

**Water Division IV**  
**District 15**

Green River Basin, Wyoming; Key Structures and Diversions  
Description and Operation Memorandum

Blacks Fork Canal, Blacks Fork River

**Diversion Description:** Diversion consists of a six 4' x 6' slide gates mounted on a concrete structure. A large wood plank diversion dam exists.<sup>1</sup>



**Diversion Location:**

Source: Black's Fork River, Trib.  
Green River

Section, Township, Range: 14, 14, 116

**Conveyance Description:** Open Channel Canal, approximately 32 miles in length.<sup>1</sup>

**Wyoming Water Rights Summary:**

Priority Date (M-D-Y)	Permit Number	Permitted Use	Acres	Flow (cfs)	Cumulative Flow (cfs)	Comments
04-20-1891	30	Irrigation	6,442.09	91.22	91.18	
03-25-1892	245	Irrigation	457.00	6.06	97.24	
03-23-1903	1045E	Irrigation	80.00	1.13	98.37	
04-06-1903	1017E	Irrigation	87.00	1.24	99.61	
04-17-1903	1029E	Irrigation	1,090.00	15.53	115.14	
05-15-1903	1046E	Domestic, Irrigation	1,032.00	14.72	129.86	
06-04-1903	1075E	Irrigation	160.00	2.28	132.14	
08-11-1903	1138E	Domestic, Irrigation	10,777.20	154.86	287.00	

**Storage Rights:** .

**Estimated Canal Losses:** Greater than typical (20%) losses are experienced.<sup>1</sup>

**Irrigation Practices:** Approximately 400 acres are irrigated by 3 sprinkler lines; remaining lands are flood irrigated.<sup>1</sup>

**Crop Types / Consumptive Use:** Approximately 160 acres are alfalfa hay; remaining lands are native grass hay and pasture.<sup>1</sup>

Green River Basin, Wyoming; Key Structures and Diversions  
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Blacks Fork Canal, Blacks Fork River

**Return Flows:** Approximately 70% of the return flows are delivered to Urie Draw, south of Lyman, Wyoming, 25% to the Fort Bridger Canal, and 5% to Black's Fork west of Ft. Bridger, Wyoming..

**Other Operational Information:** Ditch is generally turned on in May and off in July.<sup>1</sup>

Sources: 1) John Yarbrough, State Engineer's Office, Interview, May 4, 2000.
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Green River Basin, Wyoming; Key Structures and Diversions  
Description and Operation Memorandum

Blacks Fork Canal, Blacks Fork River, Diversion Data

Wateryear	May		June		July		August		September	
	Average (cfs)	Monthly Total (AF)	Average (cfs)	Monthly Total (AF)	Average (cfs)	Monthly Total (AF)	Average (cfs)	Monthly Total (AF)	Average (cfs)	Monthly Total (AF)
1971							<i>14.50</i>	<i>5,104.00</i>	<i>14.50</i>	<i>3,880.00</i>
1981										
1982										
1983										
1984										
1985	175.32	10,780.00	222.51	13,240.00	170.44	10,480.00	83.01	5,104.00	65.21	3,880.00
1986	102.62	6,310.11	311.64	18,543.70	189.49	11,651.11	93.06	5,722.20	77.82	4,630.50
1987	171.47	10,543.00	215.34	12,813.40	163.16	10,032.50	85.38	5,249.70	65.82	3,916.40
1988										
1989										
1990	142.24	8,746.10	243.54	14,491.50	145.74	8,961.50	37.48	2,304.80	35.97	2,140.20
1991										
1992	180.39	11,092.00	182.89	10,883.00	130.74	8,039.00	48.90	3,007.00	28.40	1,690.00
1993	122.46	7,530.00	250.80	14,923.90	165.07	10,149.60	76.71	4,716.80	76.24	4,536.30
1994	149.41	7,530.00	190.92	14,923.90	96.23	10,149.60	17.91	4,716.80	22.61	4,536.30
1995	71.32	4,385.50	270.97	16,123.90	217.81	13,392.60	96.58	5,938.60	80.70	4,802.10
1996	159.19	9,788.21	285.40	16,982.48	162.74	10,006.49	76.78	4,721.02	84.91	5,052.50
1997	154.42	9,495.00	247.28	14,714.00	156.57	9,627.00	91.01	5,596.00	76.87	4,574.00
1998										

Averages: 

142.89	8,619.99	242.13	14,763.98	159.80	10,248.94	65.58	4,743.72	57.19	3,967.12
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Data in italics from USGS gaging station 006216.00, see attached data sheets.

Blank cells are due to missing/insufficient data.

Average = Average Flow for ENTIRE month. Monthly Total = Total Volume used during month.

See Methodology section for explanations.

Spot data readings used in calculating averages in table on following pages.

Green River Basin, Wyoming; Key Structures and Diversions  
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Blacks Fork Canal, Blacks Fork River, Diversion Data

**Data:**

1985: May, 10780 AF; June, 13240 AF; July, 10480 AF; August, 5104 AF; September, 3880 AF.  
(Totals computed by Hydrographer.)

1986: May, 6310.11 AF; June, 18543.7 AF; July, 11651.11 AF; August, 5722.20 AF; September, 4630.5 AF. (Totals computed by Hydrographer.)

1987: May, 10543.0 AF; June, 12813.4 AF; July, 10032.5 AF; August, 5249.7 AF; September, 3916.4 AF. (Totals computed by Hydrographer.)

1990: May, 8756.1 AF; June, 14491.5 AF; July, 8961.5 AF; August, 2304.8 AF; September, 2140.2 AF.  
(Totals computed by Hydrographer.)

1991: May, 5693 AF; June, 12397 AF; July, 8886 AF; August, 4366 AF; September, 3761 AF. (Totals computed by Hydrographer.)

1992: May, 11092 AF; June, 10883 AF; July, 8039 AF; August, 3007 AF; September, 1690 AF. (Totals computed by Hydrographer.)

1993: May, 7530.0 AF; June, 14923.9 AF; July, 10149.6 AF; August, 4716.8 AF; September, 4536.3 AF. (Totals computed by Hydrographer.)

1994: 4/25, 32.0 cfs (arrive), 24.0 cfs (depart); 4/28, 10.0 cfs; 4/29, 11.0 cfs; 5/13, 19.1 cfs (arrive), 10.1 cfs (depart); 5/14, 22.0 cfs (arrive), 20.0 cfs (depart); 5/16, 215.0 cfs; 5/17, 212.0 cfs; 5/18, 202.0 cfs; 5/20, 245.0 cfs; 5/25, 283.0 cfs; 6/1, 290.0 cfs; 6/3, 276.0 cfs; 6/7, 273.0 cfs; 6/10, 120.0 cfs; 6/14, 99.0 cfs; 6/17, 165.0 cfs; 6/21, 185.0 cfs; 6/28, 212.0 cfs; 7/1, 155.0 cfs; 7/5, 155.0 cfs; 7/6, 150.0 cfs; 7/9, 155.0 cfs; 7/12, 126.0 cfs; 7/13, 139.0 cfs (arrive), 128.0 cfs (depart); 7/19, 78.5 cfs; 7/22, 55.0 cfs; 7/24, 59.0 cfs; 7/26, 33.0 cfs; 7/28, 31.0 cfs; 7/30, 30.0 cfs; 8/2, 12.5 cfs; 8/9, 11.0 cfs; 8/13, 1.5 cfs; 8/16, 8.0 cfs; 8/18, 8.0 cfs; 8/23, 37.0 cfs; 8/25, 42.0 cfs; 8/30, 23.6 cfs; 9/3, 22.8 cfs; 9/5, 22.8 cfs; 9/6, 19.7 cfs; 9/11, 13.5 cfs; 9/20, 42.0 cfs; 9/21, 34.8 cfs; 9/23, 38.8 cfs; 9/27, 21.5 cfs.

1995: May, 4385.5 AF; June, 16123.9 AF; July, 13392.6 AF; August, 5938.6 AF; September, 4802.1 AF. (Totals computed by Hydrographer.)

1996: See attached data sheet.

1997: May, 9495 AF; June, 14714 AF; July, 9627 AF; August, 5596 AF; September, 4574 AF. (Totals computed by Hydrographer.)

Supply: 1980, average; 1981, slightly below average; 1982, average; 1983, above average; 1984, above average; 1985, average; 1986, average; 1987, average; 1988, below average; 1989, below average; 1990, below average; 1991, slightly below average; 1992, below average; 1993, average; 1994, below average; 1995, slightly above average; 1996, average; 1997, average; 1998, slightly above average.

Green River Basin, Wyoming; Key Structures and Diversions  
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Blacks Fork Canal, Blacks Fork River, Diversion Data

	1996				
	May	June	July	Aug.	Sept.
1	22.0	236.0	253.0	85.0	<i>80.5</i>
2	23.0	236.0	231.0	85.0	<i>81.1</i>
3	23.0	233.0	218.0	85.0	<i>81.7</i>
4	24.0	247.0	220.0	84.0	<i>82.3</i>
5	24.0	270.0	220.0	82.0	<i>82.9</i>
6	29.0	270.0	218.0	77.0	<i>83.5</i>
7	40.0	302.0	218.0	77.0	<i>84.1</i>
8	43.0	408.0	222.0	79.0	<i>84.7</i>
9	65.0	404.0	215.0	77.0	<i>85.3</i>
10	108.0	365.0	200.0	76.0	<i>85.8</i>
11	110.0	299.0	198.0	74.0	<i>86.4</i>
12	108.0	283.0	182.0	74.0	<i>87.0</i>
13	110.0	266.0	160.0	74.0	<i>87.6</i>
14	146.0	289.0	162.0	72.0	<i>88.2</i>
15	159.7	296.0	162.0	72.0	<i>88.8</i>
16	173.4	270.0	162.0	71.0	<i>89.4</i>
17	187.1	283.0	148.0	71.6	90.0
18	200.9	286.0	141.0	72.2	90.0
19	214.6	273.0	139.0	72.8	90.0
20	228.3	276.0	135.0	73.4	92.0
21	242.0	302.0	132.0	74.0	92.0
22	263.0	309.0	130.0	74.6	92.0
23	289.0	296.0	121.0	75.2	92.0
24	283.0	276.0	117.0	75.8	88.0
25	273.0	260.0	113.0	76.3	87.0
26	273.0	245.0	110.0	76.9	77.0
27	263.0	270.0	108.0	77.5	79.0
28	266.0	276.0	108.0	78.1	77.0
29	250.0	273.0	113.0	78.7	71.0
30	247.0	263.0	101.0	79.3	71.0
31	247.0		88.0	79.9	
CFS days	4935.00	8562.00	5045.00	2380.25	2547.25
Average (cfs)	159.19	285.40	162.74	76.78	84.91
Monthly Total (AF)	9788.43	16982.48	10006.61	4721.16	5052.40

Note: Data in italics are linearly interpolated to fill in missing data in record. Data missing due to equipment failures.

Source: State Engineer's Office, Annual Hydrographers' Reports.

Green River Basin, Wyoming; Key Structures and Diversions  
Description and Operation Memorandum

Blacks Fork Canal, Blacks Fork River, Diversion Data

BLACKS FORK CANAL.

STATION NO. 006216.00

LATITUDE 0-00-00 LONGITUDE 0-00-00

SECTION 0 TOWNSHIP 0 ,RANGE 0 P.M.

ELEVATION UNKNOWN DRAINAGE AREA UNKNOWN

NONCONTRIBUTING AREA UNKNOWN BASIN UNKNOWN

UNKNOWN

DATA FROM WATER COMMISSIONERS

(P)

MEAN DAILY FLOW IN CFS BY WATER YEAR													
1971													
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	DAY
1	**	**	**	**	**	**	**	**	**	**	**	14.50	1
2	**	**	**	**	**	**	**	**	**	**	**	14.50	2
3	**	**	**	**	**	**	**	**	**	**	**	14.50	3
4	**	**	**	**	**	**	**	**	**	**	**	14.50	4
5	**	**	**	**	**	**	**	**	**	**	**	14.50	5
6	**	**	**	**	**	**	**	**	**	**	**	14.50	6
7	**	**	**	**	**	**	**	**	**	**	**	14.50	7
8	**	**	**	**	**	**	**	**	**	**	**	14.50	8
9	**	**	**	**	**	**	**	**	**	**	**	14.50	9
10	**	**	**	**	**	**	**	**	**	**	**	14.50	10
11	**	**	**	**	**	**	**	**	**	**	**	14.50	11
12	**	**	**	**	**	**	**	**	**	**	**	14.50	12
13	**	**	**	**	**	**	**	**	**	**	**	14.50	13
14	**	**	**	**	**	**	**	**	**	**	**	14.50	14
15	**	**	**	**	**	**	**	**	**	**	**	14.50	15
16	**	**	**	**	**	**	**	**	**	**	**	14.50	16
17	**	**	**	**	**	**	**	**	**	**	14.50	14.50	17
18	**	**	**	**	**	**	**	**	**	**	14.50	14.50	18
19	**	**	**	**	**	**	**	**	**	**	14.50	14.50	19
20	**	**	**	**	**	**	**	**	**	**	14.50	14.50	20
21	**	**	**	**	**	**	**	**	**	**	14.50	14.50	21
22	**	**	**	**	**	**	**	**	**	**	14.50	14.50	22
23	**	**	**	**	**	**	**	**	**	**	14.50	14.50	23
24	**	**	**	**	**	**	**	**	**	**	14.50	14.50	24
25	**	**	**	**	**	**	**	**	**	**	14.50	14.50	25
26	**	**	**	**	**	**	**	**	**	**	14.50	14.50	26
27	**	**	**	**	**	**	**	**	**	**	14.50	14.50	27
28	**	**	**	**	**	**	**	**	**	**	14.50	14.50	28
29	**	**	**	**		**	**	**	**	**	14.50	14.50	29
30	**	**	**	**		**	**	**	**	**	14.50	14.50	30
31	**		**	**		**		**		**	14.50		31
TOTAL	**	**	**	**	**	**	**	**	**	**	217.50*	435.00	
MEAN	**	**	**	**	**	**	**	**	**	**	14.50*	14.50	
AC-FT	**	**	**	**	**	**	**	**	**	**	431.40*	862.81	

\*\* INDICATES  
MISSING DATA  
  
\* INDICATES  
COMPUTED FROM  
INCOMPLETE DATA  
  
E INDICATES  
ESTIMATED VALUE

Source: Wyoming Water Resources Data System, March 20, 2000.

Green River Basin, Wyoming; Key Structures and Diversions  
Description and Operation Memorandum

Bridger Butte Ditch, Blacks Fork River

**Diversion Description:** Diversion consists of two 4' by 4' slide gates mounted on a concrete structure.<sup>1</sup>

**Diversion Location:**

Source: Black's Fork River, Trib. Green River  
Section, Township, Range: 30, 15, 115

**Conveyance Description:** Open Channel Canal, approximately 8 miles in length.<sup>1</sup>

**Wyoming Water Rights Summary:**

Priority Date (M-D-Y)	Permit Number	Permitted Use	Acres	Flow (cfs)	Cumulative Flow (cfs)	Comments
12-22-1898	2064	Domestic, Irrigation	1,488.03	23.42	23.42	
05-09-1901	666E	Irrigation	505.00	7.19	30.61	
03-18-1904	1173E	Industrial		11.00	41.61	
06-19-1907	1741E	Power Development		9.00	50.61	
05-21-1909	2064E	Domestic, Irrigation	603.65	8.60	59.21	
12-11-1919	4112E	Domestic, Irrigation, Stock	160.00	2.28	61.49	

**Storage Rights:** None.

**Estimated Canal Losses:** Typical (10%).<sup>1</sup>

**Irrigation Practices:** Lands are flood irrigated.<sup>1</sup>

**Crop Types / Consumptive Use:** Water is used to irrigate approximately 300 acres of alfalfa hay; remaining lands are native grass hay and pasture.<sup>1</sup>

**Return Flows:** Return flows are delivered to Three Mile Creek above Black's Fork.

**Other Operational Information:** Ditch is generally turned on in May and off in July.<sup>1</sup>

Sources: 1) John Yarbrough, State Engineer's Office, Interview, May 4, 2000.
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Green River Basin, Wyoming; Key Structures and Diversions  
Description and Operation Memorandum

Bridger Butte Ditch, Blacks Fork River, Diversion Data

Wateryear	May		June		July		August		September	
	Average (cfs)	Monthly Total (AF)	Average (cfs)	Monthly Total (AF)	Average (cfs)	Monthly Total (AF)	Average (cfs)	Monthly Total (AF)	Average (cfs)	Monthly Total (AF)
1980										
1981										
1982										
1983										
1984										
1985	41.52	2,552.97	57.36	3,413.16	17.97	1,104.93	4.40	270.55		
1986			45.68	2,718.15	24.95	1,534.12	1.27	78.09	20.98	1,248.40
1987	44.07	2,709.76	45.31	2,696.13	8.63	530.64	7.85	482.68	8.67	515.90
1988										
1989										
1990	15.43	948.75	48.35	2,877.02	13.05	802.41	2.52	154.95	5.01	298.12
1991					23.26	1,430.20	3.13	192.46	9.05	538.51
1992	30.77	1,891.97	29.72	1,768.46	9.12	560.77	2.92	179.54	1.49	88.66
1993	27.24	1,674.92	53.93	3,209.06	32.91	2,023.56				
1994	22.75	1,398.84	35.33	2,102.28	5.55	341.26	0.74	45.50	2.25	133.88
1995	16.19	995.48	73.03	4,345.59	45.13	2,774.94	21.50	1,321.98	11.20	666.45
1996	33.73	2,073.98	43.00	2,558.68	28.89	1,776.38	5.81	357.24	7.96	473.65
1997	30.48	1,874.14	59.74	3,554.78	22.58	1,388.39	7.89	485.14	11.18	665.26
1998			55.27	3,288.79	56.15	3,452.53	0.00	0.00	0.59	35.11

Averages: 

29.13	1,791.20	49.70	2,957.46	24.02	1,476.68	5.28	324.38	7.84	466.39
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Blank cells are due to missing/insufficient data.

Average = Average Flow for ENTIRE month. Monthly Total = Total Volume used during month.

See Methodology section for explanations.

Spot data readings used in calculating averages in table on following pages.

Green River Basin, Wyoming; Key Structures and Diversions  
Description and Operation Memorandum

Bridger Butte Ditch, Blacks Fork River, Diversion Data

**Data:**

1985: 6/9, 42.6 cfs; 5/25, 59.4 cfs; 5/27, 80.2 cfs; 6/2, 46.9 cfs; 6/9, 80.2 cfs; 6/12, 80.2 cfs; 6/22, 47.4 cfs; 6/25, 44.2 cfs; 7/2, 22.8 cfs; 7/10, 24.9 cfs; 7/17, 19.6 cfs; 7/24, 11.7 cfs; 7/30, 8.6 cfs; 8/7, 3.0 cfs; 8/13, 5.0 cfs; 8/22, 4.1 cfs; 8/29, 4.1 cfs; 9/4, 4.1 cfs; 9/11, off.

1986: 5/20, 60 cfs (est); 5/24, 60 cfs (est); 7/7, 32.6 cfs; 7/16, 28.0 cfs; 7/23, 28.0 cfs; 7/30, 8/6, 8/13, 8/20, 8/27, off; 9/3, 2.5 cfs (est); 9/10, 27.6 cfs; 9/17, 46.9 cfs; 9/24, 27.1 cfs.

1987: 5/11, 83.0 cfs (est); 6/4, 42.0 cfs; 6/9, 70.0 cfs (est); 6/16, 43.0 cfs; 6/19, 43.0 cfs (est); 6/20, 30.0 cfs; 6/24, 35.0 cfs (est); 6/30, 38.0 cfs; 7/7, 6.0 cfs; 7/14, 14.0 cfs; 7/22, 2.0 cfs (est); 7/29, off; 8/5, 13.0 cfs; 8/12, 14.0 cfs; 8/19, 8.0 cfs; 8/26, off; 9/16, 8.0 cfs; 9/23, 22.0 cfs (est); 9/29, 4.0 cfs (est).

1990: 5/12, 1.0 cfs; 5/22, 30.6 cfs; 5/25, 36.0 cfs; 5/26, 30.6 cfs; 5/30, 30.6 cfs; 6/6, 43.0 cfs; 6/7, 47.5 cfs; 6/10, 69.0 cfs; 6/13, 71.0 cfs; 6/20, 37.5 cfs; 6/27, 45.0 cfs; 6/30, 36.6 cfs; 7/4, 38.6 cfs; 7/11, 11.5 cfs; 7/18, 8.0 cfs; 7/25, off; 8/1, 5.5 cfs; 8/8, 2.0 cfs (est); 8/15, off; 9/5, 6.5 cfs; 9/12, 3.0 cfs; 9/17, 2.5 cfs (est); 9/26, 8.0 cfs; 10/1, 5.0 cfs (est).

1991: 6/26, 31 cfs; 7/3, 18 cfs; 7/10, 37 cfs; 7/17, 41.5 cfs (est); 7/24, 6 cfs; 7/31, 6 cfs; 8/2, 6 cfs; 8/7, 3 cfs; 8/14, 3 cfs; 8/21, 4 cfs; 8/28, 0 cfs; 9/4, 8 cfs; 9/11, 2.5 cfs (est); 9/18, 6 cfs; 9/25, 19.5 cfs; 9/27, 19.5 cfs; 9/28, 19.5 cfs; 10/1, 6 cfs (est); 10/3, 5 cfs (est).

1992: 5/6, 3.00 cfs; 5/9, 30.00 cfs; 5/15, 35.00 cfs; 5/19, 36.00 cfs; 5/21, 41.50 cfs; 5/24, 41.50 cfs; 5/26, 49.00 cfs; 6/2, 41.60 cfs; 6/10, 41.00 cfs; 6/17, 22.00 cfs; 6/18, 27.00 cfs; 6/19, 18.00 cfs; 6/24, 24.50 cfs; 7/1, 17.00 cfs; 7/6, 17.00 cfs; 7/8, 12.00 cfs; 7/15, 9.00 cfs; 7/18, 7.00 cfs; 7/22, 5.00 cfs; 7/24, 5.00 cfs; 8/26, 2.00 cfs (est); 9/2, 2.00 cfs (est); 9/3, 2.00 cfs (est); 9/9, 0.50 cfs (est); 9/13, 5.00 cfs; 9/17, 0.50 cfs (est); 9/22, 4.00 cfs.

1993: 5/17, 30.00 cfs; 5/18, 32.60 cfs; 5/19, 40.00 cfs; 5/29, 70.00 cfs; 6/2, 85.00 cfs; 6/6, 42.00 cfs; 6/16, 43.00 cfs; 6/23, 59.50 cfs; 6/25, 57.00 cfs; 7/2, 72.00 cfs; 7/5, 54.00 cfs; 7/9, 30.60 cfs; 7/14, 27.00 cfs; 7/15, 30.50 cfs; 7/16, 35.00 cfs; 7/21, 16.00 cfs; 7/23, 31.60 cfs; 7/24, 35.00 cfs; 7/28, 23.00 cfs; 8/3, 0.00 cfs; 8/4, 4.50 cfs.

