7½ minute topographic maps. The area of each drainage area was determined by tracing the drainage boundary on the topographic maps with an electronic digitizer. The original topographic maps on which the drainage boundaries were delineated are on file in the U.S. Geological Survey office, Federal Building, Huron, South Dakota. The number, name, and area of each drainage area identified on the map are contained in table 1. Names in parentheses were added to differentiate among drainage areas with identical names. Any unnamed drainage areas were assigned names during the boundary delineation process explained above.

The drainage areas upstream from U.S. Geological Survey streamflow-gaging stations within the James River basin are shown in table 2. The areas of the James River basin in North Dakota were obtained from the North Dakota District office of the U.S. Geological Survey in Bismarck. At the time that the North Dakota drainage areas were developed, 7½ minute topographic maps were not available for the entire basin in North Dakota. If the drainage area of the James River basin in North Dakota is ever recomputed based on data strictly from 7½ minute topographic maps, the drainage areas of those streamflow-gaging stations in table 2 with drainages in North Dakota should be adjusted as necessary.

The area of the James River drainage basin in South Dakota is 14,428 mi². The area of the James River drainage basin in North Dakota is 6,688 mi². The total area of the James River drainage basin in South Dakota and North Dakota is 21,116 mi². About 20 percent (4,186 mi²) of the total drainage area is noncontributing.

CONVERSION FACTORS

The following factors can be used to convert inch-pound units in this report to metric (International System) units:

Multiply inch-pound unit	By	To obtain metric unit
mile	1.609	kilometer
square mile (mi²)	2.590	square kilometer

Table 1.--Drainage areas within the James River basin in South Dakota

[Names in parentheses were added to differentiate between tributaries with identical names; individual drainage areas may not add to totals because of independent rounding]

