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**MEMORANDUM**

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**Subject:**     **Bear River Basin Plan**  
                  **Key Structures and Diversions**  
                  **V.H. CANAL DIVERSION**

**Date:**         August 7, 2000

**Diversion Description:** The V.H. Canal headgate is an all steel structure with a 42-inch rectangular gate. Water is permanently ponded upstream of the structure.



*Pine Creek upstream of V.H. Canal diversion*

**Diversion Location:** The V.H. Canal Diversion is the second highest diversion on Pine Creek, tributary of Smiths Fork, tributary to the Bear River. See location map hereafter.

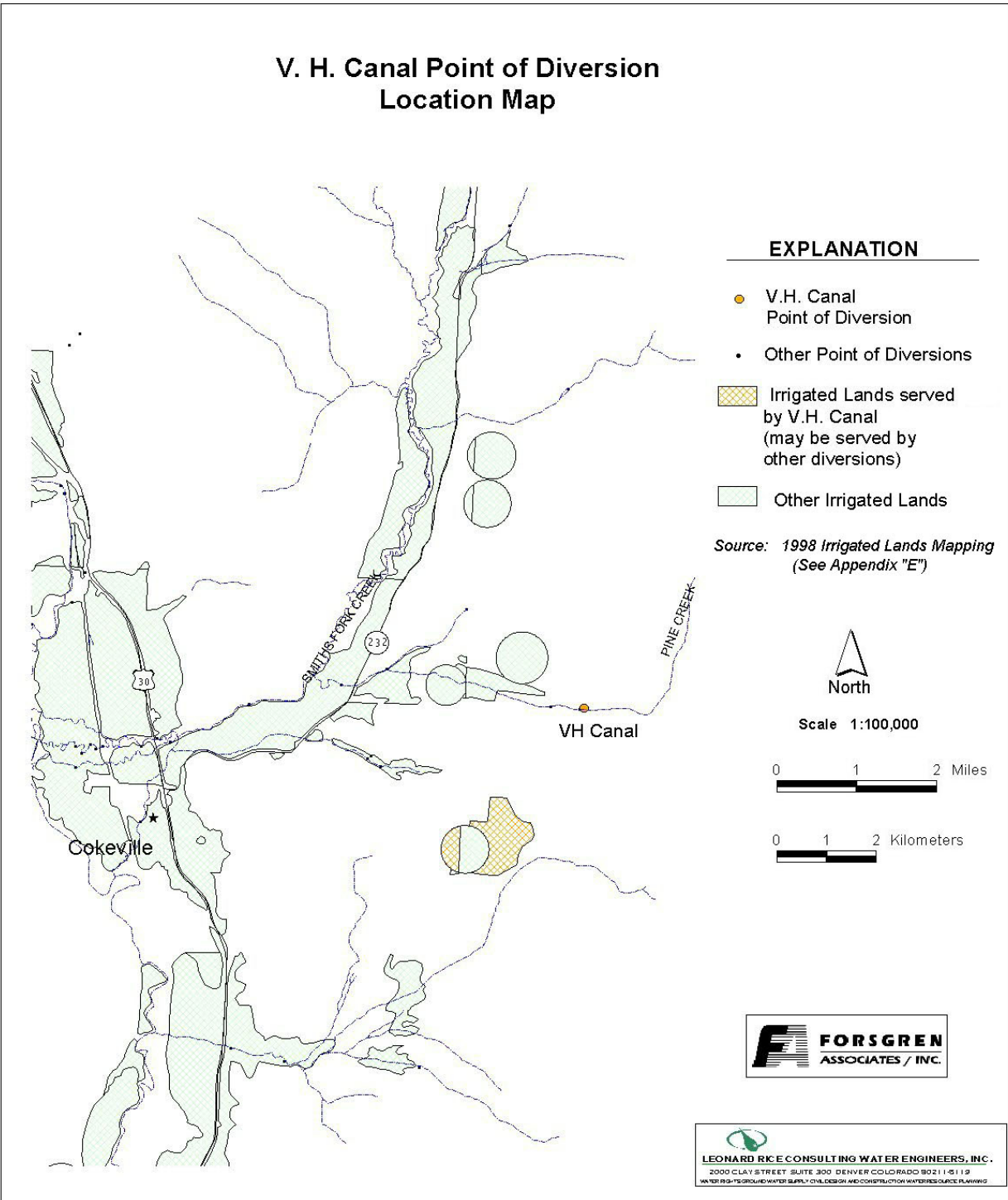
Latitude        N 4.2° 06' 10.4"  
Longitude      W 110° 51' 05.0"

**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
07-10-1905	6811	Irrigation, Domestic, Storage	640	9.14		<i>Decreed Futile Call</i>
04-06-1910	2211E	Irrigation,	143.24	2.19		<i>Decreed Futile Call</i>
06-11-1915	3226E	Irrigation, Domestic, Storage	133.45	1.90	1.90	

## V. H. Canal Point of Diversion Location Map



**Associated Storage Rights:** None

**Irrigation Practices:** Land is irrigated using circular pivots sprinklers. Less than 10% is flood irrigated.<sup>3</sup>

**Estimated Diversion Efficiency:**

Calculated Diversion Efficiency = Conveyance Efficiency X Application Efficiency:

