PINEY CREEK

DUNLAP DITCH DIVERSION
LEITER DITCH DIVERSION
MEAD & COFFEEN DITCH DIVERSION
PINEY & CRUSE DITCH DIVERSION
PINEY DIVIDE DITCH DIVERSION & LITTLE PINEY DITCH DIVERSION
PRAIRIE DOG DITCH DIVERSION
PRATT & FERRIS NO. 1 DITCH DIVERSION
ROCK CREEK & SOUTH PINEY DITCH DIVERSION

PINEY CREEK DRAINAGE
INTRODUCTION

BACKGROUND

Piney Creek begins in the east face of the Big Horn Mountains, the northernmost drainage of the Powder River tributaries in Wyoming, between Little Goose and Rock Creek drainages. The South Fork of Piney Creek joins Kearney Creek, then the North Fork of Piney Creek to become Piney Creek downstream of Story, Wyoming. It picks up Little Piney Creek and Boxelder Creek before running through Ucross, Wyoming and joining Clear Creek, a tributary of the Powder River. The Powder River runs north to cross the Montana state line north of Spotted Horse, Wyoming.

High-elevation storage is provided on the South Fork of Piney Creek in Cloud Peak and Willow Park reservoirs and on Kearney Creek in Kearney Lake Reservoir. For lower-elevation storage, Piney Creek has Lake DeSmet, which has includes storage from the former Shell Creek, Piney Creek, Box Elder, High Dam, and Lower Clear Creek reservoirs.

CHARACTERISTICS

Upstream of the confluence of the South and North forks of Piney Creek, early settlers and irrigators tunneled for hundreds of feet to daylight their ditches on the north side of the ridge bordering the North Fork of Piney Creek. They cut three such tunnels, one each for the Mead & Coffeen, the Piney & Cruse, and Prairie Dog ditches, and cut crossover channels between the South and North forks through what is now Story to divert South Fork water into their ditches as well. Today, the tunnels are gone but the ditches are not. The tunnels are now deep canyons eroded into the ridge, and the three ditches divert more water than any other diversions in the Powder/Tongue or Northeast Wyoming River Basins. They also continue to head-cut, forming waterfalls, and maintenance challenges for their owners.

Because the town of Story is cut with so many crossover channels, ditches, and streams, residents tend to pump nearby channels to water yards and gardens. These losses have been ignored for some time, but water commissioners are attempting to clean up the losses by asking people to establish a storage right and exchange it with the ditch companies for use of their water.

Another crossover project allows water to run through the Piney Divide Ditch to Little Piney Creek, then through the Little Piney Crossover to Bear Creek, and through the Little Piney Divide crossover to Little Piney, which flows back to Piney Creek.

USAGE

Piney Creek's diversions are permitted primarily for irrigation, but they also find stock, industrial, power, and domestic uses. The creek has a 5-cfs stock appropriation.

Regulation

Water commissioners estimate that regulation is imposed on Piney Creek drainage diversions with the following timing:

Wet Year	Average Year	Dry Year
End of July	Second week of July	June

Agriculture

Irrigation and planting practices are detailed in the following diversion memoranda.

The typical irrigation season runs from May 1 (depending on whether the spring runoff is delayed by colder weather) to late Sep. (depending on when the first snows fall and the ground freezes). Piney Creek users do not typically practice post-season irrigation.

Double Appropriation

Irrigation water rights with priority dates of March 1, 1945 or earlier are entitled to an additional 1cfs per 70 acres under Wyoming's surplus water statutes. Whenever the supply in a stream exceeds to amount required to satisfy all existing appropriations established prior to March 1, 1985, the stream is said to be in an excess flow condition and water right holders with priorities between March 2, 1945 and March 1, 1985 may use an additional 1 cfs for each 70 acres irrigated.

In Piney Creek, this practice is limited primarily by the condition of ditches. Many of the ditches are not capable of carrying all of the water an irrigator could use.

% of appropriation	% of ditches in drainage capable of flow
200	10
150	10
100-150	90
0-100	90

Permitted Uses

Permits granted for water appropriation are granted for specific uses. The following pages contain tables of permits and their associated uses. The following table provides a key to those uses:

Code	Use
Chem	Chemical
Com	Commercial
Cul	Culinary
D	Domestic
Drl	Drilling
Eng	Steam Engines
Fire	Fire Protection
Fish	Fish Propogation
F.C.	Flood Control
I	Irrigation
Ind	Industrial
I.F.	Instream Flow
Mech	Mechanical
Mfg	Manufacturing
Mil	Milling

Code	Use
Min	Mining
Misc	Miscellaneous
Mun	Municipal
Oil	Oil Refining or Production
P.C.	Pollution Control
Power	Power Development
R.R.	Railroad
Rec	Recreational
Ref	Refining
Res. Supply	Supply Facility for a Reservoir
S	Stock
T	Transportation

Water rights:

Two water rights summary tables are provided for each diversion serving irrigation referenced here. The first, included in the body of the diversion synopsis, refers to the rights on record with the State Engineer's Office and is derived from that office's *Tabulation of Adjudicated Surface Water Rights of the State of Wyoming, Water Division Number Two* (Oct. 1999).

Because this rights summary is pulled directly from the SEO *Tab,* the rights cited follow the SEO's priority order:

Hierarchy	Format of right	Example
1	Day, Month, Year	05-15-1884
2	Month and Year	05-00-1884
3	Specified Season and Year	Spring 1884
4	Year Only	1884
5	Before Year	Before 1884

Board orders or court orders may also establish a specific priority.

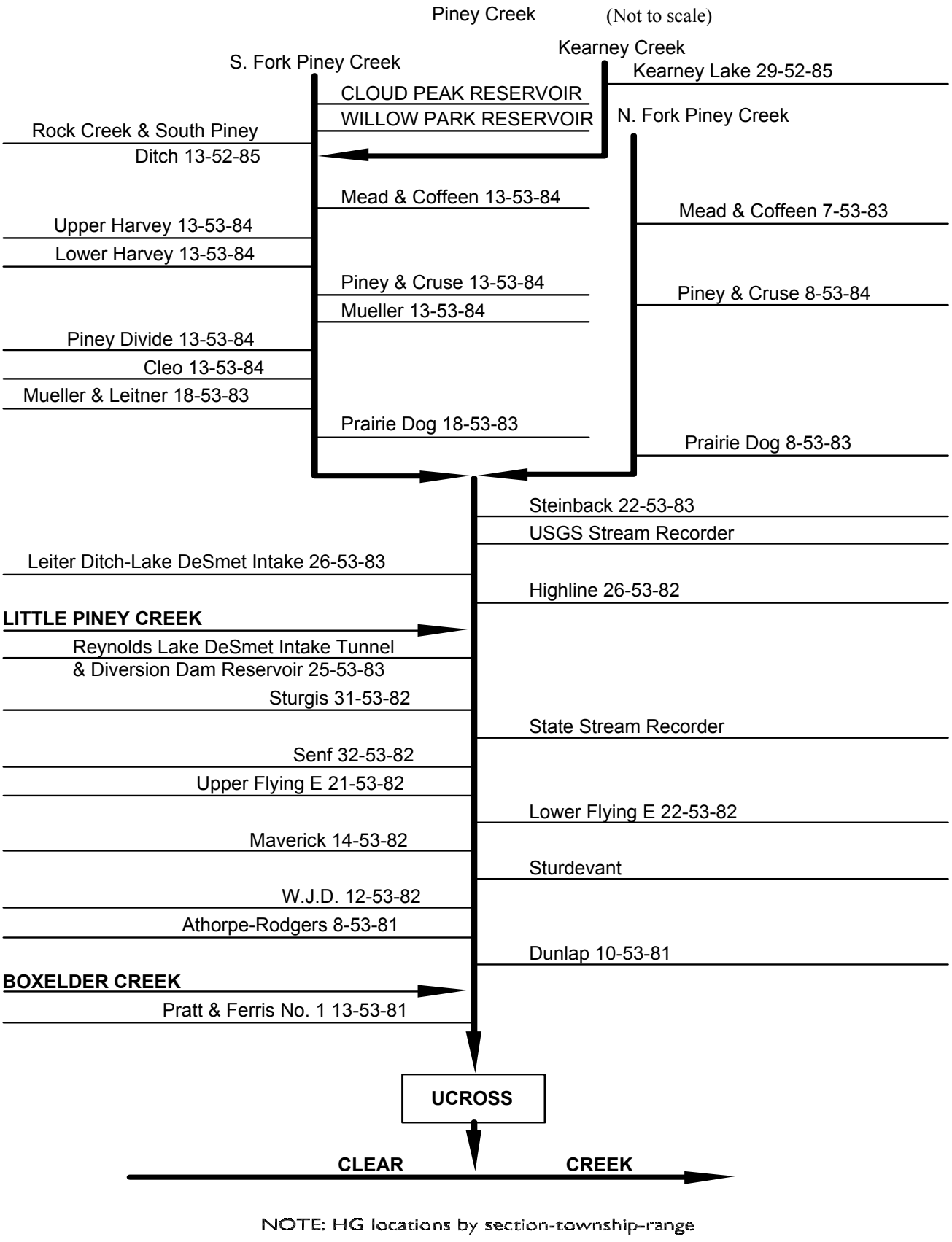
Irrigated Lands Water Rights Database

The second table, which follows the diversion synopsis, is taken from the irrigated lands water rights database developed for the basin plan. It can be used as a reference with the following caveats: It only lists water rights associated with the irrigated lands polygons mapped by HKM. The table does not include nonirrigation rights devoted to reservoir supply, municipal, fish propagation, etc. The rights on this table are associated only with those irrigated lands identified through the course of this study, both actively irrigated and currently idle.

Column Heading Key

PerNo	Permit Number	"Terr" denotes a territorial right.
PerSfx	Permit Suffix	D = direct flow E = enlargement R = reservoir
Facility Name		Parentheses denote the former means of conveyance for the water right.
Unit	Flow or volume	CFS = cubic feet per second AF = acre-feet GPM = gallons per minute
SupTyp	Supply Type	OS = original supply SS = supplement supply, for lands having an original supply from another source Sec = secondary supply, for water stored in a reservoir
Status	Status of adjudication	Adj = adjudicated Una = unadjudicated
Source	Source water	Parentheses denote the permit number of the related storage right.

Schematic diagram for Piney Creek drainage:



NOTE: HG locations by section-township-range

KEY DIVERSIONS

Diversion: **DUNLAP DITCH DIVERSION**

Date: 21 Sep. 2000

Dunlap Ditch Headgate

Diversion Description: Headgate consists of a single, 5 x 5-foot rectangular steel gate in steel slides operated with a Waterman-type screw, mounted in a concrete headwall. The structure diverts immediately through a 3-foot–diameter corrugated metal culvert.

Dunlap Ditch Flume

Diversion Location: The Dunlap Ditch diversion is located on the main stem of Piney Creek just upstream from the confluence of Piney Creek and Boxelder Creek.

Headgate:
Lat. Long.
N 44° 34' 36.5" W 106° 36' 23.0"

Flume:
Lat. Long.
N 44° 34' 40.1" W 106° 36' 11.9"

Conveyance Description: Open channel, approximately 3.5 miles long.

