

Water Division IV
District 6

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

Big Sandy Ditch, Big Sandy River

Diversion Description: Diversion consists of a wood headgate. No diversion dam exists.¹

Diversion Location:

Source: Big Sandy River, Trib. Green River
Section, Township, Range: 14, 30, 105

Conveyance Description: Open Channel Canal, approximately 5.5 miles in length.¹

Wyoming Water Rights Summary:

Priority Date (M-D-Y)	Permit Number	Permitted Use	Acres	Flow (cfs)	Cumulative Flow (cfs)	Comments
12-12-1900	2957	Irrigation	33.00	0.47	0.47	Originally named Johnson & Gasswint Ditch
11-25-1901	3566	Domestic, Irrigation, Stock	350.00	5.00	5.47	POD/MOC change from Tunnel Ditch
09-04-1905	1427E	Domestic, Irrigation, Stock	516.00	7.36	12.83	Originally named Johnson & Gasswint Ditch
01-06-1915	3100E	Irrigation	20.00	0.29	13.12	Originally named Johnson & Gasswint Ditch

Storage Rights: None.

Estimated Canal Losses: Typical (10%).¹

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 Sandy River at Water Hole Draw.²

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

Sources: 1) Loren Smith, Wyoming State Engineer's Office, Fax, June 9, 2000.
2) Williams, Linda I., "A Model of the Green River Using the Wyoming Integrated River System Operation Study (WIRSOS)," M.S. Thesis, University of Wyoming, Department of Civil Engineering. December 1995.

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

Big Sandy Ditch, Big Sandy River, Diversion Data

Water year	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)
1975			<i>14.12</i>	<i>840.26</i>	<i>17.48</i>	<i>1,075.04</i>	<i>4.94</i>	<i>303.47</i>	<i>4.47</i>	<i>265.78</i>
1976	<i>6.53</i>	<i>401.77</i>	<i>12.48</i>	<i>742.39</i>	<i>8.67</i>	<i>532.96</i>	<i>3.39</i>	<i>208.32</i>	<i>3.10</i>	<i>184.46</i>
1978	<i>11.45</i>	<i>704.13</i>	<i>16.63</i>	<i>989.75</i>	<i>11.71</i>	<i>720.00</i>			<i>4.70</i>	<i>279.67</i>
1980			10.74	639.07	8.36	514.04	6.33	389.22	4.65	276.69
1981										
1982			27.33	1,626.25	17.76	1,092.02	5.24	322.20		
1983			10.34	615.27	9.42	579.21	4.60	282.84		
1984			11.06	658.12	5.57	342.49				
1985										
1986										
1987										
1988										
1989										
1990										
1991										
1992										
1993										
1994										
1995										
1996			4.82	286.81					4.10	243.97
1997										
1998							8.92	548.47	3.61	214.81

Averages:	8.99	552.95	13.44	799.74	11.28	693.68	5.57	342.42	4.10	244.23
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Data in italics from USGS gaging station 006140.00, 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

Big Sandy Ditch, Big Sandy River, Diversion Data

Data:

1980: 5/20, 6 cfs; 5/29, 5 cfs; 6/3, 7 cfs; 6/10, 11 cfs; 6/17, 9 cfs; 6/18, 13 cfs; 6/23, 13 cfs; 7/9, 11 cfs;
7/15, 8 cfs; 7/24, 6 cfs; 7/28, 6 cfs; 8/8, 5 cfs; 8/12, 5 cfs; 8/21, 8 cfs; 9/22, 4 cfs; 9/29, 4 cfs.
1982 (all est): 6/3, 30 cfs; 6/22, 30 cfs; 7/8, 22 cfs; 7/12, 15 cfs; 7/23, 20 cfs; 8/5, off; 8/30, 12 cfs.
1983: 5/17, off; 6/17, 12 cfs; 6/29, 12 cfs; 7/19, 9 cfs; 7/27, 8 cfs; 8/22, 3 cfs; 9/12, 6 cfs.
1984: 6/1, 12 cfs; 6/12, 10 cfs; 6/29, 12 cfs; 7/5, 11 cfs; 7/20, 1.5 cfs (est); 7/25, 3 cfs (est); 9/25, 6 cfs.
1996: 6/11, 5 cfs (est); 6/28, 12 cfs (est); 9/4, 7.5 cfs (est); 9/24, 4.8 cfs.
1997: 7/21, 9.4 cfs; 8/1, 10.1 cfs; 8/11, 10.5 cfs (est).
1998: 5/13, 8 cfs (est); 7/29, 11.9 cfs; 8/20, 8 cfs (est); 9/17, 6.6 cfs.