Conveyance Efficiency:	55%
Application Efficiency:	<u>85%</u>
<b>Overall Diversion Efficiency:</b>	<b>47%</b>

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

**Crop Types / Consumptive Use:** The primary crop irrigated from this canal is alfalfa.<sup>3</sup>

**Return Flows:** Return flow is primarily captured by Sublette Creek and/or downstream diversions.

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	50%
1	25%
2	15%
3	<u>10%</u>
	100%

**Other Operational Information:** Surface flows in Pine Creek tend to disappear into the ground by mid-July when diverting. Pine Creek was decreed a “futile call” by the courts, and as a result it is not regulated for the benefit of more senior water rights on Smiths Fork. There are only two irrigators taking water directly from Pine Creek.

**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. Kevin Wilde, Water Hydrographer / Commissioner – November 30, 1999.*
- 4) *State of Utah Natural Resources, Water Budget Studies – Utah, Bear River Study Area, September 1994*

**BEAR RIVER WYOMING DIVERSIONS  
MONTHLY DIVERSION RECORDS**

**V.H. CANAL  
(on Pine Creek)**

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	196	6.3	388.8	240	8.0	476.0	258	8.3	511.7	243	7.8	482.0	160	5.3	317.4
1971	330	10.6	654.5	349	11.6	692.2	349	11.3	692.2	341	11.0	676.4	306	10.2	606.9
1972	12	0.4	23.8	375	12.5	743.8	370	11.9	733.9	297	9.6	589.1	289	9.6	573.2
1973	0	0.0	0.0	296	9.9	587.1	325	10.5	644.6	290	9.4	575.2	91	3.0	180.5
1974	220	7.1	436.4	366	12.2	726.0	328	10.6	650.6	279	9.0	553.4	270	9.0	535.5
1975	103	3.3	204.3	318	10.6	630.7	374	12.1	741.8	280	9.0	555.4	240	8.0	476.0
1976	185	6.0	366.9	337	11.2	668.4	331	10.7	656.5	343	11.1	680.3	86	2.9	170.6
1977	279	9.0	553.4	240	8.0	476.0	235	7.6	466.1	217	7.0	430.4	120	4.0	238.0
1978	311	10.0	616.9	278	9.3	551.4	317	10.2	628.8	350	11.3	694.2	154	5.1	305.5
1979	0	0.0	0.0	304	10.1	603.0	300	9.7	595.0	307	9.9	608.9	0	0.0	0.0
1980	208	6.7	412.6	475	15.8	942.1	447	14.4	886.6	326	10.5	646.6	341	11.4	676.4
1981	215	6.9	426.4	276	9.2	547.4	294	9.5	583.1	295	9.5	585.1	198	6.6	392.7
1982	326	10.5	646.6	409	13.6	811.2	343	11.1	680.3	332	10.7	658.5	363	12.1	720.0
1983	279	9.0	553.4	515	17.2	1021.5	328	10.6	650.6	443	14.3	878.7	238	7.9	472.1
1984	139	4.5	275.7	392	13.1	777.5	414	13.4	821.2	421	13.6	835.0	251	8.4	497.9
1985	130	4.2	257.9	414	13.8	821.2	391	12.6	775.5	456	14.7	904.5	434	14.5	860.8
1986	165	5.3	327.3	402	13.4	797.4	352	11.4	698.2	506	16.3	1003.6	157	5.2	311.4
1987	282	9.1	559.3	276	9.2	547.4	348	11.2	690.2	339	10.9	672.4	85	2.8	168.6
1988	53	1.7	105.1	330	11.0	654.5	325	10.5	644.6	313	10.1	620.8	165	5.5	327.3
1989	268	8.6	531.6	250	8.3	495.9	248	8.0	491.9	248	8.0	491.9	240	8.0	476.0
1990	255	8.2	505.8	284	9.5	563.3	240	7.7	476.0	164	5.3	325.3	0	0.0	0.0
1991	178	5.7	353.1	359	12.0	712.1	330	10.6	654.5	259	8.4	513.7	168	5.6	333.2
1992	243	7.8	482.0	270	9.0	535.5	81	2.6	160.7	0	0.0	0.0	0	0.0	0.0
1993	103	3.3	204.3	299	10.0	593.1	289	9.3	573.2	276	8.9	547.4	132	4.4	261.8
1994	119	3.8	236.0	293	9.8	581.2	282	9.1	559.3	314	10.1	622.8	234	7.8	464.1
1995	498	16.1	987.8	366	12.2	726.0	225	7.3	446.3	320	10.3	634.7	318	10.6	630.7
1996	138	4.5	273.7	406	13.5	805.3	395	12.7	783.5	465	15.0	922.3	376	12.5	745.8
1997	251.9	8.1	499.6	343.6	11.5	681.5	287.6	9.3	570.4	409.4	13.2	812.0	377.7	12.6	749.2
1998	313.3	10.1	621.4	410.4	13.7	814.0	329.1	10.6	652.8	359.3	11.6	712.7	235.4	7.8	466.9

**AVERAGES**

**6.5    396.7**

**11.3    675.3**

**10.2    624.8**

**10.2    628.7**

**6.9    412.4**