Direct Flow Water Rights: The direct-flow water rights are summarized below:

Permit	Priority Date	Permitted Use	Acres	Flow (cfs)	Cumulative (cfs)
Terr.	06-00-1882	I	463.70	6.63	6.63
Terr.	06-00-1882	I	150.00	2.14	8.77
Terr.	-1893	I	56.20	0.81	9.58
6373E	07-31-1970	I	78.20	1.11	10.69

Associated Storage Rights: Irrigators on the Dunlap Ditch use water from Lake DeSmet.

Irrigation Practices: 80% sprinkler, 20% flood.

Return Flows: Estimated percentage of total diversion developing into return flows:

Destination	Wet Yr.	Avg. Yr.	Dry Yr.
Piney Creek	50	35	25

Losses: Approximately 10 percent by the end of the ditch.

References: Carmine LoGuidice, water commissioner, State Engineer's Office, interview, 12 Oct. 2000

Irrigated Lands Water Rights Database

PerNo	PerSfx	Facility Name	Priority	Acres	Amount	Unit	SupTyp	Status	Source
Terr	D	Dunlap	June 30, 1882	613.71	8.77	CFS	OS	Adj	Piney Creek
Terr	D	Dunlap, 2nd Appropriation	Dec. 31, 1893	56.18	0.81	CFS	OS	Adj	Piney Creek
401	E	Enl. Athorpe (Dunlap)	Jan. 21, 1899	32.63	0.47	CFS	OS	Adj	Piney Creek
6373	E	Enl. Dunlap	July 31, 1970	78.2	1.11	CFS	OS	Adj	Piney Creek

Name	Dunlap Ditch Diversion
Source	Piney Creek
District	9
Data	Total monthly flow in AF

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
1970													
1971													
1972													
1973													
1974								0.00	471.39	812.27	749.91	0.00	2033.57
1975													
1976													
1977													
1978													
1979													
1980													
1981								669.37	892.81	846.54	1015.34	499.34	3923.40
1982								406.69	1094.96	611.40	752.66	139.24	3004.95
1983								531.14	1188.23	1131.77	849.12	821.06	4521.32
1984								0.00	430.15	726.22	729.32	67.82	1953.51
1985								360.20	529.59	750.94	467.21	219.97	2327.91
1986								30.50	583.59	652.40	515.77	39.22	1821.48
1987								131.80	303.96	430.20	331.77	0.00	1197.73
1988								0.00	194.74	685.26	601.41	123.68	1605.09
1989								309.02	547.93	619.34	655.14	205.39	2336.82
1990								0.00	582.05	630.00	651.77	0.00	1863.82
1991								0.00	0.00	406.02	709.04	287.85	1402.91
1992								271.44	379.54	537.92	442.51	162.05	1793.46
1993								188.93	496.76	317.49	331.40	482.38	1816.96
1994								175.30	538.88	589.37	482.79	182.96	1969.30
1995								0.00	55.28	336.17	548.55	354.47	1294.47
1996								0.74	308.77	448.41	340.51	312.47	1410.90
1997								0.00	154.35	524.05	367.99	32.00	1078.39
1998								147.30	580.19	538.36	607.23	79.47	1952.55
1999								0.00	106.56	392.78	575.58	331.76	1406.68
Mean								161.12	471.99	599.35	586.25	217.06	2035.76
Max								669.37	1188.23	1131.77	1015.34	821.06	4521.32
Min								0.00	0.00	317.49	331.40	0.00	1078.39

Notes:
1. Monthly data is derived from spot measurements in the Hydrographers' Annual Reports for years 1980 and later, and from WRDS for years prior to 1980
2. Zero flow is assumed prior to the first and after the last measurement
3. June & July 1974 data includes interpolated data using WRDS records.

Name	Dunlap Ditch Diversion		
Source	Piney Creek		
District	9		
Data	First & Last Dates, Max. Days		
Water Year	First Date of Measurement	Last Date of Measurement	Maximum Days Missing
1970			
1971			
1972			
1973			
1974	17-Jun	31-Aug	1
1975			
1976			
1977			
1978			
1979			
1980			
1981	10-May	28-Sep	36
1982	21-May	11-Sep	18
1983	21-May	30-Sep	9
1984	1-Jun	4-Sep	13
1985	16-May	13-Sep	15
1986	29-May	5-Sep	12
1987	15-May	21-Aug	45
1988	21-Jun	8-Sep	13
1989	15-May	15-Sep	21
1990	4-Jun	31-Aug	11
1991	12-Jul	13-Sep	4
1992	15-May	18-Sep	11
1993	17-May	29-Sep	7
1994	23-May	16-Sep	7
1995	19-Jun	27-Sep	5
1996	28-May	20-Sep	20
1997	3-Jun	11-Sep	29
1998	22-May	16-Sep	22
1999	10-Jun	20-Sep	18
Avg.	29-May	13-Sep	16
Earliest	10-May	21-Aug	1
Latest	12-Jul	30-Sep	45

Notes: 1. Data is from Hydrographers' Annual Reports for years 1980 and later, and from WRDS for years prior to 1980.

KEY DIVERSIONS

Diversion: **LEITER DITCH DIVERSION**
AKA: Leiter at Upper Weir, Upper Leiter


Leiter Ditch Headgate

Date: 21 Sep. 2000

Note: The Leiter Ditch serves to charge Lake DeSmet with Leiter Creek or Cadiz Draw water. It has essentially been replaced through Texaco's rights to ranches it has purchased over the past few decades on lower Piney Creek above DeSmet. Texaco now charges DeSmet with the rights for Leiter Ditch as a matter of convenience through its large diversion structure, the Reynolds Lake DeSmet intake tunnel and diversion dam reservoir. The Leiter Ditch is now only used occasionally.

Diversion Description: Headgate consists of two, 5 x 5-foot rectangular steel gates in steel slides operated with Waterman-type screws, mounted in a concrete headwall. One of the screws is bent.

Diversion Location: The Leiter Ditch diversion is located on the main stem of Piney Creek between the confluence of the North and South forks and the confluence of Little Piney Creek and Piney Creek.

Headgate:

Lat.	Long.
N 44° 32' 5.6"	W 106° 49' 8.9"

Flume:

Lat.	Long.
N 44° 32' 2.4"	W 106° 49' 6.9"


Leiter Ditch Flume

Conveyance Description: Open channel canal, approximately 3 miles long.

Direct Flow Water Rights: None.

Associated Storage Rights: The summary for storage rights associated with the Leiter Ditch follows:

Reservoir	Permit	Permitted Use	Priority Date	Volume (a-f)
Leiter Res.	5956R	I	09-15-1952	52.7

This reservoir is well downstream from Lake DeSmet in 33-55-78 (S-R-T).

Irrigation Practices: None.

Return Flows: None.

Losses: 0 to 5%

References: Warren Gilbert, water commissioner, State Engineer's Office, interview, 21 Sept. 2000

Irrigated Lands Water Rights Database
No rights in database.

Name	Leiter Ditch Diversion
Source	Piney Creek
District	11
Data	Total monthly flow in AF

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
1970													
1971													
1972													
1973													
1974													
1975													
1976													
1977													
1978													
1979													
1980				0.00	0.00	0.00	0.00	0.00	100.00	0.00	0.00		100.00
1981				353.00	573.00	950.00	0.00	0.00	0.00	0.00	0.00		1876.00
1982				0.00	0.00	0.00	0.00	0.00	2740.00	450.00	0.00		3190.00
1983				0.00	0.00	0.00	0.00	3450.00	7780.00	0.00	0.00		11230.00
1984				0.00	0.00	0.00	0.00	2755.00	4282.00	0.00	0.00		7037.00
1985													
1986				0.00	0.00	0.00	1817.00	44.00	0.00	0.00	0.00		1861.00
1987				0.00	0.00	0.00	0.00	2803.00	3378.00	0.00	0.00		6181.00
1988				0.00	0.00	0.00	0.00	4224.90	0.00	0.00	0.00		4224.90
1989				0.00	0.00	0.00	0.00	1607.00	0.00	0.00	0.00		1607.00
1990				0.00	0.00	0.00	0.00	0.00	2525.39	357.03	0.00		2882.42
1991				0.00	0.00	0.00	0.00	42.10	2375.00	0.00	0.00		2417.10
1992				0.00	0.00	0.00	0.00	0.00	642.30	791.40	0.00		1433.70
1993													
1994													
1995				0.00	0.00	0.00	0.00	1540.90	1953.30	0.00	0.00		3494.20
1996													
1997													
1998				0.00	0.00	0.00	0.00	0.00	1037.40	357.00	0.00		1394.40
1999													
Mean				25.21	40.93	67.86	129.79	1176.21	1915.24	139.67	0.00	#DIV/0!	3494.91
Max				353.00	573.00	950.00	1817.00	4224.90	7780.00	791.40	0.00	0.00	11230.00
Min				0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00

Notes: 1. Monthly data is from Hydrographers' Annual Reports for years 1980 and later, and from WRDS for years prior to 1980
2. Zero flow is assumed prior to the first and after the last measurement

Name	Leiter Ditch Diversion		
Source	Piney Creek		
District	11		
Data	First & Last Dates, Max. Days		
Water Year	First Date of Measurement	Last Date of Measurement	Maximum Days Missing
1970			
1971			
1972			
1973			
1974			
1975			
1976			
1977			
1978			
1979			
1980	13-Jun	16-Jun	0
1981	20-Jan	1-Apr	0
1982	16-Jun	4-Jul	0
1983	17-May	21-Jun	0
1984	18-May	13-Jun	0
1985			
1986	10-Apr	1-May	0
1987	29-Apr	26-Jun	0
1988	13-May	27-May	0
1989	2-May	22-May	0
1990	14-Jun	7-Jul	0
1991	31-May	10-Jun	0
1992	26-Jun	6-Jul	0
1993			
1994			
1995	16-May	19-Jun	0
1996			
1997			
1998	20-Jun	3-Jul	0
1999			
Avg.	15-May	10-Jun	0
Earliest	20-Jan	1-Apr	0
Latest	26-Jun	7-Jul	0

Notes: 1. Data is from Hydrographers' Annual Reports for years 1980 and later, and from WRDS for years prior to 1980.

KEY DIVERSIONS

Diversion: **MEAD & COFFEEN DITCH DIVERSION**

Date: 21 Sep. 2000

Note: Directly adjacent to the crossover diversion described below is a sink that delivers water to seeps to the north. When the head is raised too high on the crossover diversion, losses increase dramatically.

Because Mead & Coffeen Ditch runs through a channel cut through the hills separating the North Fork of Piney Creek from Mead & Coffeen Ditch, then runs well into the Little Goose drainage, the diversion represents a transbasin diversion, from Powder River to Tongue River drainage.

Mead & Coffeen crossover diversion structure (left) next to fish hatchery diversion (right)

Diversion Description: For the primary diversion, the headgate consists of two, 3.5 x 4.5-foot rectangular wooden gates in a concrete headwall operated with Waterman-type screws on a section of concrete channel. The structure is mounted in a concrete channel to separate it from the North Fork of Piney Creek and is adjacent to a concrete dam. Only one of the gates is operational.