Supply: 1980, average; 1981, slightly below average; 1982, average; 1983, above average; 1984, above average; 1985, slightly below average; 1986, average; 1987, average; 1988, below average; 1989, below average; 1990, below average; 1991, slightly below average; 1992, below average; 1993, slightly below 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

Big Sandy Ditch, Big Sandy River, Diversion Data

BIG SANDY RIVER - BIG SANDY DITCH
 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)

STATION NO. 006140.00

MEAN DAILY FLOW IN CFS BY WATER YEAR													
1975													
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	DAY
1	**	**	**	**	**	**	**	**	10.00	13.60	5.00	3.00	1
2	**	**	**	**	**	**	**	**	10.00	13.50	5.00	3.00	2
3	**	**	**	**	**	**	**	**	10.00	13.50	5.00	3.00	3
4	**	**	**	**	**	**	**	**	15.25	13.50	5.00	**	4
5	**	**	**	**	**	**	**	**	15.00	13.50	5.00	**	5
6	**	**	**	**	**	**	**	**	15.00	13.50	5.00	**	6
7	**	**	**	**	**	**	**	**	12.00	13.50	5.00	**	7
8	**	**	**	**	**	**	**	**	12.00	13.50	5.00	**	8
9	**	**	**	**	**	**	**	**	11.00	13.30	5.00	**	9
10	**	**	**	**	**	**	**	**	11.00	13.30	5.00	**	10
11	**	**	**	**	**	**	**	**	10.81	21.30	5.00	**	11
12	**	**	**	**	**	**	**	**	11.00	21.30	5.00	**	12
13	**	**	**	**	**	**	**	**	12.00	21.30	5.00	10.00	13
14	**	**	**	**	**	**	**	**	13.00	21.30	5.00	10.00	14
15	**	**	**	**	**	**	**	**	13.00	21.30	5.00	9.00	15
16	**	**	**	**	**	**	**	**	14.00	21.30	5.00	9.00	16
17	**	**	**	**	**	**	**	**	14.00	21.30	5.00	9.00	17
18	**	**	**	**	**	**	**	**	15.00	21.30	5.00	8.00	18
19	**	**	**	**	**	**	**	9.11	15.00	21.30	5.00	8.00	19
20	**	**	**	**	**	**	**	**	15.50	21.30	5.00	7.00	20
21	**	**	**	**	**	**	**	**	16.00	21.30	5.00	7.00	21
22	**	**	**	**	**	**	**	9.11	16.00	21.00	5.00	6.00	22
23	**	**	**	**	**	**	**	9.00	16.00	21.00	5.00	6.00	23
24	**	**	**	**	**	**	**	9.00	18.00	21.00	5.00	6.00	24
25	**	**	**	**	**	**	**	9.00	18.07	20.00	5.00	5.00	25
26	**	**	**	**	**	**	**	9.00	18.00	19.00	5.00	5.00	26
27	**	**	**	**	**	**	**	9.00	18.00	18.00	5.00	5.00	27
28	**	**	**	**	**	**	**	9.50	17.00	17.00	5.00	5.00	28
29	**	**	**	**	**	**	**	9.78	17.00	16.00	5.00	5.00	29
30	**	**	**	**	**	**	**	10.00	15.00	15.00	4.00	5.00	30
31	**	**	**	**	**	**	**	10.00	**	5.00	4.00	**	31
TOTAL	**	**	**	**	**	**	**	102.50*	423.63	542.00	153.00	134.00*	
MEAN	**	**	**	**	**	**	**	9.32*	14.12	17.48	4.94	6.38*	
AC-FT	**	**	**	**	**	**	**	203.31*	840.26	1075.04	303.47	265.78*	

** INDICATES
MISSING DATA

* INDICATES
COMPUTED FROM
INCOMPLETE DATA

E INDICATES
ESTIMATED
VALUE

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

Big Sandy Ditch, Big Sandy River, Diversion Data

BIG SANDY RIVER - BIG SANDY DITCH
 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)

