

KEY STORAGE FACILITIES

Reservoir: HEALY RESERVOIR (or ENL OF 7289R)

Date: 27 Feb.2001

Location: NSW
3,T51N,R81W

Owner: Lake DeSmet
Energy Co.



Healy Reservoir diversion dam

Year of Construction: 1975

Total Storage: 6500 acre-feet

Active Storage: 5140 acre-feet

Area/Capacity Data: (Source: Undated table on file with State Engineer's Office, Water Div. II)



Healy Reservoir dam

Elev. (ft)	Area (acres)	Capacity (af)									
		0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
4361	68	406	413	420	427	434	441	448	455	462	470
4362	75	477	485	492	500	508	515	523	531	539	547
4363	82	555	563	571	580	588	596	605	613	622	630
4364	89	639	648	657	666	675	684	693	702	711	720
4365	96	730	740	749	759	769	779	789	799	809	819
4366	102	829	840	850	860	871	881	892	903	913	924
4367	109	935	946	957	968	979	990	1002	1013	1024	1036
4368	115	1047	1059	1070	1082	1094	1106	1118	1130	1142	1154
4369	122	1166	1178	1190	1203	1215	1228	1240	1253	1265	1278
4370	128	1291	1304	1317	1330	1343	1356	1369	1382	1396	1409
4371	135	1423	1436	1450	1463	1477	1491	1505	1519	1533	1547
4372	141	1561	1575	1589	1603	1618	1632	1647	1661	1676	1691
4373	148	1705	1720	1735	1750	1765	1780	1795	1810	1826	1841
4374	154	1856	1872	1887	1903	1919	1934	1950	1966	1982	1998
4375	161	2014	2030	2046	2063	2079	2095	2112	2128	2145	2161
4376	167	2178	2195	2212	2229	2245	2262	2280	2297	2314	2331
4377	174	2349	2366	2383	2401	2419	2436	2454	2472	2490	2508
4378	180	2526	2544	2562	2580	2598	2616	2635	2653	2672	2690
4379	187	2709	2728	2747	2765	2784	2803	2822	2841	2860	2880
4380	193	2899	2918	2938	2957	2977	2996	3016	3036	3056	3076
4381	200	3095	3115	3136	3156	3176	3196	3216	3237	3257	3278
4382	206	3298	3319	3340	3360	3381	3402	3423	3444	3465	3487
4383	213	3508	3529	3550	3572	3593	3615	3637	3658	3680	3702
4384	219	3724	3746	3768	3790	3812	3834	3856	3879	3901	3923
4385	226	3946	3969	3991	4014	4037	4060	4083	4106	4129	4152
4386	232	4175	4198	4221	4245	4268	4292	4315	4339	4363	4386
4387	239	4410	4434	4458	4482	4506	4530	4554	4579	4603	4627
4388	245	4652	4676	4701	4726	4750	4775	4800	4825	4850	4875
4389	252	4900	4925	4951	4976	5001	5027	5052	5078	5104	5129
4390	258	5155									

Dam Construction Type: Earth Fill

Outlet: Healy Reservoir has no gravity-fed outlet. It uses several electric pumps to lift water through a pipeline with a capacity of 200 cfs to Lake DeSmet and another, smaller pipeline with a capacity of 30 cfs to Clear Creek.

End-of-Month Storage Records: Yes

Water Rights: *(Source: Tabulation of Adjudicated Surface Water Rights of the State of Wyoming, Water Division Number Two, Oct. 1999.)*

Reservoir	Permit Number	Permitted Use	Priority Date	Volume (af)	Headgate Location (S-T-R)
Healy Res	7289R	D,I,Ind	04-15-1957	41,974	9-51-081
First Enl. Healy Res.	7290R	D,I,Ind	10-14-1957	13,725	31-53-083

Note: As much as 36,824 af of permit 7289R is appropriated for Lake DeSmet; 5,140 af remain in Healy. Another 2,190 af from permit 7290R are reserved for the use of irrigators downstream of the reservoir on Clear Creek. The remainder of the second permit, 11,545 af, has been transferred to Lake DeSmet.

Designated Use: Industrial use, stock watering, and irrigation

Recreational Use: Fishing

Associated Irrigation Diversions: *(Source: Carmine LoGuidice, Div. II water commissioner/hydrographer)*

Diversion	Tributary
Hillyer & Onslow	Clear Creek
Frank G. Hopkins	Clear Creek
L.X.	Clear Creek
DesMoines	Clear Creek
Watt	Clear Creek
Big Bonanza	Clear Creek

Associated Industrial Diversions: Though DeSmet (through Healy rights) stores water for industrial use, none of it is being appropriated.