Mead & Coffeen primary diversion

The Mead & Coffeen Ditch also has a crossover channel to move water from the South Fork of Piney Creek into the North Fork, where it can be diverted through the primary diversion above. The crossover channel has its own headgate, a single 5 x 6-foot rectangular wooden gate in steel slides operated with a Waterman-type screw, mounted in a concrete headwall. This structure is adjacent to the diversion for the fish hatchery in Story, a newer structure in excellent condition.

Diversion Location: The Mead & Cofffeen Ditch diversion consists of two diversions, the first a crossover diversion from the South Fork of Piney Creek to the North Fork, the second a diversion from the North Fork of Piney Creek. These diversions are located in the Story community area.

Primary Diversion Headgate:

Lat.	Long.
N 44° 34' 47.1"	W 106° 53' 36.1"

Crossover Diversion Headgate:

Lat.	Long.
N 44° 33' 26.7"	W 106° 56' 3.2"

Conveyance Description: Open channel canal. The crossover is approximately 2.2 miles long. The primary channel is approximately 13.6 miles long.

Direct Flow Water Rights: The summary for direct flow rights follows:

Permit	Priority Date	Permitted Use	Acres	Flow (cfs)	Cumulative (cfs)
Terr.	05-07-1884	I	61.5	0.88	0.88
Terr.	05-07-1884	D,I	318.5	4.55	5.43
Terr.	05-07-1884	I	25.0	0.36	5.79
Terr.	05-07-1884	I	42.5	0.6	6.39
Terr.	05-07-1884	I	140.0	2	8.39
Terr.	05-07-1884	I	140.0	2	10.39
Terr.	05-07-1884	I	42.5	0.6	10.99
Terr.	05-07-1884	I	80.0	1.14	12.13
Terr.	05-07-1884	I	750.0	10.71	22.84
Terr.	05-07-1884	D,I	20.0	0.28	23.12
234E	11-30-1896	I	160.0	2.28	25.4
234E	11-30-1896	I	450.0	6.42	31.82
298E	12-27-1897	I	55.0	0.78	32.6
328E	03-28-1898	I	70.0	1	33.6
3098E	12-15-1914	I	119	1.7	35.3
5358E	05-02-1942	I	567.0	8.1	43.4

Associated Storage Rights: Irrigators on the Mead & Coffeen Ditch use water stored in Willow Park and Kearney reservoirs.

Irrigation Practices: Irrigators tend to irrigate 30 percent alfalfa and 70 percent grass. They use a variety of irrigation practices: 50% flood, 30% sprinkler, 20% gated pipe.

Return Flows: Estimated percentage of total diversion developing into return flows:

Destination	Wet Yr.	Avg. Yr.	Dry Yr.
Little Goose	50	35	25

Losses: Approximately 15 percent by the end of the ditch.

References: Warren Gilbert, water commissioner, State Engineer's Office, interview, 21 Sept. 2000

Irrigated Lands Water Rights Database

PerNo	PerSfx	Facility Name	Priority	Acres	Amount	Unit	SupTyp	Status	Source
Terr	D	Mead Creek or Coffeen (Piney & Cruse, Snell Pumps No. 2 and No. 3)	May 17, 1884	1620	23.12	CFS	OS	Adj	Piney Creek (N. Piney & S. Piney)
Terr	D	Piney & Cruse, 2nd App. (Mead Creek or Coffeen)	Dec. 31, 1891	3111	44.38	CFS	OS	Adj	Piney Creek (N. Piney & S. Piney)
234	E	Enl. Mead Creek or Coffeen	Nov. 30, 1896	610	8.7	CFS	OS	Adj	Piney Creek (N. Piney & S. Piney)
298	E	Enl. Mead Creek or Coffeen	Dec. 27, 1897	55	0.79	CFS	OS	Adj	Piney Creek (N. Piney & S. Piney)
328	E	Enl. Mead Creek or Coffeen	March 28, 1898	70	1	CFS	OS	Adj	Piney Creek (N. Piney & S. Piney)
891	E	Enl. Mead Creek or Coffeen	Aug. 2, 1902	100	1.42	CFS	OS	Adj	Piney Creek (N. Piney & S. Piney)
3098	E	Enl. Mead Creek or Coffeen	Dec. 5, 1914	119	1.7	CFS	OS	Adj	Piney Creek (N. Piney & S. Piney)
5358	E	Enl. Mead Creek or Coffeen	May 2, 1942	567	8.1	CFS	OS	Adj	Piney Creek
5358	E	Enl. Mead Creek or Coffeen	May 2, 1942	135	0		SS	Adj	Piney Creek

Name	Mead & Coffeen Ditch Diversion
Source	North & South Piney Creeks
District	11
Data	Total monthly flow in AF

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
1970													
1971								82.16	1353.20	1503.07	1583.21	944.93	5466.57
1972								396.69	1629.22	1592.92	1394.38	1259.70	6272.91
1973								0.00	1130.58	1613.55	1634.97	858.39	5237.49
1974								430.41	1728.59	1591.93	1711.14	982.39	6444.46
1975								0.00	1281.58	1440.71	1585.09	1363.42	5670.80
1976								104.09	1375.38	1166.97	1059.17	594.45	4300.06
1977								665.26	1312.38	990.11	1147.10	690.13	4804.98
1978								0.00	15.27	1142.60	698.70	373.09	2229.66
1979													
1980								512.00	1207.00	1265.00	1776.00	1013.00	5773.00
1981								1050.00	951.00	1308.00	1197.00	286.00	4792.00
1982								0.00	510.00	910.00	1350.00	660.00	3430.00
1983								0.00	642.00	1160.00	1460.00	1130.00	4392.00
1984								0.00	319.00	1120.00	1080.00	500.00	3019.00
1985								419.00	959.00	1425.00	983.00	496.00	4282.00
1986								224.00	961.00	1199.00	1291.00	510.00	4185.00
1987								457.00	703.00	1578.00	838.00	261.00	3837.00
1988								184.20	1053.30	1278.00	706.00	523.70	3745.20
1989								281.90	1079.30	1131.30	1260.20	708.20	4460.90
1990								45.94	504.42	1038.34	1198.45	698.05	3485.20
1991								0.00	256.00	858.00	973.50	696.40	2783.90
1992								400.50	818.40	600.30	650.10	325.70	2795.00
1993								68.60	298.30	497.50	453.40	358.90	1676.70
1994								148.90	621.60	899.80	941.40	431.10	3042.80
1995								0.00	153.10	534.40	928.10	862.00	2477.60
1996								0.00	268.20	664.40	753.20	760.20	2446.00
1997								0.00	409.90	501.20	581.90	443.20	1936.20
1998								316.60	1008.00	846.30	847.30	590.10	3608.30
1999								46.60	466.70	837.30	1033.40	733.80	3117.80
Mean								208.35	821.98	1096.20	1111.28	680.49	3918.30
Max								1050.00	1728.59	1613.55	1776.00	1363.42	6444.46
Min								0.00	15.27	497.50	453.40	261.00	1676.70

Notes:
1. Monthly data is from Hydrographers' Annual Reports for years 1980 and later, and from WRDS for years prior to 1980
2. Zero flow is assumed prior to the first and after the last measurement
3. May & June 1971 data contains interpolated data using the WRDS records.

Name	Mead & Coffeen Ditch Diversion		
Source	North & South Piney Creeks		
District	11		
Data	First & Last Dates, Max. Days		
Water Year	First Date of Measurement	Last Date of Measurement	Maximum Days Missing
1970			
1971	25-May	20-Sep	2
1972	22-May	30-Sep	0
1973	5-Jun	25-Sep	0
1974	24-May	30-Sep	0
1975	1-Jun	30-Sep	0
1976	27-May	30-Sep	0
1977	9-May	30-Sep	0
1978	29-Jun	30-Sep	0
1979			
1980	6-May	22-Sep	0
1981	1-May	30-Sep	0
1982	1-Jun	30-Sep	0
1983	1-Jun	30-Sep	0
1984	1-Jun	30-Sep	0
1985	10-May	30-Sep	0
1986	19-May	30-Sep	0
1987	8-May	24-Sep	0
1988	17-May	30-Sep	0
1989	16-May	30-Sep	0
1990	26-May	30-Sep	0
1991	11-Jun	30-Sep	0
1992	11-May	30-Sep	0
1993	22-May	30-Sep	0
1994	14-May	30-Sep	0
1995	21-Jun	30-Sep	0
1996	1-Jun	30-Sep	0
1997	3-Jun	30-Sep	0
1998	17-May	30-Sep	0
1999	29-May	30-Sep	0
Avg.	24-May	28-Sep	0
Earliest	1-May	20-Sep	0
Latest	29-Jun	30-Sep	2

Notes: 1. Data is from Hydrographers' Annual Reports for years 1980 and later, and from WRDS for years prior to 1980.

KEY DIVERSIONS

Diversion: **PINEY & CRUSE DITCH DIVERSION**

Date: 21 Sep. 2000

Note: Because Piney & Cruse Ditch runs through a channel cut through the hills separating the North Fork of Piney Creek from Piney & Cruse Ditch, then runs well into the Little Goose drainage, the diversion represents a transbasin diversion, from Powder River to Tongue River drainage.

Piney & Cruse primary headgate

Diversion Description: For the primary diversion, the headgate consists of two, 4.5 x 4.7-foot rectangular steel gates on steel slides in a concrete headwall operated with Waterman-type screws on a section of concrete channel. The gates are in good condition.

Piney & Cruse crossover headgate to N. Piney

The Piney & Cruse Ditch also has a crossover channel to move water from the South Fork of Piney Creek into the North Fork, where it can be diverted through the primary diversion above. The crossover channel has its own headgate, a single 6.2 x 4.7-foot rectangular steel gate in steel slides operated with a Waterman-type screw, mounted in a river rock headwall. This diversion appears to be in good condition.

Piney & Cruse flume and recorder for crossover

Diversion Location: The Piney & Cruse Ditch diversion consists of two diversions, the first a crossover diversion from the South Fork of Piney Creek to the North Fork, the second a diversion from the North Fork of Piney Creek. These diversions are located in the Story community area.

Piney & Cruse flume, recorder, primary diversion, North Fork of Piney Creek

Primary Diversion Headgate:

Lat.	Long.
N 44° 34' 43.0"	W 106° 53' 11.8"

Flume:

Lat.	Long.
N 44° 34' 42.5"	W 106° 53' 10.8"

Crossover Diversion Headgate:

Lat.	Long.
N 44° 33' 32.6"	W 106° 55' 31.0"

Flume:

Lat.	Long.
N 44° 34' 48.3"	W 106° 53' 31.7"

Conveyance Description: Open channel canal. The crossover ditch is approximately 2.4 miles long. The primary ditch is approximately 4.6 miles long.