1994: 5/15, 4.0 cfs; 5/17, 39.0 cfs; 5/18, 42.5 cfs; 5/20, 45.3 cfs; 5/26, 40.5 cfs; 6/2, 53.5 cfs; 6/4, 43.0 cfs; 6/8, 42.6 cfs; 6/11, 42.6 cfs; 6/15, 40.5 cfs; 6/18, 28.0 cfs; 6/21, 43.0 cfs; 6/23, 43.0 cfs; 6/24, 24.0 cfs; 6/29, 13.0 cfs; 7/2, 19.5 cfs; 7/6, 7.8 cfs; 7/13, 6.5 cfs; 7/14, 6.5 cfs (arrive), 4.9 cfs (depart); 7/27, 1.0 cfs; 8/11, 0.0 cfs; 8/13, 0.5 cfs; 8/17, 0.5 cfs; 8/24, 1.0 cfs; 9/3, 2.2 cfs; 9/4, 2.2 cfs; 9/5, 2.2 cfs; 9/7, 12.0 cfs; 9/10, 0.5 cfs; 9/14, 0.0 cfs; 9/16, 0.0 cfs; 9/21, 6.2 cfs; 9/28, 4.0 cfs.

1995: 5/2, 5.0 cfs; 5/15, 5.0 cfs; 5/17, 5.0 cfs; 5/19, 7.0 cfs; 5/23, 23.0 cfs; 5/24, 33.0 cfs; 5/25, 39.0 cfs; 5/26, 43.0 cfs; 5/30, 41.0 cfs; 6/2, 41.0 cfs; 6/5, 58.0 cfs; 6/6, 70.0 cfs; 6/13, 70.0 cfs; 6/24, 85.0 cfs; 6/30, 85.0 cfs; 7/7, 85.0 cfs; 7/15, 37.5 cfs; 7/22, 21.6 cfs; 7/26, 20.0 cfs; 7/31, 17.0 cfs; 8/2, 15.0 cfs; 8/9, 12.4 cfs; 8/16, 73.0 cfs; 8/19, 6.5 cfs; 8/19, 14.0 cfs; 8/23, 15.0 cfs; 8/30, 5.0 cfs; 9/6, 1.0 cfs (est); 9/13, 2.0 cfs (est); 9/20, 30.0 cfs; 9/27, 15.0 cfs; 10/3, 3.0 cfs; 10/30, 1.0 cfs.

1996: 5/9, 5.0 cfs (est); 5/10, 5.0 cfs (est); 5/11, 30 cfs; 5/12, 42.0 cfs (est); 5/13, 52.0 cfs; 7/3, 38.5 cfs; 7/13, 33.5 cfs; 7/17, 35 cfs; 7/19, 29.8 cfs (arrive), 20 cfs (depart); 7/23, 15.6 cfs; 7/24, 18.0 cfs (arrive), 24.0 cfs (depart); 7/29, 27.0 cfs; 7/30, 23.7 cfs (arrive), 8.0 cfs (depart); 8/7, 5.7 cfs (arrive), 4.0 cfs (depart); 8/14, 2.0 cfs (est); 8/21, 2.0 cfs (est)(arrive), 1.5 cfs (est)(depart); 8/28, 13.5 cfs; 9/2, 13 cfs (arrive), 15 cfs (depart); 9/4, 10.1 cfs; 9/5, 8.8 cfs; 9/18, 6.98 cfs; 9/25, 17 cfs.

1997: 5/16, 30.0 cfs; 5/26, 73.0 cfs; 6/26, 59.0 cfs (arrive), 41.0 cfs (depart); 6/29, 30.6 cfs; 7/2, 42.0 cfs; 7/9, 32.5 cfs (arrive), 20.0 cfs (depart); 7/11, 20.0 cfs; 7/16, 22.8 cfs; 7/23, 23.2 cfs (arrive), 9.2 cfs (depart); 7/27, 13.4 cfs (arrive), 8.9 cfs (depart); 7/30, 8.4 cfs (arrive), 9.0 cfs (depart); 7/30, 8.4 cfs

Green River Basin, Wyoming; Key Structures and Diversions  
Description and Operation Memorandum

Bridger Butte Ditch, Blacks Fork River, Diversion Data

(arrive), 9.0 cfs (depart); 8/5, 15.0 cfs; 8/13, 10.1 cfs; 8/21, 7.8 cfs (arrive), 2.0 cfs (est) (depart); 8/30, 2.0 cfs (est) (arrive), 1.0 cfs (est) (depart); 9/3, 2.0 cfs (est); 9/10, 26.0 cfs; 9/14, 25.0 cfs; 9/17, 23.7 cfs (arrive), 11.4 cfs (depart); 9/24, 2.0 cfs (est); 9/30, 2.0 cfs (est).

1998: 6/8, 99 cfs; 6/25, 53 cfs; 7/7, 85 cfs; 7/15, 85 cfs; 7/22, 43 cfs; 7/29, 8/5, 8/12, 8/19, 8/26, 9/2, 9/9, 9/16, 9/23, 0 cfs; 9/30, 4 cfs; 10/6, 0 cfs.

Supply: 1980, average; 1981, slightly below average; 1982, average; 1983, above average; 1984, above average; 1985, average; 1986, average; 1987, average; 1988, below average; 1989, below average; 1990, below average; 1991, slightly below average; 1992, below average; 1993, average; 1994, below average; 1995, slightly above average; 1996, average; 1997, average; 1998, slightly above average.

Source: State Engineer's Office, Annual Hydrographers' Reports.

Green River Basin, Wyoming; Key Structures and Diversions  
Description and Operation Memorandum

C.L. Byrne Number 2 Ditch, Big Muddy Creek

**Diversion Description:** Information not available at time of report.

**Diversion Location:**

Source: Big (or West) Muddy Creek, Trib. Black's Fork River, Trib. Green River  
Section, Township, Range: 4, 14, 117

**Conveyance Description:** Open Channel Canal.

**Wyoming Water Rights Summary:**

Priority Date (M-D-Y)	Permit Number	Permitted Use	Acres	Flow (cfs)	Cumulative Flow (cfs)	Comments
09-23-1896	1321	Irrigation	53.00	0.75	0.75	
08-17-1912	2659E	Irrigation, Stock	2,301.50	32.87	33.62	Permitted Name: Byrne's No. 2 Ditch

**Storage Rights:** None.

**Estimated Canal Losses:** Information not available at time of report.

**Irrigation Practices:** Information not available at time of report.

**Crop Types / Consumptive Use:** Information not available at time of report.

**Return Flows:** Return flows are delivered to Big Muddy Creek above Musselman Ditch.

**Other Operational Information:** Information not available at time of report.

Green River Basin, Wyoming; Key Structures and Diversions  
Description and Operation Memorandum

C.L. Byrne Number 2 Ditch, Big Muddy Creek, Diversion Data

No Diversion Data Available.

Green River Basin, Wyoming; Key Structures and Diversions  
Description and Operation Memorandum

Center Ditch, Blacks Fork River

**Diversion Description:** Diversion consists of two 2' x 4' slide gates mounted on a concrete structure.<sup>1</sup>

**Diversion Location:**

Source: Black's Fork River, Trib. Green River

Section, Township, Range: 16, 15, 115

**Conveyance Description:** Open Channel Canal, approximately 5 miles in length.<sup>1</sup>

**Wyoming Water Rights Summary:**

Priority Date (M-D-Y)	Permit Number	Permitted Use	Acres	Flow (cfs)	Cumulative Flow (cfs)	Comments
12-14-1908	8855	Domestic, Irrigation	476.30	6.81	6.81	
05-08-1915	3187E	Irrigation	105.00	1.50	8.31	
02-10-1928	4572E	Irrigation	11.50	0.16	8.47	

**Storage Rights:** None.

**Estimated Canal Losses:** No significant losses are experienced through the canal. In fact, significant gains are made from the Fort Bridger Canal.<sup>1</sup>

**Irrigation Practices:** Lands are flood irrigated.<sup>1</sup>

**Crop Types / Consumptive Use:** Water is used to irrigate native grass hay and pasture.<sup>1</sup>

**Return Flows:** Return flows are delivered to Twin Butte Canal near Fort Bridger, Wyoming.

**Other Operational Information:** Ditch is generally turned on in May and off in July.<sup>1</sup>

Sources: 1) John Yarbrough, State Engineer's Office, Interview, May 4, 2000.

Green River Basin, Wyoming; Key Structures and Diversions  
Description and Operation Memorandum

Center Ditch, Blacks Fork River, Diversion Data

Wateryear	May		June		July		August		September	
	Average (cfs)	Monthly Total (AF)	Average (cfs)	Monthly Total (AF)	Average (cfs)	Monthly Total (AF)	Average (cfs)	Monthly Total (AF)	Average (cfs)	Monthly Total (AF)
1980										
1981										
1982										
1983										
1984										
1985	6.70	411.97	9.29	552.79	3.64	223.81	6.67	410.12		
1986			10.00	595.04	3.39	208.44	4.10	252.10	4.55	270.74
1987			5.85	348.10	6.00	368.93	4.40	270.55	6.25	371.90
1988										
1989										
1990	2.72	167.25	7.64	454.61	4.44	273.00	4.10	252.10		
1991					5.97	367.08	5.68	349.25		
1992	3.20	196.76	6.70	398.68	6.74	414.43	10.45	642.55		
1993	2.64	162.33	8.06	479.60	5.02	308.67	0.00	0.00	0.00	0.00
1994			7.21	429.02	4.39	269.93	0.35	21.52	0.47	27.97
1995	0.36	22.14	15.94	948.50	5.65	347.40	1.40	86.08	3.28	195.17
1996	3.86	237.34	5.68	337.98	3.29	202.29	1.69	103.91	3.58	213.02
1997			3.29	195.77	3.50	215.21	0.00	0.00	3.97	236.23
1998			5.37	319.54	3.77	231.81	0.17	10.45	3.27	194.58

Averages: 

3.25	199.63	7.73	459.97	4.65	285.92	3.25	199.89	3.17	188.70
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Blank cells are due to missing/insufficient data.

Average = Average Flow for ENTIRE month. Monthly Total = Total Volume used during month.

See Methodology section for explanations.

Spot data readings used in calculating averages in table on following pages.

Green River Basin, Wyoming; Key Structures and Diversions  
Description and Operation Memorandum

Center Ditch, Blacks Fork River, Diversion Data

**Data:**

1985: 5/11, 10.0 cfs; 5/27, 10.0 cfs; 6/4, 8.5 cfs; 6/22, 8.0 cfs; 6/24, 11.9 cfs; 7/2, 11.9 cfs; 7/10, 4.0 cfs; 7/17, off; 8/22, 7.5 cfs; 8/29, 10.8 cfs; 9/4, 9.1 cfs.

1986: 5/20, 10 cfs (est); 7/7, 10 cfs (est); 7/16, 7/23, 7/30, 8/6, off; 8/13, 5.0 cfs; 8/20, 7.1 cfs; 8/27, 5.0 cfs; 9/3, 5.0 cfs; 9/10, 11.1 cfs; 9/17, 2.1 cfs; 9/24, 2.1 cfs; 9/30, 1 cfs (est).

1987: 6/4, 7.4 cfs; 6/16, 8.5 cfs; 6/20, off; 6/24, 3.0 cfs; 6/30, 12.0 cfs; 7/7, 12.5 cfs; 7/14, 6.0 cfs; 7/22, 3.0 cfs; 7/29, off; 9/9, 10.0 cfs; 9/16, 10.0 cfs; 9/24, off; 9/29, off.

1990: 5/17, 3.0 cfs; 5/25, 11.0 cfs; 5/26, 3.0 cfs; 5/30, 4.0 cfs; 6/6, 1.5 cfs; 6/7, 10.0 cfs; 6/13, 9.2 cfs; 6/20, 7.3 cfs; 6/27, 11.9 cfs; 6/29, 5.0 cfs; 7/4, 10.0 cfs; 7/11, 9.0 cfs; 7/18, off; 8/29, 6.0 cfs; 9/5, 1.5 cfs; 9/12, off.

1991: 6/26, 5 cfs; 6/27, 6.5 cfs; 7/3, 10.5 cfs; 7/10, 10.5 cfs; 7/17, 7.5 cfs; 7/24, 0 cfs; 9/25, 5 cfs; 10/1, 2 cfs (est).

1992: 5/6, 0.00 cfs; 5/9, 0.00 cfs; 5/19, 3.50 cfs; 5/21, 8.50 cfs; 5/24, 8.50 cfs; 5/26, 6.90 cfs; 6/2, 2.00 cfs; 6/10, 8.00 cfs; 6/17, 8.50 cfs; 6/19, 8.50 cfs; 6/24, 7.50 cfs; 7/1, 5.00 cfs; 7/8, 8.00 cfs; 7/15, 0.50 cfs (est); 7/17, 0.50 cfs (est); 7/29, 14.50 cfs; 8/26, 8.50 cfs; 9/2, 6.00 cfs.

1993: 5/17, 2.00 cfs; 6/1, 8.90 cfs; 6/9, 8.80 cfs; 6/16, 7.00 cfs; 6/25, 7.70 cfs; 7/2, 9.00 cfs (est); 7/5, 9.00 cfs (est); 7/9, 8.50 cfs; 7/14, 9.50 cfs; 7/15, 10.00cfs; 7/21, 7/28, 8/4, 8/11, 0.00 cfs; 9/15, 9.00 cfs; 9/22, 7.00 cfs; 10/1, 2.00 cfs.

1994: 5/24, 8.0 cfs; 5/26, 7.5 cfs; 6/4, 0.0 cfs; 6/8, 8.5 cfs; 6/9, 8.5 cfs; 6/11, 8.5 cfs; 6/13, 8.5 cfs; 6/15, 8.5 cfs; 6/18, 8.5 cfs; 6/21, 8.5 cfs; 6/29, 8.5 cfs; 7/2, 8.5 cfs; 7/6, 6.0 cfs; 7/14, 4.5 cfs; 8/13, 8/24, 8/31, 9/7, 0.0 cfs; 9/14, 0.3 cfs; 9/16, 0.3 cfs; 9/21, 1.5 cfs; 9/28, 0.8 cfs.

1995: 5/17, 1.0 cfs; 5/19, 1.0 cfs; 5/23, 0.5 cfs; 5/30, 0.5 cfs; 6/2, 3.0 cfs; 6/4, 9.0 cfs; 6/6, 6.0 cfs; 6/13, 7.0 cfs, 6/13, 44.0 cfs; 6/24, 13.0 cfs; 6/30, 13.8 cfs; 7/7, 13.5 cfs; 7/14, 3.4 cfs; 7/22, 3.0 cfs; 7/26, 0.5 cfs; 8/2, 8/9, 8/16, 8/19, 0.0 cfs; 8/23, 3.6 cfs; 8/30, 4.0 cfs; 9/6, 3.4 cfs; 9/13, 2.0 cfs; 9/16, 5.0 cfs; 9/20, 2.4 cfs; 9/27, 4.3 cfs; 10/3, 1.0 cfs.

1996: 5/9, 5.0 cfs (est); 7/3, 5.99 cfs (arrive), 4.51 cfs (depart); 7/13, 4.6 cfs (arrive), 5.5 cfs (depart); 7/19, 4.5 cfs (arrive), 3.0 cfs (depart); 7/24, 2.8 cfs (arrive), 0 cfs (depart); 8/7, 0 cfs; 8/21, 0 cfs (arrive), 4.5 cfs (depart); 8/28, 3.9 cfs (arrive), 6.25 cfs (depart); 9/4, 4.6 cfs (arrive), 5.7 cfs (depart); 9/5, 7.2 cfs; 9/18, 3.2 cfs; 9/25, 2.1 cfs (arrive), 3.0 cfs (depart).

1997: 5/26, 7.0 cfs; 6/26, 1.0 cfs (est); 6/27, 8.5 cfs; 6/26, 0.0 cfs; 7/2, 0.0 cfs (arrive), 6.75 cfs (depart); 7/9, 4.5 cfs; 7/11, 4.5 cfs; 7/16, 3.9 cfs (arrive), 2.7 cfs (depart); 7/23, 1.8 cfs (arrive); 2.7 cfs (depart); 7/24, 5.0 cfs (est); 7/27, 2.8 cfs; 7/30, 2.4 cfs (arrive), 0.0 cfs (depart); 8/5, 8/8, 8/13, 8/21, 0.0 cfs; 9/3, 0.0 cfs (arrive), 4.5 cfs (depart); 9/10, 5.5 cfs (arrive), 6.0 cfs (depart); 9/17, 5.0 cfs (est); 9/30, 2.0 cfs (est).

1998: 6/8, 7 cfs; 7/7, 7 cfs; 7/14, 3.2 cfs; 7/22, 0 cfs; 7/29, 4.5 cfs; 8/5, 8/12, 8/19, 8/26, 0 cfs; 9/2, 0 cfs (arrive), 2.7 cfs (depart); 9/9, 2.9 cfs (arrive), 4.5 cfs (depart); 9/16, 4 cfs; 9/23, 2.5 cfs; 9/30, 3.4 cfs (arrive), 5.7 cfs (depart); 10/6, 2.4 cfs (arrive), 1.2 cfs (depart).

Supply: 1980, average; 1981, slightly below average; 1982, average; 1983, above average; 1984, above average; 1985, average; 1986, average; 1987, average; 1988, below average; 1989, below average; 1990, below average; 1991, slightly below average; 1992, below average; 1993, average; 1994, below average; 1995, slightly above average; 1996, average; 1997, average; 1998, slightly above average.

Source: State Engineer's Office, Annual Hydrographers' Reports.



Green River Basin, Wyoming; Key Structures and Diversions  
Description and Operation Memorandum

Deeben-Heinze Ditch, Blacks Fork River

**Diversion Description:** Diversion consists of two 4' x 4' slide gates. A concrete and plank diversion dam exists.<sup>1</sup>

**Diversion Location:**

Source: Black's Fork River, Trib. Green River  
Section, Township, Range: 28, 16, 115

**Conveyance Description:** Open Channel Canal, approximately 20 miles in length.<sup>1</sup>

**Wyoming Water Rights Summary:**

Priority Date (M-D-Y)	Permit Number	Permitted Use	Acres	Flow (cfs)	Cumulative Flow (cfs)	Comments
11-26-1904	6294	Domestic, Irrigation, Stock	291.00	4.15	4.15	
05-14-1909	2360E	Domestic, Irrigation	640.00	9.12	13.27	
06-20-1910	2361E	Domestic, Irrigation	1,114.00	15.89	29.16	
05-25-1915	3246E	Irrigation	116.00	1.66	30.82	
03-29-1921	4216E	Domestic, Irrigation	274.98	3.93	34.75	
03-07-1947	5435E	Irrigation	282.00	4.02	38.77	
04-02-1947	5440E	Irrigation			38.77	794.53 AF Secondary Supply from Wall Development Company Reservoir (5612R) (2550.80 acres served)

**Storage Rights:** Wall Development Company Reservoir (5612R).

**Estimated Canal Losses:** Greater than typical (20%).<sup>1</sup>

**Irrigation Practices:** Approximately 640 acres are irrigated by 4 sprinkler lines; remaining lands are flood irrigated.<sup>1</sup>

**Crop Types / Consumptive Use:** Water is used to irrigate approximately 120 acres of alfalfa hay; remaining lands are native grass hay and pasture.<sup>1</sup>

Green River Basin, Wyoming; Key Structures and Diversions  
Description and Operation Memorandum

Deeben-Heinze Ditch, Blacks Fork River

**Return Flows:** Approximately 60% of the return flows are delivered to Black's Fork River just below Rollins Draw, and approximately 40% of the return flows are delivered to Black's Fork River above Rollins Draw (north of Urie, Wyoming).

**Other Operational Information:** This ditch is commonly also known as the Wall Ditch. Ditch is generally turned on in May and off in July .<sup>1</sup>

Sources: 1) John Yarbrough, State Engineer's Office, Interview, May 4, 2000.
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Green River Basin, Wyoming; Key Structures and Diversions  
Description and Operation Memorandum

Deeben-Heinze Ditch, Blacks Fork River, Diversion Data

Wateryear	May		June		July		August		September	
	Average (cfs)	Monthly Total (AF)	Average (cfs)	Monthly Total (AF)	Average (cfs)	Monthly Total (AF)	Average (cfs)	Monthly Total (AF)	Average (cfs)	Monthly Total (AF)
1980										
1981										
1982										
1983										
1984										
1985			20.81	1,238.28	6.64	408.28	11.60	713.26	5.69	338.58
1986			33.13	1,971.37	18.57	1,141.82	2.42	148.80	7.45	443.31
1987	26.82	1,649.10	25.54	1,519.74	25.48	1,566.70	10.95	673.29	3.23	192.20
1988										
1989										
1990			38.47	2,289.12	11.96	735.39	5.15	316.66	2.40	142.81
1991					11.81	726.17	8.15	501.12	4.34	258.25
1992										
1993	12.83	788.89	38.30	2,279.01	27.39	1,684.15	19.56	1,202.70	7.17	426.64
1994	17.65	1,085.26	18.14	1,079.40	6.37	391.68	3.45	212.13	2.76	164.23
1995	12.40	762.45	45.18	2,688.40	44.03	2,707.30	21.87	1,344.73	12.05	717.02
1996	30.49	1,874.76	31.82	1,893.42	18.86	1,159.66	11.02	677.59	6.50	386.78
1997	21.85	1,343.50	37.41	2,226.05	15.55	956.13	13.91	855.29	9.22	548.63
1998			36.15	2,151.07	55.42	3,407.64	27.52	1,692.14	15.18	903.27

Averages: 

20.34	1,250.66	32.50	1,933.59	22.01	1,353.17	12.33	757.97	6.91	411.07
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Blank cells are due to missing/insufficient data.

Average = Average Flow for ENTIRE month. Monthly Total = Total Volume used during month.

See Methodology section for explanations.

Spot data readings used in calculating averages in table on following pages.

Green River Basin, Wyoming; Key Structures and Diversions  
Description and Operation Memorandum

Deeben-Heinze Ditch, Blacks Fork River, Diversion Data

**Data:**

1985 (all est): 5/25, 30 cfs; 5/27, 40 cfs; 5/29, 70 cfs; 6/2, 13 cfs; 6/7, 15 cfs; 6/18, 40 cfs; 6/19, 28 cfs; 7/2, 3 cfs; 7/10, 3 cfs; 7/17, 5 cfs; 7/24, 14 cfs; 7/30, 8 cfs; 8/7, 14 cfs; 8/13, 9 cfs; 8/22, 12 cfs; 8/29, 13 cfs; 9/4, 12 cfs; 9/8, 15 cfs; 9/11, 8 cfs; 9/18, 5 cfs.

1986 (all est): 5/20, 50 cfs; 7/7, 20 cfs; 7/16, 10 cfs; 7/23, 20 cfs; 7/30, 10 cfs; 8/6, 8 cfs; 8/13, 8/20, 8/27, off; 9/10, 4 cfs; 9/17, 15 cfs; 9/24, 10 cfs; 9/30, 5 cfs.

1987 (all est): 5/9, 25.0 cfs; 5/11, 60.0 cfs; 5/24, 24.0 cfs; 6/16, 30.0 cfs; 6/17, 40.0 cfs; 6/18, 45.0 cfs; 6/20, 13.0 cfs; 6/24, 12.0 cfs; 6/30, 31.0 cfs; 7/7, 30.0 cfs; 7/14, 26.0 cfs; 7/22, 25.0 cfs; 7/29, 20.0 cfs; 8/5, 4.0 cfs; 8/12, 18.0 cfs; 8/19, 12.0 cfs; 8/26, 8.0 cfs; 9/2, 10.0 cfs; 9/9, off; 9/23, 4.0 cfs; 9/29, 4.0 cfs.