Operational Discussion: Healy was constructed as a feeder reservoir for Lake DeSmet, a way of diverting Clear Creek water into DeSmet to supplement the Piney Creek water in anticipation of industrial consumption. As of Feb. 2001, DeSmet has been turned over to three county governments (Sheridan, Johnson, and Campbell).

Healy's off-channel status on Clear Creek means storage is accomplished by raising the head (closing headgates) in Healy Diversion Dam. Similarly, downstream releases are accomplished by lowering the head at the dam to release flows through the intake pipe. Much of the reservoir's storage lies lower than the level of the intake/outlet pipe. As a result, operators must pump to release water below the level of the pipe.

Lack of demand for Healy's water and the cost of pumping has kept the owners from exercising their pumps more than rarely to satisfy obligations in Lake DeSmet and to downstream Clear Creek users.

Releases to irrigators are based on their requests.

The Clear Creek Diversion Dam (adjoining Healy Reservoir) is also required to allow at least 10 cfs to pass down Clear Creek from Oct. 15 – April 15.

References:

Carmine Loguidice, water commissioner, State Engineer's Office Water Div. 2, 20 Feb. 2001.

Healy Area-Capacity Table, from permit application, State Engineer's Office.

Active Dams, State Engineer's Office Safety of Dams Engineering Div. Database, transmitted by Larry Stockdale, Safety of Dams engineering consultant, 16 Feb. 2001.

Tabulation of Adjudicated Surface Water Rights of the State of Wyoming, Water Division Number Two, Oct. 1999, database transmitted by Rebecca Mathisen, SEO Technical Services Division administrator, 8 Sept. 2000.

Net Evaporative Loss from Healy Reservoir:

Healy Reservoir End-of-Month Elevations of Water Surface

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1970												
1971												
1972												
1973												
1974												
1975												
1976												
1977												
1978												
1979												
1980	4384.7	4384.45	4384.35	4385.8	4385.4	4387	4386.45	4384.25	4383	4384.2	4385.6	4380.8
1981	4375.9	4370.9	4371	4372.6	4370.25	4379.1	4382.6	4381.65	4378.6	4385.9	4382.1	4380.35
1982	4375.3	4372.45	4378.8	4379.75	4385.3	4386	4385.5	4381.5	4380.3	4380.1	4380	4379.85
1983	4379.8	4379.7	4379.7	4379.65	4379.65	4384.1	4384.9	4384.75	4382.4	4382.1	4381.9	4381.7
1984		4381.5	4381.45	4381.35	4381	4376.6	4374	4368.2	4364.8	4367.85	4379.8	4383
1985	4384.35	4385.4	4385.9	4385.6	4385.7	4386	4385.7	4380.4	4376.4	4377.8	4378.35	4378.3
1986	4378.2	4378.2	4378.1	4378.05	4386.15	4386.65	4386.85	4386.05	4385.6	4384.55	4384.5	4384.45
1987	4384.35	4384.25	4384.25	4384.05	4384.85	4385.15	4380.5	4375.1	4370.3	4369.9	4370.9	4374.55
1988	4378	4379	4380.35	4384.55	4387	4386.65	4387.25	4386.15	4384.65	4384.2	4384	
1989		4383.8	4383.75	4383.35	4383.25	4383.75	4387.4	4385	4383.35	4383.45	4383.15	4383
1990	4382.7	4382.6	4382.55		4385.35		4385.2	4381.2	4376.3	4375.18		
1991	4380.1	4379.96	4380.1	4380.72	4384.6	4386.53		4387.19	4386.13	4385.17	4384.82	4384.7
1992				4384.41	4384.65	4386.14	4386.28	4386.08	4385.95			4385.15
1993	4384.95		4385.39	4385.47		4383.5	4378.5		4375.1	4380.95		4381.8
1994	4381.7		4381.6			4386.65		4386.3	4381.5		4381.25	
1995												
1996												
1997												
1998												
1999												
Historical Ave. Elevation	4380.84	4380.18	4381.24	4381.95	4383.32	4384.56	4383.93	4382.42	4379.63	4380.10	4381.36	4381.47
Corresponding Area (acres)	193	193	200	200	213	219	213	206	187	193	200	200

Calculations:

Monthly Lewis Evap. (inches)	1.296	1.2	1.872	3.84	5.52	6.288	8.208	7.488	5.52	3.648	1.872	1.248
Monthly Precipitation (inches)	0.75	0.75	0.75	1.75	2.75	2.25	1.25	0.75	1.75	1.25	0.75	0.75
Net Evaporation (inches)	0.546	0.45	1.122	2.09	2.77	4.038	6.958	6.738	3.77	2.398	1.122	0.498
Total Net Evaporation (acre-feet)	9	7	19	35	49	74	124	116	59	39	19	8
												556