Direct Flow Water Rights: The summary of direct flow rights follows:

Permit	Priority Date	Permitted Use	Acres	Flow (cfs)	Cumulative (cfs)
Terr.	07-20-1885	I	1	0.01	0.01
Terr.	07-20-1885	I	10	0.14	0.15
Terr.	07-20-1885	D,I,S	20	0.29	0.44
Terr.	07-20-1885	I	25	0.36	0.8
Terr.	07-20-1885	I	37	0.53	1.33
Terr.	07-20-1885	I	40	0.57	1.9
Terr.	07-20-1885	I	40	0.57	2.47
Terr.	07-20-1885	I	40	0.57	3.04
Terr.	07-20-1885	I	40	0.57	3.61
Terr.	07-20-1885	I	42	0.6	4.21
Terr.	07-20-1885	I	45	0.64	4.85
Terr.	07-20-1885	I	50	0.71	5.56
Terr.	07-20-1885	I	60	0.86	6.42
Terr.	07-20-1885	I	60	0.86	7.28
Terr.	07-20-1885	I	70	1	8.28
Terr.	07-20-1885	I	70	1	9.28
Terr.	07-20-1885	I	90	1.29	10.57
Terr.	07-20-1885	I	100	1.43	12
Terr.	-1891	I	5	0.04	12.04
Terr.	-1891	I	10	0.14	12.18
Terr.	-1891	I	26	0.37	12.55
Terr.	-1891	I	30	0.43	12.98
Terr.	-1891	I	33	0.47	13.45
Terr.	-1891	I	40	0.58	14.03
Terr.	-1891	I	40	0.58	14.61
Terr.	-1891	I	50	0.71	15.32
Terr.	-1891	I	50	0.71	16.03
Terr.	-1891	I	60	0.86	16.89
Terr.	-1891	I	65	0.93	17.82
Terr.	-1891	I	70	1	18.82
Terr.	-1891	I	70	1	19.82
Terr.	-1891	I	75	1.07	20.89
Terr.	-1891	I	80	1.14	22.03
Terr.	-1891	I	80	1.14	23.17
Terr.	-1891	I	80	1.14	24.31
Terr.	-1891	I	80	1.14	25.45
Terr.	-1891	I	80	1.14	26.59
Terr.	-1891	I	80	1.14	27.73
Terr.	-1891	I	80	1.14	28.87

Direct Flow Rights cont'd.

Permit	Priority Date	Permitted Use	Acres	Flow (cfs)	Cumulative (cfs)
Terr.	-1891	I	80	1.14	30.01
Terr.	-1891	D,I	85	1.21	31.22
Terr.	-1891	I	88	1.26	32.48
Terr.	-1891	I	95	1.34	33.82
Terr.	-1891	I	100	1.43	35.25
Terr.	-1891	I	110	1.57	36.82
Terr.	-1891	I	120	1.71	38.53
Terr.	-1891	I	125	1.79	40.32
Terr.	-1891	I	139	1.99	42.31
Terr.	-1891	I	140	2	44.31
Terr.	-1891	I	155	2.21	46.52
Terr.	-1891	I	160	2.29	48.81
Terr.	-1891	I	220	3.14	51.95
Terr.	-1891	I	310	4.43	56.38
1242	05-27-1896	I	40	0.57	56.95
235E	01-08-1897	I	20	0.28	57.23
359E	08-12-1898	I	96	1.37	58.6
1086E	12-12-1902	I	35	0.5	59.1
991E	2-16-1903	I	73	1.04	60.14
1113E	8-7-1903	I	132	1.88	62.02
1434E	6-24-1905	I	37	0.52	62.54
3927E	6-10-1918	I	80	1.14	63.68

Associated Storage Rights: Irrigators on the Piney & Cruse Ditch use water stored in Willow Park and Kearney reservoirs.

Irrigation Practices: Irrigators tend to plant 30 percent alfalfa and 70 percent grass. They use a variety of irrigation practices: 60% flood, 20% sprinkler, 20% gated.

Return Flows: Estimated percentage of total diversion developing into return flows:

Destination	Wet Yr.	Avg. Yr.	Dry Yr.
Little Goose	50	35	25

Losses: Approximately 15 percent by the end of the ditch.

References: Warren Gilbert, water commissioner, State Engineer's Office, interview, 21 Sept. 2000

Irrigated Lands Water Rights Database

PerNo	PerSfx	Facility Name	Priority	Acres	Amount	Unit	SupTyp	Status	Source
Terr	D	Prairie Dog Water Supply Co., 1st App. (Piney & Cruse)	Oct. 1, 1880	163	2.32	CFS	OS	Adj	Piney Creek (N. Piney & S. Piney)
Terr	D	Prairie Dog Water Supply Co, 2nd App. (Piney & Cruse, Red Butte, Rose No.1)	May 1, 1884	3170.1	45.31	CFS	OS	Adj	Piney Creek (N. Piney & S. Piney)
Terr	D	Mead Creek or Coffeen (Piney & Cruse, Snell Pumps No. 2 and No. 3)	May 7, 1884	1620	23.12	CFS	OS	Adj	Piney Creek (N. Piney & S. Piney)
Terr	D	Piney & Cruse, 1st App.	July 20, 1885	840	12	CFS	OS	Adj	Piney Creek (N. Piney & S. Piney)

Irrigated Lands Water Rights Database cont'd.

PerNo	PerSfx	Facility Name	Priority	Acres	Amount	Unit	SupTyp	Status	Source
Terr	D	Prairie Dog Water Supply Co., 3rd App. (Piney & Cruse, Red Butte, Rose #1)	Aug. 3, 1885	5027.5	71.81	CFS	OS	Adj	Piney Creek (N. Piney & S. Piney)
Terr	D	Piney & Cruse, 2nd App. (Mead Creek or Coffeen)	Dec. 31, 1891	3111	44.38	CFS	OS	Adj	Piney Creek (N. Piney & S. Piney)
359	E	Enl. Piney & Cruse	Aug. 12, 1898	96	1.37	CFS	OS	Adj	Piney Creek (N. Piney & S. Piney)
1086	E	Enl. Piney & Cruse	Dec. 12, 1902	35	0.5	CFS	OS	Adj	Piney Creek (N. Piney & S. Piney)
991	E	Enl. Piney & Cruse	Feb. 16, 1903	73	1.04	CFS	OS	Adj	Piney Creek (N. Piney & S. Piney)
1113	E	Enl. Piney & Cruse	Aug. 7, 1903	132	1.88	CFS	OS	Adj	Piney Creek (N. Piney & S. Piney)
1434	E	Enl. Piney & Cruse Creek	June 24, 1905	37	0.52	CFS	OS	Adj	Piney Creek (N. Piney & S. Piney)
3927	E	Enl. Piney & Cruse/Robinson-Zullig	June 10, 1918	80	1.14	CFS	OS	Adj	Piney Creek (N. Piney & S. Piney)
21032	D	Piney & Cruse Creek	Sep. 2, 1952	599.6			Sec	Adj	South Piney Creek (973R)

Name	Piney & Cruse Ditch Diversion
Source	North & South Piney Creeks
District	11
Data	Total monthly flow in AF

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
1970													
1971							0.00	14.96	722.24	1203.37	989.65	326.52	3256.74
1972							0.00	303.51	1783.93	1259.90	1541.55	778.47	5667.36
1973							0.00	0.00	516.50	1629.02	1543.34	255.07	3943.93
1974							0.00	133.09	1814.88	1547.30	1510.81	365.55	5371.63
1975							0.00	0.00	724.18	1130.16	1209.88	444.75	3508.97
1976							0.00	272.57	789.82	1003.30	1082.95	537.14	3685.78
1977							0.00	487.18	1156.05	728.63	786.88	748.60	3907.34
1978							0.00	0.00	62.06	757.01	691.36	568.60	2079.03
1979													
1980							0.00	196.00	908.00	1429.00	889.00	517.00	3939.00
1981							0.00	778.00	742.00	1131.00	596.00	587.00	3834.00
1982							0.00	0.00	240.00	1110.00	1070.00	560.00	2980.00
1983							0.00	0.00	815.00	1640.00	1310.00	518.00	4283.00
1984							0.00	0.00	0.00	1180.00	1025.00	659.00	2864.00
1985							0.00	701.00	990.00	885.00	512.00	599.00	3687.00
1986							0.00	132.00	1437.00	1402.00	1246.00	521.00	4738.00
1987							0.00	792.00	1148.00	1180.00	1148.00	575.00	4843.00
1988							0.00	101.90	1289.50	1215.00	684.80	213.20	3504.40
1989							0.00	293.40	1007.50	1184.10	1267.80	924.80	4677.60
1990							0.00	43.66	446.07	1190.83	1202.16	803.67	3686.39
1991							0.00	0.00	394.30	1026.80	1031.20	923.50	3375.80
1992							48.40	775.80	990.30	854.30	898.80	660.10	4227.70
1993							0.00	102.90	288.40	318.30	652.80	662.50	2024.90
1994							0.00	292.20	866.20	670.00	791.20	567.90	3187.50
1995							0.00	0.00	51.40	485.50	1009.70	614.00	2160.60
1996							0.00	0.00	218.80	894.00	883.70	704.80	2701.30
1997							0.00	0.00	152.70	350.30	375.10	509.10	1387.20
1998							0.00	354.60	1006.40	822.00	925.30	785.20	3893.50
1999							0.00	0.00	384.70	564.50	761.00	590.60	2300.80
Mean							1.73	206.24	748.07	1028.26	987.00	590.00	3561.30
Max							48.40	792.00	1814.88	1640.00	1543.34	924.80	5667.36
Min							0.00	0.00	0.00	318.30	375.10	213.20	1387.20

Notes: 1. Monthly data is from Hydrographers' Annual Reports for years 1980 and later, and from WRDS for years prior to 1980
2. Zero flow is assumed prior to the first and after the last measurement

Name	Piney & Cruse Ditch Diversion		
Source	North & South Piney Creeks		
District	11		
Data	First & Last Dates, Max. Days		
Water Year	First Date of Measurement	Last Date of Measurement	Maximum Days Missing
1970			
1971	28-May	26-Sep	0
1972	19-May	30-Sep	0
1973	21-Jun	25-Sep	0
1974	27-May	12-Sep	0
1975	1-Jun	30-Sep	0
1976	4-May	30-Sep	0
1977	11-May	30-Sep	0
1978	26-Jun	30-Sep	0
1979			
1980	23-May	30-Sep	0
1981	1-May	30-Sep	0
1982	1-Jun	30-Sep	0
1983	6-Jun	30-Sep	0
1984	1-Jul	30-Sep	0
1985	10-May	30-Sep	0
1986	28-May	30-Sep	0
1987	13-May	30-Sep	0
1988	20-May	30-Sep	0
1989	15-May	30-Sep	0
1990	24-May	30-Sep	0
1991	13-Jun	30-Sep	0
1992	24-Apr	30-Sep	0
1993	21-May	30-Sep	0
1994	17-May	30-Sep	0
1995	13-Jun	30-Sep	0
1996	11-Jun	30-Sep	0
1997	3-Jun	30-Sep	0
1998	15-May	30-Sep	0
1999	5-Jun	30-Sep	0
Avg.	26-May	29-Sep	0
Earliest	24-Apr	12-Sep	0
Latest	1-Jul	30-Sep	0

Notes: 1. Data is from Hydrographers' Annual Reports for years 1980 and later, and from WRDS for years prior to 1980.

