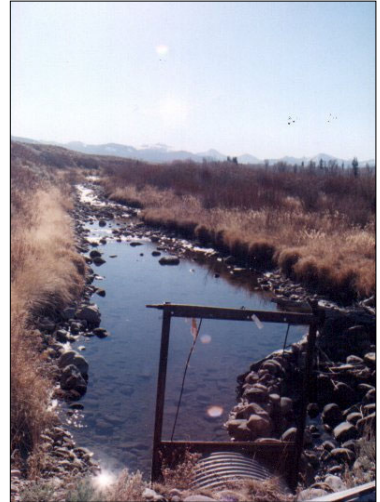


**MEMORANDUM**

**Subject: Bear River Basin Plan  
Key Structures and Diversions  
LANNON & LONE MOUNTAIN DIVERSION**

**Date:** August 7, 2000

**Diversion Description:** The diversion control structure consists of a single 48-inch CPM culvert with a steel slide gate. The river is diverted approximately 200 feet upstream of the diversion gate. The river channel is diverted using a hand placed rock dam.



*Lannon & Lone Mountain  
diversion gate*

**Diversion Location:** Diversion is on the Upper Bear in Utah. Irrigated lands are located in Wyoming as shown in the location map hereafter.

Latitude      N 40° 59' 16.1"  
Longitude     W 110° 51' 46.1"

**Conveyance Description:** Open Channel Canal, approximately 10,560 feet in length.<sup>1</sup>

**Direct Flow Water Rights:**<sup>2</sup>

Priority Date	Permit Number	Permitted Use	Permitted Acres	Flow (CFS)	Cumulative (CFS)	Comments
- 1898	U21-26&37	Irrigation & Storage	864.69	13.42	13.42	Lannon (Utah) – overlaps WY proof 9127
06-23-1910	U21-312	Irrigation & Storage	305.16	4.50	17.92	Lone Mountain – Undefined in WY or compact

**Bear River Compact:** Although the Lannon & Lone Mountain Diversion is located in Utah, the Bear River Compact acknowledges Wyoming’s right to administer these water rights. Article X, Paragraph “B” of the Compact specifically states:

*“B. All interstate rights shall be administered by the state in which the point of diversion is located and during times of water emergency, such rights shall be filled from the allocations specified in article IV hereof for the section in which the point of diversion is located, with the exception that the diversion of water into the Hilliard East Fork Canal, **Lannon Canal, Lone Mountain Ditch**, and Hilliard West Side Canal shall be under the administration of Wyoming. During times of water emergency these canals and the Lone Mountain Ditch shall be supplied from the allocation specified in article IV for the Upper Wyoming section diversions.”*

**Associated Storage Rights:**

Reservoir	Shareholder	Volume (Acre-ft)	Est. % of Shares Used this Diversion <sup>3</sup>	Comments
Whitney	Sharon Ruffi	90	100%	
Whitney	Kyle Lowman	131.62	100%	
Whitney	Sam Lowman	179	100%	
Whitney	John Burton	111.38	100%	

**Irrigation Practices:** Land is all flood irrigated.<sup>3</sup>

**Estimated Diversion Efficiency:** Canal losses are relatively high due to porous nature of soils in the higher reaches of the Upper Bear.