STATION NO. 006140.00

MEAN DAILY FLOW IN CFS BY WATER YEAR													
1976													
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	DAY
1	**	**	**	**	**	**	**	**	**	18.6	3	4	1
2	**	**	**	**	**	**	**	**	**	19	3	4.07	2
3	**	**	**	**	**	**	**	**	**	19	3	4	3
4	**	**	**	**	**	**	**	**	**	18	3	3	4
5	**	**	**	**	**	**	**	**	**	18	3.2	3	5
6	**	**	**	**	**	**	**	**	**	18	3	2	6
7	**	**	**	**	**	**	**	**	**	17.5	3	2	7
8	**	**	**	**	**	**	**	**	**	17	3	2	8
9	**	**	**	**	**	**	**	**	**	16	3	1	9
10	**	**	**	**	**	**	**	**	20.22	15	3.2	1	10
11	**	**	**	**	**	**	**	**	20	13	3	3	11
12	**	**	**	**	**	**	**	**	20	10	3	3	12
13	**	**	**	**	**	**	**	9.95	18	9	3	3	13
14	**	**	**	**	**	**	**	10	16	9	3	3	14
15	**	**	**	**	**	**	**	10	16	3.2	3	3	15
16	**	**	**	**	**	**	**	11	16	3	3	3.48	16
17	**	**	**	**	**	**	**	11	16	3	3.2	4	17
18	**	**	**	**	**	**	**	12	17	3	3	4	18
19	**	**	**	**	**	**	**	12	17	3.2	3	4	19
20	**	**	**	**	**	**	**	12.61	18	3	3.2	4	20
21	**	**	**	**	**	**	**	13	18	3	3	3	21
22	**	**	**	**	**	**	**	13	18	3	3	3	22
23	**	**	**	**	**	**	**	14	18	3	3.2	3	23
24	**	**	**	**	**	**	**	14	18.07	3	3	3.2	24
25	**	**	**	**	**	**	**	15	18	3	3	3	25
26	**	**	**	**	**	**	**	15	18	3	5.03	3	26
27	**	**	**	**	**	**	**	15	18	3	5	3	27
28	**	**	**	**	**	**	**	15	18	3	5	3	28
29	**	**	**	**	**	**	**	**	18	3.2	5	3	29
30	**	**	**	**		**	**	**	18	3	5	5.25	30
31	**		**	**		**		**		3	4		31
TOTAL	**	**	**	**	**	**	**	202.56*	374.29*	268.7	105.03	93	
MEAN	**	**	**	**	**	**	**	12.66*	17.82*	8.67	3.39	3.1	
AC-FT	**	**	**	**	**	**	**	401.77*	742.39*	532.96	208.32	184.46	

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Big Sandy Ditch, Big Sandy River, Diversion Data

BIG SANDY RIVER - BIG SANDY DITCH
 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)

STATION NO. 006140.00

MEAN DAILY FLOW IN CFS BY WATER YEAR													
1978													
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	DAY
1	**	**	**	**	**	**	**	8	16	16	**	**	1
2	**	**	**	**	**	**	**	8	16	16	**	**	2
3	**	**	**	**	**	**	**	8	16	16	**	**	3
4	**	**	**	**	**	**	**	8	16	16	**	**	4
5	**	**	**	**	**	**	**	8	16	16	**	5	5
6	**	**	**	**	**	**	**	8	16	15	**	5	6
7	**	**	**	**	**	**	**	8	16	15	**	5	7
8	**	**	**	**	**	**	**	9	16	15	**	5	8
9	**	**	**	**	**	**	**	9	16	14	**	5	9
10	**	**	**	**	**	**	**	10	16	14	**	5	10
11	**	**	**	**	**	**	**	10	16	14	**	5	11
12	**	**	**	**	**	**	**	10	16	14	**	5	12
13	**	**	**	**	**	**	**	10	16	14	**	5	13
14	**	**	**	**	**	**	**	10	16	14	**	5	14
15	**	**	**	**	**	**	**	11	16	14	**	5	15
16	**	**	**	**	**	**	**	11	17	14	**	5	16
17	**	**	**	**	**	**	**	12	17	14	**	5	17
18	**	**	**	**	**	**	**	12	17	14	**	5	18
19	**	**	**	**	**	**	**	13	17	13	**	5	19
20	**	**	**	**	**	**	**	13	18	13	**	6	20
21	**	**	**	**	**	**	**	14	19	13	**	7	21
22	**	**	**	**	**	**	**	14	19	13	**	7	22
23	**	**	**	**	**	**	**	14	19	12	**	7	23
24	**	**	**	**	**	**	**	14	18	12	**	7	24
25	**	**	**	**	**	**	**	14	17	11	**	6	25
26	**	**	**	**	**	**	**	14	17	11	**	6	26
27	**	**	**	**	**	**	**	14	16	**	**	5	27
28	**	**	**	**	**	**	**	15	16	**	**	5	28
29	**	**	**	**		**	**	15	16	**	**	5	29
30	**	**	**	**		**	**	15	16	**	**	5	30
31	**		**	**		**		16		**	**		31
TOTAL	**	**	**	**	**	**	**	355	499	363.00*	**	141.00*	
MEAN	**	**	**	**	**	**	**	11.45	16.63	13.96*	**	5.42*	
AC-FT	**	**	**	**	**	**	**	704.13	989.75	720.00*	**	279.67*	