Map number	Drainage-area name	Drainage area (mi²)
1	State line/Hecla gage east reach	4.89
2	State line/Hecla gage west reach	2.24
3	Hecla gage/Dry Run (Mud) reach	19.1
4	Dry Run (Mud)	48.8
5	Hecla gage/Houghton Dam reach	16.5
6	Dry Run (Mud)/Houghton Dam reach	1.50
7	Mud Lake Reservoir	4.77
8	Houghton Dam/Brainard tributary reach	8.91
9-10	Brainard tributary (total)	53.5
9	Brainard tributary noncontributing	(23.2)
10	Brainard tributary	30.3
11	Houghton Dam/Columbia Road Dam reach	20.0
12	Brainard tributary/Columbia Road Dam reach	12.7
13	Columbia Road Reservoir	8.45
14	Columbia Road Dam/Garland tributary reach	1.50
15	Garland tributary	86.1
16	Columbia Road Dam/Columbia gage reach	7.12
17	Garland tributary/Columbia gage reach	3.02
18	Columbia gage/Elm River reach	.01
19-28	Elm River (total)	482
19	Lorraine tributary	6.53
20	Wachter tributary	18.0
21	Weber tributary	21.7
22	Carl tributary	23.2
23-24	Dry Branch (total)	54.1
23	Sewer Branch	2.30
24	Dry Branch	51.8
25	Maple River	49.0
26-27	Willow Creek (total)	190
26	Dry Run (Willow)	70.5
27	Willow Creek	120
28	Elm River	119
29	Columbia gage/Crow Creek reach	25.2
30-35	Crow Creek Drainage Ditch (total)	836
30	Crow Creek Drainage Ditch noncontributing	(185)
31-32	Dayton-Crow Ditch (total)	70.6
31	Dayton-Stena Ditch	16.2
32	Dayton-Crow Ditch	54.4
33	Newport-Weaton Ditch	155
34	Portage Detroit Ditch	98.8
35	Crow Creek Drainage Ditch	327
36	Crow Creek Drainage Ditch/Riverside School tributary reach	2.58
37-38	Riverside School tributary (total)	45.5
37	Putney tributary	13.6
38	Riverside School tributary	31.9
39	Elm River/Moccasin Creek reach	40.0
40-41	Moccasin Creek (total)	387
40	Foot Creek	196
41	Moccasin Creek	191
42	Riverside School tributary/Stratford gage reach	37.4
43	Moccasin Creek/Stratford gage reach	25.2
44	Stratford gage/Mud Creek reach	6.24
45-52	Mud Creek (total)	782
45-46	West Hansen tributary (total)	188
45	Mud Creek noncontributing	(64.2)
46	West Hansen tributary	124
47-48	Groton tributary (total)	204
47	Antelope Creek	38.2
48	Groton tributary	166
49	Synaground School tributary	38.7
50	Excelsior School tributary	23.4
51	Sunnyview School tributary	10.2
52	Mud Creek	321
53	Stratford gage/Gallup tributary reach	18.6
54	Gallup tributary	30.7
55	Mud Creek/Ashton gage reach	40.1
56	Gallup tributary/Ashton gage reach	3.28
57	Ashton gage/Snake Creek reach	2.84
58-96	Snake Creek (total)	2,657
58	Crompton Lake tributary	19.8
59	Howard tributary	49.0
60	Washington tributary	34.3
61-63	Lake Parmley tributary (total)	183
61	Plainview Colony tributary	88.4
62	Rosetta Lake tributary	13.4
63	Lake Parmley tributary	81.1
64	Mansfield tributary	188
65-94	South Fork Snake Creek (total)	1,941
65	Latham School tributary	29.5
66	Taylor School tributary	26.3
67	Vogeler Draw	29.0
68	Ford Lake tributary	98.4
69	Baldwin School tributary	26.4
70	Melius tributary	31.1
71	Reed tributary	14.6
72-82	North Fork Snake Creek (total)	954
72	Pembrook tributary	36.0
73	Harmony tributary	24.6
74-75	Cleveland tributary (total)	59.3
74	Powell tributary	32.8
75	Cleveland tributary	26.5
76	Liberty tributary	18.7
77-78	North Freedom tributary (total)	504
77	North Freedom tributary noncontributing	(48.4)
78	North Freedom tributary	456
79	Lake Creebard tributary	147
80	Myron tributary	59.8
81	Millard School tributary	19.7
82	North Fork Snake Creek	84.7
83	Devoe tributary	40.6
84-92	Perry Creek (total)	376
84-91	Scatterwood Lakes (total)	358
84	Stony Run (Scatterwood Lakes)	38.1
85-90	Preachers Run (total)	280
85	Huntley tributary	47.2
86	Ipswich tributary	25.4
87	Richland tributary	13.5