1990 (all est except one gaged): 5/25, 5.0 cfs; 5/30, 0 cfs; 6/6, 20.0 cfs (gaged); 6/7, 70.0 cfs; 6/9, 73.0 cfs; 6/13, 70.0 cfs; 6/15, 60.0 cfs; 6/20, 30.0 cfs; 6/25, 29.0 cfs; 6/27, 19.0 cfs; 7/3, 11.0 cfs; 7/4, 23.0 cfs; 7/11, 11.0 cfs; 7/18, 13.0 cfs; 7/25, 8.0 cfs; 8/1, 7.0 cfs; 8/8, 6.0 cfs; 8/9, 5.0 cfs; 8/12, 8.0 cfs; 8/13, 6.0 cfs; 8/15, 5.5 cfs; 8/22, 4.0 cfs; 8/29, 4.0 cfs; 9/5, 0 cfs; 9/18, 3.0 cfs; 9/26, 4.0 cfs; 10/1, 4.0 cfs.

1991 (all est): 6/21, 40 cfs; 6/23, 40 cfs; 6/26, 1 cfs; 6/28, 1 cfs; 7/3, 9 cfs; 7/10, 14 cfs; 7/17, 16.5 cfs; 7/24, 8 cfs; 7/31, 12 cfs; 8/2, 12 cfs; 8/7, 8 cfs; 8/14, 7 cfs; 8/21, 5 cfs; 8/28, 11.5 cfs; 9/2, 9 cfs; 9/4, 10.5 cfs; 9/11, 5 cfs; 9/18, 8.5 cfs; 9/25, 18 cfs; 10/1, 7 cfs; 10/3, 66 cfs.

1993 (all est): 5/17, 20.00 cfs; 6/9, 40.00 cfs; 6/16, 34.00 cfs; 6/22, 50.00 cfs; 6/23, 45.00 cfs; 6/25, 34.00 cfs; 7/2, 40.00 cfs; 7/5, 45.00 cfs; 7/6, 34.00 cfs; 7/14, 5.00 cfs; 6/25, 34.00 cfs; 7/2, 40.00 cfs; 7/5, 45.00 cfs; 7/6, 34.00 cfs; 7/14, 5.00 cfs; 7/15, 20.00 cfs; 7/16, 20.00 cfs; 7/22, 19.50 cfs; 7/23, 35.00 cfs; 7/26, 50.00 cfs; 7/28, 25.00 cfs; 8/4, 30.00 cfs; 8/7, 30.00 cfs; 8/11, 28.00 cfs; 8/18, 20.00 cfs; 8/23, 12.00 cfs; 8/25, 8.00 cfs; 9/1, 5.00 cfs; 9/8, 5.00 cfs; 9/15, 11.00 cfs; 9/22, 5.00 cfs; 9/26, 9.00 cfs; 10/1, 7.00 cfs.

1994: 4/16, 3.0 cfs; 4/28, 3.0 cfs; 4/29, 4.0 cfs; 5/2, 7.0 cfs; 5/17, 10.0 cfs; 5/18, 30.0 cfs; 5/19, 34.0 cfs; 5/20, 54.0 cfs; 5/26, 16.0 cfs; 5/28, 22.0 cfs; 5/29, 22.0 cfs; 5/30, 14.0 cfs; 6/4, 17.0 cfs; 6/5, 20.0 cfs; 6/6, 10.0 cfs; 6/7, 12.0 cfs; 6/8, 25.0 cfs; 6/9, 34.0 cfs; 6/11, 34.0 cfs; 6/13, 25.0 cfs; 6/15, 18.0 cfs; 6/18, 12.0 cfs; 6/21, 28.0 cfs; 6/23, 20.0 cfs; 6/24, 14.0 cfs; 6/25, 9.0 cfs; 8/13, 3.0 cfs; 8/14, 4.0 cfs; 8/15, 4.0 cfs; 8/17, 3.0 cfs; 8/18, 3.0 cfs; 8/19, 1.5 cfs; 8/20, 2.5 cfs; 8/22, 2.0 cfs; 8/24, 2.0 cfs; 8/25, 3.5 cfs; 8/26, 4.5 cfs; 8/27, 6.0 cfs; 8/29, 5.0 cfs; 8/31, 2.0 cfs; 9/2, 1.5 cfs; 9/4, 3.5 cfs; 9/7, 3.0 cfs; 9/10, 3.0 cfs; 9/14, 3.0 cfs; 9/16, 2.0 cfs; 9/21, 4.0 cfs; 9/25, 3.5 cfs; 9/28, 3.5 cfs.

1995: 5/15, 4.0 cfs; 5/17, 5.0 cfs; 5/19, 4.0 cfs; 5/23, 55.0 cfs; 5/25, 55.0 cfs; 5/26, 25.0 cfs; 5/27, 20.0 cfs (arrive), 18.0 cfs (depart); 5/30, 14.0 cfs; 6/2, 14.0 cfs; 6/4, 50.0 cfs (est); 6/5, 40.0 cfs (est); 6/6, 40.0 cfs (est); 6/10, 50.0 cfs (est); 6/12, 40.0 cfs (est); 6/13, 35.0 cfs (est); 6/15, 50.0 cfs (est); 6/24, 50.0 cfs (est); 6/30, 50.0 cfs (est); 7/1, 50.0 cfs (est); 7/4, 50.0 cfs (est); 7/7, 50.0 cfs (est); 7/14, 50.0 cfs (est); 7/22, 40.0 cfs (est); 7/26, 40.0 cfs (est); 7/29, 30.0 cfs (est); 7/31, 30.0 cfs (est); 8/2, 30.0 cfs (est); 8/3, 30.0 cfs (est); 8/9, 15.0 cfs (est); 8/16, 25.0 cfs (est); 8/19, 25.0 cfs (est); 8/23, 25.0 cfs (est); 8/26, 20.0 cfs (est); 8/30, 15.0 cfs (est); 8/31, 15.0 cfs (est); 9/6, 20.0 cfs (est); 9/13, 12.0 cfs (est); 9/21, 7.0 cfs (est); 9/27, 7.0 cfs (est); 9/29, 12.0 cfs (est); 10/3, 10.0 cfs (est); 10/30, 12.0 cfs (est).

1996: 5/9, 20.0 cfs (est); 5/10, 35.0 cfs (est); 5/20, 45.0 cfs (est); 5/21, 45.0 cfs (est); 5/23, 45.0 cfs; 7/13, 17 cfs; 7/17, 28 cfs (est), 20 cfs (est); 7/19, 15 cfs; 7/24, 5.0 cfs (est) (arrive), 7/24, 23.0 cfs (est) (depart); 7/26, 17.0 cfs (est); 7/29, 30.0 cfs (est); 7/30, 5.0 cfs (est) (arrive); 7/30, 18.0 cfs (est);

Green River Basin, Wyoming; Key Structures and Diversions  
Description and Operation Memorandum

Deeben-Heinze Ditch, Blacks Fork River, Diversion Data

8/1, 20.0 cfs (est); 8/5, 20.0 cfs (est); 8/6, 20.0 cfs (est); 8/7, 14.0 cfs (est); 8/8, 14.0 cfs (est); 8/14, 8.0 cfs (est); 8/15, 6.0 cfs (est); 8/16, 5.0 cfs (est); 8/17, 5.0 cfs (est); 8/19, 7.0 cfs (est); 8/21, 10.0 cfs (est); 8/22, 3.0 cfs (est); 8/23, 3.0 cfs (est); 8/24, 15.0 cfs (est); 8/26, 13.0 cfs (est); 8/28, 8.0 cfs (est); 8/29, 6.0 cfs (est); 8/31, 9.0 cfs (est); 9/2, 7.0 cfs (est) (arrive), 6.0 cfs (depart); 9/4, 14.0 cfs (est); 9/5, 14.0 cfs (est); 9/18, 3.0 cfs (est); 9/22, 4.0 cfs (est); 9/23, 5.0 cfs (est); 9/25, 3.0 cfs (est); 9/26, 5.0 cfs (est); 9/27, 6.0 cfs (est); 9/28, 7.0 cfs (est).

1997 (all est): 5/13, 4.0 cfs; 5/14, 7.0 cfs; 5/15, 25.0 cfs; 5/16, 40.0 cfs; 5/17, 35.0 cfs; 5/19, 32.0 cfs; 5/20, 32.0 cfs; 5/22, 30.0 cfs; 5/23, 35.0 cfs; 5/24, 40.0 cfs; 5/25, 45.0 cfs; 5/26, 45.0 cfs; 5/27, 45.0 cfs; 5/28, 45.0 cfs; 5/29, 45.0 cfs; 5/30, 45.0 cfs; 5/31, 45.0 cfs; 6/1, 40.0 cfs; 6/5, 40.0 cfs; 6/7, 45.0 cfs; 6/9, 45.0 cfs; 6/10, 45.0 cfs; 6/11, 45.0 cfs; 6/17, 40.0 cfs; 6/18, 40.0 cfs; 6/19, 45.0 cfs; 6/20, 45.0 cfs; 6/21, 45.0 cfs; 6/23, 45.0 cfs; 6/24, 45.0 cfs; 6/26, 20.0 cfs; 6/29, 11.0 cfs; 7/2, 13.0 cfs; 7/5, 10.0 cfs; 7/9, 9.5 cfs; 7/11, 10.0 cfs; 7/16, 26.0 cfs; 7/17, 20.0 cfs; 7/18, 22.0 cfs; 7/19, 22.0 cfs; 7/21, 22.0 cfs; 7/23, 15.0 cfs; 7/24, 22.0 cfs; 7/25, 20.0 cfs; 7/27, 10.0 cfs; 7/30, 15.0 cfs; 8/3, 20.0 cfs; 8/4, 23.0 cfs; 8/5, 30.0 cfs; 8/8, 13.0 cfs; 8/9, 18.0 cfs; 8/11, 20.0 cfs; 8/13, 8.5 cfs; 8/14, 9.0 cfs; 8/21, 8.0 cfs; 8/22, 15.0 cfs; 8/29, 10.0 cfs; 8/30, 8.0 cfs (arrive), 12.0 cfs (depart); 9/3, 10.0 cfs; 9/7, 9.0 cfs; 9/10, 7.0 cfs; 9/13, 8.0 cfs; 9/14, 18.0 cfs; 9/17, 8.0 cfs; 9/24, 10.0 cfs; 9/25, 10.0 cfs; 9/26, 10.0 cfs; 9/30, 8.0 cfs.

1998 (all est): 6/8, 40 cfs; 6/11, 40 cfs; 6/25, 50 cfs; 7/8, 70-80 cfs; 7/14, 70-80 cfs; 7/15, 70-80 cfs; 7/17, 50 cfs; 7/22, 35 cfs; 7/24, 35 cfs; 7/29, 40 cfs; 7/30, 40 cfs; 8/1, 40 cfs; 8/5, 35 cfs; 8/7, 35 cfs; 8/12, 25 cfs; 8/14, 18 cfs; 8/19, 30 cfs; 8/26, 25 cfs; 8/29, 25 cfs; 9/2, 5 cfs (arrive), 20 cfs (depart); 9/5, 18 cfs; 9/7, 20 cfs; 9/9, 15 cfs; 9/16, 10 cfs; 9/17, 15 cfs; 9/23, 12 cfs; 9/25, 25 cfs; 9/30, 15 cfs; 10/6, 15.0 cfs.

Supply: 1980, average; 1981, slightly below average; 1982, average; 1983, above average; 1984, above average; 1985, average; 1986, average; 1987, average; 1988, below average; 1989, below average; 1990, below average; 1991, slightly below average; 1992, below average; 1993, average; 1994, below average; 1995, slightly above average; 1996, average; 1997, average; 1998, slightly above average.

Source: State Engineer's Office, Annual Hydrographers' Reports.

Green River Basin, Wyoming; Key Structures and Diversions  
Description and Operation Memorandum

Demandor Ditch, Blacks Fork River

**Diversion Description:** Diversion consists of a single 36" diameter Waterman slide gate.<sup>1</sup>

**Diversion Location:**

Source: Black's Fork River, Trib. Green River

Section, Township, Range: 32, 14, 116

**Conveyance Description:** Open Channel Canal, approximately 4 miles in length.<sup>1</sup>

**Wyoming Water Rights Summary:**

Priority Date (M-D-Y)	Permit Number	Permitted Use	Acres	Flow (cfs)	Cumulative Flow (cfs)	Comments
03-03-1914	12284	Domestic, Irrigation	148.00	2.11	2.11	

**Storage Rights:** None.

**Estimated Canal Losses:** Slightly greater than typical (10-15%).<sup>1</sup>

**Irrigation Practices:** Lands are flood irrigated.<sup>1</sup>

**Crop Types / Consumptive Use:** Water is used to irrigate native grass hay and pasture.<sup>1</sup>

**Return Flows:** Return flows are delivered to Willow Creek near Robertson, Wyoming.

**Other Operational Information:** Ditch is generally turned on in May and off in July.<sup>1</sup>

Sources: 1) John Yarbrough, State Engineer's Office, Interview, May 4, 2000.
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Green River Basin, Wyoming; Key Structures and Diversions  
Description and Operation Memorandum

Demander Ditch, Blacks Fork River, Diversion Data

Wateryear	May		June		July		August		September	
	Average (cfs)	Monthly Total (AF)	Average (cfs)	Monthly Total (AF)	Average (cfs)	Monthly Total (AF)	Average (cfs)	Monthly Total (AF)	Average (cfs)	Monthly Total (AF)
1980										
1981										
1982										
1983										
1984										
1985			5.02	298.71	4.37	268.70	3.09	190.00		
1986			2.65	157.69	3.30	202.91	0.08	4.92	0.00	0.00
1987	3.12	191.84	5.17	307.64	3.77	231.81	0.29	17.83	0.70	41.65
1988										
1989										
1990	1.91	117.44	5.11	304.07	2.96	182.00				
1991					4.49	276.08	1.65	101.45	4.15	246.94
1992										
1993										
1994	2.65	162.94	4.22	251.11	2.79	171.55	0.47	28.90	0.09	5.36
1995	2.52	154.95	7.08	421.29	6.14	377.53	0.27	16.60	0.00	0.00
1996					3.91	240.42	0.73	44.89	2.29	136.26
1997					4.79	294.53	0.00	0.00	0.36	21.42
1998			7.07	420.69	5.29	325.27	1.53	94.08	0.47	27.97

Averages: 

2.55	156.79	5.19	308.74	4.18	257.08	0.90	55.41	1.01	59.95
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Blank cells are due to missing/insufficient data.

Average = Average Flow for ENTIRE month. Monthly Total = Total Volume used during month.

See Methodology section for explanations.

Spot data readings used in calculating averages in table on following pages.

Green River Basin, Wyoming; Key Structures and Diversions  
Description and Operation Memorandum

Demandier Ditch, Blacks Fork River, Diversion Data

**Data:**

1985: 5/25, 4.0 cfs; 6/14, 5.7 cfs; 6/21, 5.7 cfs; 6/24, 5.7 cfs; 7/1, 1.9 cfs; 7/9, 1.9 cfs; 7/16, 6.0 cfs; 7/23, 6.0 cfs; 7/29, 6.0 cfs; 8/6, off; 8/12, 4.0 cfs; 8/21, 3.6 cfs; 8/28, 3.6 cfs; 9/3, 4.0 cfs; 9/10, off.

1986: 5/20, 4 cfs (est); 7/7, 1.6 cfs; 7/15, 2.2 cfs; 7/22, 8.0 cfs; 7/29, 2.2 cfs; 8/5, 8/12, 8/19, 8/26, 9/2, 9/9, 9/16, 9/23, 9/30, off.

1987: 5/9, 3.0 cfs (est); 6/16, 7.0 cfs; 6/20, 2.0 cfs; 6/23, 2.2 cfs; 6/29, 6.2 cfs; 7/6, 6.2 cfs; 7/13, 3.0 cfs; 7/21, 3.0 cfs; 7/28, 3.0 cfs; 8/4, off; 9/29, 1.0 cfs.

1990: 5/14, 2.2 cfs; 5/24, 4.6 cfs; 5/26, 2.2 cfs; 6/6, 5.4 cfs; 6/12, 6.0 cfs; 6/19, 4.6 cfs; 6/26, 5.0 cfs; 6/29, 5.0 cfs; 7/3, 5.0 cfs; 7/10, 7.0 cfs; 7/17, 2.2 cfs; 7/24, off; 10/1, 1.0 cfs (est).

1991: 6/25, 2.2 cfs; 6/27, 2.2 cfs; 7/2, 2.2 cfs; 7/9, 2.2 cfs; 7/16, 8.2 cfs; 7/23, 8.0 cfs; 7/30, 0 cfs; 8/6, 1.5 cfs; 8/13, 0 cfs; 9/4, 5.0 cfs; 9/17, 5.0 cfs; 9/24, 5.0 cfs; 10/1, 2.0 cfs.

1994: 5/14, 5.0 cfs (arrive), 1.0 cfs (depart); 5/16, 7.6 cfs; 5/17, 5.6 cfs; 5/25, 2.2 cfs; 6/1, 8.0 cfs; 6/3, 3.8 cfs; 6/7, 8.0 cfs; 6/10, 8.0 cfs; 6/14, 2.4 cfs; 6/17, 2.3 cfs; 6/21, 6.3 cfs; 6/28, 0.0 cfs; 7/1, 0.0 cfs; 7/5, 5.4 cfs; 7/12, 1.8 cfs; 7/13, 3.6 cfs; 8/9, 0.5 cfs; 8/13, 0.3 cfs; 8/16, 0.3 cfs; 8/23, 0.5 cfs; 8/30, 9/6, 9/10, 9/16, 0.0 cfs; 9/20, 0.3 cfs; 9/27, 0.3 cfs.

1995: 5/17, 2.2 cfs; 5/19, 2.4 cfs; 5/22, 2.2 cfs; 5/30, 12.7 cfs (arrive), 3.6 cfs (depart); 6/6, 3.0 cfs (est) (arrive), 6.8 cfs (depart); 6/13, 6.8 cfs; 6/24, 9.0 cfs; 6/30, 8.7 cfs; 7/7, 9.3 cfs; 7/15, 8.0 cfs; 7/26, 2.5 cfs; 8/1, 0.5 cfs; 8/8, 0.25 cfs (est); 8/15, 0.25 cfs (est); 8/18, 0.25 cfs (est); 8/22, 0.5 cfs (est); 8/29, 9/5, 10/3, 0.0 cfs.

1996: 7/2, 6.56 cfs (arrive), 5.66 cfs (depart); 7/12, 8.6 cfs (arrive), 8.0 cfs (depart); 7/16, 6.8 cfs (arrive), 2 cfs (depart); 7/30, 0.9 cfs (arrive), 0 cfs (depart); 8/6, 8/13, 8/20, 0 cfs; 8/27, 0 cfs (arrive), 3.6 cfs (depart); 9/3, 5.4 cfs; 9/17, 2.87 cfs (arrive), 0 cfs (depart).

1997: 6/27, 11.3 cfs (arrive), 6.7 cfs (depart); 6/28, 3.2 cfs (arrive), 2.2 cfs (depart); 7/1, 6.7 cfs (arrive), 2.2 cfs (depart); 7/8, 10.0 cfs; 7/15, 8.0 cfs (arrive), 7.6 cfs (depart); 7/22, 4.6 cfs (arrive), 0.0 cfs (depart); 7/29, 8/5, 8/12, 8/19, 8/26, 9/2, 9/9, 0.0 cfs; 9/16, 0.5 cfs; 9/23, 0.5 cfs; 9/30, 0.5 cfs (est).

1998: 6/8, 12 cfs; 7/7, 5 cfs; 7/21, 9.3 cfs (arrive), 3.2 cfs (depart); 7/28, 2.6 cfs; 8/4, 1.6 cfs; 8/11, 1.5 cfs; 8/18, 1.4 cfs; 8/25, 1.5 cfs; 9/1, 1.6 cfs; 9/8, 1.7 cfs (arrive), 0.7 cfs (depart); 9/15, 9/22, 9/29, 0 cfs; 10/6, 0.7 cfs.

Supply: 1980, average; 1981, slightly below average; 1982, average; 1983, above average; 1984, above average; 1985, average; 1986, average; 1987, average; 1988, below average; 1989, below average; 1990, below average; 1991, slightly below average; 1992, below average; 1993, average; 1994, below average; 1995, slightly above average; 1996, average; 1997, average; 1998, slightly above average.

Source: State Engineer's Office, Annual Hydrographers' Reports.



Green River Basin, Wyoming; Key Structures and Diversions  
Description and Operation Memorandum

Fort Bridger Canal, Blacks Fork River

**Diversion Description:** Diversion consists of two 3' x 3' slide gates.<sup>1</sup>

**Diversion Location:**

Source: Black's Fork River, Trib. Green River  
Section, Township, Range: 16, 15, 115

**Conveyance Description:** Open Channel Canal.<sup>1</sup>

**Wyoming Water Rights Summary:**

Priority Date (M-D-Y)	Permit Number	Permitted Use	Acres	Flow (cfs)	Cumulative Flow (cfs)	Comments
04-01-1891	18	Irrigation	979.43	13.97	13.97	
04-20-1891	30	Irrigation	92.48	1.32	15.29	POD/MOC change from portion of Black's Fork Canal.
03-23-1894	66E	Irrigation	325.40	4.64	19.93	
09-29-1897	277E	Domestic, Irrigation, Municipal	40.00	5.00	24.93	
11-24-1897	293E	Domestic, Irrigation, Stock	774.82	11.05	35.98	
05-02-1898	339E	Irrigation	272.34	3.87	39.85	
03-09-1901	635E	Irrigation	115.00	1.64	41.49	
03-27-1901	641E	Irrigation	280.00	3.99	45.48	
09-05-1906	1786E	Irrigation	80.00	1.14	46.62	
12-14-1908	8855	Domestic, Irrigation	76.50	1.09	47.71	POD/MOC change from portion of Center Ditch.
05-06-1909	2063E	Irrigation	38.00	0.54	48.25	
03-23-1921	4262E	Irrigation	20.00	0.28	48.53	

**Storage Rights:** None.

**Estimated Canal Losses:** No significant losses are experienced by the canal. In fact, considerable gains are made from the Black's Fork Canal.<sup>1</sup>

**Irrigation Practices:** Approximately 240 acres are irrigated by 2 sprinkler lines; remaining lands are flood irrigated.<sup>1</sup>

Green River Basin, Wyoming; Key Structures and Diversions  
Description and Operation Memorandum

Fort Bridger Canal, Blacks Fork River

**Crop Types / Consumptive Use:** Water is used to irrigate approximately 240 acres of alfalfa hay; remaining lands are native grass hay and pasture.<sup>1</sup>

**Return Flows:** Approximately 80% of the return flows are delivered to the Twin Buttes Canal to Rollins Draw, and 20% of the return flows are delivered to the Urie Draw south of Lyman, Wyoming.