KEY DIVERSIONS

Diversion: **PINEY DIVIDE DITCH DIVERSION and LITTLE PINEY DITCH DIVERSION**
AKA: Little Piney Divide

Date: 21 Sep. 2000

Note: The Piney Divide Ditch represents the first segment of a diversion that takes water from the South Fork of Piney Creek to Bear Creek. It is routed through the Piney Divide diversion to Little Piney, then through the Little Piney Divide crossover to Bear Creek, and from Bear Creek through the downstream Little Piney Divide crossover to Little Piney Creek (which runs into Piney Creek).

Piney to Little Piney headgate

Diversion Description: Headgate consists of two, 4 x 3.4-foot rectangular wood-and-steel gates in steel slides operated with Waterman-type screws, mounted in a concrete headwall.

Piney Divide flume and recorder

Diversion Location: The Piney Divide Ditch diversion is located on the South Fork of Piney Creek between the confluence of the South Fork with Kearney Creek and its confluence with the North Fork of Piney Creek.

Piney Divide Headgate (South Fork Piney to Little Piney Creek):

Lat.	Long.
N 44° 33' 38.3"	W 106° 54' 46.2"

Flume:

Lat.	Long.
N 44° 33' 38.0"	W 106° 54' 44.6"

Little Piney Divide Headgate (Little Piney Creek to Bear Creek):

Lat.	Long.
N 44° 32' 33.3"	W 106° 52' 4.6"

Little Piney Divide Headgate (Bear Creek to Little Piney):

Lat.	Long.
N 44° 32' 12.3"	W 106° 52' 1.9"

Flume:

Lat.	Long.
N 44° 32' 14.1"	W 106° 51' 59.0"

Conveyance Description: Open channel canal, approximately 2 miles long.

Direct Flow Water Rights: The summary for direct flow rights for Piney Divide and Little Piney Divide follows:

Permit	Priority Date	Permitted Use	Acres	Flow (cfs)	Cumulative (cfs)
Terr.	05-01-1886	I	60.00	0.86	0.86
Terr.	05-01-1886	I	12.00	0.17	1.03
Terr.	05-01-1886	I	17.00	0.24	1.27
Terr.	05-01-1886	I	40.00	0.57	1.84
Terr.	12-31-1887	I	28.00	0.40	2.24
Terr.	12-31-1887	I	100.00	1.43	3.67
Terr.	12-31-1887	I	41.00	0.59	4.26
Terr.	12-31-1887	I	130.00	1.86	6.12
Terr.	12-31-1887	I	35.00	0.50	6.62
Terr.	12-31-1887	I	110.00	1.57	8.19
Terr.	12-31-1887	I	70.00	1.00	9.19
Terr.	12-31-1887	I	75.00	1.07	10.26
Terr.	12-31-1887	I	10.00	0.14	10.40
Terr.	12-31-1887	I	113.00	1.61	12.01
Terr.	12-31-1887	I	165.00	2.35	14.36
Terr.	12-31-1887	I	105.00	1.50	15.86
Terr.	12-31-1887	I	40.00	0.58	16.44
Terr.	12-31-1887	I	160.00	2.29	18.73
Terr.	12-31-1887	I	60.00	0.86	19.59
Terr.	12-31-1887	I	250.00	3.57	23.16
169E	12-05-1895	I	330.00	4.71	27.87
170E	12-05-1895	I	127.00	1.81	29.68
174E	12-23-1895	I	141.00	2.02	31.70
248E	10-06-1896	I	91.50	1.30	33.00
2616E	08-14-1911	I	102.00	1.46	34.46
3230E	07-03-1915	I	113.00	1.61	36.07
5795E	01-07-1955	I	133.00	1.90	37.97
6802E	12-20-1979	Fish		5.96	43.93

Note: Permit No. 3230E is drawn from Little Piney Creek and South Piney Creek. Permit No. 6802E is satisfied from Little Piney Creek; all others are satisfied from South Piney Creek. Permit No. 6802E applies Sept. 15 – Nov. 15.

Associated Storage Rights: Irrigators on the Piney Divide Ditch use water stored in Cloud Peak and Willow Park reservoirs.

Permit	Priority Date	Permitted Use	Acres	Volume (af)	Cumulative (af)
20616	10-10-1950	I,S	320	100	100
21080	08-02-1951	I	100	50	150
5616E	03-31-1952	I	320	50	200
21606	05-13-1955	I	485	50	250

Note: All of the permits listed in the table above denote rights for secondary supply. They are satisfied from natural flow of South Piney Creek in exchange for water stored in Lake DeSmet Reservoir and released to supply prior rights below DeSmet at a rate of 1.0 cfs for each 50 acre-feet of water stored.

Irrigation Practices: Irrigators tend to irrigate pasture, approximately 95 percent grass, five percent alfalfa. They use ditch-flood irrigation only.

Return Flows: Estimated percentage of total diversion developing into return flows:

Destination	Wet Yr.	Avg. Yr.	Dry Yr.
Piney Creek	50	35	25

Losses: Approximately 10 percent by the end of the ditch.

References: Warren Gilbert, water commissioner, State Engineer's Office, interview, 21 Sept. 2000

Irrigated Lands Water Rights Database

PerNo	PerSfx	Facility Name	Priority	Acres	Amount	Unit	SupTyp	Status	Source
169	E	Enl. Little Piney Divide	Dec. 5, 1895	330	4.71	CFS	OS	Adj	South Piney Creek
174	E	Enl. Little Piney Divide (Lower Harvey, Big Piney)	Dec. 23, 1895	141	2.02	CFS	OS	Adj	South Piney Creek
22649	D	Little Piney Divide or Piney Divide	July 26, 1961	330	0		Sec	Una	South Piney Creek Exchange (973R, 5829R)

Name	Piney Divide Ditch Diversion
Source	South Piney Creek
District	11
Data	Total monthly flow in AF

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
1970													
1971								288.73	1040.15	1667.90	956.23	892.56	4845.57
1972								79.74	1520.59	1423.34	1829.16	738.05	5590.88
1973								0.00	800.89	1488.99	927.11	712.46	3929.45
1974								194.42	1688.15	1446.82	1219.60	534.17	5083.16
1975								0.00	463.24	1284.67	933.06	1268.09	3949.06
1976								13.75	1213.78	1084.42	797.55	1216.86	4326.36
1977													
1978								0.00	269.63	757.21	1135.58	886.02	3048.44
1979													
1980								769.00	1136.00	1249.00	766.00	686.00	4606.00
1981								546.00	1330.00	1234.00	1021.00	471.00	4602.00
1982								0.00	370.00	1110.00	1160.00	810.00	3450.00
1983								0.00	485.00	1180.00	1390.00	749.00	3804.00
1984								0.00	449.00	1155.00	1264.00	952.00	3820.00
1985								401.00	1131.00	1186.00	837.00	646.00	4201.00
1986								249.00	1528.00	1253.00	1346.00	588.00	4964.00
1987								898.00	1073.00	886.00	1394.00	1065.00	5316.00
1988								455.60	1421.50	1153.20	1033.00	638.00	4701.30
1989								201.90	1182.50	1506.00	1359.50	925.70	5175.60
1990								519.26	1385.24	1400.77	1689.82	1047.21	6042.30
1991								147.70	1279.00	1680.90	1330.20	1200.00	5637.80
1992								391.70	1503.70	1174.00	1281.90	918.30	5269.60
1993								430.40	679.00	853.70	910.90	730.70	3604.70
1994								484.60	939.30	1324.80	1283.40	948.60	4980.70
1995								178.70	585.40	926.30	1015.80	688.50	3394.70
1996								228.00	838.30	1054.70	923.40	970.70	4015.10
1997								218.40	529.70	728.00	948.10	859.90	3284.10
1998								262.30	1423.10	1317.50	1525.10	958.90	5486.90
1999								157.50	643.80	900.20	1086.30	1163.90	3951.70
Mean								263.54	996.63	1200.98	1161.62	861.69	4484.46
Max								898.00	1688.15	1680.90	1829.16	1268.09	6042.30
Min								0.00	269.63	728.00	766.00	471.00	3048.44

Notes:
1. Monthly data is from Hydrographers' Annual Reports for years 1980 and later, and from WRDS for years prior to 1980
2. Zero flow is assumed prior to the first and after the last measurement
3. Aug 1972 data contains interpolated data using the WRDS records.

Name	Piney Divide Ditch Diversion		
Source	South Piney Creek		
District	11		
Data	First & Last Dates, Max. Days		
Water Year	First Date of Measurement	Last Date of Measurement	Maximum Days Missing
1970			
1971	19-May	30-Sep	0
1972	24-May	15-Sep	1
1973	1-Jun	24-Sep	0
1974	28-May	30-Sep	0
1975	1-Jun	30-Sep	0
1976	28-May	30-Sep	0
1977			
1978	19-Jun	30-Sep	0
1979			
1980	1-May	30-Sep	0
1981	1-May	30-Sep	0
1982	15-Jun	30-Sep	0
1983	4-Jun	30-Sep	0
1984	11-Jun	30-Sep	0
1985	21-May	30-Sep	0
1986	19-May	25-Sep	0
1987	1-May	30-Sep	0
1988	17-May	30-Sep	0
1989	15-May	30-Sep	0
1990	16-May	30-Sep	0
1991	19-May	30-Sep	0
1992	15-May	30-Sep	0
1993	9-May	30-Sep	0
1994	10-May	30-Sep	0
1995	5-May	30-Sep	0
1996	2-May	30-Sep	0
1997	16-May	30-Sep	0
1998	13-May	30-Sep	0
1999	21-May	30-Sep	0
Avg.	19-May	29-Sep	0
Earliest	1-May	15-Sep	0
Latest	19-Jun	30-Sep	1

Notes: 1. Data is from Hydrographers' Annual Reports for years 1980 and later, and from WRDS for years prior to 1980.

Name	Little Piney Ditch Diversion
Source	Little Piney Creek
District	11
Data	Total monthly flow in AF

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
1970													
1971													
1972													
1973													
1974													
1975													
1976													
1977													
1978													
1979													
1980													
1981								312.00	702.00	689.00	445.00	288.00	2436.00
1982								0.00	243.18	255.17	396.50	95.01	989.86
1983								0.00	193.98	470.74	650.06	133.81	1448.59
1984								0.00	213.13	403.52	455.98	0.00	1072.63
1985								354.97	287.23	512.27	285.48	0.00	1439.95
1986								247.83	437.45	565.43	285.67	0.00	1536.38
1987													
1988								77.36	0.00	0.00	0.00	0.00	77.36
1989													
1990								0.00	672.33	1073.37	1145.69	305.36	3196.75
1991													
1992								251.31	480.20	266.08	409.44	293.16	1700.19
1993								57.12	571.54	143.60	313.09	293.95	1379.30
1994								456.08	595.47	395.96	461.20	280.24	2188.95
1995								0.00	0.00	92.85	361.58	174.08	628.51
1996								81.96	316.01	148.06	263.75	251.97	1061.75
1997								81.25	210.23	271.31	212.85	107.16	882.80
1998								151.55	170.66	148.32	382.21	253.10	1105.84
1999								27.41	83.31	197.21	410.02	276.36	994.31
Mean								131.18	323.55	352.06	404.91	172.01	1383.70
Max								456.08	702.00	1073.37	1145.69	305.36	3196.75
Min								0.00	0.00	0.00	0.00	0.00	77.36

Notes:
1. Monthly data is derived from spot measurements in the Hydrographers' Annual Reports for years 1980 and later, and from WRDS for years prior to 1980
2. Zero flow is assumed prior to the first and after the last measurement
3. Monthly data for 1981 is derived from published AF values in the Hydrographers Annual Reports.