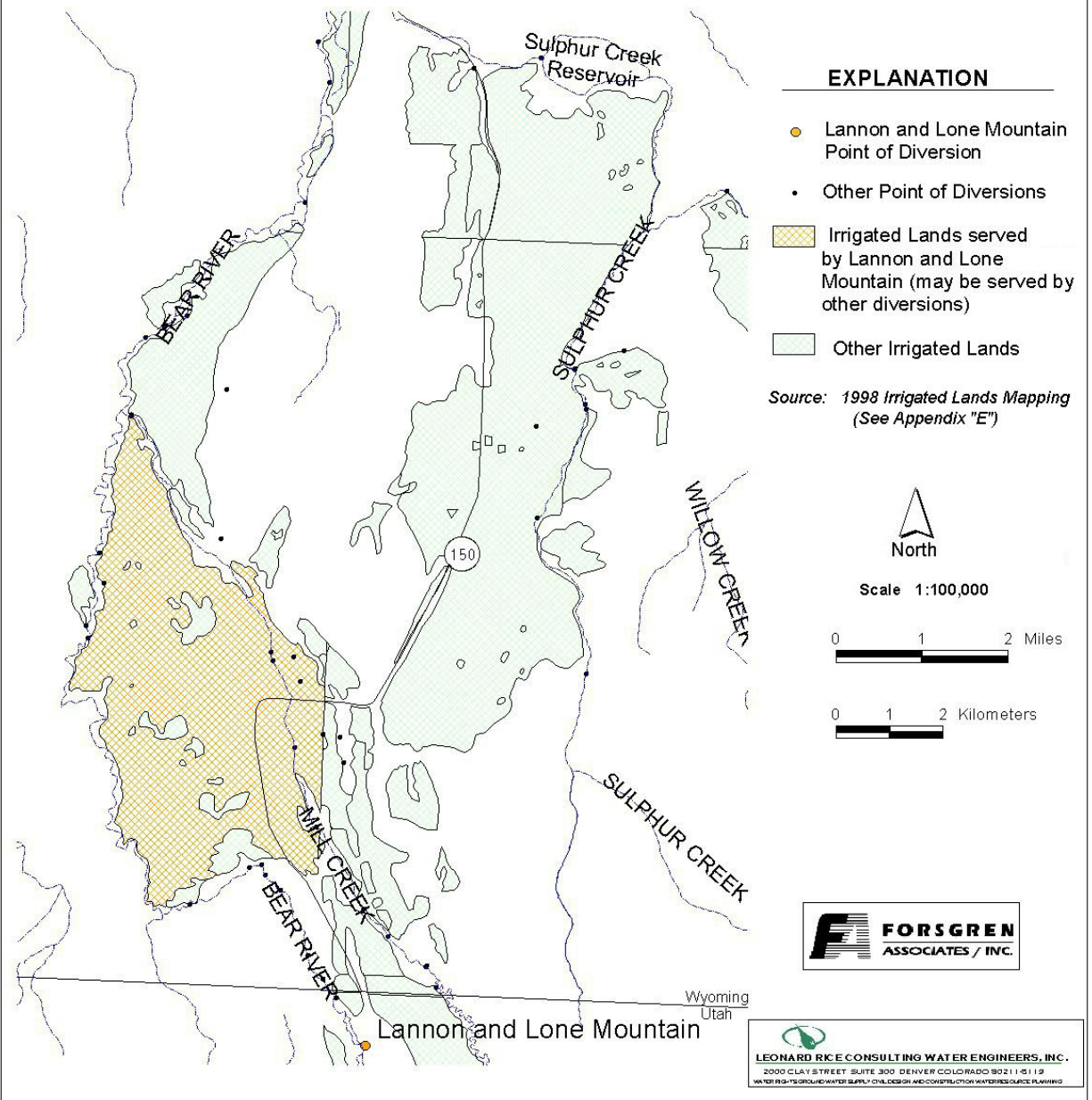
Calculated Diversion Efficiency = Conveyance Efficiency X Application Efficiency:

Conveyance Efficiency:	45%
Application Efficiency:	55%
<b>Overall Diversion Efficiency:</b>	<b>25%</b>

Conveyance efficiency is estimated by total length of main canal. Application efficiency for flood irrigation and sprinkler irrigation is estimated at 55% and 85% respectively.

**Crop Types / Consumptive Use:** Water is used entirely to irrigate meadow grasses, primarily Timothy, Meadow Foxtail, etc.<sup>3</sup>

## Lannon and Lone Mountain Point of Diversion Bear River Basin, Wyoming



**Return Flows:** Return flow is split between the Lewis Ditch (approx. 30%) and Mill Creek (approx. 70%).

The following return flow pattern was adopted for modeling in this study are as follows:

<u>Month</u> <u>(after initial Diversion)</u>	<u>Percent of Return</u>
0	70%
1	20%
2	10%
3	<u>0%</u>
	100%

**References:**

- 1) *USDA -Soil Conservation Service Economic Research Service-Forest Service in Cooperation with the States of Idaho, Utah, Wyoming, Irrigation Conveyance Systems, Working Paper for the Bear River Basin Type IV Study, Idaho-Utah-Wyoming, April 1976*
- 2) *Water rights summary obtained from State Engineer Interstate Reglist – revised April 14, 1999*
- 3) *Irrigation practices based on field investigation and interview with Mr. Don Shoemaker, Water Hydrographer-Commissioner – November 6,1999.*
- 4) *State of Utah Natural Resources, Water Budget Studies – Utah, Bear River Study Area, September 1994*