**Other Operational Information:** Ditch is generally turned on in May and off in July .<sup>1</sup>

Sources: 1) John Yarbrough, State Engineer's Office, Interview, May 4, 2000.
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Green River Basin, Wyoming; Key Structures and Diversions  
Description and Operation Memorandum

Fort Bridger Canal, Blacks Fork River, Diversion Data

Wateryear	May		June		July		August		September	
	Average (cfs)	Monthly Total (AF)	Average (cfs)	Monthly Total (AF)	Average (cfs)	Monthly Total (AF)	Average (cfs)	Monthly Total (AF)	Average (cfs)	Monthly Total (AF)
1980										
1981										
1982										
1983										
1984										
1985	33.80	2,078.28	34.43	2,048.73	24.50	1,506.45	18.26	1,122.76	15.90	946.12
1986			36.81	2,190.35	31.79	1,954.69	17.38	1,068.65	16.13	959.80
1987	21.61	1,328.75	36.80	2,189.75	22.88	1,406.84	17.95	1,103.70	14.01	833.65
1988										
1989										
1990	20.45	1,257.42	45.64	2,715.77	29.01	1,783.76	15.30	940.76	14.10	839.01
1991					27.01	1,660.78	15.46	950.60	13.24	787.83
1992	33.51	2,060.45	31.19	1,855.93	16.87	1,037.30	15.63	961.05	8.84	526.02
1993										
1994	30.85	1,896.89	36.30	2,160.00	18.24	1,121.53	13.82	849.76	10.02	596.23
1995	16.71	1,027.46	44.68	2,658.64	25.93	1,594.37	21.98	1,351.50	25.28	1,504.26
1996										
1997	26.01	1,599.29	45.03	2,679.47	29.36	1,805.28	11.93	733.55	19.53	1,162.12
1998			30.89	1,838.08	40.67	2,500.70	5.82	357.86	15.83	941.95

Averages: 

26.13	1,606.93	37.97	2,259.64	26.63	1,637.17	15.35	944.02	15.29	909.70
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Blank cells are due to missing/insufficient data.

Average = Average Flow for ENTIRE month. Monthly Total = Total Volume used during month.

See Methodology section for explanations.

Spot data readings used in calculating averages in table on following pages.

Green River Basin, Wyoming; Key Structures and Diversions  
Description and Operation Memorandum

Fort Bridger Canal, Blacks Fork River, Diversion Data

**Data:**

1985: 5/4, 30.7 cfs; 5/27, 42.1 cfs; 6/4, 42.1 cfs; 6/22, 25.8 cfs; 6/25, 40.0 cfs; 7/2, 23.2 cfs; 7/10, 26.2 cfs; 7/17, 28.0 cfs; 7/24, 23.6 cfs; 7/30, 19.6 cfs; 8/7, 13.0 cfs; 8/13, 20.8 cfs; 8/19, 18.0 cfs; 8/22, 18.8 cfs; 8/29, 21.2 cfs; 9/4, 16.6 cfs; 9/7, 14.0 cfs; 9/11, 18.0 cfs; 9/18, 15.8 cfs; 9/25, 15.8 cfs; 10/9, 8.1 cfs.

1986: 5/20, 30 cfs (est); 7/7, 42.1 cfs; 7/16, 35.5 cfs; 7/23, 35.5 cfs; 7/30, 2.0 cfs; 8/6, 18.0 cfs; 8/13, 18.0 cfs; 8/20, 22.0 cfs; 8/27, 15.8 cfs; 9/3, 15.8 cfs; 9/10, 24.1 cfs; 9/17, 15.8 cfs; 9/24, 15.8 cfs; 9/30, 5 cfs (est).

1987: 5/9, 10.0 cfs (est); 5/11, 30.0 cfs; 6/4, 30.0 cfs; 6/16, 42.0 cfs; 6/20, 40.0 cfs; 6/24, 42.0 cfs; 6/30, 32.0 cfs; 7/7, 30.0 cfs; 7/14, 20.0 cfs; 7/22, 19.0 cfs; 7/28, 19.0 cfs; 8/5, 22.0 cfs; 8/11, 19.0 cfs; 8/19, 16.3 cfs; 8/26, 15.0 cfs; 9/2, 18.0 cfs; 9/9, 19.0 cfs; 9/16, 19.0 cfs; 9/23, 21.0 cfs.

1990: 5/15, 18.0 cfs; 5/22, 40 cfs; 5/25, 41.0 cfs; 5/26, 43.0 cfs; 5/30, 45.4 cfs; 6/6, 45.0 cfs; 6/7, 46.5 cfs; 6/13, 47.0 cfs; 6/20, 45.0 cfs; 6/27, 44.5 cfs; 7/4, 47.9 cfs; 7/11, 41.0 cfs; 7/18, 19.0 cfs; 7/25, 17.3 cfs; 8/1, 14.0 cfs; 8/8, 16.0 cfs; 8/15, 16.0 cfs; 8/22, 14.0 cfs; 8/29, 16.0 cfs; 9/5, 15.0 cfs; 9/12, 17.0 cfs; 9/18, 14.0 cfs; 9/26, 14.0 cfs; 10/1, 4.0 cfs.

1991: 6/26, 39 cfs; 6/27, 39 cfs; 7/3, 35 cfs; 7/10, 41 cfs; 7/17, 22 cfs; 7/24, 19 cfs; 7/31, 15.5 cfs; 8/1, 15 cfs; 8/7, 15 cfs; 8/14, 15 cfs; 8/21, 14 cfs; 8/28, 18 cfs; 9/4, 17 cfs; 9/11, 10 cfs; 9/18, 10 cfs; 9/25, 18 cfs; 9/27, 17 cfs; 10/1, 7 cfs (est).

1992: 5/6, 5.00 cfs; 5/9, 45.00 cfs; 5/15, 44.00 cfs; 5/21, 42.00 cfs; 5/24, 42.00 cfs; 5/26, 42.00 cfs; 6/2, 33.00 cfs; 6/8, 32.50 cfs; 6/10, 35.00 cfs; 6/17, 38.00 cfs; 6/19, 38.00 cfs; 6/24, 23.00 cfs; 7/1, 21.00 cfs; 7/8, 26.00 cfs; 7/8, 26.00 cfs; 7/15, 16.50 cfs; 7/18, 14.50 cfs; 7/22, 21.00 cfs; 7/24, 17.66 cfs; 7/28, 2.00 cfs (est); 7/29, 2.00 cfs (est); 8/5, 11.70 cfs; 8/12, 14.00 cfs; 8/17, 16.18 cfs; 8/17, 16.08 cfs; 8/19, 19.50 cfs; 8/26, 19.60 cfs; 9/2, 17.00 cfs; 9/9, 13.00 cfs; 9/17, 10.00 cfs; 9/22, 4.00 cfs; 9/26, 4.00 cfs.

1994: 4/29, 4.8 cfs (arrive), 3.5 cfs (depart); 5/17, 33.0 cfs; 5/18, 43.0 cfs; 5/24, 40.0 cfs; 5/26, 45.0 cfs; 6/4, 43.0 cfs; 6/8, 43.0 cfs; 6/11, 43.0 cfs; 6/15, 44.0 cfs; 6/18, 38.0 cfs; 6/21, 28.0 cfs; 6/25, 27.5 cfs; 6/29, 24.0 cfs; 7/2, 24.0 cfs; 7/6, 19.6 cfs; 7/14, 22.8 cfs; 7/20, 15.5 cfs; 7/27, 14.0 cfs; 7/30, 13.0 cfs; 8/3, 13.0 cfs; 8/10, 15.8 cfs; 8/13, 14.8 cfs; 8/17, 12.4 cfs; 8/21, 12.5 cfs; 8/24, 14.0 cfs; 8/27, 15.5 cfs; 8/31, 16.6 cfs (arrive), 2.0 cfs (depart); 9/4, 13.0 cfs; 9/7, 15.8 cfs; 9/10, 13.4 cfs; 9/14, 14.0 cfs; 9/16, 13.4 cfs; 9/21, 10.8 cfs; 9/27, 4.0 cfs.

1995: 5/2, 15.8 cfs; 5/15, 6.5 cfs; 5/17, 8.0 cfs; 5/19, 15 cfs; 5/23, 35.4 cfs; 5/30, 16.0 cfs (arrive), 23.7 cfs (depart); 6/2, 35.0 cfs; 6/4, 33.0 cfs; 6/6, 37.5 cfs; 6/8, 39.5 cfs; 6/13, 40.0 cfs; 6/24, 54.0 cfs; 6/30, 54.0 cfs; 7/7, 25.8 cfs; 7/14, 37.5 cfs; 7/22, 17.0 cfs; 7/26, 12.0 cfs; 7/29, 12.0 cfs; 7/31, 15.0 cfs; 8/2, 18.4 cfs; 8/3, 18.4 cfs; 8/9, 14.4 cfs; 8/16, 24.0 cfs; 8/19, 25.0 cfs; 8/23, 25.8 cfs; 8/30, 27.0 cfs; 9/6, 23.0 cfs; 9/13, 50.0 cfs; 9/16, 20.8 cfs; 9/20, 20.0 cfs; 9/27, 18.0 cfs; 10/3, 9.0 cfs.

1997: 5/16, 40.0 cfs; 5/26, 56.0 cfs; 6/19, 43.0 cfs; 6/26, 37.0 cfs; 6/27, 50.0 cfs (arrive), 42.5 cfs (depart); 6/29, 40.6 cfs; 7/2, 42.6 cfs; 7/9, 33.9 cfs; 7/11, 35.0 cfs (arrive), 33.9 cfs (depart); 7/16, 32.6 cfs (arrive), 26.0 cfs (depart); 7/23, 17.7 cfs (arrive), 24.9 cfs (depart); 7/27, 25.4 cfs (arrive), 24.9 cfs (depart); 7/30, 19.6 cfs (arrive), 23.7 cfs (depart); 8/5, 15.8 cfs; 8/8, 15.8 cfs (arrive), 15.8 cfs (depart); 8/13, 7.3 cfs (arrive), 10.1 cfs (depart); 8/21, 11.0 cfs; 8/29, 11.0 cfs; 8/30, 10.0 cfs; 9/3, 10.8 cfs (arrive), 22.0 cfs (depart); 9/10, 23.7 cfs (arrive), 25.0 cfs (depart); 9/17, 23.7 cfs (arrive), 25.0 cfs (depart); 9/24, 19.6 cfs; 9/30, 6.5 cfs.

Green River Basin, Wyoming; Key Structures and Diversions  
Description and Operation Memorandum

Fort Bridger Canal, Blacks Fork River, Diversion Data

1998: 6/8, 32.6 cfs; 7/7, 52 cfs; 7/14, 42 cfs; 7/22, 42.6 cfs; 7/29, 25 cfs (arrive), 22 cfs (depart); 8/1, 15.8 cfs (arrive), 5.5 cfs (depart); 8/5, 5 cfs; 8/12, 4 cfs; 8/19, 4.8 cfs (arrive), 8 cfs (depart); 8/26, 7.5 cfs; 9/2, 6.7 cfs (arrive), 12.4 cfs (depart); 9/9, 13 cfs (arrive), 25 cfs (depart); 9/16, 18 cfs (arrive), 23.7 cfs (depart); 9/23, 12.7 cfs (arrive), 15.1 cfs (depart); 9/30, 9.2 cfs (arrive), 17.7 cfs (depart); 10/6, 2.0 cfs (est) (arrive), 5.0 cfs (depart).

Supply: 1980, average; 1981, slightly below average; 1982, average; 1983, above average; 1984, above average; 1985, average; 1986, average; 1987, average; 1988, below average; 1989, below average; 1990, below average; 1991, slightly below average; 1992, below average; 1993, average; 1994, below average; 1995, slightly above average; 1996, average; 1997, average; 1998, slightly above average.

Source: State Engineer's Office, Annual Hydrographers' Reports.

Green River Basin, Wyoming; Key Structures and Diversions  
Description and Operation Memorandum

Lamb Supply Canal, Blacks Fork River



**Diversion Description:** Diversion consists of a two 2½' x 3' slide gates. A small concrete and plank diversion dam exists.<sup>1</sup>

**Diversion Location:**

Source: Black's Fork River, Trib. Green River  
Section, Township, Range: 22, 14, 116

**Conveyance Description:** Open Channel Canal, approximately 6 miles in

length.<sup>1</sup>

**Wyoming Water Rights Summary:**

Priority Date (M-D-Y)	Permit Number	Permitted Use	Acres	Flow (cfs)	Cumulative Flow (cfs)	Comments
08-01-1889	Terr.	Irrigation				Supplementary Supply to 1,881.21 acres with Original Supply from Smith's Fork Creek
01-25-1906	1586E	Irrigation	200.00	2.85	2.85	
07-25-1916	3717E	Irrigation	323.43	4.62	7.47	

**Storage Rights:** None.

**Estimated Canal Losses:** No significant losses are experienced in the canal. In fact, significant gains are made through inflow seepage.<sup>1</sup>

**Irrigation Practices:** Lands are flood irrigated.<sup>1</sup>

**Crop Types / Consumptive Use:** Lands are native grass hay and pasture.<sup>1</sup>

**Return Flows:** This canal is primarily used to supply supplementary supply to Smith's Fork Creek. Of the lands that are irrigated directly from the canal, approximately 50% of the return flows are delivered to Smith's Fork south of Mountain View, Wyoming, and 50% are delivered to South Creek above Meeks Cabin Reservoir.

Green River Basin, Wyoming; Key Structures and Diversions  
Description and Operation Memorandum

Lamb Supply Canal, Blacks Fork River

**Other Operational Information:** This canal is primarily used to supply supplementary supply to Smith's Fork Creek. Ditch is generally turned on in May and off in July.<sup>1</sup>

Sources: 1) John Yarbrough, State Engineer's Office, Interview, May 4, 2000.

Green River Basin, Wyoming; Key Structures and Diversions  
Description and Operation Memorandum

Lamb Supply Canal, Blacks Fork River, Diversion Data

Wateryear	May		June		July		August		September	
	Average (cfs)	Monthly Total (AF)		Monthly Total (AF)	Average (cfs)	Monthly Total (AF)	Average (cfs)	Monthly Total (AF)	Average (cfs)	Monthly Total (AF)
1980										
1981										
1982										
1983										
1984			7.62	453.42	6.01	369.54	0.17	10.45	0.00	0.00
1985	3.42	210.29	2.61	155.31	4.04	248.41	9.37	576.14	6.68	397.49
1986					1.97	121.13	4.31	265.01	2.47	146.98
1987	9.71	597.04	12.45	740.83	4.11	252.71	5.69	349.86	4.08	242.78
1988										
1989										
1990	0.59	36.28	5.30	315.37	4.66	286.53	11.47	705.26	8.40	499.83
1991					2.26	138.96	1.27	78.09		
1992	2.46	151.26	2.86	170.18	7.82	480.83	11.75	722.48	7.01	417.12
1993			7.89	469.49	3.60	221.36	4.34	266.86	0.95	56.53
1994	6.30	387.37	4.34	258.25	11.19	688.05	9.11	560.15	8.03	477.82
1995	1.58	97.15	7.44	442.71	7.85	482.68	1.77	108.83	0.99	58.91
1996					1.76	108.22	2.87	176.47	0.28	16.66
1997			8.40	499.83	2.34	143.88	4.67	287.15	1.66	98.78
1998					6.05	372.00	4.17	256.40	2.95	175.54

Averages: 

4.01	246.57	6.55	389.49	4.90	301.10	5.46	335.63	3.63	215.70
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Blank cells are due to missing/insufficient data.

Average = Average Flow for ENTIRE month. Monthly Total = Total Volume used during month.

See Methodology section for explanations.

Spot data readings used in calculating averages in table on following pages.



Green River Basin, Wyoming; Key Structures and Diversions  
Description and Operation Memorandum

Lamb Supply Canal, Blacks Fork River, Diversion Data

**Data:**

1984: 6/9, 1.0 cfs (est); 6/15, 7.9 cfs; 7/6, 20.3 cfs; 7/9, 7.0 cfs; 7/17, 1.0 cfs (est); 7/24, 1.0 cfs (est); 7/31, 2.0 cfs (est); 8/7, 8/14, 8/21, 9/4, off.

1985: 5/9, 0.5 cfs (est); 5/25, 7.5 cfs; 6/4, 3.2 cfs; 6/14, 3.2 cfs; 6/21, off; 7/9, 8.5 cfs; 7/16, off; 7/23, 6.0 cfs; 7/29, off; 8/12, 10.9 cfs; 8/19, 9.2 cfs; 8/23, 12.1 cfs; 8/28, 12.1 cfs; 9/3, 9.0 cfs; 9/10, 8.0 cfs; 9/17, 8.0 cfs; 9/24, 3.9 cfs; 10/9, 2 cfs (est).

1986: 5/20, 10 cfs (est); 7/7, off; 7/15, off; 7/22, 8.0 cfs; 7/29, off; 8/5, 8.0 cfs; 8/12, off; 8/19, 3.9 cfs; 8/26, 8.0 cfs; 9/2, off; 9/9, 3 cfs (est), 9/16, 3 cfs (est); 9/23, 3 cfs (est); 9/30, 3 cfs (est).

1987: 5/9, 5.0 cfs (est); 6/5, 24.0 cfs; 6/16, 7.4 cfs; 6/20, off; 6/29, 16.0 cfs; 7/6, 8.0 cfs; 7/13, off; 7/21, 6.0 cfs; 7/28, off; 8/6, 2.0 cfs; 8/11, 6.7 cfs; 8/18, 7.7 cfs; 8/25, 7.0 cfs; 9/1, 6.0 cfs; 9/8, 6.0 cfs; 9/15, 5.0 cfs; 9/22, 3.0 cfs; 9/29, 1.0 cfs (est).

1990: 5/24, 6.5 cfs; 5/26, off; 6/5, 6.5 cfs; 6/6, 7.5 cfs; 6/12, 6.7 cfs; 6/19, 6.7 cfs; 6/26, 2.2 cfs; 6/29, 2.2 cfs; 7/10, off; 7/17, 8.0 cfs; 7/24, 6.5 cfs; 7/31, off; 8/7, 10.0 cfs; 8/14, 10.0 cfs; 8/16, 11.0 cfs; 8/17, 16.5 cfs; 8/28, 12.0 cfs; 9/4, 5.0 cfs; 9/11, 11.0 cfs; 9/17, 11.0 cfs; 9/25, 8.0 cfs; 10/1, 3.5 cfs.

1991: 6/25, 0 cfs; 7/2, 0 cfs; 7/9, 10 cfs; 7/16, 0 cfs; 7/23, 0 cfs; 7/30, 0 cfs; 8/6, 0 cfs; 8/13, 2 cfs (est); 8/20, 0 cfs; 8/27, 3 cfs; 9/3, 3 cfs; 9/4, 0 cfs.

1992: 5/6, 0.00 cfs; 5/8, 0.00 cfs; 5/19, 7.50 cfs; 5/24, 7.50 cfs; 5/26, 2.90 cfs; 6/2, 0.00 cfs; 6/9, 2.00 cfs (est); 6/16, 0.00 cfs; 6/23, 6.00 cfs; 8/4, 9.25 cfs; 8/11, 12.00 cfs; 8/18, 15.00 cfs; 8/25, 11.00 cfs; 9/1, 11.00 cfs; 9/16, 11.00 cfs; 9/22, 4.10 cfs.

1993: 5/17, 0.00 cfs; 5/29, 6.00 cfs; 5/31, 6.70 cfs; 6/8, 6.90 cfs; 6/16, 7.90 cfs; 6/22, 9.25 cfs; 6/26, 8.00 cfs; 7/2, 9.80 cfs; 7/5, 7.20 cfs; 7/13, 0.00 cfs; 7/20, 6.03 cfs; 7/27, 0.00 cfs; 7/30, 1.50 cfs; 8/3, 2.16 cfs; 8/10, 4.00 cfs; 8/24, 6.00 cfs; 9/14, 0.00 cfs; 10/1, 0.50 cfs (est).

1994: 4/28, 1.0 cfs (arrive), 15.0 cfs (depart); 5/16, 4.0 cfs; 5/25, 2.8 cfs; 6/1, 7.5 cfs; 6/7, 0.0 cfs; 6/21, 10.0 cfs; 6/28, 0.0 cfs; 7/5, 4.0 cfs; 7/6, 12.7 cfs; 7/9, 13.9 cfs; 7/12, 13.0 cfs; 7/13, 13.0 cfs; 7/19, 13.3 cfs; 7/26, 10.4 cfs; 7/28, 13.0 cfs; 7/30, 11.2 cfs; 8/2, 14.4 cfs; 8/9, 19.0 cfs (arrive), 8.7 cfs (depart); 8/13, 6.7 cfs; 8/16, 6.7 cfs; 8/18, 6.7 cfs; 8/23, 6.7 cfs; 8/25, 6.3 cfs; 8/27, 6.5 cfs; 8/30, 6.5 cfs; 8/31, 10.6 cfs; 9/3, 9.0 cfs; 9/5, 10.0 cfs; 9/6, 9.2 cfs; 9/10, 9.5 cfs; 9/16, 9.5 cfs; 9/20, 9.5 cfs; 9/25, 5.0 cfs; 9/27, 5.0 cfs; 10/3, 1.0 cfs.

1995: 5/2, 1.0 cfs (est); 5/15, 1.0 cfs; 5/17, 1.0 cfs; 5/19, 1.0 cfs; 5/22, 1.0 cfs; 5/30, 3.5 cfs; 6/1, 7.5 cfs; 6/6, 8.0 cfs; 6/13, 7.2 cfs; 6/24, 6.5 cfs; 6/30, 9.1 cfs; 7/7, 7.4 cfs; 7/15, 8.5 cfs; 7/22, 10.6 cfs; 7/26, 7.0 cfs; 8/1, 2.6 cfs; 8/5, 0.0 cfs; 8/15, 0.0 cfs; 8/18, 0.0 cfs; 8/22, 6.0 cfs; 8/23, 8.0 cfs; 8/29, 0.5 cfs; 9/5, 6.0 cfs; 9/5, 0.0 cfs; 10/3, 1.0 cfs; 10/30, 0.5 cfs.

1996: 5/12, 8.0 cfs; 7/12, 0 cfs (arrive), 5 cfs (depart); 7/16, 4.5 cfs (arrive), 0 cfs (depart); 7/23, 0 cfs (arrive), 5.0 cfs (depart); 7/30, 5.13 cfs (arrive), 0 cfs (depart); 8/6, 0 cfs; 8/13, 0 cfs (arrive), 5.0 cfs (depart); 8/20, 7.7 cfs (arrive), 0 cfs (depart); 8/27, 5.6 cfs; 9/3, 3.9 cfs (arrive), 0 cfs (depart); 9/17, 0 cfs.

1997: 5/26, 7.7 cfs; 6/26, 10.8 cfs (arrive), 7.4 cfs (depart); 6/28, 5.8 cfs (arrive), 0.0 cfs (depart); 7/1, 0.0 cfs; 7/8, 0.0 cfs (arrive), 6.3 cfs (depart); 7/11, 6.3 cfs, 7/15, 5.6 cfs (arrive), 0.0 cfs (depart); 7/16, 0.0 cfs; 7/22, 0.0 cfs (arrive), 4.5 cfs (depart); 7/29, 4.0 cfs (arrive), 0.0 cfs (depart); 8/5, 0.0 cfs (arrive), 4.5 cfs (depart); 8/12, 1.0 cfs (est) (arrive), 0.0 cfs (depart); 8/19, 3.0 cfs; 8/20, 4.0 cfs (arrive), 8.2 cfs (depart); 8/26, 9.8 cfs (arrive), 0.0 cfs (depart); 9/2, 9.3 cfs (arrive), 0.0 cfs (depart); 9/9, 9.3 cfs (arrive), 0.0 cfs (depart); 9/16, 0.0 cfs; 9/23, 0.75 cfs; 9/30, 0.75 cfs (est).