** INDICATES
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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

Continental Divide Ditch, Little Sandy Creek

Diversion Description: Diversion consists of a single 36" diameter Waterman slide gate. No diversion dam exists.¹

Diversion Location:

Source: Little Sandy Creek, Trib. Big Sandy River, Trib. Green River
Section, Township, Range: 25, 30, 104

Conveyance Description: Open Channel Canal, approximately 8 miles in length.¹

Wyoming Water Rights Summary:

Priority Date (M-D-Y)	Permit Number	Permitted Use	Acres	Flow (cfs)	Cumulative Flow (cfs)	Comments
05-19-1902	3918	Domestic, Irrigation, Stock	455.00	6.50	6.50	
09-07-1905	1422E	Irrigation, Stock	268.00	3.83	10.33	
12-17-1909	2140E	Irrigation, Stock	204.50	2.92	13.25	Permitted name: Enl. Continental

Storage Rights: None.

Estimated Canal Losses: Higher than typical losses (25%) exist.¹

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 Little Sandy Creek near Zemba Ditch.²

Other Operational Information:

Sources: 1) Loren Smith, Wyoming State Engineer's Office, Fax, June 9, 2000.
2) Williams, Linda I., "A Model of the Green River Using the Wyoming Integrated River System Operation Study (WIRSOS)," M.S. Thesis, University of Wyoming, Department of Civil Engineering, December 1995.

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

Continental Divide Ditch, Little Sandy Creek, 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						8.49	522.31			
1983										
1984						4.52	277.69			
1985										
1986										
1987										
1988										
1989										
1990										
1991										
1992			8.77	521.85	4.85	298.21	2.28	140.47		
1993			8.24	490.31	7.54	463.62	8.67	533.10	7.93	471.87
1994					5.15	316.61	4.47	274.85	1.25	74.38
1995										
1996			5.77	343.34	4.32	265.63	3.62	222.59	2.49	148.17
1997					5.60	344.50	4.33	266.23		
1998	3.06	188.15					3.99	245.34	1.68	99.97

Averages:	3.06	188.15	7.59	451.83	5.78	355.51	4.56	280.43	3.34	198.60
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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

Continental Divide Ditch, Little Sandy Creek, Diversion Data

Data:

1980: 6/11, off.

1982: 7/12, 14 cfs; 8/5, 12 cfs.

1983: 6/29, 12 cfs; 7/7, 13 cfs; 9/12, 11 cfs.

1984: 7/5, 8 cfs; 7/25, 6 cfs.

1992: 5/26, 5.5 cfs; 6/18, 10.5 cfs; 7/15, 4.0 cfs; 8/25, 4.8 cfs; 10/8, 5.0 cfs.

1993: 5/24, 8.30 cfs; 7/1, 8.20 cfs; 8/3, 6.80 cfs; 8/26, 10.20 cfs; 9/30, 6.80 cfs.

1994: 5/11, 12.30 cfs; 7/5, 6.10 cfs; 7/7, dry; 7/12, 6.50 cfs; 8/3, 7.30 cfs; 9/7, dry; 9/22, 4.50 cfs.

1995: 6/22, 21.8 cfs; 8/17, 18.9 cfs; 9/15, 12.9 cfs.

1996: 5/20, 5.3 cfs; 6/28, 6 cfs (est); 7/31, 3 cfs (est); 8/23, 4 cfs (est); 9/24, 3 cfs (est).

1997: 6/16, 11.4 cfs; 7/2, 8.7 cfs; 7/21, 4.2 cfs; 8/1, 3.5 cfs; 8/11, 5 cfs (est); 8/26, 4.3 cfs; 9/11, 0.9 cfs.

1998: 5/13, 5.1 cfs; 6/8, 4.8 cfs; 7/29, 5.5 cfs; 8/20, 3.5 cfs; 9/17, 3 cfs (est).