88	Tomek Slough tributary	38.3
89	Fairview tributary	10.8
90	Preachers Run	145
91	Scatterwood Lakes	39.4
92	Perry Creek	18.7
93	Dove Creek	106
94	South Fork Snake Creek	208
95	Mellette tributary	18.6
96	Snake Creek	224
97	Snake Creek/Turtle Creek reach	3.28
98-115	Turtle Creek (total)	1,499
98	Ree Creek	81.4
99-101	Little Turtle Creek (total)	138
99-100	Little Wolf Creek (total)	60.8
99	Prairie tributary	18.7
100	Little Wolf Creek	42.1
101	Little Turtle Creek	77.1
102-109	Wolf Creek (total)	783
102	Hamilton tributary	68.0
103	Mitchell Lake outlet	224
104	Lost Creek	109
105-108	North Wolf Creek (total)	214
105-107	Shaefer Creek (total)	150
105	Matter Creek	29.0
106	Kolda School tributary	46.5
107	Shaefer Creek	74.2
108	North Wolf Creek	64.2
109	Wolf Creek	168
110-114	Cottonwood Lake Outlet (total)	267
110-113	Medicine Creek (total)	214
110	Gooder Creek	22.3
111	Campbell Creek	22.2
112	Bryant tributary	108
113	Medicine Creek	62.0
114	Cottonwood Lake Outlet	52.6
115	Turtle Creek	230
116	Ashton gage/Redfield gage reach	6.21
117	Turtle Creek/Redfield gage reach	.12
118	Redfield gage/Dry Run (Frankfort) reach	27.3
119-121	Dry Run (Frankfort) (total)	213
119	Haywood School tributary	15.6
120	Ferney tributary	18.8
121	Dry Run (Frankfort)	179
122	Dry Run (Frankfort)/Timber Creek reach	9.50
123-131	Timber Creek (total)	617
123	Ash tributary	16.0
124	Raymond tributary	31.0
125-128	Turton tributary (total)	260
125	Turton tributary South	45.8
126-127	Turton tributary North (total)	90.2
126	Turton tributary North noncontributing	(30.8)
127	Turton tributary North	59.4
128	Turton tributary	124
129	Doland tributary	34.8
130	Prairie View School tributary	97.2
131	Timber Creek	178
132	Redfield gage/Rosebud School tributary reach	19.8
133	Rosebud School tributary	15.6
134	Rosebud School tributary/Crandon tributary reach	5.21
135-136	Crandon tributary (total)	158
135	Tulare tributary	107
136	Crandon tributary	51.3
137	Timber Creek/Lincoln tributary reach	11.2
138	Lincoln tributary	23.5
139	Crandon tributary/Spillway tributary reach	8.43
140	Spillway tributary	11.6
141	Lincoln tributary/Cornwall tributary reach	3.85
142	Cornwall tributary	24.9
143	Cornwall tributary/Pleasant View tributary reach	.88
144	Pleasant View tributary	15.2
145	Spillway tributary/Bethel Church tributary reach	50.9
146	Bethel Church tributary	28.8
147	Pleasant View tributary/Foster Creek reach	3.52
148	Foster Creek	243
149	Foster Creek/Hofer School tributary reach	3.34
150	Hofer School tributary	16.7
151	Hofer School tributary/Shue Creek reach	7.42
152	Shue Creek	171
153	Shue Creek/Lake Cavour tributary reach	.10
154	Lake Cavour tributary	61.6
155	Bethel Church tributary/Ravine Lake tributary reach	38.0
156-159	Ravine Lake tributary (total)	168
156-158	Broadland tributary (total)	116
156	Bonilla tributary	21.0
157	Hart tributary	40.5
158	Broadland tributary	54.1
159	Ravine Lake tributary	52.1
160	Lake Cavour tributary/Huron gage reach	5.84
161	Ravine Lake tributary/Huron gage reach	.01
162	Huron gage/Stony Run reach	3.74
163-165	Stony Run (total)	61.7
163	Schwartz Slough tributary	19.8
164	Stony tributary	30.2
165	Stony Run	11.7
166	Stony Run/Cain Creek reach	5.62
167-171	Cain Creek (total)	381
167-169	Pearl Creek (Cain) (total)	123
167	West Pearl Creek (Cain)	55.1
168	East Pearl Creek (Cain)	22.3
169	Pearl Creek (Cain)	45.2
170	Norwegian Slough tributary	48.1
171	Cain Creek	210
172	Huron gage/Pearl Creek reach	14.6
173-175	Pearl Creek (total)	287
173	Middle Pearl Creek	57.1
174	South Fork Pearl Creek	124
175	Pearl Creek	106
176	Pearl Creek/Stony Run (East) reach	5.08