Green River Basin, Wyoming; Key Structures and Diversions  
Description and Operation Memorandum

Lamb Supply Canal, Blacks Fork River, Diversion Data

1998: 7/7, 13 cfs; 7/21, 8.7 cfs (arrive), 0 cfs (depart); 7/28, 0 cfs (arrive), 9.3 cfs (depart); 8/4, 8 cfs (arrive), 0 cfs (depart); 8/11, 11.2 cfs (arrive), 5.6 cfs (depart); 8/18, 13 cfs (arrive), 0 cfs (depart); 8/25, 0 cfs; 9/1, 0 cfs (arrive), 10.9 cfs (depart); 9/8, 14.3 cfs (arrive), 0 cfs (depart); 9/15, 0 cfs; 9/22, 0 cfs; 9/29, 0 cfs; 10/6, 1.0 cfs (est).

Supply: 1980, average; 1981, slightly below average; 1982, average; 1983, above average; 1984, above average; 1985, average; 1986, average; 1987, average; 1988, below average; 1989, below average; 1990, below average; 1991, slightly below average; 1992, below average; 1993, average; 1994, below average; 1995, slightly above average; 1996, average; 1997, average; 1998, slightly above average.

Source: State Engineer's Office, Annual Hydrographers' Reports.

Green River Basin, Wyoming; Key Structures and Diversions  
Description and Operation Memorandum

Maude Ditch, Big Muddy Creek

**Diversion Description:** Information not available at time of report.

**Diversion Location:**

Source: Big (or West) Muddy Creek, Trib. Black's Fork River, Trib. Green River  
Section, Township, Range: 14, 13, 118

**Conveyance Description:** Open Channel Canal.

**Wyoming Water Rights Summary:**

Priority Date (M-D-Y)	Permit Number	Permitted Use	Acres	Flow (cfs)	Cumulative Flow (cfs)	Comments
07-05-1911	10856	Irrigation	1,378.41	19.68	19.68	

**Storage Rights:** None.

**Estimated Canal Losses:** Information not available at time of report.

**Irrigation Practices:** Information not available at time of report.

**Crop Types / Consumptive Use:** Information not available at time of report.

**Return Flows:** Return Flows are delivered to Big Muddy Creek above Byrne Reservoir.

**Other Operational Information:** Information not available at time of report.

Green River Basin, Wyoming; Key Structures and Diversions  
Description and Operation Memorandum

Maude Ditch, Big Muddy Creek, Diversion Data

No Diversion Data Available.

Green River Basin, Wyoming; Key Structures and Diversions  
Description and Operation Memorandum

Outlet Cross Ditch, Big Muddy Creek

**Diversion Description:** Information not available at time of report.

**Diversion Location:**

Source: Big (or West) Muddy Creek, Trib. Black's Fork River, Trib. Green River  
Section, Township, Range: 19, 14, 117

**Conveyance Description:** Open Channel Canal.

**Wyoming Water Rights Summary:**

Priority Date (M-D-Y)	Permit Number	Permitted Use	Acres	Flow (cfs)	Cumulative Flow (cfs)	Comments
09-29-1896	1337	Irrigation	603.95	8.63	8.63	
06-14-1902	860E	Irrigation	300.00	4.28	12.91	

**Storage Rights:** None.

**Estimated Canal Losses:** Information not available at time of report.

**Irrigation Practices:** Information not available at time of report.

**Crop Types / Consumptive Use:** Information not available at time of report.

**Return Flows:** Return flows are delivered to Big Muddy Creek above C.L. Byrne No. 2 ditch.

**Other Operational Information:** Information not available at time of report.

Green River Basin, Wyoming; Key Structures and Diversions  
Description and Operation Memorandum

Outlet Cross Ditch, Big Muddy Creek, Diversion Data

No Diversion Data Available.

Green River Basin, Wyoming; Key Structures and Diversions  
Description and Operation Memorandum

Pine Grove Ditch, Blacks Fork River

**Diversion Description:** Diversion consists of two 4' by 4' slide gates mounted on a concrete structure. A wood plank diversion dam exists.<sup>1</sup>

**Diversion Location:**

Source: Black's Fork River, Trib. Green River  
Section, Township, Range: 28, 14, 116

**Conveyance Description:** Open Channel Canal, approximately 25 miles in length.<sup>1</sup>

**Wyoming Water Rights Summary:**

Priority Date (M-D-Y)	Permit Number	Permitted Use	Acres	Flow (cfs)	Cumulative Flow (cfs)	Comments
06-09-1894	741	Domestic, Irrigation, Stock	320.00	4.60	4.60	POD/MOC change from Ingersol Ditch.
03-08-1897	1428	Irrigation	3,688.81	52.64	57.24	
06-02-1898	344E	Irrigation	160.00	2.28	59.52	POD/MOC change from Ingersol Ditch.
10-05-1899	2309	Irrigation	120.00	1.72	61.24	POD/MOC change from Wall Ditch.
12-03-1901	766E	Irrigation	72.70	1.04	62.28	
12-31-1903	1285E	Domestic, Irrigation	1,381.42	19.71	81.99	
06-01-1903	1068E	Irrigation	160.00	2.28	84.27	POD/MOC change from Wall Ditch.
10-06-1933	4955E	Domestic, Irrigation	283.00	4.04	88.31	POD/MOC change from Ingersol Ditch.

**Storage Rights:** None.

**Estimated Canal Losses:** Considerably greater than typical (20-25%).<sup>1</sup>

**Irrigation Practices:** Lands are flood irrigated.<sup>1</sup>

**Crop Types / Consumptive Use:** Lands are native grass hay and pasture.<sup>1</sup>

Green River Basin, Wyoming; Key Structures and Diversions  
Description and Operation Memorandum

Pine Grove Ditch, Blacks Fork River

**Return Flows:** Approximately 90% of the return flows are delivered to Six Mile Creek above Black's Fork, 5% are delivered to Brewster Draw to Black's Fork above Six Mile Creek, and 5% to Three Mile Creek.

**Other Operational Information:** The canal is typically turned on during the third week of April.<sup>1</sup>

Sources: 1) John Yarbrough, State Engineer's Office, Interview, May 4, 2000.
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Green River Basin, Wyoming; Key Structures and Diversions  
Description and Operation Memorandum

Pine Grove Ditch, Blacks Fork River, Diversion Data

Wateryear	May		June		July		August		September	
	Average (cfs)	Monthly Total (AF)	Average (cfs)	Monthly Total (AF)	Average (cfs)	Monthly Total (AF)	Average (cfs)	Monthly Total (AF)	Average (cfs)	Monthly Total (AF)
1980	0.06	3.97	35.39	2,106.00	29.94	1,841.00	13.35	821.00	12.84	764.00
1981	1.11	68.00	32.97	1,962.00	15.61	960.00	8.52	524.00	6.47	385.00
1982	1.53	94.08	39.20	2,332.56	33.62	2,067.21	10.74	660.38	6.02	358.21
1983										
1984										
1985	75.18	4,622.64	111.18	6,615.67	43.84	2,695.62	6.37	391.68	6.51	387.37
1986			83.01	4,939.44	65.66	4,037.28	6.54	402.13	10.96	652.17
1987	98.13	6,033.78	108.82	6,475.24	28.48	1,751.17	3.79	233.04		
1988										
1989										
1990	31.84	1,957.77	104.40	6,212.23	33.17	2,039.54	4.85	298.21	5.08	302.28
1991			50.89	3,028.17	51.27	3,152.47	8.11	498.66	10.32	614.08
1992	65.64	4,036.05	71.94	4,280.73	28.75	1,767.77	3.03	186.31	5.19	308.83
1993	48.49	2,981.53	99.15	5,899.83	77.16	4,744.38	11.21	689.28	17.02	1,012.76
1994	64.50	3,965.95	69.14	4,114.12	15.82	972.73	0.88	54.11	2.82	167.80
1995	27.91	1,716.12	106.56	6,340.76	111.12	6,832.50	38.36	2,358.66	17.72	1,054.41
1996	33.98	2,089.35	74.82	4,452.10	62.07	3,816.54	15.67	963.51	17.77	1,057.39
1997			92.01	5,474.98	53.39	3,282.82	12.43	764.29	6.82	405.82
1998			82.67	4,919.21	85.59	5,262.72	24.31	1,494.76	9.76	580.76

Averages:	40.76	2,506.29	77.48	4,610.20	49.03	3,014.92	11.21	689.33	9.66	575.06
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Blank cells are due to missing/insufficient data.

Average = Average Flow for ENTIRE month. Monthly Total = Total Volume used during month.

See Methodology section for explanations.

Spot data readings used in calculating averages in table on following pages.

Green River Basin, Wyoming; Key Structures and Diversions  
Description and Operation Memorandum

Pine Grove Ditch, Blacks Fork River, Diversion Data

**Data:**

1980: May, 3.97 AF; June, 2106 AF; July, 1841 AF; August, 821 AF; September, 764 AF. (Totals computed by Hydrographer)

1981: May, 68.0 AF; June, 1962 AF; July, 960 AF; August, 524 AF; September, 385 AF. (Totals computed by Hydrographer)

1982: 5/8, 1.0 cfs; 5/22, 0.9 cfs; 5/30, 0.0 cfs; 5/31, 16 cfs; 6/1, 29 cfs; 6/3, 27 cfs; 6/4, 26 cfs; 6/7, 24 cfs; 6/8, 42 cfs; 6/10, 30 cfs; 6/11, 41 cfs; 6/14, 46 cfs; 6/28, 43 cfs; 7/1, 40 cfs; 7/12, 32 cfs; 7/26, 40 cfs; 7/28, 40 cfs; 7/29, 20 cfs; 7/30, 9.3 cfs; 7/31, 9.0 cfs; 8/1, 8.0 cfs; 8/10, 16 cfs; 8/11, 15 cfs; 8/12, 15 cfs; 8/13, 14 cfs; 8/14, 13 cfs; 8/15, 11 cfs; 8/16, 10 cfs; 8/17, 11 cfs; 8/18, 13 cfs; 8/19, 11 cfs; 8/20, 9.9 cfs; 8/21, 9.9 cfs; 8/22, 9.6 cfs; 8/27, 7.5 cfs; 8/28, 7.7 cfs; 8/29, 8.6 cfs; 8/30, 7.2 cfs; 8/31, 6.4 cfs; 9/1, 5.8 cfs; 9/2, 5.6 cfs; 9/3, 5.6 cfs; 9/8, 8.3 cfs; 9/9, 8.6 cfs; 9/13, 14 cfs; 9/14, 16 cfs; 9/18, 17 cfs. (Note: Unclear which data are actual observations and which are interpolated estimates.)

1985: 5/9, off; 5/11, 39.4 cfs; 5/21, 130 cfs; 5/28, 130 cfs; 6/14, 160 cfs; 6/15, 90.3 cfs; 6/21, 97.3 cfs; 7/1, 46 cfs (est); 7/9, 71.4 cfs; 7/16, 85.2 cfs; 7/23, 4.5 cfs (est); 8/6, off; 8/28, 12.6 cfs; 9/3, 16.0 cfs; 9/10, 11.0 cfs; 9/17, 4 cfs (est); 9/24, 1 cfs (est).

1986: 5/20, 100 cfs (est); 7/7, 69.8 cfs; 7/15, 83.5 cfs; 7/22, 86.0 cfs; 7/29, 15.1 cfs; 8/5, 14.7 cfs; 8/12, off; 8/19, 10.2 cfs; 8/26, off; 9/2, 8 cfs (est); 9/9, off; 9/16, 39.4 cfs; 9/23, off; 9/30, 5 cfs (est).

1987: 5/9, 30.0 cfs; 5/11, 130.0 cfs; 6/9, 150.0 cfs; 6/16, 90.0 cfs; 6/20, 64.5 cfs; 6/23, 78.0 cfs; 6/29, 100.0 cfs; 7/6, 64.5 cfs; 7/13, 35.0 cfs; 7/21, off; 9/1, 6.0 cfs (est); 9/8, 38.0 cfs; 9/15, 16.0 cfs.

1990: 5/12, 2.8 cfs; 5/14, 4.6 cfs; 5/22, 62.3 cfs; 5/24, 85.0 cfs; 5/26, 64.5 cfs; 5/29, 64.9 cfs; 6/5, 106.0 cfs; 6/6, 113.0 cfs; 6/10, 123.0 cfs; 6/12, 129.0 cfs; 6/19, 100.0 cfs; 6/26, 96.0 cfs; 6/29, 82.0 cfs; 7/3, 88.0 cfs; 7/10, 71.2 cfs; 7/17, 4.6 cfs (est); 7/31, off; 8/7, 9.5 cfs; 8/14, 2.5 cfs (est); 9/4, 6.5 cfs; 9/11, 7.0 cfs (est); 9/17, 8.5 cfs; 9/25, off; 10/1, 2.0 cfs (est).

1991: 6/15, 125 cfs; 6/25, 90 cfs; 6/27, 72 cfs; 7/2, 73 cfs; 7/9, 77 cfs; 7/16, 58 cfs; 7/23, 42 cfs; 7/30, 4 cfs (est); 8/6, 4 cfs (est); 8/13, 7 cfs; 8/20, 18 cfs; 8/27, 5 cfs; 9/3, 5 cfs; 9/4, 0 cfs; 9/24, 22 cfs; 10/1, 0 cfs.

1992: 5/6, 28.00 cfs; 5/8, 64.50 cfs; 5/14, 61.00 cfs; 5/15, 75.00 cfs; 5/19, 93.00 cfs; 5/21, 93.00 cfs; 5/24, 87.50 cfs; 5/26, 90.00 cfs; 5/26, 95.00 cfs; 6/2, 78.50 cfs; 6/9, 81.00 cfs; 6/16, 76.00 cfs; 6/18, 74.00 cfs; 6/23, 59.50 cfs; 6/24, 64.10 cfs; 6/30, 58.60 cfs; 7/7, 36.60 cfs; 7/11, 36.60 cfs; 7/14, 19.50 cfs; 7/21, 32.00 cfs; 7/28, 14.00 cfs; 8/4, 3.00 cfs (est); 8/11, 2.00 cfs; 8/18, 2.00 cfs (est); 8/25, 1.50 cfs (est); 9/1, 8.25 cfs; 9/8, 10.25 cfs; 9/16, 5.40 cfs; 9/22, 4.00 cfs.

1993: 5/17, 84.00 cfs; 5/19, 88.00 cfs; 5/21, 93.50cfs; 5/29, 112.00 cfs; 6/9, 92.00 cfs; 6/16, 93.00 cfs; 6/22, 105.00 cfs; 6/26, 105.00 cfs; 7/2, 102.00 cfs; 7/5, 93.00 cfs; 7/8, 86.20 cfs; 7/9, 66.60 cfs; 7/13, 90.50 cfs; 7/17, 95.00 cfs; 7/20, 96.33 cfs; 7/23, 39.50 cfs; 7/27, 72.50 cfs; 8/3, 10.60 cfs; 8/4, 6.60 cfs; 8/10, 26.50 cfs; 8/17, 6.60 cfs; 8/24, 7.00 cfs; 8/25, 2.50 cfs; 8/31, 6.00 cfs; 9/7, 19.50 cfs; 9/14, 9.00 cfs; 9/21, 32.00 cfs; 10/1, 5.00 cfs (est); 10/8, 6.00 cfs.

1994: 4/25, 7.0 cfs; 4/28, 16.5 cfs; 4/29, 18.8 cfs; 5/14, 29.8 cfs (arrive), 28.1 cfs (depart); 5/16, 92.9 cfs; 5/17, 88.1 cfs; 5/18, 88.0 cfs; 5/24, 95.8 cfs; 6/1, 110.0 cfs; 6/3, 105.0 cfs; 6/7, 104.0 cfs; 6/10, 83.3 cfs; 6/14, 83.3 cfs; 6/17, 78.6 cfs; 6/21, 24.0 cfs; 6/25, 26.0 cfs; 6/28, 55.5 cfs; 7/1, 49.0 cfs; 7/5, 38.2 cfs; 7/6, 45.0 cfs; 7/12, 17.4 cfs; 7/13, 15.0 cfs; 7/19, 2.7 cfs; 7/26, 0.9 cfs; 7/28, 0.9 cfs; 7/30, 0.9 cfs; 8/2, 0.8 cfs; 8/13, 0.5 cfs; 8/16, 0.5 cfs; 8/18, 0.0 cfs; 8/23, 0.5 cfs; 8/30, 2.6 cfs; 9/6, 2.6 cfs (arrive), 0.0 cfs (depart); 9/10, 2.7 cfs; 9/16, 3.0 cfs; 9/20, 1.0 cfs; 9/27, 5.0 cfs; 10/3, 5.0 cfs.

Green River Basin, Wyoming; Key Structures and Diversions  
Description and Operation Memorandum

Pine Grove Ditch, Blacks Fork River, Diversion Data

1995: 5/17, 4.0 cfs (est); 5/19, 7.0 cfs; 5/22, 61.2 cfs; 5/25, 81.0 cfs; 5/30, 76.0 cfs; 6/1, 70.0 cfs; 6/6, 94.0 cfs; 6/13, 94.0 cfs; 6/24, 129.0 cfs; 6/30, 129.0 cfs; 7/7, 119.0 cfs; 7/15, 129.0 cfs; 7/22, 101.0 cfs; 7/26, 88.0 cfs; 8/1, 88.7 cfs; 8/5, 56.3 cfs; 8/8, 57.7 cfs; 8/15, 62.2 cfs; 8/18, 25.4 cfs; 8/22, 6.0 cfs; 8/23, 10.6 cfs; 9/5, 14.0 cfs; 9/5, 14.5 cfs; 9/12, 14.5 cfs; 9/19, 13.0 cfs; 9/26, 32.0 cfs; 10/3, 11.0 cfs; 10/30, 5.0 cfs.

1996: 5/11, 40.0 cfs (est); 7/2, 90.3 cfs (arrive), 61.4 cfs (depart); 7/12, 79.3 cfs (arrive), 76.5 cfs (depart); 7/16, 83.3 cfs; 7/23, 79.3 cfs (arrive), 29.2 cfs (depart); 7/30, 28.0 cfs (arrive); 20.8 cfs (depart); 8/6, 22.0 cfs (arrive), 11.0 cfs (depart); 8/13, 16.5 cfs; 8/20, 18.8 cfs (arrive), 8.6 cfs (depart); 8/27, 15.3 cfs; 9/2, 14.3 cfs (arrive), 17 cfs (depart); 9/3, 15.3 cfs; 9/17, 23.0 cfs; 9/19, 38.0 cfs; 9/24, 31.4 cfs.

1997: 5/26, 97.0 cfs; 6/26, 92.0 cfs; 6/27, 87.7 cfs; 6/28, 64.6 cfs; 7/1, 98.0 cfs; 7/8, 80.0 cfs; 7/15, 75.3 cfs (arrive), 34.3 cfs (depart); 7/16, 41.0 cfs; 7/17, 41.0 cfs; 7/22, 31.5 cfs; 7/29, 28.7 cfs (arrive), 2.7 cfs (est) (depart); 7/30, 2.7 cfs (arrive), 8.0 cfs (est) (depart); 8/5, 6.0 cfs (est) (arrive), 17.0 cfs (depart); 8/12, 15.3 cfs (arrive), 13.0 cfs (depart); 8/19, 17.3 cfs; 8/20, 17.3 cfs (arrive), 14.7 cfs (depart); 8/26, 5.4 cfs (est); 9/2, 16.9 cfs; 9/9, 11.0 cfs (arrive), 10.0 cfs (depart); 9/16, 2.0 cfs (est); 9/23, 4.0 cfs (est); 9/30, 4.0 cfs (est).

1998: 6/8, 115.6 cfs; 7/7, 96 cfs; 7/21, 84 cfs (arrive), 69.5 cfs (depart); 7/24, 73.7 cfs (arrive), 80 cfs (depart); 7/28, 79.4 cfs; 8/4, 39 cfs; 8/11, 36.3 cfs (arrive), 36.5 cfs (depart); 8/18, 35 cfs (arrive), 4.6 cfs (est) (depart); 8/25, 4.6 cfs (est) (arrive), 9 cfs (depart); 9/1, 9.5 cfs (arrive), 0.1 cfs (est) (depart); 9/8, 17.3 cfs (arrive), 13 cfs (depart); 9/15, 11 cfs (arrive), 5 cfs (est) (depart); 9/22, 4 cfs (est) (arrive), 0 cfs (depart); 9/29, 22.3 cfs; 10/6, 0 cfs.

Supply: 1980, average; 1981, slightly below average; 1982, average; 1983, above average; 1984, above average; 1985, average; 1986, average; 1987, average; 1988, below average; 1989, below average; 1990, below average; 1991, slightly below average; 1992, below average; 1993, average; 1994, below average; 1995, slightly above average; 1996, average; 1997, average; 1998, slightly above average.

Source: State Engineer's Office, Annual Hydrographers' Reports.

Green River Basin, Wyoming; Key Structures and Diversions  
Description and Operation Memorandum

Shirk Number 1 Ditch, Black's Fork River

**Diversion Description:** Diversion consists of a single 3' x 4' slide gate mounted on a concrete structure.<sup>1</sup>

**Diversion Location:**

Source: Black's Fork River, Trib. Green River  
Section, Township, Range: 5, 13, 116

**Conveyance Description:** Open Channel Canal, approximately 5 miles in length.<sup>1</sup>

**Wyoming Water Rights Summary:**

Priority Date (M-D-Y)	Permit Number	Permitted Use	Acres	Flow (cfs)	Cumulative Flow (cfs)	Comments
09-01-1892	333	Domestic, Irrigation, Stock	398.00	5.81	5.81	
06-21-1920	4114E	Irrigation	130.00	1.86	7.67	
08-11-1920	4170E	Domestic, Irrigation, Stock	69.00	0.99	8.66	86.00 acres Supplementary Supply
07-20-1943	5353E	Irrigation, Stock	438.50	6.26	14.92	

**Storage Rights:** Meeks Cabin.

**Estimated Canal Losses:** Typical (10%) losses are experienced by the canal except when area stream tributaries are flowing. When these tributaries are flowing, considerable gains are made from them.<sup>1</sup>

**Irrigation Practices:** Lands are flood irrigated.<sup>1</sup>

**Crop Types / Consumptive Use:** Water is used to irrigate native grass hay and pasture.<sup>1</sup>

**Return Flows:** Approximately 90% of the return flows are delivered to the Pine Grove Canal, and approximately 10% of the return flows are delivered to Jones Creek to Black's Fork..