**BEAR RIVER WYOMING DIVERSIONS  
MONTHLY DIVERSION RECORDS**

**LANNON & LONE MOUNTAIN**

YEAR	MAY			JUNE			JULY			AUGUST			SEPTEMBER		
	Total of Daily Ave for Month	Average CFS	Monthly Total Ac-Ft	Total of Daily Ave for Month	Average CFS	Monthly Total Ac-Ft	Total of Daily Ave for Month	Average CFS	Monthly Total Ac-Ft	Total of Daily Ave for Month	Average CFS	Monthly Total Ac-Ft	Total of Daily Ave for Month	Average CFS	Monthly Total Ac-Ft
*1970															
1971	106	3.4	210.2	846	28.2	1678.0	550	17.7	1090.9	273	8.8	541.5	403	13.4	799.3
1972	298	9.6	591.1	913	30.4	1810.9	429	13.8	850.9	90	2.9	178.5	175	5.8	347.1
1973	135	4.4	267.8	717	23.9	1422.1	460	14.8	912.4	307	9.9	608.9	217	7.2	430.4
1974	244	7.9	484.0	621	20.7	1231.7	504	16.3	999.7	177	5.7	351.1	40	1.3	79.3
1975	56	1.8	111.1	768	25.6	1523.3	742	23.9	1471.7	224	7.2	444.3	291	9.7	577.2
1976	241	7.8	478.0	565	18.8	1120.7	244	7.9	484.0	51	1.6	101.2	513	17.1	1017.5
1977	174	5.6	345.1	239	8.0	474.0	46	1.5	91.2	0	0.0	0.0	64	2.1	126.9
1978	510	16.5	1011.6	666	22.2	1321.0	515	16.6	1021.5	176	5.7	349.1	130	4.3	257.9
1979	341	11.0	676.4	558	18.6	1106.8	291	9.4	577.2	103	3.3	204.3	136	4.5	269.8
1980	393	12.7	779.5	592	19.7	1174.2	474	15.3	940.2	164	5.3	325.3	69	2.3	136.9
1981	382	12.3	757.7	323	10.8	640.7	271	8.7	537.5	168	5.4	333.2	175	5.8	347.1
1982	319	10.3	632.7	503	16.8	997.7	548	17.7	1086.9	317	10.2	628.8	644	21.5	1277.4
1983	141	4.5	279.7	326	10.9	646.6	348	11.2	690.2	212	6.8	420.5	106	3.5	210.2
1984	346	11.2	686.3	542	18.1	1075.0	517	16.7	1025.5	131	4.2	259.8	21	0.7	41.7
1985	446	14.4	884.6	448	14.9	888.6	465	15.0	922.3	281	9.1	557.4	133	4.4	263.8
1986	146	4.7	289.6	520	17.3	1031.4	486	15.7	964.0	377	12.2	747.8	399	13.3	791.4
1987	388	12.5	769.6	443	14.8	878.7	319	10.3	632.7	175	5.6	347.1	171	5.7	339.2
1988	552	17.8	1094.9	944	31.5	1872.4	308	9.9	610.9	5	0.2	9.9	0	0.0	0.0
1989	606	19.5	1202.0	455	15.2	902.5	283	9.1	561.3	139	4.5	275.7	15	0.5	29.8
1990	409	13.2	811.2	564	18.8	1118.7	404	13.0	801.3	50	1.6	99.2	50	1.7	99.2
1991	273	8.8	541.5	479	16.0	950.1	380	12.3	753.7	106	3.4	210.2	87	2.9	172.6
1992	606	19.5	1202.0	305	10.2	605.0	185	6.0	366.9	186	6.0	368.9	3	0.1	6.0
1993	274	8.8	543.5	421	14.0	835.0	645	20.8	1279.3	444	14.3	880.7	609	20.3	1207.9
1994	599	19.3	1188.1	444	14.8	880.7	443	14.3	878.7	3	0.1	6.0	3	0.1	6.0
1995	345	11.1	684.3	441	14.7	874.7	501	16.2	993.7	293	9.5	581.2	404	13.5	801.3
1996	250	8.1	495.9	480	16.0	952.1	544	17.5	1079.0	359	11.6	712.1	180	6.0	357.0
1997	387.7	12.5	769.0	321.2	10.7	637.1	551	17.8	1092.9	302.4	9.8	599.8	271.7	9.1	538.9
1998	411.5	13.3	816.2	407.5	13.6	808.3	406	13.1	805.3	264.4	8.5	524.4	279	9.3	553.4
1999	146	4.7	289.6	383	12.8	759.7	432	13.9	856.9	257	8.3	509.8	195	6.5	386.8

**AVERAGES**

**10.6 651.5**

**17.5 1042.0**

**13.7 840.6**

**6.3 385.4**

**6.6 395.6**

Notes: \*1. No published records are available for this diversion for 1970