Name	Little Piney Ditch Diversion		
Source	Little Piney Creek		
District	11		
Data	First & Last Dates, Max. Days		
Water Year	First Date of Measurement	Last Date of Measurement	Maximum Days Missing
1970			
1971			
1972			
1973			
1974			
1975			
1976			
1977			
1978			
1979			
1980			
1981	1-May	30-Sep	0
1982	8-Jun	8-Sep	27
1983	14-Jun	15-Sep	12
1984	6-Jun	31-Aug	16
1985	2-May	14-Aug	48
1986	17-May	14-Aug	17
1987			
1988	25-May	26-May	0
1989			
1990	19-Jun	14-Sep	28
1991			
1992	15-May	28-Sep	11
1993	28-May	29-Sep	9
1994	2-May	30-Sep	10
1995	17-Jul	27-Sep	5
1996	1-May	30-Sep	16
1997	12-May	13-Sep	25
1998	15-May	17-Sep	8
1999	22-May	29-Sep	14
Avg.	24-May	8-Sep	15
Earliest	1-May	26-May	0
Latest	17-Jul	30-Sep	48

Notes: 1. Data is from Hydrographers' Annual Reports for years 1980 and later, and from WRDS for years prior to 1980.

KEY DIVERSIONS

Diversion: **PRAIRIE DOG DITCH DIVERSION**

Date: 21 Sep. 2000

Diversion Description:

For the primary diversion, the headgate consists of two, 5 x 4.5-foot rectangular steel gates in steel slides operated with Waterman-type screws, mounted in a concrete headwall on a section of concrete channel.

Prairie Dog , Primary Diversion headgate

Prairie Dog Ditch also has a crossover channel to move water from the South Fork of Piney Creek into the North Fork, where it can be diverted through the primary diversion above. The crossover channel has its own headgate, two 4.2 x 4.8-foot rectangular steel gates in steel slides operated with Waterman-type screws, mounted in a concrete headwall.

Prairie Dog flume

Diversion Location:

The Prairie Dog Ditch diversion consists of two diversions, the first a crossover diversion from the South Fork of Piney Creek to the North Fork, the second a diversion from the North Fork of Piney Creek. These diversions are located in the Story community area. Because Piney Creek is a tributary to the Powder River, these diversions fall under the control of the Yellowstone River Compact.

Prairie Dog crossover, S. Piney to N. Piney headgate

Primary Diversion Headgate:

Lat.	Long.
N 44° 34' 40.1"	W 106° 52' 56.6"

Flume:

Lat.	Long.
N 44° 34' 41.0"	W 106° 52' 54.2"

Crossover Diversion Headgate:

Lat.	Long.
N 44° 34' 11.9"	W 106° 53' 44.9"

Conveyance Description: Open channel canal, approximately 1 mile total, open ditch crossover flow south to North Fork of Piney (includes 20 miles of natural conveyance).

Direct Flow Water Rights: The summary for direct flow rights follows:

Permit	Priority Date	Permitted Use	Acres	Flow (cfs)	Cumulative (cfs)
Terr.	10-01-1880	I	3	0.04	0.04
Terr.	10-01-1880	D,I	30	0.43	0.47
Terr.	10-01-1880	D,I	50	0.71	1.18
Terr.	10-01-1880	I	80	1.14	2.32
Terr.	05-01-1884	I	4	0.06	2.38
Terr.	05-01-1884	I	5	0.07	2.45
Terr.	05-01-1884	D,I	5	0.07	2.52
Terr.	05-01-1884	I	15	0.21	2.73
Terr.	05-01-1884	D,I	20	0.29	3.02
Terr.	05-01-1884	I	20	0.29	3.31
Terr.	05-01-1884	D,I	20	0.29	3.60
Terr.	05-01-1884	I	25	0.36	3.96
Terr.	05-01-1884	I	25	0.36	4.32
Terr.	05-01-1884	I	25	0.36	4.68
Terr.	05-01-1884	I	25	0.36	5.04
Terr.	05-01-1884	I	30	0.43	5.47
Terr.	05-01-1884	I	30	0.43	5.90
Terr.	05-01-1884	I	30	0.43	6.33
Terr.	05-01-1884	I	35	0.50	6.83
Terr.	05-01-1884	I	35	0.50	7.33
Terr.	05-01-1884	I	40	0.57	7.90
Terr.	05-01-1884	I	45	0.64	8.54
Terr.	05-01-1884	D,I	50	0.71	9.25
Terr.	05-01-1884	I	60	0.86	10.11
Terr.	05-01-1884	I	70	1.00	11.11
Terr.	05-01-1884	I	70	1.00	12.11
Terr.	05-01-1884	I	80	1.14	13.25
Terr.	05-01-1884	I	83	1.19	14.44
Terr.	05-01-1884	D,I	89	1.27	15.71
Terr.	05-01-1884	I	90	1.29	17.00
Terr.	05-01-1884	I	100	1.43	18.43
Terr.	05-01-1884	I	100	1.43	19.86
Terr.	05-01-1884	I	100.6	1.43	21.29
Terr.	05-01-1884	I	125	1.79	23.08
Terr.	05-01-1884	I	136.4	1.95	25.03
Terr.	05-01-1884	D,I	150	2.14	27.17
Terr.	05-01-1884	I	156.3	2.23	29.40
Terr.	05-01-1884	I	175	2.50	31.90
Terr.	05-01-1884	I	200	2.86	34.76
Terr.	05-01-1884	I	200	2.86	37.62
Terr.	05-01-1884	I	203.7	2.91	40.53
Terr.	05-01-1884	I	226.4	3.24	43.77
Terr.	05-01-1884	I	270.7	3.86	47.63
Terr.	08-03-1885	I	25	0.36	47.99
Terr.	08-03-1885	I	25	0.36	48.35
Terr.	08-03-1885	I	26	0.37	48.72
Terr.	08-03-1885	I	27.2	0.39	49.11
Terr.	08-03-1885	I	32.7	0.47	49.58
Terr.	08-03-1885	I	45	0.64	50.22

Direct Flow Rights cont'd:

Permit	Priority Date	Permitted Use	Acres	Flow (cfs)	Cumulative (cfs)
Terr.	08-03-1885	I	45	0.64	50.86
Terr.	08-03-1885	I	50	0.71	51.57
Terr.	08-03-1885	I	54.4	0.78	52.35
Terr.	08-03-1885	I	55	0.79	53.14
Terr.	08-03-1885	I	66	0.94	54.08
Terr.	08-03-1885	D,I,S	73.3	1.05	55.13
Terr.	08-03-1885	I	75	1.07	56.20
Terr.	08-03-1885	I	85.2	1.21	57.41
Terr.	08-03-1885	D,I	88.4	1.26	58.67
Terr.	08-03-1885	I	89	1.27	59.94
Terr.	08-03-1885	I	90	1.29	61.23
Terr.	08-03-1885	I	90	1.29	62.52
Terr.	08-03-1885	I	90.2	1.29	63.81
Terr.	08-03-1885	I	91	1.30	65.11
Terr.	08-03-1885	I	97.3	1.39	66.50
Terr.	08-03-1885	I	105	1.50	68.00
Terr.	08-03-1885	D,I,S	36.2	1.51	69.51
Terr.	08-03-1885	D,I	110	1.57	71.08
Terr.	08-03-1885	I	115.4	1.65	72.73
Terr.	08-03-1885	I	124	1.77	74.50
Terr.	08-03-1885	I	125	1.79	76.29
Terr.	08-03-1885	I	127	1.81	78.10
Terr.	08-03-1885	I	130	1.86	79.96
Terr.	08-03-1885	I	130	1.86	81.82
Terr.	08-03-1885	I	130	1.86	83.68
Terr.	08-03-1885	I	135	1.93	85.61
Terr.	08-03-1885	I	145.9	2.08	87.69
Terr.	08-03-1885	I	157.1	2.24	89.93
Terr.	08-03-1885	I	175	2.50	92.43
Terr.	08-03-1885	I	180	2.57	95.00
Terr.	08-03-1885	I	238	3.40	98.40
Terr.	08-03-1885	I	275	3.93	102.33
Terr.	08-03-1885	I	292.2	4.17	106.50
Terr.	08-03-1885	I	339	4.84	111.34
Terr.	08-03-1885	I	637	9.10	120.44
Terr.	-1894	I	70	1.00	121.44
Terr.	-1894	I	80	1.14	122.58
264E	04-27-1897	I	55	0.78	123.36
282E	10-18-1897	I	25	0.35	123.71
346E	06-13-1898	I	150	2.14	125.85
1064E	01-02-1903	I	84	1.20	127.05
1370E	01-24-1905	I	77	1.10	128.15
4225E	07-30-1921	D	0	0.46	128.61
4224E	07-30-1921	Power	0	9.60	138.21
16791	05-15-1922	I	1.5	0.02	138.23
16791	05-15-1922	I	4	0.06	138.29
16791	05-15-1922	I	5	0.07	138.36
16791	05-15-1922	I	6.8	0.10	138.46
16791	05-15-1922	I	7.5	0.10	138.56
16791	05-15-1922	I	8	0.11	138.67

Direct Flow Rights cont'd:

Permit	Priority Date	Permitted Use	Acres	Flow (cfs)	Cumulative (cfs)
16791	05-15-1922	I	8.2	0.11	138.78
16791	05-15-1922	I	10	0.14	138.92
16791	05-15-1922	I	12.5	0.18	139.10
16791	05-15-1922	I	13.2	0.19	139.29
16791	05-15-1922	I	20.7	0.29	139.58
16791	05-15-1922	I	22.6	0.32	139.90
16791	05-15-1922	I	47	0.67	140.57
16791	05-15-1922	I	88.4	1.26	141.83

Associated Storage Rights: Irrigators on Prairie Dog Ditch use water stored in Kearney and Willow reservoirs.

Irrigation Practices: Irrigators tend to irrigate 50 percent alfalfa and 50 percent grass. They use a variety of irrigation practices: 60% flood, 20% sprinkler, 20% gated pipe.

Return Flows: Estimated percentage of total diversion developing into return flows:

Destination	Wet Yr.	Avg. Yr.	Dry Yr.
Prairie Dog Creek	50	35	25

Losses: Approximately 10 percent by the end of the ditch.