**Other Operational Information:** Ditch is generally turned on in May and off in July.<sup>1</sup>

Sources: 1) John Yarbrough, State Engineer's Office, Interview, May 4, 2000.
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Green River Basin, Wyoming; Key Structures and Diversions  
Description and Operation Memorandum

**Shirk Number 1 Ditch, Black's Fork River, Diversion Data**

Wateryear	May		June		July		August		September	
	Average (cfs)	Monthly Total (AF)	Average (cfs)	Monthly Total (AF)	Average (cfs)	Monthly Total (AF)	Average (cfs)	Monthly Total (AF)	Average (cfs)	Monthly Total (AF)
1980										
1981										
1982										
1983										
1984										
1985	5.32	327.11	7.40	440.33	5.99	368.31	1.03	63.33		
1986			6.00	357.02	5.94	365.24	1.74	106.99	0.00	0.00
1987			4.99	296.93	5.70	350.48	1.20	73.79		
1988										
1989										
1990	3.59	220.74	8.68	516.50	4.16	255.79				
1991					6.82	419.35				
1992	4.95	304.36	6.10	362.98	5.61	344.95				
1993	2.61	160.48	9.14	543.87	6.03	370.77	5.13	315.43		
1994	3.64	223.81	6.04	359.40	3.47	213.36	0.81	49.80	0.00	0.00
1995			4.73	281.45	3.39	208.44	6.65	408.89	0.32	19.04
1996	2.77	170.32	3.29	195.77	3.50	215.21	3.46	212.75	1.62	96.40
1997					5.50	338.18	1.92	118.06	1.14	67.83
1998			5.25	312.40	3.48	213.98	2.76	169.71	1.28	76.17

Averages: 

3.81	234.47	6.16	366.66	4.97	305.34	2.74	168.75	0.73	43.24
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Blank cells are due to missing/insufficient data.

Average = Average Flow for ENTIRE month. Monthly Total = Total Volume used during month.

See Methodology section for explanations.

Spot data readings used in calculating averages in table on following pages.

Green River Basin, Wyoming; Key Structures and Diversions  
Description and Operation Memorandum

Shirk Number 1 Ditch, Black's Fork River, Diversion Data

**Data:**

1985: 5/9, 2.8 cfs; 5/25, 9.5 cfs; 6/4, 9.5 cfs; 6/21, 6.1 cfs; 7/1, 6.1 cfs; 7/9, 6.1 cfs; 7/16, 6.1 cfs; 7/23, 6.1 cfs; 7/29, 6.1 cfs; 8/6, off; 8/12, 3 cfs; 8/21, off.

1986: 5/20, 6 cfs (est); 7/7, 6.0 cfs; 7/15, 6.0 cfs; 7/22, 6.0 cfs; 7/29, 6.0 cfs; 8/5, 3 cfs (est); 8/12, 4 cfs (est); 8/19, 8/26, 9/2, 9/9, 9/16, 9/23, 9/30, off.

1987: 6/9, 9.0 cfs (est); 6/16, 8.0 cfs; 6/20, 5.7 cfs; 6/23, 5.7 cfs; 6/29, 5.7 cfs; 7/6, 5.7 cfs; 7/13, 5.7 cfs; 7/21, 5.7 cfs; 7/28, 5.7 cfs; 8/4, 5.7 cfs; 8/11, off.

1990: 5/14, 5.6 cfs; 5/22, 5.6 cfs; 5/24, 9.0 cfs; 5/26, 5.8 cfs; 5/29, 5.8 cfs; 6/5, 9.4 cfs; 6/6, 10.4 cfs; 6/12, 11.1 cfs; 6/19, 9.3 cfs; 6/26, 5.7 cfs; 6/29, 5.7 cfs; 7/3, 5.7 cfs; 7/10, 5.7 cfs; 7/17, 5.7 cfs; 7/24, off; 7/31, 4.0 cfs; 8/14, 2.0 cfs; 8/14, off.

1991: 6/25, 6.0 cfs; 6/27, 6.0 cfs; 7/2, 6.0 cfs; 7/3, 6.0 cfs; 7/9, 6.0 cfs; 7/16, 6.0 cfs; 7/23, 9.8 cfs; 7/30, 5.8 cfs; 8/6, 5.8 cfs; 8/13, 0 cfs.

1992: 5/8, 5.00 cfs; 5/14, 5.80 cfs; 5/19, 5.80 cfs; 5/21, 10.40 cfs; 5/24, 5.80 cfs; 5/26, 5.80 cfs; 6/2, 7.80 cfs; 6/9, 5.80 cfs; 6/16, 5.80 cfs; 6/18, 5.80 cfs; 6/23, 5.80 cfs; 6/30, 5.80 cfs; 7/7, 7.80 cfs; 7/14, 5.80 cfs; 7/28, 4.00 cfs; 8/4, 4.00 cfs.

1993: 5/17, 0.00 cfs; 5/29, 9.00 cfs; 6/16, 8.46 cfs; 6/16, 10.40 cfs; 6/22, 10.50 cfs; 6/26, 8.50 cfs; 7/2, 8.80 cfs; 7/5, 5.80 cfs; 7/8, 5.80 cfs; 7/13, 5.80 cfs; 7/20, 5.74 cfs; 7/27, 5.80 cfs; 8/3, 5.80 cfs; 8/24, 5.10 cfs; 9/14, 0.00 cfs.

1994: 5/16, 6.0 cfs; 6/1, 8.1 cfs; 6/3, 6.1 cfs; 6/7, 5.8 cfs; 6/10, 6.9 cfs; 6/14, 5.8 cfs; 6/17, 5.8 cfs; 6/21, 5.8 cfs; 6/28, 5.8 cfs; 7/1, 5.8 cfs; 7/5, 0.0 cfs; 7/12, 6.3 cfs; 7/13, 6.3 cfs; 7/19, 6.6 cfs; 7/20, 0.0 cfs (arrive), 0.8 cfs (depart); 8/2, 3.7 cfs; 8/9, 3.5 cfs (arrive), 0.0 cfs (depart); 8/13, 8/23, 8/30, 9/6, 9/10, 9/20, 9/27, 0.0 cfs.

1995: 5/30, 0.0 cfs; 6/6, 0.5 cfs; 6/24, 8.5 cfs; 6/30, 8.6 cfs; 7/7, 1.1 cfs; 7/15, 6.6 cfs; 7/22, 2.3 cfs; 7/26, 2.5 cfs; 8/1, 0.0 cfs; 8/8, 5.8 cfs; 8/15, 7.8 cfs; 8/18, 7.6 cfs; 8/22, 8.8 cfs; 8/29, 8.8 cfs; 9/5, 10/3, 10/30, 0.0 cfs.

1996: 5/13, 5.0 cfs (est); 7/2, 2.49 cfs (arrive), 5.24 cfs (depart); 7/12, 5.5 cfs; 7/23, 0 cfs (arrive), 5.8 cfs (depart); 7/30, 0 cfs; 8/6, 6.0 cfs; 8/13, 6.0 cfs (arrive), 0 cfs (depart); 8/20, 0 cfs; 8/27, 5.4 cfs; 9/3, 5.4 cfs; 9/17, 9/24, 0 cfs.

1997: 6/28, 3.6 cfs (arrive), 4.5 cfs (depart); 7/1, 3.6 cfs (arrive), 4.4 cfs (depart); 7/8, 5.8 cfs; 7/15, 5.8 cfs; 7/22, 5.3 cfs (arrive), 5.8 cfs (depart); 7/29, 5.1 cfs (arrive), 5.8 cfs (depart); 8/5, 5.4 cfs (arrive), 0.0 cfs (depart); 8/12, 0.0 cfs; 8/19, 0.0 cfs (arrive), 3.6 cfs (depart); 8/26, 3.6 cfs; 9/2, 0.0 cfs; 9/9, 3.6 cfs; 9/16, 0.5 cfs; 9/23, 0.5 cfs; 9/30, 0.5 cfs (est).

1998: 6/8, 1.8 cfs; 6/25, 11 cfs; 7/7, 0.5 cfs (est); 7/21, 4.8 cfs; 7/28, 5 cfs; 8/4, 4.6 cfs; 8/11, 3 cfs (arrive), 5.8 cfs (depart); 8/18, 0 cfs; 8/25, 0 cfs (arrive), 3.5 cfs (depart); 9/1, 3.5 cfs; 9/8, 1 cfs; 9/15, 1 cfs; 9/22, 1 cfs; 9/29, 1 cfs; 10/6, 0 cfs.

Supply: 1980, average; 1981, slightly below average; 1982, average; 1983, above average; 1984, above average; 1985, average; 1986, average; 1987, average; 1988, below average; 1989, below average; 1990, below average; 1991, slightly below average; 1992, below average; 1993, average; 1994, below average; 1995, slightly above average; 1996, average; 1997, average; 1998, slightly above average.

Source: State Engineer's Office, Annual Hydrographers' Reports.

Green River Basin, Wyoming; Key Structures and Diversions  
Description and Operation Memorandum

Shirk Number 2 Ditch, Black's Fork River

**Diversion Description:** Diversion consists.<sup>1</sup>

**Diversion Location:**

Source: Black's Fork River, Trib. Green River

Section, Township, Range: 22,15,116

**Conveyance Description:** Open Channel Canal.<sup>1</sup>

**Wyoming Water Rights Summary:**

Priority Date (M-D-Y)	Permit Number	Permitted Use	Acres	Flow (cfs)	Cumulative Flow (cfs)	Comments
10-23-1893	602	Domestic, Irrigation, Stock	146.80	2.09	2.09	
10-29-1900	594E	Irrigation	320.00	4.56	6.65	
06-08-1916	3737E	Domestic, Irrigation	400.00	5.71	12.36	
06-24-1941	5311E	Domestic, Irrigation	76.00	1.09	13.45	

**Storage Rights:** None.

**Estimated Canal Losses:** Typical (10%) losses.<sup>1</sup>

**Irrigation Practices:** Lands are flood irrigated.<sup>1</sup>

**Crop Types / Consumptive Use:** Water is used to irrigate native grass hay and pasture.<sup>1</sup>

**Return Flows:** Return flows are delivered to Smith's Fork River between Willow Creek and Lambs Supply Canal.

**Other Operational Information:** Ditch is generally turned on in May and off in July.<sup>1</sup>

Sources: 1) John Yarbrough, State Engineer's Office, Interview, May 4, 2000.
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Green River Basin, Wyoming; Key Structures and Diversions  
Description and Operation Memorandum

**Shirk Number 2 Ditch, Black's Fork River, Diversion Data**

Wateryear	May		June		July		August		September	
	Average (cfs)	Monthly Total (AF)	Average (cfs)	Monthly Total (AF)	Average (cfs)	Monthly Total (AF)	Average (cfs)	Monthly Total (AF)	Average (cfs)	Monthly Total (AF)
1980										
1981										
1982										
1983										
1984										
1985	4.84	297.60	9.99	594.45	4.26	261.94	2.93	180.16		
1986			10.39	618.25	5.28	324.65	1.71	105.14	1.60	95.21
1987	5.51	338.80	9.89	588.50	5.39	331.42	1.12	68.87	2.10	124.96
1988										
1989										
1990	5.07	311.74	10.92	649.79	3.75	230.58	2.16	132.81	2.18	129.72
1991					5.37	330.19	2.06	126.66		
1992	6.09	374.46	4.21	250.51	3.77	231.81	2.93	180.16	1.44	85.69
1993	3.83	235.50	8.62	512.93	4.34	266.86	1.94	119.29	3.38	201.12
1994	7.37	453.16	5.55	330.25	1.73	106.37	1.39	85.47		
1995	1.43	87.93	4.67	277.88	6.51	400.28	3.13	192.46	1.64	97.59
1996	3.16	194.30	6.28	373.69	1.80	110.68	2.08	127.89	1.54	91.64
1997			7.10	422.48	2.91	178.93	3.20	196.76	1.12	66.64
1998			4.51	268.36	9.43	579.83	2.40	147.57	1.48	88.07

Averages: 

4.66	286.69	7.47	444.28	4.55	279.46	2.25	138.60	1.83	108.96
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Blank cells are due to missing/insufficient data.

Average = Average Flow for ENTIRE month. Monthly Total = Total Volume used during month.

See Methodology section for explanations.

Spot data readings used in calculating averages in table on following pages.



Green River Basin, Wyoming; Key Structures and Diversions  
Description and Operation Memorandum

Shirk Number 2 Ditch, Black's Fork River, Diversion Data

**Data:**

1985: 5/9, off; 5/25, 9.8 cfs; 6/4, 11.1 cfs; 6/14, 11.1 cfs; 6/21, 9.3 cfs; 6/24, 9.3 cfs; 7/1, 6.9 cfs; 7/8, 6.9 cfs; 7/16, 4.0 cfs; 7/23, 2.2 cfs; 7/29, 2.2 cfs; 8/6, off; 8/12, 3.2 cfs; 8/21, 4.0 cfs; 8/28, 4.4 cfs; 9/3, 3.1 cfs; 9/10, 3.8 cfs.

1986: 5/20, 10 cfs (est); 7/7, 10.7 cfs; 7/15, 4.0 cfs; 7/22, 2.1 cfs; 7/29, 2.1 cfs; 8/5, 8/12, off; 8/19, 5.0 cfs; 8/26, off; 9/2, 6.1 cfs; 9/9, 9/16, 9/23, off; 9/30, 2 cfs (est).

1987: 5/9, 5.0 cfs (est); 6/16, 13.0 cfs; 6/20, 6.7 cfs; 6/23, 8.0 cfs; 7/6, 8.0 cfs; 7/13, 9.0 cfs; 7/21, 2.1 cfs; 7/28, 2.1 cfs; 8/4, 2.1 cfs; 8/6, 8/11, off; 9/1, 2.0 cfs (est); 9/8, off; 9/22, 5.0 cfs; 9/29, 1.0 cfs (est).

1990: 5/14, 4.3 cfs; 5/22, 8.9 cfs; 6/6, 13.5 cfs; 6/12, 11.0 cfs; 7/10, 8.1 cfs; 7/17, off; 8/7, 2.0 cfs; 8/14, 2.0 cfs; 9/7, 3.0 cfs; 10/1, 1.0 cfs (est).

1991: 6/25, 6.7 cfs; 7/2, 8.4 cfs; 7/9, 6.3 cfs; 7/16, 4.4 cfs (est); 7/23, 6 cfs; 7/30, 2.16 cfs; 8/6, 2.16 cfs; 8/13, 0 cfs; 8/20, 4 cfs; 8/27, 1 cfs; 9/3, 6 cfs; 9/4, 0 cfs.

1992: 5/6, 1.00 cfs; 5/8, 6.70 cfs; 5/14, 6.90 cfs; 5/15, 6.90 cfs; 5/19, 6.90 cfs; 5/21, 10.40 cfs; 5/20, 10.40 cfs; 5/26, 6.70 cfs; 6/2, 6/70 cfs; 6/9, 6.70 cfs; 6/16, 2.16 cfs; 6/18, 2.16 cfs; 6/18, 0.00 cfs; 6/23, 2.16 cfs; 6/30, 5.46 cfs; 7/7, 2.16 cfs; 7/14, 3.00 cfs; 7/21, 5.00 cfs; 8/11, 3.00 cfs; 8/18, 2.70 cfs; 9/16, 2.22 cfs; 9/22, 0.50 cfs.

1993: 5/17, 1.00 cfs; 5/21, 5.50 cfs; 5/29, 12.00 cfs; 5/31, 12.00 cfs; 6/8, 9.13 cfs; 6/16, 7.70 cfs; 6/22, 7.70 cfs; 6/26, 8.00 cfs; 7/2, 8.50 cfs; 7/5, 7.70 cfs; 7/8, 6.70 cfs; 7/13, 3.90 cfs; 7/15, 6.90 cfs; 7/20, 2.12 cfs; 7/27, 2.16 cfs; 7/30, 1.50 cfs; 8/3, 2.16 cfs; 8/10, 2.30 cfs; 8/24, 1.25 cfs; 9/7, 3.80 cfs; 9/14, 2.00 cfs; 9/17, 2.00 cfs; 9/21, 7.00 cfs; 10/1, 0.5 cfs (est).

1994: 4/28, 1.0 cfs (arrive), 0.0 cfs (depart); 5/13, 12.0 cfs (arrive), 0.0 cfs (depart); 5/16, 7.3 cfs; 5/17, 6.9 cfs; 5/24, 6.7 cfs; 6/1, 12.4 cfs; 6/3, 2.3 cfs; 6/7, 12.0 cfs; 6/10, 11.6 cfs; 6/14, 6.7 cfs; 6/17, 5.0 cfs; 6/21, 2.0 cfs; 6/28, 2.2 cfs; 7/1, 1.0 cfs; 7/5, 4.2 cfs; 7/13, 1.8 cfs; 7/28, 0.5 cfs; 8/13, 0.5 cfs; 8/16, 6.7 cfs; 8/18, 1.5 cfs; 8/23, 1.2 cfs; 8/25, 1.3 cfs; 8/27, 1.3 cfs; 8/30, 1.2 cfs; 9/5, 1.1 cfs (arrive), 0.0 cfs (depart); 9/10, 0.9 cfs.

1995: 5/2, 0.5 cfs (est); 5/15, 0.5 cfs; 5/17, 2.0 cfs; 5/19, 2.5 cfs; 5/22, 2.3 cfs; 5/30, 2.5 cfs; 6/1, 2.0 cfs; 6/6, 1.8 cfs; 6/13, 2.0 cfs; 6/24, 6.2 cfs; 6/30, 13.5 cfs; 7/7, 9.3 cfs; 7/15, 5.4 cfs; 7/22, 5.4 cfs; 7/26, 4.7 cfs; 8/1, 1.4 cfs; 8/8, 1.5 cfs; 8/15, 2.0 cfs; 8/18, 3.4 cfs; 8/22, 6.0 cfs; 8/29, 4.0 cfs; 9/5, 5.0 cfs; 9/5, 0.0 cfs; 9/19, 2.0 cfs; 10/3, 0.5 cfs; 10/30, 0.0 cfs.

1996: 5/11, 4.0 cfs (est); 7/2, 7.3 cfs (arrive), 0 cfs (depart); 7/12, 2 cfs; 7/16, 1.9 cfs (arrive), 2.1 cfs (depart); 7/23, 1.9 cfs (arrive), 2.1 cfs (depart); 7/30, 1.5 cfs (arrive), 2.0 cfs (depart); 8/6, 2.0 cfs; 8/13, 3.7 cfs (arrive), 0.5 cfs (depart); 8/20, 1.0 cfs (arrive), 7.0 cfs (depart); 8/27, 0.6 cfs (arrive), 0.4 cfs (depart); 9/2, 0.75 cfs (est); 9/3, 0.9 cfs (arrive), 5.4 cfs (depart); 9/17, 0.5 cfs (est); 9/24, 0.5 cfs (est).

1997: 5/26, 6.9 cfs; 6/25, 6.9 cfs; 6/26, 10.2 cfs; 6/28, 8.5 cfs (arrive), 6.7 cfs (depart); 7/1, 6.7 cfs; 7/8, 3.2 cfs (arrive), 2.0 cfs (depart); 7/11, 2.0 cfs; 7/15, 2.0 cfs; 7/16, 2.0 cfs; 7/22, 2.6 cfs (arrive), 2.1 cfs (depart); 7/29, 1.8 cfs (arrive), 4.0 cfs (depart); 8/4, 4.0 cfs; 8/5, 1.4 cfs (arrive), 2.1 cfs (depart); 8/12, 2.1 cfs; 8/14, 4.0 cfs; 8/19, 4.0 cfs; 8/20, 4.0 cfs; 8/26, 3.1 cfs; 9/2, 3.0 cfs (arrive), 0.0 cfs (depart); 9/9, 3.0 cfs (arrive), 0.0 cfs (depart); 9/16, 3.0 cfs (arrive), 9/16, 0.5 cfs (est) (depart); 9/23, 0.75 cfs (est); 9/30, 0.75 cfs (est).

1998: 6/8, 1 cfs; 7/7, 13.3 cfs; 7/21, 8.5 cfs (arrive), 6/7 (depart); 7/28, 5.4 cfs (arrive), 6.7 cfs (depart); 8/4, 5.4 cfs (arrive), 2.1 cfs (depart); 8/11, 2.1 cfs; 8/18, 1.9 cfs (arrive), 2.1 cfs (depart); 8/25, 2 cfs;

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Shirk Number 2 Ditch, Black's Fork River, Diversion Data

9/1, 2.1 cfs; 9/8, 2.2 cfs (arrive), 0.98 cfs (depart); 9/15, 0.97 cfs; 9/22, 2.9 cfs (arrive), 1 cfs (depart); 9/29, 1 cfs; 10/6, 1.0 cfs.

Supply: 1980, average; 1981, slightly below average; 1982, average; 1983, above average; 1984, above average; 1985, average; 1986, average; 1987, average; 1988, below average; 1989, below average; 1990, below average; 1991, slightly below average; 1992, below average; 1993, average; 1994, below average; 1995, slightly above average; 1996, average; 1997, average; 1998, slightly above average.

Source: State Engineer's Office, Annual Hydrographers' Reports.

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Twin Butte Ditch, Black's Fork River

**Diversion Description:** Headgate also serves the Shurtliff and Early Ditch.<sup>1</sup>

**Diversion Location:**

Source: Black's Fork River, Trib. Green River

Section, Township, Range: 24, 13, 117

**Conveyance Description:** Open Channel Canal, approximately 12 miles in length.<sup>1</sup>

**Wyoming Water Rights Summary:**

Priority Date (M-D-Y)	Permit Number	Permitted Use	Acres	Flow (cfs)	Cumulative Flow (cfs)	Comments
11-30-1896	1375	Domestic, Irrigation, Stock	1,648.36	23.55	23.55	
11-30-1896	223E	Irrigation	120.00	1.71	25.26	
03-15-1898	320E	Irrigation	155.00	2.21	27.47	
03-15-1898	321E	Irrigation	70.00	1.00	28.47	
03-15-1898	324E	Irrigation	55.00	0.78	29.25	
02-19-1902	781E	Irrigation	40.00	0.57	29.82	
12-14-1908	8855	Domestic, Irrigation	6.50	0.09	29.91	POD/MOC change from a portion of Center Ditch.

**Storage Rights:** None.

**Estimated Canal Losses:** Typical (10%).<sup>1</sup>

**Irrigation Practices:** Lands are flood irrigated.<sup>1</sup>

**Crop Types / Consumptive Use:** Lands are native grass hay and pasture.<sup>1</sup>

**Return Flows:** Return flows are delivered to Black's Fork between Fort Bridger, Wyoming, and Rollins Draw.

**Other Operational Information:** This ditch is also commonly known as the Bigelow Ditch. Ditch is generally turned on in May and off in July.<sup>1</sup>

Sources: 1) John Yarbrough, State Engineer's Office, Interview, May 4, 2000.

Green River Basin, Wyoming; Key Structures and Diversions  
Description and Operation Memorandum

Twin Butte Ditch, Black's Fork River, Diversion Data

Wateryear	May		June		July		August		September	
	Average (cfs)	Monthly Total (AF)	Average (cfs)	Monthly Total (AF)	Average (cfs)	Monthly Total (AF)	Average (cfs)	Monthly Total (AF)	Average (cfs)	Monthly Total (AF)
1980										
1981										
1982										
1983										
1984										
1985	32.19	1,979.29	34.51	2,053.49	30.75	1,890.74	14.32	880.50	15.99	951.47
1986			33.83	2,013.02	33.39	2,053.07	12.16	747.69	13.75	818.18
1987	15.70	965.36	31.04	1,847.01	18.15	1,116.00	8.40	516.50	3.73	221.95
1988										
1989										
1990	13.96	858.37	34.45	2,049.92	19.92	1,224.83	7.67	471.61	8.00	476.03
1991					16.23	997.94	7.89	485.14	4.19	249.32
1992	25.62	1,575.31	34.91	2,077.29	20.18	1,240.82	8.93	549.08	3.67	218.38
1993	6.85	421.19	23.80	1,416.20	30.86	1,897.51	16.13	991.80	11.07	658.71
1994	21.64	1,330.59	32.27	1,920.20	15.25	937.69	3.32	204.14	1.91	113.65
1995										
1996										
1997			28.93	1,721.45	20.48	1,259.27	6.58	404.59	14.42	858.05
1998			22.83	1,358.48	28.93	1,778.84	10.84	666.53	12.10	720.00

Averages: 

19.33	1,188.35	30.73	1,828.56	23.41	1,439.67	9.62	591.76	8.88	528.58
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Blank cells are due to missing/insufficient data.