Supply: 1980, average; 1981, slightly below average; 1982, average; 1983, above average; 1984, above average; 1985, slightly below average; 1986, average; 1987, average; 1988, below average; 1989, below average; 1990, below average; 1991, slightly below average; 1992, below average; 1993, slightly below 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

Eden Valley Irrigation and Drainage District Ditches:

Means Canal, Eden Canal, Little Sandy Canal, Eden Lateral, West Side Lateral, Farson Lateral, M-Gates, Hay Ditch

Diversion Description: Eden Valley Irrigation and Drainage District – major canals: Means Canal, Eden Canal, Little Sandy Canal, Eden Lateral, West Side Lateral, Farson Lateral, M-Gates and Hay Ditch (Lateral). The Little Sandy Diversion Dam diverts from Little Sandy River into Eden Reservoir.

Means Canal is controlled by slide gates in the Big Sandy Reservoir Dam with a capacity of 635 cfs.² Eden Reservoir outlet is a concrete lined tunnel with constant head orifice gates and an overflow structure. The West Side Canal diverts from the Means Canal through two 48” gates. Diversion into the Eden Canal and Farson Lateral is via large (6 to 10 foot) radial gates.¹

Diversion Location:

Source: Big Sandy and Little Sandy Rivers

Section, Township, Range: Means Canal, 11, 26, 106; Eden Canal, 30, 26, 105; Little Sandy Canal, 20, 26, 105; Eden Lateral, 1, 24, 106; West Side Lateral, 13, 26, 106; Farson Lateral, 30, 26, 105; M-Gates, 25, 26, 106; Hay Ditch, 1, 24, 106.

Conveyance Description: Earthen Canals, approximate lengths: Means Canal, 6 miles; Eden Canal, 10.8 miles; Little Sandy Canal, 1.5 miles; Eden Lateral, 8 miles; West Side Lateral, 12 miles; Farson Lateral, 4 miles; M-Gates, 5 miles; Hay Ditch, 7 miles.

Wyoming Water Rights Summary:

Eden Number 1 Ditch

Priority Date (M-D-Y)	Permit Number	Permitted Use	Acres	Flow (cfs)	Cumulative Flow (cfs)	Comments
11-24-1903	5718	Domestic, Irrigation	8,007.64	114.29	114.29	
12-30-1905	16814	Domestic, Irrigation, Stock			114.29	Secondary Supply stored in Eden Valley Irrigation and Land Company No. 1 Reservoir (818R) (17,009.26 acres served)

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

Eden Valley Irrigation and Drainage District Ditches:

Means Canal, Eden Canal, Little Sandy Canal, Eden Lateral, West Side Lateral, Farson Lateral, M-Gates, Hay Ditch

Means Canal

Priority Date (M-D-Y)	Permit Number	Permitted Use	Acres	Flow (cfs)	Cumulative Flow (cfs)	Comments
11-24-1903	5718	Domestic, Irrigation, Stock	9,041.62	129.01	129.01	POD/MOC change from Eden No. 1 Canal.
04-24-1952	21403	Domestic, Irrigation, Stock, Municipal			129.01	Secondary Supply stored in Big Sandy Reservoir (947R) (17,009.26 acres served)

Storage Rights: Big Sandy Reservoir (947R) and Eden Reservoir (818R).

Estimated Canal Losses: All typical except Eden Canal, which is in sandy soil and is excessive (22-30%) and West Side, which can be considered excessive at 15-18%.¹

Irrigation Practices: District currently undergoing voluntary modifications from historic flood irrigation practices to gated pipe, border and row, and center pivots for salinity reduction purposes. Currently, about 8,700 acres out of 17,000 have been so modified.³

Crop Types / Consumptive Use: Irrigators typically rotate among several crops. Averages for the period 1989-1999 are: 55% grass hay, 26% alfalfa, 16% irrigated pasture, 1% each of silage, oats and barley. Occasional corn crops.