References: Warren Gilbert, water commissioner, State Engineer's Office, interview, 21 Sept. 2000

Irrigated Lands Water Rights Database

PerNo	PerSfx	Facility Name	Priority	Acres	Amount	Unit	SupTyp	Status	Source
Terr	D	Prairie Dog Water Supply Co., 1st App. (Piney & Cruse)	Oct. 1, 1880	163	2.32	CFS	OS	Adj	Piney Creek (N. Piney & S. Piney)
Terr	D	Prairie Dog Water Supply Co, 2nd App. (Piney & Cruse, Red Butte, Rose No.1)	May 1, 1884	3170.1	45.31	CFS	OS	Adj	Piney Creek (N. Piney & S. Piney)
Terr	D	Prairie Dog Water Supply Co., 3rd App. (Piney & Cruse, Red Butte, Rose #1)	Aug. 3, 1885	5027.5	71.81	CFS	OS	Adj	Piney Creek (N. Piney & S. Piney)
Terr	D	Prairie Dog Water Supply Co., 3rd App. (Piney & Cruse, Red Butte, Rose #1)	Aug. 3, 1885	145.9	2.08	CFS	OS	Adj	Piney Creek (N. Piney & S. Piney)
Terr	D	Prairie Dog Water Supply Co., 4th App.	Dec. 31, 1894	150	2.14	CFS	OS	Adj	Piney Creek (N. Piney & S. Piney)
264	E	Enl. Prairie Dog Water Supply Co.	April 12, 1897	55	0.78	CFS	OS	Adj	Piney Creek (N. Piney & S. Piney)
346	E	Enl. Prairie Dog Water Supply Co. & Nine Mile	June 13, 1898	150	2.14	CFS	OS	Adj	Piney Creek (N. Piney & S. Piney)
10658	D	Willey & Harden Lateral Prairie Dog Water Supply C	April 20, 1911	155	0		SS	Adj	Mead Creek
16765	D	Prairie Dog Water Supply Companys	Dec. 6, 1920	5240	0		SS	Una	South Fork Piney Creek
16790	D	Prairie Dog Water Supply Co.	May 15, 1922	4	0		SS	Adj	North Piney Creek
16790	D	Prairie Dog Water Supply Co.	May 15, 1922	5	0		SS	Adj	North Piney Creek

Irrigated Lands Water Rights Database cont'd.

PerNo	PerSfx	Facility Name	Priority	Acres	Amount	Unit	SupTyp	Status	Source
16790	D	Prairie Dog Water Supply Co.	May 15, 1922	7.5	0		SS	Adj	North Piney Creek
16790	D	Prairie Dog Water Supply Co.	May 15, 1922	12.5	0		SS	Adj	North Piney Creek
16790	D	Prairie Dog Water Supply Co.	May 15, 1922	20.7	0		SS	Adj	North Piney Creek
16790	D	Prairie Dog Water Supply Co.	May 15, 1922	47	0		SS	Adj	North Piney Creek
16790	D	Prairie Dog Water Supply Co.	May 15, 1922	119.4	0		SS	Adj	North Piney Creek
16790	D	Prairie Dog Water Supply Ditch Co.	May 15, 1922	286.4	0		SS	Adj	North Piney Creek
16790	D	Prairie Dog Water Supply Co.	May 15, 1922	450.4	0		SS	Una	North Piney Creek
16791	D	Prairie Dog Water Supply Co.	May 15, 1922	4	0.06	CFS	OS	Adj	South Piney Creek
16791	D	Prairie Dog Water Supply Co.	May 15, 1922	5	0.07	CFS	OS	Adj	South Piney Creek
16791	D	Prairie Dog Water Supply Co.	May 15, 1922	7.5	0.1	CFS	OS	Adj	South Piney Creek
16791	D	Prairie Dog Water Supply Co.	May 15, 1922	12.5	0.18	CFS	OS	Adj	South Piney Creek
16791	D	Prairie Dog Water Supply Co.	May 15, 1922	18	0		SS	Adj	South Piney Creek
16791	D	Prairie Dog Water Supply Co.	May 15, 1922	20.7	0.29	CFS	OS	Adj	South Piney Creek
16791	D	Prairie Dog Water Supply Co.	May 15, 1922	47	0.67	CFS	SS	Adj	South Piney Creek
16791	D	Prairie Dog Water Supply Co.	May 15, 1922	88.4	1.26	CFS	OS	Adj	South Piney Creek
16791	D	Prairie Dog Water Supply Ditch Co.	May 15, 1922	255.4	3.62	CFS	OS	Adj	South Piney Creek
5401	E	Enl. Prairie Dog Water Supply No. 13	Dec. 10, 1945	97	1.39	CFS	OS	Adj	Prairie Dog Creek
20615	D	Prairie Dog Water Supply Co.	Aug. 17, 1950	138.5	0		SEC	Adj	South Piney Creek (973R)
22280	D	Prairie Dog Water Supply	Oct. 17, 1955	301	0		SEC	Adj	South Piney Creek (973R)

Name	Prairie Dog Ditch Diversion
Source	North & South Piney Creeks
District	11
Data	Total monthly flow in AF

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
1970													
1971							0.00	654.58	2075.23	3981.02	3459.57	1510.81	11681.21
1972							0.00	794.18	2408.53	2817.72	3043.63	2286.35	11350.41
1973							0.00	0.00	3508.56	3172.16	3194.97	2102.08	11977.77
1974							0.00	977.85	3296.53	3626.38	3463.54	1718.28	13082.58
1975							0.00	0.00	2357.85	3059.42	3543.91	1418.58	10379.76
1976							0.00	885.86	3017.63	3530.50	3596.37	3479.11	14509.47
1977							0.00	0.00	0.00	0.00	3323.13	2518.73	5841.86
1978							0.00	0.00	148.92	2252.17	3313.64	2020.96	7735.69
1979													
1980							0.00	2153.00	2628.00	3293.00	3050.00	1824.00	12948.00
1981							0.00	1914.00	1852.00	2751.00	2952.00	1605.00	11074.00
1982							0.00	1850.00	1750.00	2540.00	3240.00	1490.00	10870.00
1983							0.00	0.00	3730.00	3450.00	3540.00	2070.00	12790.00
1984							0.00	0.00	2370.00	3890.00	4550.00	2055.00	12865.00
1985							0.00	2979.00	3512.00	4019.00	3491.00	1687.00	15688.00
1986							0.00	2505.00	2555.00	3256.00	3162.00	2025.00	13503.00
1987							0.00	3370.00	2997.00	3745.00	2887.00	1954.00	14953.00
1988							0.00	1068.30	4064.80	3625.20	3712.40	1922.90	14393.60
1989							0.00	816.00	3314.20	3577.90	3363.30	1810.80	12882.20
1990							0.00	969.67	2833.15	3615.27	3364.31	1069.09	11851.49
1991							0.00	571.40	2098.30	4026.20	3771.50	1649.50	12116.90
1992							271.90	2696.00	3011.30	3014.70	3542.30	1119.90	13656.10
1993							0.00	533.70	1158.50	1578.70	1834.10	1337.30	6442.30
1994							0.00	438.80	3406.50	4094.10	3997.60	1277.80	13214.80
1995							294.60	202.90	848.20	2919.70	4157.80	2240.70	10663.90
1996							0.00	654.70	2240.70	4105.80	3838.10	2640.00	13479.30
1997							0.00	1036.00	2239.00	2732.70	2763.90	1009.30	9780.90
1998							0.00	1863.30	4283.40	3796.50	4008.70	2332.20	16284.10
1999							0.00	419.00	1845.50	3078.30	3974.20	2638.70	11955.70
Mean							20.23	1048.33	2483.96	3198.16	3433.53	1886.18	12070.39
Max							294.60	3370.00	4283.40	4105.80	4550.00	3479.11	16284.10
Min							0.00	0.00	0.00	0.00	1834.10	1009.30	5841.86

Notes: 1. Monthly data is from Hydrographers' Annual Reports for years 1980 and later, and from WRDS for years prior to 1980
2. Zero flow is assumed prior to the first and after the last measurement

Name	Prairie Dog Ditch Diversion		
Source	North & South Piney Creeks		
District	11		
Data	First & Last Dates, Max. Days		
Water Year	First Date of Measurement	Last Date of Measurement	Maximum Days Missing
1970			
1971	22-May	27-Sep	0
1972	19-May	30-Sep	0
1973	1-Jun	25-Sep	0
1974	15-May	30-Sep	0
1975	1-Jun	30-Sep	0
1976	11-May	30-Sep	0
1977	1-Aug	30-Sep	0
1978	27-Jun	30-Sep	0
1979			
1980	1-May	30-Sep	0
1981	1-May	30-Sep	0
1982	1-May	30-Sep	0
1983	1-Jun	30-Sep	0
1984	1-Jun	30-Sep	0
1985	6-May	30-Sep	0
1986	1-May	30-Sep	0
1987	1-May	30-Sep	0
1988	18-May	30-Sep	0
1989	16-May	30-Sep	0
1990	22-May	30-Sep	0
1991	22-May	30-Sep	0
1992	24-Apr	15-Sep	0
1993	6-May	30-Sep	0
1994	26-May	15-Sep	0
1995	18-Apr	30-Sep	0
1996	2-May	30-Sep	0
1997	15-May	30-Sep	0
1998	15-May	30-Sep	0
1999	21-May	30-Sep	0
Avg.	17-May	28-Sep	0
Earliest	18-Apr	15-Sep	0
Latest	1-Aug	30-Sep	0

Notes: 1. Data is from Hydrographers' Annual Reports for years 1980 and later, and from WRDS for years prior to 1980.

KEY DIVERSIONS

Diversion: **PRATT & FERRIS NO. 1 DITCH DIVERSION**
AKA: P&F No. 1

Pratt & Ferris No. 1 Headgate

Date: 21 Sep. 2000

Diversion Description: Headgate consists of a single, 4.5 x 4.5-foot rectangular steel gate in steel slides operated with a Waterman-type screw, mounted in a concrete headwall. The structure adjoins a concrete dam.

Diversion Location: The Pratt & Ferris No. 1 Ditch diversion is located on the main stem of Piney Creek just upstream from Ucross.

Headgate:

Lat.	Long.
N 44° 34' 1.1"	W 106° 33' 27.1"

Flume:

Lat.	Long.
N 44° 33' 55.9"	W 106° 33' 23.4"

Pratt & Ferris No. 1 Flume

Conveyance Description: Open channel, approximately 6 miles long.

Direct Flow Water Rights: The direct-flow water rights are summarized below:

Permit	Priority Date	Permitted Use	Acres	Flow (cfs)	Cumulative (cfs)
Terr.	07-00-1884	I	900.00	12.86	12.86
1039E	05-09-1903	I	288.10	4.12	16.98
5516E	03-20-1950	I	33.40	0.48	17.46
5606E	03-06-1952	I	47.55	0.68	18.14

Associated Storage Rights: Irrigators on the Pratt & Ferris No. 1 use water stored in Lake DeSmet.

Irrigation Practices: 90% flood, 10% sprinkler

Return Flows: Estimated percentage of total diversion developing into return flows:

Destination	Wet Yr.	Avg. Yr.	Dry Yr.
Powder River	50	35	25

Losses: Approximately 10 percent by the end of the ditch.

References: Carmine LoGuidice, water commissioner, State Engineer's Office, interview, 12 Oct. 2000.