Average = Average Flow for ENTIRE month. Monthly Total = Total Volume used during month.

See Methodology section for explanations.

Spot data readings used in calculating averages in table on following pages.

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Twin Butte Ditch, Black's Fork River, Diversion Data

**Data:**

1985: 5/7, 34.6 cfs; 5/27, 45.8 cfs; 6/2, 29.0 cfs; 6/4, 34.1 cfs; 6/6, 36.2 cfs; 6/14, 36.2 cfs; 6/22, 29.5 cfs; 6/25, 40.1 cfs; 7/2, 30.0 cfs; 7/10, 32.0 cfs; 7/17, 35.1 cfs; 7/24, 29.5 cfs; 7/30, 26.1 cfs; 8/7, 5 cfs (est); 8/15, 10 cfs (est) (arrive), 3 cfs (est) (depart); 8/19, 22.4 cfs (arrive), 3 cfs (est) (depart); 8/22, 8.2 cfs; 8/29, 34.6 cfs; 9/4, 15 cfs (est); 9/11, 16.5 cfs; 9/18, 13.4 cfs; 9/25, 18.0 cfs; 10/9, 8 cfs (est).

1986: 5/20, 30 cfs (est); 7/7, 36.8 cfs; 7/16, 36.8 cfs; 7/23, 30.0 cfs; 7/30, 28.0 cfs; 8/6, 2.8 cfs (est); 8/13, 13.0 cfs; 8/20, 14.1 cfs; 8/27, 13.7 cfs; 9/3, 14.9 cfs; 9/10, 23.3 cfs; 9/17, 14.9 cfs; 9/24, 7.9 cfs; 9/30, 4 cfs (est).

1987: 5/11, 30.0 cfs; 5/24, 20.0 cfs; 5/30, 20.0 cfs; 6/16, 34.0 cfs; 6/20, 34.0 cfs; 6/24, 34.0 cfs; 6/30, 35.0 cfs; 7/7, 34.0 cfs; 7/14, 26.0 cfs; 7/22, 3.0 cfs; 7/29, 3.0 cfs; 8/5, 3.0 cfs; 8/14, 14.0 cfs; 8/18, 11.0 cfs; 8/26, 7.8 cfs; 9/2, 7.8 cfs; 9/8, 15.8 cfs; 9/16, 13.8 cfs; 9/23, 26.0 cfs; 9/29, 6.0 cfs (est).

1990: 5/15, 12.0 cfs; 5/19, 7.0 cfs; 5/22, 34.0 cfs; 5/25, 30.0 cfs; 5/26, 34.0 cfs; 5/30, 34.5 cfs; 6/6, 32.0 cfs; 6/13, 41.2 cfs; 6/20, 30.0 cfs; 6/27, 34.5 cfs; 6/30, 34.5 cfs; 7/4, 34.5 cfs; 7/11, 29.0 cfs; 7/18, 20.0 cfs; 7/25, 2.8 cfs (est); 8/1, 8.8 cfs; 8/8, 5.8 cfs; 8/15, 2.8 cfs (est); 8/29, 13.8 cfs; 9/5, 12.0 cfs; 9/12, 8.8 cfs; 9/18, 5.8 cfs; 9/26, 5.8 cfs; 10/1, 5.0 cfs (est).

1991: 6/26, 34 cfs; 6/28, 34 cfs; 7/3, 33 cfs; 7/10, 29 cfs; 7/17, 7 cfs (est); 7/24, 6.8 cfs; 7/31, 4.8 cfs; 8/1, 4.8 cfs; 8/7, 7.8 cfs; 8/14, 5.8 cfs; 8/21, 9 cfs; 8/28, 9.8 cfs; 9/4, 11.8 cfs; 9/11, 5.8 cfs; 9/18, 2.8 cfs (est).

1992: 5/6, 4.00 cfs; 5/9, 17.00 cfs; 5/10, 30.00 cfs; 5/15, 34.00 cfs; 5/19, 34.00 cfs; 5/21, 34.00 cfs; 5/24, 34.00 cfs; 5/26, 34.00 cfs; 6/2, 34.50 cfs; 6/10, 37.50 cfs; 6/17, 40.00 cfs; 6/19, 34.00 cfs; 6/24, 31.00 cfs; 7/1, 31.00 cfs; 7/8, 24.80 cfs; 7/15, 21.80 cfs; 7/22, 16.80 cfs; 7/24, 16.80 cfs; 8/5, 3.30 cfs (est); 8/12, 10.80 cfs; 8/19, 8.70 cfs; 8/26, 11.00 cfs; 9/2, 11.80 cfs; 9/9, 2.80 cfs (est); 9/17, 4.00 cfs; 9/22, 4.00 cfs.

1993: 5/17, 30.00 cfs; 5/18, 18.00 cfs; 6/1, 8.90 cfs; 6/9, 8.80 cfs; 6/16, 29.00 cfs; 6/23, 34.60 cfs; 6/25, 35.00 cfs; 7/2, 38.40 cfs; 7/6, 39.00 cfs; 7/9, 34.50 cfs; 7/14, 12.00 cfs; 7/15, 12.00 cfs; 7/21, 33.60 cfs; 7/24, 46.00 cfs; 7/28, 29.00 cfs; 8/4, 31.50 cfs; 8/11, 32.00 cfs; 8/18, 4.20 cfs; 8/25, 3.80 cfs; 9/1, 4.80 cfs; 9/8, 6.00 cfs; 9/9, 10.50 cfs; 9/10, 13.00 cfs; 9/15, 16.80 cfs; 9/22, 14.80 cfs; 10/1, 5.00 cfs (est).

1994: 4/29, 3.0 cfs; 5/17, 20.0 cfs; 5/26, 36.8 cfs; 6/4, 34.5 cfs; 6/8, 35.5 cfs; 6/11, 34.5 cfs; 6/15, 35.5 cfs; 6/18, 32.5 cfs; 6/21, 34.5 cfs; 6/29, 23.0 cfs; 7/2, 23.0 cfs; 7/6, 18.0 cfs; 7/14, 22.4 cfs (arrive), 18.0 cfs (depart); 7/31, 6.0 cfs (arrive), 4.6 cfs (depart); 8/3, 4.0 cfs; 8/10, 3.5 cfs; 8/13, 4.0 cfs; 8/17, 4.0 cfs; 8/24, 4.5 cfs; 8/31, 9/7, 0.0 cfs; 9/14, 4.0 cfs; 9/16, 3.3 cfs; 9/21, 2.3 cfs; 9/28, 4.0 cfs.

1997: 5/19, 29.0 cfs; 5/26, 39.0 cfs; 6/26, 25.0 cfs; 6/29, 14.0 cfs; 7/2, 36.7 cfs; 7/9, 28.0 cfs; 7/11, 34.6 cfs (arrive), 32.5 cfs (depart); 7/16, 10.8 cfs (arrive), 15.0 cfs (depart); 7/20, 12.6 cfs (arrive), 18.3 cfs (depart); 7/23, 15.8 cfs (arrive), 17.7 cfs (depart); 7/27, 19.2 cfs (arrive), 15.1 cfs (depart); 7/30, 0.0 cfs; 8/5, 6.0 cfs; 8/8, 6.2 cfs (arrive), 5.7 cfs (depart); 8/13, 5.4 cfs (arrive), 8.6 cfs (depart); 8/21, 6.0 cfs; 8/29, 5.3 cfs (arrive), 14.1 cfs (depart); 8/30, 11.5 cfs; 9/3, 16.8 cfs; 9/10, 18.0 cfs (arrive), 21.0 cfs (depart); 9/17, 14.8 cfs (arrive), 13.3 cfs (depart); 9/24, 11.9 cfs; 9/30, 10.2 cfs.

1998: 6/8, 27 cfs (arrive), 31.5 cfs (depart); 7/8, 27 cfs (arrive), 29 cfs (depart); 7/14, 33 cfs; 7/22, 17.8 cfs (arrive), 18.9 cfs (depart); 7/29, 40 cfs; 8/5, 22.4 cfs (arrive), 10.9 cfs (depart); 8/12, 4.9 cfs (arrive), 8.2 cfs (depart); 8/19, 3 cfs (est) (arrive), 6.2 cfs (depart); 8/21, 3 cfs (est) (arrive), 12.2 cfs (depart); 8/26, 8 cfs (arrive), 11.5 cfs (depart); 8/29, 10.5 cfs (arrive), 15 cfs (depart); 9/2, 9.8 cfs

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Twin Butte Ditch, Black's Fork River, Diversion Data

(arrive), 13.7 cfs (depart); 9/7, 10.5 cfs (arrive), 16 cfs (depart); 9/9, 16.4 cfs; 9/16, 7.3 cfs (arrive), 10.2 cfs (depart); 9/23, 12.6 cfs; 9/30, 10.5 cfs (arrive), 16.4 cfs (depart); 10/6, 10.9 cfs (arrive), 5.9 cfs (depart).

Supply: 1980, average; 1981, slightly below average; 1982, average; 1983, above average; 1984, above average; 1985, average; 1986, average; 1987, average; 1988, below average; 1989, below average; 1990, below average; 1991, slightly below average; 1992, below average; 1993, average; 1994, below average; 1995, slightly above average; 1996, average; 1997, average; 1998, slightly above average.

Source: State Engineer's Office, Annual Hydrographers' Reports.

Green River Basin, Wyoming; Key Structures and Diversions  
Description and Operation Memorandum

Uinta Number 3 Ditch, Black's Fork River

**Diversion Description:** Diversion consists of a single 36" Waterman slide gate.<sup>1</sup>

**Diversion Location:**

Source: Black's Fork River, Trib. Green River

Section, Township, Range: 5, 15, 115

**Conveyance Description:** Open Channel Canal, approximately 25 miles in length.<sup>1</sup>

**Wyoming Water Rights Summary:**

Priority Date (M-D-Y)	Permit Number	Permitted Use	Acres	Flow (cfs)	Cumulative Flow (cfs)	Comments
10-29-1909	9501	Domestic, Irrigation, Stock	4,000.03	57.10	57.10	
04-02-1947	5429E	Res. Supply			57.10	Supply for the Wall Development Company Reservoir.
07-25-1988	6927E	Stock, Res. Supply		0.03	57.13	Also supplies the Triangle Stock Reservoir.

**Storage Rights:** None.

**Estimated Canal Losses:** Greater than typical (20-25%).<sup>1</sup>

**Irrigation Practices:** Approximately 100 acres are irrigated by 3 sprinkler lines; remaining lands are flood irrigated.<sup>1</sup>

**Crop Types / Consumptive Use:** Approximately 100 acres are alfalfa hay; remaining lands are native grass hay and pasture.<sup>1</sup>

**Return Flows:** Approximately 40% of the return flows are delivered to Black's Fork above Rollins Draw, 35% to Austin Wash, and 25% to Black's Fork below Rollins Draw.

**Other Operational Information:** This ditch is also commonly known as the Austin Ditch. Ditch is generally turned on in May and off in July.<sup>1</sup>

Sources: 1) John Yarbrough, State Engineer's Office, Interview, May 4, 2000.

Green River Basin, Wyoming; Key Structures and Diversions  
Description and Operation Memorandum

Uinta Number 3 Ditch, Black's Fork River, Diversion Data

Wateryear	May		June		July		August		September	
	Average (cfs)	Monthly Total (AF)	Average (cfs)	Monthly Total (AF)	Average (cfs)	Monthly Total (AF)	Average (cfs)	Monthly Total (AF)	Average (cfs)	Monthly Total (AF)
1971							<i>6.50</i>	<i>399.67</i>	<i>6.50</i>	<i>386.78</i>
1981										
1982										
1983										
1984										
1985	43.60	2,680.86	26.73	1,590.55	15.19	934.00	9.99	614.26	3.70	220.17
1986			42.64	2,537.26	21.06	1,294.93	14.74	906.33	7.47	444.50
1987	33.28	2,046.31	34.35	2,043.97	27.86	1,713.04	12.05	740.93	7.12	423.67
1988										
1989										
1990	2.14	131.58	50.39	2,998.41	16.05	986.88	3.89	239.19	4.58	272.53
1991										
1992	19.13	1,176.26	14.40	856.86	8.08	496.82	6.34	389.83	2.47	146.98
1993	22.94	1,410.53	60.83	3,619.64	25.34	1,558.10	18.83	1,157.81	7.38	439.14
1994	11.50	707.11	16.07	956.23	5.15	316.66	4.20	258.25	1.71	101.75
1995	9.61	590.90	63.93	3,804.10	63.55	3,907.54	24.78	1,523.66	11.93	709.88
1996	37.39	2,299.02	43.72	2,601.52	15.89	977.04	11.38	699.73	7.60	452.23
1997					11.47	705.26	12.78	785.81	5.90	351.07
1998			43.72	2,601.52	15.89	977.04	11.38	699.73	7.60	452.23

Averages: 

22.45	1,380.32	39.68	2,361.00	20.50	1,260.66	11.41	701.27	6.16	366.74
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Data in italics from USGS gaging station 006220.00, see attached data sheets.

Blank cells are due to missing/insufficient data.

Average = Average Flow for ENTIRE month. Monthly Total = Total Volume used during month.

See Methodology section for explanations.

Spot data readings used in calculating averages in table on following pages.



Green River Basin, Wyoming; Key Structures and Diversions  
Description and Operation Memorandum

Uinta Number 3 Ditch, Black's Fork River, Diversion Data

**Data:**

1985: 5/7, 60 cfs; 5/25, 42.6 cfs; 5/27, 50.2 cfs; 5/29, 80.2 cfs; 6/4, 32.6 cfs; 6/7, 43.7 cfs; (all est): 6/25, 9 cfs; 7/2, 19 cfs; 7/10, 19 cfs; 7/17, 10 cfs; 7/24, 14 cfs; 7/30, 15 cfs; 8/7, 8 cfs; 8/13, 10 cfs; 8/22, 9 cfs; 8/29, 12 cfs; 9/4, 8 cfs; 9/7, 11 cfs; 9/8, 8 cfs; 9/11, 4 cfs; 9/18, 4 cfs.

1986 (all est): 5/20, 40 cfs; 5/24, 60 cfs; 7/16, 20 cfs; 7/23, 20 cfs; 7/30, 10 cfs; 8/6, 20 cfs; 8/13, 22 cfs; 8/20, 11 cfs; 8/27, 9 cfs; 9/3, 9 cfs; 9/10, 6 cfs; 9/17, 4 cfs; 9/24, 15 cfs; 9/30, 5 cfs.

1987: 5/7, 20.0 cfs; 5/11, 50.0 cfs; 5/20, 40.0 cfs; 6/16, 42.5 cfs; 6/20, 31.0 cfs; 6/24, 7.0 cfs; 6/30, 40.0 cfs; 7/7, 33.0 cfs; 7/14, 25.0 cfs; 7/22, 25.0 cfs; 7/29, 24.0 cfs; 8/5, 26.0 cfs; 8/12, 7.0 cfs (est); 8/19, 11.5 cfs (est); 8/26, 4.0 cfs (est); 9/2, 9.2 cfs; 9/9, 8.0 cfs; 9/16, 8.0 cfs; 9/23, 7.0 cfs (est); 9/29, 5.0 cfs.

1990: 5/17, 2.0 cfs (est); 5/22, 3.5 cfs (est); 5/25, 10.0 cfs; 5/26, 7.0 cfs; 5/30, 1.0 cfs; 6/6, 21.0 cfs; 6/7, 54.0 cfs; 6/13, 71.7 cfs; 6/20, 72.0 cfs; 6/23, 58.0 cfs; 6/27, 48.0 cfs; 6/30, 18.0 cfs; 7/4, 24.0 cfs; 7/11, 25.0 cfs; 7/18, 13.0 cfs; 7/25, 9.0 cfs; 8/1, 5.5 cfs; 8/8, 6.0 cfs; 8/9, 4.8 cfs; 8/13, 5.2 cfs (est); 8/15, 6.0 cfs (est); 8/22, 1.5 cfs (est); 8/29, 1.5 cfs (est); 9/5, 5.5 cfs; 9/12, 2.0 cfs; 9/18, 6.0 cfs; 9/26, 5.5 cfs (est); 10/1, 4.0 cfs.

1992: 5/9, 4.00 cfs; 5/14, 8.00 cfs; 5/19, 8.00 cfs; 5/21, 51.00 cfs; 5/24, 51.00 cfs; 5/26, 50.00 cfs; 6/2, 8.00 cfs; 6/10, 17.50 cfs; 6/17, 17.50 cfs; 6/19, 17.50 cfs; 6/24, 13.50 cfs; 7/1, 10.50 cfs; 7/8, 5.00 cfs; 7/15, 10.50 cfs; 7/22, 8.50 cfs; 7/24, 5.95 cfs; 8/5, 11.00 cfs; 8/12, 9.50 cfs; 8/19, 5.50 cfs; 8/26, 1.00 cfs (est); 9/7, 3.00 cfs; 9/9, 4.00 cfs; 9/17, 4.00 cfs; 9/22, 4.00 cfs.

1993: 5/17, 25.00 cfs; 5/26, 57.00 cfs; 6/9, 57.00 cfs; 6/16, 55.00 cfs; 6/22, 70.00 cfs; 6/25, 64.30 cfs; 7/2, 70.00 cfs; 7/5, 59.40 cfs; 7/9, 16.50 cfs; 7/14, 0.00 cfs; 7/21, 12.70 cfs; 7/28, 32.00 cfs; 8/10, 32.00 cfs; 8/11, 32.50 cfs; 8/18, 8.50 cfs; 8/25, 10.50 cfs; 9/8, 4.08 cfs; 9/15, 3.00 cfs (est); 9/22, 16.00 cfs; 10/1, 6.00 cfs.

1994: 5/17, 7.0 cfs; 5/24, 22.7 cfs; 5/26, 40.0 cfs; 6/4, 15.0 cfs; 6/8, 30.0 cfs; 6/11, 23.0 cfs; 6/15, 16.0 cfs; 6/18, 17.0 cfs; 6/21, 8.5 cfs; 6/29, 9.3 cfs; 7/2, 8.7 cfs; 7/6, 2.5 cfs; 7/14, 8.0 cfs; 7/20, 1.5 cfs; 7/27, 6.0 cfs; 7/30, 6.5 cfs; 8/3, 6.7 cfs; 8/10, 6.2 cfs; 8/13, 6.7 cfs (arrive), 5.2 cfs (depart); 8/17, 3.0 cfs; 8/24, 2.0 cfs; 8/31, 3.0 cfs (arrive), 1.0 cfs (depart); 9/2, 1.5 cfs; 9/14, 1.5 cfs; 9/21, 2.5 cfs, 9/27, 3.5 cfs.

1995: 5/15, 6.0 cfs; 5/17, 9.0 cfs; 5/19, 13.0 cfs; 5/23, 18.0 cfs; 5/25, 30.0 cfs; 5/26, 25.0 cfs; 5/30, 18.0 cfs; 6/2, 20.0 cfs; 6/4, 60.0 cfs; 6/6, 67.3 cfs; 6/13, 63.0 cfs; 6/24, 76.0 cfs; 6/30, 60.0 cfs; 7/4, 80.0 cfs; 7/7, 61.0 cfs; 7/14, 72.0 cfs; 7/22, 68.0 cfs; 7/31, 38.0 cfs; 8/2, 40.5 cfs; 8/9, 29.5 cfs; 8/16, 17.3 cfs; 8/19, 20.0 cfs; 8/23, 20.0 cfs; 8/26, 21.0 cfs; 8/30, 21.0 cfs; 9/6, 7.0 cfs; 9/13, 11.7 cfs; 9/21, 12.4 cfs; 9/27, 15.3 cfs; 10/3, 9.0 cfs.

1996: 5/9, 20.0 cfs (est); 5/13, 40.0 cfs (est); 5/17, 60.0 cfs (est); 7/3, 34.5 cfs (arrive), 15.8 cfs (depart); 7/13, 14 cfs (arrive), 17.5 cfs (depart); 7/19, 15.8 cfs; 7/24, 18.0 cfs (arrive), 14.4 cfs (depart); 7/29, 15.8 cfs (arrive), 18.0 cfs (depart); 7/30, 2.7 cfs (arrive), 0 cfs (depart); 8/7, 12.4 cfs (arrive), 14.4 cfs (depart); 8/14, 12.4 cfs (arrive), 12.0 cfs (depart); 8/21, 10.8 cfs; 8/24, 15.0 cfs (est); 8/28, 10.3 cfs; 8/31, 10.8 cfs (arrive), 13.0 cfs (depart); 9/4, 2.0 cfs (est); 9/18, 14.4 cfs; 9/25, 12.7 cfs (arrive), 14.0 cfs (depart).

1997: 6/26, 55.3 cfs; 6/29, 10.0 cfs (est); 7/2, 12.0 cfs; 7/9, 10.8 cfs; 7/30, 12.0 cfs; 8/4, 13.7 cfs (arrive), 17.3 cfs (depart); 8/5, 17.0 cfs (arrive), 9.5 cfs (depart); 8/13, 18.8 cfs (arrive), 15.1 cfs (depart); 8/21, 11.0 cfs (arrive), 7.7 cfs (depart); 8/29, 7.3 cfs; 8/30, 9.5 cfs (arrive), 5.5 cfs (depart); 9/3, 4.0

Green River Basin, Wyoming; Key Structures and Diversions  
Description and Operation Memorandum

Uinta Number 3 Ditch, Black's Fork River, Diversion Data

cfs (arrive), 2.5 cfs (est) (depart); 9/10, 1.0 cfs (est) (arrive), 2.5 cfs (est) (depart); 9/17, 1.0 cfs (est) (arrive), 6.5 cfs (depart); 9/24, 6.5 cfs (arrive), 20.0 cfs (depart); 9/30, 12.7 cfs.

1998: 6/8, 59 cfs; 7/8, 62 cfs; 7/14, 45 cfs; 7/22, 38 cfs (arrive), 27 cfs (depart); 7/29, 30 cfs (arrive), 45 cfs (depart); 8/5, 38 cfs; 8/12, 30 cfs (arrive), 27.1 cfs (depart); 8/19, 29 cfs; 8/26, 28 cfs (arrive), 23.6 cfs (depart); 9/2, 19 cfs (arrive), 6.5 cfs (depart); 9/9, 6.7 cfs (arrive), 11.4 cfs (depart); 9/16, 10.1 cfs (arrive), 5.2 cfs (depart); 9/23, 8.7 cfs (arrive), 9.8 cfs (depart); 9/30, 9.23 cfs; 10/6, 6.0 cfs.