Return Flows: Means and Little Sandy canals have no returns; they deliver water to other canals. Eden Canal, Eden Lateral and Hay Ditch return to Bone Draw; Farson Lateral returns to Little Sandy River above Highway 187; M-Gates return 50% to Big Sandy River above Highway 187 and 50% to Little Sandy River above Highway 187; West Side Canal returns to Big Sandy River below confluence with Little Sandy River.¹

Other Operational Information: When Big Sandy Reservoir is spilling, the water is used as “river water” for direct flow rights. Under other operations, all ditches operate on a call basis when operators request water. Releases are then made from Big Sandy Reservoir added to a constant delivery of 30-50 cfs (80 cfs maximum) from Eden Reservoir via Little Sandy Canal to meet total demand. Typical flows are as follows: Means Canal, 300-450 cfs typical (470 maximum);

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Eden Valley Irrigation and Drainage District Ditches:

Means Canal, Eden Canal, Little Sandy Canal, Eden Lateral, West Side Lateral, Farson Lateral, M-Gates, Hay Ditch

West Side Lateral, 100 cfs typical, 120 cfs maximum; M-Gates, 25 cfs; Eden Canal, 300 cfs typical; Farson Lateral, 80 cfs typical; Eden Lateral 175 cfs typical; Hay Ditch, 20 cfs typical.¹

The system typically operates from May 15 to the first part of July. It may start earlier in dry years. After a week or so for harvest, system comes back on, but irrigates less intensively for the remainder of the season. Irrigation continues until September 15th, when it is shut down until the following spring.¹

Sources:	1) Ralph Delambert, EVIDD, Interview, May 10, 2000. 2) USBR DataWeb information; http://dataweb.usbr.gov/html/eden.html 3) Karen Johnson, District Conservationist, USDA NRCS Farson Field Office, Interview, May 10, 2000
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Eden Valley Irrigation and Drainage District Ditches:

Means Canal, Eden Canal, Little Sandy Canal, Eden Lateral, West Side Lateral, Farson Lateral, M-Gates, Hay Ditch

No Diversion Data Available.

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Zemba Ditch, Little Sandy Creek

Diversion Description: Diversion consists of a wood headgate. No diversion dam exists.¹

Diversion Location:

Source: Little Sandy Creek, Trib. Big Sandy River, Trib. Green River
Section, Township, Range: 9, 29, 104

Conveyance Description: Open Channel Canal, approximately 3½ miles in length.¹

Wyoming Water Rights Summary:

Priority Date (M-D-Y)	Permit Number	Permitted Use	Acres	Flow (cfs)	Cumulative Flow (cfs)	Comments
11-06-1905	6977	Domestic, Irrigation, Stock	441.00	6.30	6.30	
05-16-1911	2450E	Domestic, Irrigation, Stock	108.00	1.54	7.84	
06-23-1914	3021E	Irrigation, Stock	277.50	3.96	11.80	

Storage Rights: None.

Estimated Canal Losses: Typical (10%).¹

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 Little Sandy Creek at Long Draw.²

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

<p>Sources: 1) Loren Smith, Wyoming State Engineer's Office, Fax, June 9, 2000. 2) Williams, Linda I., "A Model of the Green River Using the Wyoming Integrated River System Operation Study (WIRSOS)," M.S. Thesis, University of Wyoming, Department of Civil Engineering, December 1995.</p>

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Zemba Ditch, Little Sandy Creek

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			10.48	623.38	12.09	743.47				
1981										
1982					12.30	756.30	0.24	14.76		
1983			16.28	968.73						
1984			5.30	315.61	6.03	370.67				
1985										
1986										
1987										
1988										
1989										
1990										
1991										
1992										
1993							5.82	357.95	1.00	59.57
1994					8.33	512.19	0.03	1.84	0.75	44.63
1995										
1996										
1997										
1998										

Averages:			10.69	635.91	9.69	595.66	2.03	124.88	0.88	52.10
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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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Zemba Ditch, Little Sandy Creek

Data:

1980: 6/11, 10 cfs; 6/11, 15 cfs; 7/9, 17 cfs; 8/8, off.

1981: 6/4, 21 cfs; 7/22, 8/5, 8/27, off.

1982: (all est): 6/22, 18 cfs; 7/8, 14 cfs; 7/12, 15 cfs; 7/23, 12 cfs; 8/5, 8/30, off.

1983: (all est): 6/1, 12 cfs; 6/29, 20 cfs; 7/7, 22 cfs.

1984: 6/14, 8 cfs (est); 7/9, 12 cfs (est); 7/25, off.

1993: 8/3, 12.00 cfs; 8/26, 2.50 cfs; 9/30, off.

1994: 5/11, 14.00 cfs; 7/5, 17.00 cfs; 7/7, 9.00 cfs; 7/12, 10.60 cfs; 8/3, off; 9/7, dry;
9/22, 3.00 cfs.

1995: 5/16, 6.0 cfs; 6/22, 25 cfs (est); 8/17, 5.0 cfs; 9/15, 4.3 cfs.

1996: 7/31, 12 cfs (est); 9/4, 4 cfs (est).

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

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