Irrigated Lands Water Rights Database

PerNo	PerSfx	Facility Name	Priority	Acres	Amount	Unit	SupTyp	Status	Source
1039	E	Enl. Pratt & Ferris No. 1	May 9, 1903	288.1	4.12	CFS	OS	Adj	Piney Creek
5438	E	Enl. Pratt & Ferris No. 1	April 18, 1947	180	0		SS	Adj	Piney Creek
5516	E	Enl. Pratt & Ferris No. 1	March 20, 1950	33.4	0.48	CFS	OS	Adj	Piney Creek
5606	E	Enl. Pratt & Ferris No. 1	March 6, 1952	47.55	0.68	CFS	OS	Adj	Piney Creek

Name	Pratt & Ferris No. 1 Ditch Diversion
Source	Piney Creek
District	9
Data	Total monthly flow in AF

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
1970													
1971													
1972													
1973													
1974								0.00	774.35	1864.82	780.46	0.00	3419.63
1975													
1976													
1977													
1978													
1979													
1980													
1981								1009.51	1250.95	1807.87	697.94	380.63	5146.90
1982								211.28	1791.99	1793.55	1090.61	229.22	5116.65
1983								302.83	1789.64	1774.08	1030.31	458.97	5355.83
1984								0.00	1449.27	1171.58	1608.73	0.00	4229.58
1985								848.97	1299.07	1370.59	868.65	320.83	4708.11
1986								126.52	1267.76	1869.92	1564.61	166.26	4995.07
1987								817.42	1171.15	1678.36	1020.50	0.00	4687.43
1988								0.00	362.51	1356.66	1476.46	172.01	3367.64
1989								523.64	1451.11	1738.71	1800.40	488.43	6002.29
1990								105.92	1871.01	1639.73	1194.45	195.97	5007.08
1991								166.41	343.80	1516.37	1650.94	592.36	4269.88
1992								680.63	950.58	1715.30	1075.24	299.40	4721.15
1993								616.96	1085.35	1263.57	1190.18	926.58	5082.64
1994								444.06	1483.76	1489.03	1164.45	576.46	5157.76
1995								0.00	340.88	1379.56	1392.39	1265.01	4377.84
1996								243.05	772.34	1355.58	1122.72	527.30	4020.99
1997								0.00	1234.52	1407.37	528.17	404.15	3574.21
1998								159.16	752.48	1169.81	1222.61	248.09	3552.15
1999								0.00	52.76	959.66	1593.73	460.09	3066.24
Mean								312.82	1074.76	1516.11	1203.68	385.59	4492.95
Max								1009.51	1871.01	1869.92	1800.40	1265.01	6002.29
Min								0.00	52.76	959.66	528.17	0.00	3066.24

Notes:
1. Monthly data is derived from spot measurements in the Hydrographers' Annual Reports for years 1980 and later, and from WRDS for years prior to 1980
2. Zero flow is assumed prior to the first and after the last measurement
3. July 1974 data includes interpolated data using WRDS records.

Name	Pratt & Ferris No. 1 Ditch Diversion		
Source	Piney Creek		
District	9		
Data	First & Last Dates, Max. Days		
Water Year	First Date of Measurement	Last Date of Measurement	Maximum Days Missing
1970			
1971			
1972			
1973			
1974	17-Jun	31-Aug	1
1975			
1976			
1977			
1978			
1979			
1980			
1981	14-May	28-Sep	15
1982	26-May	20-Sep	18
1983	25-May	30-Sep	8
1984	1-Jun	30-Aug	10
1985	14-May	13-Sep	13
1986	29-May	5-Sep	11
1987	12-May	21-Aug	31
1988	21-Jun	8-Sep	13
1989	15-May	15-Sep	5
1990	28-May	14-Sep	11
1991	15-May	13-Sep	17
1992	15-May	25-Sep	7
1993	14-May	29-Sep	7
1994	23-May	30-Sep	5
1995	5-Jun	27-Sep	5
1996	7-May	20-Sep	21
1997	3-Jun	11-Sep	15
1998	22-May	16-Sep	22
1999	10-Jun	20-Sep	18
Avg.	25-May	15-Sep	13
Earliest	7-May	21-Aug	1
Latest	21-Jun	30-Sep	31

Notes: 1. Data is from Hydrographers' Annual Reports for years 1980 and later, and from WRDS for years prior to 1980.

KEY DIVERSIONS

Diversion: **ROCK CREEK & SOUTH PINEY DITCH DIVERSION**
AKA: Rock Creek & Piney Ditch Co.

Date: 12 Oct. 2000

Diversion Description: Headgate consists of two, 3.5 x 5-foot rectangular wood-and-steel gates in steel slides operated with Waterman-type screws, mounted in a concrete headwall.

Rock Creek & South Piney headgate

Diversion Location: The Rock Creek & South Piney Ditch diversion is located on the South Fork of Piney Creek and is the first diversion downstream of Cloud Peak and Willow Park reservoirs.

Headgate:

Lat.	Long.
N 44° 28' 21.0"	W 107° 1' 52.2"

Flume:

Lat.	Long.
N 44° 28' 23.4"	W 107° 1' 48.0"

Rock Creek & South Piney flume and gage

Conveyance Description: Open channel canal, approximately 1.8 miles long.

Direct Flow Water Rights: The summary for direct flow rights follows:

Permit	Priority Date	Permitted Use	Acres	Flow (cfs)	Cumulative (cfs)
1330	09-08-1896	I	134.0	1.91	1.91
1334	09-28-1896	I	73.3	1.04	2.95
1334	09-28-1896	I	98.7	1.41	4.36
1323	10-01-1896	I	26.0	0.37	4.73
1323	10-01-1896	I	30.0	0.43	5.16
1323	10-01-1896	I	95.0	1.35	6.51
1323	10-01-1896	I	254.2	3.62	10.13
1323	10-01-1896	I	271.6	3.88	14.01
1323	10-01-1896	I	316.4	4.51	18.52
1323	10-01-1896	I	1325.1	18.93	37.45
1643E	09-24-1906	I	69.0	0.98	38.43

Associated Storage Rights: Irrigators on the Rock Creek & South Piney Ditch use water stored in Willow and Cloud Peak reservoirs.

Irrigation Practices: Irrigators tend to irrigate pasture, approximately 95 percent grass, 5 percent alfalfa. They use ditch-flood irrigation only.

Return Flows: Estimated percentage of total diversion developing into return flows:

Destination	Wet Yr.	Avg. Yr.	Dry Yr.
South Fork Piney Creek	50	35	25

Losses: Approximately 25 percent by the end of the ditch.

References: Carmine LoGuidice, water commissioner, State Engineer's Office, interview, 12 Oct. 2000

Irrigated Lands Water Rights Database

PerNo	PerSfx	Facility Name	Priority	Acres	Amount	Unit	SupTyp	Status	Source
1330	D	Rock Creek & Piney Reservoir & Ditch Co.'s Canal	Sep. 8, 1896	134	1.91	CFS	OS	Adj	South Piney Creek
1323	D	Rock Creek & Piney Reservoir & Ditch Co.'s Canal	Oct. 1, 1896	2318	33.09	CFS	OS	Adj	South Piney Creek
1323	D	Rock Creek & Piney Reservoir & Ditch Co.'s Canal	Oct. 1, 1896	3888			SS	Adj	South Piney Creek
1643	E	Enl. Rock Creek & Piney Ditch Co./Barkey Lateral	Sep. 24, 1906	69	0.98	CFS	OS	Adj	South Piney Creek

Name	Rock Creek & South Piney Ditch Diversion
Source	South Piney Creek
District	11
Data	Total monthly flow in AF

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
1970													
1971								0.00	412.52	2193.72	2856.00	1318.41	6780.65
1972													
1973								0.00	91.83	1891.00	1912.86	466.51	4362.20
1974													
1975													
1976													
1977								0.00	228.97	2321.61	1543.50	143.29	4237.37
1978								0.00	0.00	700.09	2582.46	1322.28	4604.83
1979													
1980								0.00	525.00	2269.00	2396.00	596.00	5786.00
1981								0.00	1118.00	1868.00	1939.00	986.00	5911.00
1982								0.00	420.00	850.00	1840.00	2470.00	5580.00
1983								0.00	0.00	1120.00	2400.00	1690.00	5210.00
1984								0.00	0.00	1020.00	2180.00	954.00	4154.00
1985								397.00	1504.00	2508.00	2292.00	582.00	7283.00
1986								0.00	288.00	1578.00	2090.00	1714.00	5670.00
1987								617.00	1048.00	792.00	1595.00	1009.00	5061.00
1988								0.00	1295.00	2585.30	1235.70	706.50	5822.50
1989								110.60	1170.60	1717.40	1523.40	1349.30	5871.30
1990								0.00	303.36	1419.53	2086.54	1183.04	4992.47
1991								0.00	0.00	1169.90	2196.60	866.70	4233.20
1992								45.70	1385.20	1576.80	1471.20	1050.60	5529.50
1993								0.00	244.00	1300.40	1869.50	917.10	4331.00
1994								143.50	1399.50	2249.90	1256.00	399.80	5448.70
1995								0.00	39.80	704.70	1735.60	1039.80	3519.90
1996								0.00	436.90	1093.40	1642.40	1126.30	4299.00
1997								0.00	272.20	524.60	1233.90	1183.80	3214.50
1998								0.00	0.00	1390.10	2404.00	1480.20	5274.30
1999								0.00	227.00	1331.10	2770.00	1524.10	5852.20
Mean								54.74	517.08	1507.27	1960.49	1086.61	5126.19
Max								617.00	1504.00	2585.30	2856.00	2470.00	7283.00
Min								0.00	0.00	524.60	1233.90	143.29	3214.50

Notes:
1. Monthly data is from Hydrographers' Annual Reports for years 1980 and later, and from WRDS for years prior to 1980
2. Zero flow is assumed prior to the first and after the last measurement
3. Jun 1971 data includes interpolated data using the WRDS records.

Name	Rock Creek & South Piney Ditch Diversion		
Source	South Piney Creek		
District	11		
Data	First & Last Dates, Max. Days		
Water Year	First Date of Measurement	Last Date of Measurement	Maximum Days Missing
1970			
1971	17-Jun	30-Sep	2
1972			
1973	30-Jun	10-Sep	0
1974			
1975			
1976			
1977	14-Jun	30-Sep	0
1978	6-Jul	30-Sep	0
1979			
1980	10-Jun	28-Sep	0
1981	1-Jun	30-Sep	0
1982	17-Jun	30-Sep	0
1983	1-Jul	30-Sep	0
1984	1-Jul	28-Sep	0
1985	21-May	26-Sep	0
1986	1-Jun	27-Sep	0
1987	14-May	14-Sep	0
1988	7-Jun	29-Sep	0
1989	26-May	30-Sep	0
1990	14-Jun	29-Sep	0
1991	8-Jul	20-Sep	0
1992	29-May	19-Sep	0
1993	10-Jun	30-Sep	0
1994	28-May	30-Sep	0
1995	27-Jun	25-Sep	0
1996	12-Jun	30-Sep	0
1997	1-Jun	30-Sep	0
1998	1-Jul	30-Sep	0
1999	11-Jun	30-Sep	0
Avg.	12-Jun	26-Sep	0
Earliest	14-May	10-Sep	0
Latest	8-Jul	30-Sep	2

Notes: 1. Data is from Hydrographers' Annual Reports for years 1980 and later, and from WRDS for years prior to 1980.