177	Stony Run (East)	37.1
178	Stony Run (East)/Rifle Lake tributary reach	21.4
179	Rifle Lake tributary	63.2
180	Rifle Lake tributary/Redstone Creek reach	5.14
181-183	Redstone Creek (total)	264
181	West Redstone Creek	75.1
182	North Redstone tributary	26.5
183	Redstone Creek	162
184	Redstone Creek/Ferguson School tributary reach	.76
185	Ferguson School tributary	11.9
186	Cain Creek/Sand Creek reach	43.8
187-188	Sand Creek (total)	397
187	Silver Creek	109
188	Sand Creek	288
189	Sand Creek/Long Lake tributary reach	.98
190	Long Lake tributary	78.1
191	Ferguson School tributary/Forestburg gage reach	5.27
192	Long Lake tributary/Forestburg gage reach	35.1
193	Forestburg gage/Jim Creek reach	3.77
194	Jim Creek	102
195	Jim Creek/Dry Run (East) reach	1.22
196	Dry Run (East)	11.4
197	Dry Run (East)/Lyle School tributary reach	.42
198	Lyle School tributary	19.0
199	Lyle School tributary/Farwell Church tributary reach	4.87
200	Farwell Church tributary	11.2
201	Forestburg gage/Dry Run (North) reach	31.3
202	Dry Run (North)	222
203	Farwell Church tributary/Plano School tributary reach	5.59
204	Plano School tributary	74.8
205	Plano School tributary/Rock Creek reach	3.17
206-207	Rock Creek (total)	280
206	Pooley Creek	44.8
207	Rock Creek	235
208	Dry Run (North)/Firesteel Creek reach	2.71
209-211	Firesteel Creek (total)	699
209	West Branch Firesteel Creek	384
210	Dry Run (South)	36.0
211	Firesteel Creek	279
212	Rock Creek/Mitchell gage reach	2.08
213	Firesteel Creek/Mitchell gage reach	0.02
214	Mitchell gage/Enemy Creek reach	7.98
215	Enemy Creek	179
216	Mitchell gage/Johnson Creek reach	7.46
217	Johnson Creek	53.5
218	Johnson Creek/Pierre Creek reach	2.38
219	Pierre Creek	93.4
220	Pierre Creek/Bloom Creek reach	7.44
221	Bloom Creek	40.5
222	Enemy Creek/Twelvemile Creek reach	29.2
223-226	Twelvemile Creek (total)	276
223-224	South Fork Twelvemile Creek (total)	108
223	Coffee Creek	28.5
224	South Fork Twelvemile Creek	80.0
225	Pony Creek	39.8
226	Twelvemile Creek	128
227	Twelvemile Creek/Dry Creek reach	.62
228	Bloom Creek/Plum Creek reach	15.3
229-231	Dry Creek (total)	131
229	South Branch Dry Creek	25.1
230	North Branch Dry Creek	55.2
231	Dry Creek	50.8
232	Dry Creek/Lonetree Creek reach	33.3
233	Plum Creek	55.5
234	Plum Creek/Wolf Creek reach	20.8
235-236	Wolf Creek (total)	398
235	Elm Creek	47.2
236	Wolf Creek	351
237	Wolf Creek/Zion Church tributary reach	1.27
238	Zion Church tributary	49.4
239	Zion Church tributary/Furlong Creek reach	7.98
240	Furlong Creek	16.8
241	Furlong Creek/Unnamed Menno tributary reach	6.44
242-243	Lonetree Creek (total)	110
242	South Branch Lonetree Creek	36.7
243	Lonetree Creek	73.7
244	Lonetree Creek/Lakeview School tributary reach	4.89
245	Unnamed Menno tributary	20.8
246	Lakeview School tributary	17.5
247	Unnamed Menno tributary/Scotland gage reach	.84
248	Lakeview School tributary/Scotland gage reach	.52
249	Scotland gage/Dawson Creek reach	.01
250	Dawson Creek	68.9
251	Dawson Creek/Prairie Creek reach	2.41
252	Prairie Creek	54.9
253	Scotland gage/Klaudt School tributary reach	13.8
254	Klaudt School tributary	33.5
255	Klaudt School tributary/Ulmer School tributary reach	3.72
256	Ulmer School tributary	10.3
257	Ulmer School tributary/Mud Creek (South) reach	26.3
258	Mud Creek (South)	27.4
259	Prairie Creek/Yankton gage reach	38.5
260	Mud Creek/Yankton gage reach	9.19
261	Yankton gage/Beaver Creek reach	2.57
262	Beaver Creek	145
263	Beaver Creek/Napa Junction tributary reach	2.78
264	Napa Junction tributary	10.1
265	Yankton gage/Missouri River reach	7.66
266	Napa Junction tributary/Missouri River reach	5.58