Supply: 1980, average; 1981, slightly below average; 1982, average; 1983, above average; 1984, above average; 1985, average; 1986, average; 1987, average; 1988, below average; 1989, below average; 1990, below average; 1991, slightly below average; 1992, below average; 1993, average; 1994, below average; 1995, slightly above average; 1996, average; 1997, average; 1998, slightly above average.

Source: State Engineer's Office, Annual Hydrographers' Reports.

Green River Basin, Wyoming; Key Structures and Diversions  
Description and Operation Memorandum

Uinta Number 3 Ditch, Black's Fork River, Diversion Data

UNITA #3 CANAL.

STATION NO. 006220.00

LATITUDE 0-00-00 LONGITUDE 0-00-00

SECTION 0 TOWNSHIP 0 ,RANGE 0 P.M.

ELEVATION UNKNOWN DRAINAGE AREA UNKNOWN

NONCONTRIBUTING AREA UNKNOWN BASIN UNKNOWN

DATA FROM WATER COMMISSIONERS (P)

MEAN DAILY FLOW IN CFS BY WATER YEAR													
1971													
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	DAY
1	**	**	**	**	**	**	**	**	**	**	**	6.50	1
2	**	**	**	**	**	**	**	**	**	**	**	6.50	2
3	**	**	**	**	**	**	**	**	**	**	**	6.50	3
4	**	**	**	**	**	**	**	**	**	**	**	6.50	4
5	**	**	**	**	**	**	**	**	**	**	**	6.50	5
6	**	**	**	**	**	**	**	**	**	**	**	6.50	6
7	**	**	**	**	**	**	**	**	**	**	**	6.50	7
8	**	**	**	**	**	**	**	**	**	**	**	6.50	8
9	**	**	**	**	**	**	**	**	**	**	**	6.50	9
10	**	**	**	**	**	**	**	**	**	**	**	6.50	10
11	**	**	**	**	**	**	**	**	**	**	**	6.50	11
12	**	**	**	**	**	**	**	**	**	**	**	6.50	12
13	**	**	**	**	**	**	**	**	**	**	**	6.50	13
14	**	**	**	**	**	**	**	**	**	**	**	6.50	14
15	**	**	**	**	**	**	**	**	**	**	**	6.50	15
16	**	**	**	**	**	**	**	**	**	**	**	6.50	16
17	**	**	**	**	**	**	**	**	**	**	6.50	6.50	17
18	**	**	**	**	**	**	**	**	**	**	6.50	6.50	18
19	**	**	**	**	**	**	**	**	**	**	6.50	6.50	19
20	**	**	**	**	**	**	**	**	**	**	6.50	6.50	20
21	**	**	**	**	**	**	**	**	**	**	6.50	6.50	21
22	**	**	**	**	**	**	**	**	**	**	6.50	6.50	22
23	**	**	**	**	**	**	**	**	**	**	6.50	6.50	23
24	**	**	**	**	**	**	**	**	**	**	6.50	6.50	24
25	**	**	**	**	**	**	**	**	**	**	6.50	6.50	25
26	**	**	**	**	**	**	**	**	**	**	6.50	6.50	26
27	**	**	**	**	**	**	**	**	**	**	6.50	6.50	27
28	**	**	**	**	**	**	**	**	**	**	6.50	6.50	28
29	**	**	**	**		**	**	**	**	**	6.50	6.50	29
30	**	**	**	**		**	**	**	**	**	6.50	6.50	30
31	**		**	**		**		**		**	6.50		31
TOTAL	**	**	**	**	**	**	**	**	**	**	97.50*	195.00	
MEAN	**	**	**	**	**	**	**	**	**	**	6.50*	6.50	
AC-FT	**	**	**	**	**	**	**	**	**	**	193.39*	386.78	

\*\* INDICATES  
MISSING DATA

\* INDICATES  
COMPUTED FROM  
INCOMPLETE DATA

E INDICATES  
ESTIMATED VALUE

Source: Wyoming Water Resources Data System, March 20, 2000.

Green River Basin, Wyoming; Key Structures and Diversions  
Description and Operation Memorandum

Utah-Wyoming Number 2 Ditch, Black's Fork River

**Diversion Description:** Diversion consists of a single 3' by 4' slide gate mounted on a metal frame attached to a short section of culvert.<sup>1</sup>



**Diversion Location:**

Source: Black's Fork River, Trib. Green River  
Section, Township, Range: 24, 13, 117

**Conveyance Description:** Open Channel Canal, approximately 50 miles in length.<sup>1</sup>

**Wyoming Water Rights Summary:**

Priority Date (M-D-Y)	Permit Number	Permitted Use	Acres	Flow (cfs)	Cumulative Flow (cfs)	Comments
10-13-1905	6976	Irrigation, Stock	927.95	13.26	13.26	
08-07-1985	6798E	Res. Supply			13.26	Supply Ditch for Bigelow No. 1 through 6 Stock Reservoirs.

**Storage Rights:** None.

**Estimated Canal Losses:** Less than typical losses (5%) are experienced in the upper reaches of the ditch, however, almost 100% loss is experienced near the end of the ditch.<sup>1</sup>

**Irrigation Practices:** Lands are flood irrigated.<sup>1</sup>

**Crop Types / Consumptive Use:** Lands are pasture.<sup>1</sup>

**Return Flows:** Return flows are delivered to Spring Creek.

**Other Operational Information:** This ditch is also commonly known as the Bigelow ditch. The ditch is typically turned on during the last week of April. Due to its low priority, it is one of the first ditches to be regulated. Ditch is generally turned on in May and off in July.<sup>1</sup>

Sources: 1) John Yarbrough, State Engineer's Office, Interview, May 4, 2000.

Green River Basin, Wyoming; Key Structures and Diversions  
Description and Operation Memorandum

Utah-Wyoming Number 2 Ditch, Black's Fork River, Diversion Data

Wateryear	May		June		July		August		September	
	Average (cfs)	Monthly Total (AF)	Average (cfs)	Monthly Total (AF)	Average (cfs)	Monthly Total (AF)	Average (cfs)	Monthly Total (AF)	Average (cfs)	Monthly Total (AF)
1980										
1981										
1982										
1983										
1984										
1985	6.65	408.89	6.22	370.12	2.00	122.98	1.74	106.99	0.77	45.82
1986			2.11	125.55	2.51	154.33	2.00	122.98	2.00	119.01
1987	9.42	579.21	7.87	468.30	3.07	188.77	1.00	61.49	0.88	52.36
1988										
1989										
1990			8.83	525.42	3.45	212.13				
1991					1.55	95.31				
1992	5.72	351.71	2.70	160.66	4.30	264.40				
1993			12.59	749.16	6.10	375.07	0.63	38.74	1.21	72.00
1994	10.54	648.08	4.69	279.07	0.00	0.00	0.00	0.00	0.00	0.00
1995										
1996										
1997	4.02	247.18	7.08	421.29	1.49	91.62				
1998			3.86	229.69	6.86	421.80	3.54	217.67	0.00	0.00

Averages:	7.27	447.01	6.22	369.92	3.13	192.64	1.49	91.31	0.81	48.20
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Blank cells are due to missing/insufficient data.

Average = Average Flow for ENTIRE month. Monthly Total = Total Volume used during month.

See Methodology section for explanations.

Spot data readings used in calculating averages in table on following pages.

Green River Basin, Wyoming; Key Structures and Diversions  
Description and Operation Memorandum

Utah-Wyoming Number 2 Ditch, Black's Fork River, Diversion Data

**Data:**

1985: 5/9, 1.4 cfs; 5/25, 13.0 cfs; 6/4, 13.0 cfs; 6/21, 2.0 cfs; 6/24, 2.0 cfs; 7/1, 2.0 cfs; 7/9, 2.0 cfs; 7/16, 2.0 cfs; 7/23, 2.0 cfs; 7/29, 2.0 cfs; 8/6, 2.0 cfs; 8/12, 3.0 cfs (est); 8/21, 1.0 cfs (est); 8/28, 1.0 cfs (est); 9/3, 1.0 cfs (est); 9/10, 1.0 cfs (est); 9/24, 1.0 cfs (est).

1986: 5/20, 2 cfs (est); 7/7, 2.2 cfs; 7/15, 2.0 cfs; 7/22, 4.0 cfs; 7/29, 2.0 cfs; 8/5, 2.0 cfs; 8/12, 2.0 cfs; 8/19, 2.0 cfs; 8/26, 2.0 cfs; 9/2, 2.0 cfs; 9/9, 2.0 cfs; 9/16, 2.0 cfs; 9/23, 2.0 cfs; 9/30, 2 cfs (est).

1987: 5/9, 13.0 cfs (est); 6/16, 12.0 cfs; 6/20, off; 6/23, 3.0 cfs; 6/29, 3.0 cfs; 7/6, 5.0 cfs; 7/13, 5.0 cfs; 7/21, 1.5 cfs; 7/28, 1.0 cfs; 8/4, 1.0 cfs; 8/11, 1.0 cfs; 8/18, 1.0 cfs; 8/25, 1.0 cfs; 9/1, 1.0 cfs; 9/8, 1.0 cfs; 9/15, 1.0 cfs; 9/22, 1.0 cfs; 9/29, 0.5 cfs (est).

1990: 5/24, 6.5 cfs; 5/26, 0 cfs; 5/29, 0 cfs; 6/6, 10.0 cfs; 6/12, 11.3 cfs; 6/19, 8.8 cfs; 6/26, 13.0 cfs; 6/29, 0 cfs; 7/17, 5.25 cfs; 7/24, 6.0 cfs; 7/31, 0 cfs.

1991: 6/21, 2.5 cfs; 6/25, 0 cfs; 6/27, 6.0 cfs; 7/2, 6.0 cfs; 7/3, 3.7 cfs; 7/16, 0 cfs.

1992: 5/6, 0.00 cfs; 5/8, 0.00 cfs; 5/21, 13.00 cfs; 5/24, 10.60 cfs; 5/26, 10.60 cfs; 6/2, 0.00 cfs; 7/14, 8.00 cfs; 7/21, 5.00 cfs.

1993: 5/31, 12.00 cfs; 6/16, 13.00 cfs; 6/19, 12.00 cfs; 7/2, 13.50 cfs; 7/5, 11.00 cfs; 7/8, 11.00 cfs; 7/13, 6.00 cfs; 7/20, 6.00 cfs; 7/27, 0.00 cfs; 9/14, 1.50 cfs; 9/21, 1.50 cfs; 10/1, 0.50 cfs.

1994: 4/25, 0.0 cfs (arrive), 8.5 cfs (depart); 4/28, 12.0 cfs (arrive), 9.0 cfs (depart); 4/29, 9.0 cfs; 5/16, 7.7 cfs (arrive); 12.3 cfs (depart); 5/23, 12.9 cfs; 6/1, 12.5 cfs; 6/6, 6.0 cfs; 6/10, 6.0 cfs; 6/14, 6.0 cfs; 6/17, 6.0 cfs; 6/21, 3.0 cfs; 6/28, 7/1, 7/5, 7/12, 8/9, 8/13, 8/23, 9/6, 9/10, 9/16, 9/20, 9/27, 0.0 cfs.

1996: 9/24, 0 cfs.

1997: 5/3, 3.0 cfs; 5/26, 5.0 cfs (est); 6/25, 9.3 cfs; 6/26, 9.3 cfs; 6/28, 3.0 cfs; 7/1, 3.0 cfs; 7/8, 3.0 cfs; 7/8, 4.7 cfs (arrive), 5.2 cfs (depart); 7/12, 2.3 cfs (arrive), 4.0 cfs (depart); 7/15, 2.7 cfs (arrive), 0.0 cfs (depart); 7/22, 7/29, 8/5, 8/12, 8/19, 8/26, 9/2, 9/9, 9/16, 9/23, 0.0 cfs; 9/30, 0.0 cfs (arrive), 1.5 cfs (depart).

1998: 6/8, 6.2 cfs (arrive), 6.8 cfs (depart); 6/25, 3.5 cfs; 7/6, 8 cfs (arrive), 10 cfs (depart); 7/21, 6.2 cfs (arrive), 5 cfs (depart); 7/28, 5.2 cfs (arrive), 6.11 cfs (depart); 8/4, 2.6 cfs; 8/7, 3.7 cfs; 8/10, 9.2 cfs; 8/11, 8.6 cfs (arrive), 5 cfs (depart); 8/18, 3.8 cfs; 8/25, 5.1 cfs (arrive), 0 cfs (depart); 9/1, 9/8, 9/15, 9/22, 9/29, 10/6, 0 cfs.

Supply: 1980, average; 1981, slightly below average; 1982, average; 1983, above average; 1984, above average; 1985, average; 1986, average; 1987, average; 1988, below average; 1989, below average; 1990, below average; 1991, slightly below average; 1992, below average; 1993, average; 1994, below average; 1995, slightly above average; 1996, average; 1997, average; 1998, slightly above average.

Source: State Engineer's Office, Annual Hydrographers' Reports.

Green River Basin, Wyoming; Key Structures and Diversions  
Description and Operation Memorandum

White, Mansfield, and Robbins Ditch, Black's Fork River

**Diversion Description:** Diversion consists of a single 24" diameter Waterman slide gate.<sup>1</sup>

**Diversion Location:**

Source: Black's Fork River, Trib. Green River

Section, Township, Range: 24, 14, 116

**Conveyance Description:** Open Channel Canal, approximately 4 miles in length.<sup>1</sup>

**Wyoming Water Rights Summary:**

Priority Date (M-D-Y)	Permit Number	Permitted Use	Acres	Flow (cfs)	Cumulative Flow (cfs)	Comments
11-19-1892	366	Domestic, Irrigation, Stock	358.00	5.19	5.19	
03-03-1914	12811	Domestic, Irrigation	96.00	1.37	6.56	POD/MOC change from a portion of Demander Ditch.
03-19-1935	5055E	Irrigation	203.00	2.90	9.46	
04-25-1940	5244E	Irrigation	373.00	5.32	14.78	

**Storage Rights:** None.

**Estimated Canal Losses:** Typical (10%).<sup>1</sup>

**Irrigation Practices:** Lands are entirely flood irrigated.<sup>1</sup>

**Crop Types / Consumptive Use:** Water is used to irrigate almost entirely native grass hay and pasture.<sup>1</sup>

**Return Flows:** Willow Creek near Robertson, Wyoming.

**Other Operational Information:**

Sources: 1) John Yarbrough, State Engineer's Office, Interview, May 4, 2000.

Green River Basin, Wyoming; Key Structures and Diversions  
Description and Operation Memorandum

White, Mansfield, and Robbins Ditch, Black's Fork River, Diversion Data

Wateryear	May		June		July		August		September	
	Average (cfs)	Monthly Total (AF)	Average (cfs)	Monthly Total (AF)	Average (cfs)	Monthly Total (AF)	Average (cfs)	Monthly Total (AF)	Average (cfs)	Monthly Total (AF)
1980										
1981										
1982										
1983										
1984										
1985	1.20	73.79	7.08	421.29	8.15	501.12	2.64	162.33	1.69	100.56
1986			19.31	1,149.02	9.87	606.88	0.30	18.45	0.00	0.00
1987	5.84	359.09	8.00	476.03	5.82	357.86				
1988										
1989										
1990	8.41	517.11	11.93	709.88	4.02	247.18				
1991					4.91	301.90	1.65	101.45	2.02	120.20
1992										
1993	4.40	270.55	12.13	721.79	7.23	444.56	0.70	43.04	0.35	20.83
1994	3.04	186.92	5.79	344.53	0.83	51.03	0.05	3.07	0.23	13.69
1995	2.20	135.27	6.51	387.37	10.02	616.11	0.76	46.73	4.21	250.51
1996	8.08	496.82	12.72	756.89	5.25	322.81	1.79	110.06	4.21	250.51
1997					4.80	295.14	3.31	203.52	0.30	17.85
1998			6.13	364.76	11.62	714.49	1.72	105.76	0.11	6.55

Averages: 

4.74	291.36	9.96	592.40	6.59	405.37	1.44	88.27	1.46	86.74
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Blank cells are due to missing/insufficient data.

Average = Average Flow for ENTIRE month. Monthly Total = Total Volume used during month.

See Methodology section for explanations.

Spot data readings used in calculating averages in table on following pages.



Green River Basin, Wyoming; Key Structures and Diversions  
Description and Operation Memorandum

White, Mansfield, and Robbins Ditch, Black's Fork River, Diversion Data

**Data:**

1985 (all est): 5/9, off; 5/25, 1 cfs; 6/4, 10 cfs; 6/21, 5 cfs; 6/24, 4 cfs; 7/1, 9 cfs; 7/9, 9 cfs; 7/16, 9 cfs; 7/25, 7 cfs; 7/29, 7 cfs; 8/6, 1 cfs; 8/12, 1 cfs; 8/28, 5 cfs; 9/3, off; 9/10, 3 cfs; 9/17, 4 cfs; 9/24, off.

1986 (all est): 5/20, 30 cfs; 7/7, 11 cfs; 7/15, 11 cfs; 7/22, 11 cfs; 7/29, 5 cfs; 8/5, off; 8/5, 0.5 cfs; 8/19, 8/26, 9/2, 9/9, 9/16, 9/23, 9/30, off.

1987 (all est): 5/9, 5.0 cfs; 5/11, 8.0 cfs; 6/20, 8.0 cfs; 6/23, 8.0 cfs; 6/29, 8.0 cfs; 7/6, 8.0 cfs; 7/13, 9.0 cfs; 7/21, 3.0 cfs; 7/28, 3.0 cfs; 8/4, 3.0 cfs; 8/11, off.

1990: 5/12, 4.5 cfs; 5/14, 5.1 cfs; 5/24, 13.0 cfs; 5/26, 5.2 cfs; 6/6, 14.8 cfs; 6/12, 16.0 cfs; 6/19, 13.0 cfs; 6/22, 13.0 cfs; 6/26, 5.2 cfs; 7/10, 8.2 cfs; 7/17, 5.2 cfs; 7/24, off; 9/25, 14.0 cfs; 10/1, 1.0 cfs (est).

1991: 6/25, 7.0 cfs; 6/27, 7.0 cfs; 7/2, 7.0 cfs; 7/9, 7.0 cfs; 7/16, 5.0 cfs; 7/23, 5.2 cfs; 7/30, 0 cfs; 8/6, 1.5 cfs; 8/13, 0 cfs; 9/4, 5.0 cfs; 9/17, 0 cfs; 10/1, 2.0 cfs.

1992: 5/4, 8.40 cfs; 5/6, 3.70 cfs; 5/8, 5.14 cfs; 5/14, 5.14 cfs; 5/15, 5.14 cfs; 5/19, 5.40 cfs; 5/21, 14.80 cfs; 5/24, 5.20 cfs; 5/26, 5.20 cfs; 6/2, 5.19 cfs; 6/9, 5.19 cfs; 6/16, 8.19 cfs; 6/23, 8.20 cfs; 6/30, 8.20 cfs; 7/7, 6.70 cfs; 7/11, 6.7 cfs; 7/14, 5.20 cfs; 7/28, 3.00 cfs (est); 8/11, 0.50 cfs (est); 9/22, 0.33 cfs.

1993: 5/17, 2.00 cfs; 5/21, 6.30 cfs; 5/29, 14.00 cfs; 6/8, 6.20 cfs; 6/16, 15.00 cfs; 6/26, 15.00 cfs; 7/2, 11.00 cfs; 7/5, 14.50 cfs; 7/8, 9.20 cfs; 7/13, 9.20 cfs; 7/20, 8.31 cfs; 7/21, 2.39 cfs; 7/27, 2.40 cfs; 8/3, 2.40 cfs; 8/10, 0.00 cfs; 8/17, 0.50 cfs; 8/24, 0.50 cfs; 9/14, 0.00 cfs; 10/1, 1.00 cfs (est).

1994: 5/14, 5.0 cfs (arrive), 1.0 cfs (depart); 6/16, 7.6 cfs; 5/17, 5.6 cfs; 5/24, 4.4 cfs; 6/1, 6.6 cfs; 6/3, 5.2 cfs; 6/7, 5.2 cfs; 6/10, 5.2 cfs; 6/14, 5.2 cfs; 6/17, 5.2 cfs; 6/21, 7.2 cfs; 6/28, 7.2 cfs; 7/1, 2.0 cfs; 7/5, 3.6 cfs; 7/13, 8/13, 0.0 cfs; 8/16, 0.3 cfs; 8/23, 8/30, 9/6, 0.0 cfs; 9/20, 0.5 cfs; 9/27, 0.5 cfs.

1995: 5/15, 0.5 cfs; 5/17, 5.2 cfs; 5/19, 5.2 cfs; 5/22, 5.2 cfs; 5/30, 2.5 cfs; 6/6, 5.4 cfs; 6/13, 8.7 cfs; 6/24, 17.0 cfs; 6/30, 18.0 cfs; 7/7, 17.5 cfs; 7/15, 13.6 cfs; 7/26, 0.5 cfs; 8/1, 0.25 cfs; 8/8, 0.5 cfs (est); 8/15, 0.5 cfs (est); 8/18, 0.5 cfs (est); 8/22, 1.5 cfs (est); 8/29, 0.5 cfs (est); 9/5, 6.0 cfs; 9/12, 6.0 cfs; 10/3, 0.5 cfs.

1996: 5/10, 2.0 cfs (est); 5/13, 12.0 cfs (est); 7/2, 12.4 cfs (arrive), 9.2 cfs (depart); 7/12, 5.25 cfs; 7/16, 5.2 cfs; 7/23, 5.19 cfs; 7/30, 0.5 cfs; 8/6, 8/13, 0 cfs; 9/3, 2 cfs (arrive), 2.7 cfs (depart); 9/7, 1.0 cfs (est) (arrive), 0 cfs (depart); 9/24, 0 cfs.

1997: 7/1, 6.0 cfs (arrive), 5.2 cfs (depart); 7/15, 4.5 cfs (arrive), 5.2 cfs (depart); 7/22, 4.5 cfs (arrive), 5.2 cfs (depart); 7/29, 4.5 cfs (arrive), 4.0 cfs (depart); 8/5, 3.8 cfs (arrive), 5.2 cfs (depart); 8/12, 4.5 cfs (arrive), 5.0 cfs (depart); 8/19, 4.5 cfs (arrive), 0.0 cfs (depart); 8/26, 2.0 cfs (arrive), 3.6 cfs (depart); 9/2, 9/9, 0.0 cfs; 9/16, 0.5 cfs; 9/23, 0.5 cfs; 9/30, 0.5 cfs (est).

1998: 6/8, 5.7 cfs; 7/7, 11.5 cfs; 7/21, 16 cfs (arrive), 10.2 cfs (depart); 7/28, 8.3 cfs (arrive), 10 cfs (depart); 8/4, 8 cfs; 8/11, 8/18, 8/25, 9/1, 0 cfs; 9/8, 0 cfs (arrive), 0.9 cfs (est) (depart); 9/15, 9/22, 9/29, 10/6, 0 cfs.

Supply: 1980, average; 1981, slightly below average; 1982, average; 1983, above average; 1984, above average; 1985, average; 1986, average; 1987, average; 1988, below average; 1989, below average; 1990, below average; 1991, slightly below average; 1992, below average; 1993, average; 1994, below average; 1995, slightly above average; 1996, average; 1997, average; 1998, slightly above average.

Source: State Engineer's Office, Annual Hydrographers' Reports.