KEY STORAGE FACILITIES

Reservoir: **BIG GOOSE PARK** (or PARK)

Date: 20 Feb. 2001

Location: NWNW 15,T53N,R86W

Owner: PARK RESERVOIR COMPANY

Year of Construction: 1933

Enlargement History: 1933, 1958, 1988

Total Storage: 12,500 acre-feet

Active Storage: 10,362 acre-feet

Dead Storage: 588 acre-feet

Area/Capacity Data: (*Source: 1992 table on file with State Engineer's Office, Water Div. II)*

Elevation	Area	Acre-Ft./ Increment	Acre-Ft. Released	Acre-Ft. Remaining	Ft. Below spillway
8,266.3	356		0.00	10,362	0
		454			
8,265	343		454	9,908	1.3
		318			
8,264	333		772	9,590	2.3
		318			
8,263	323		1,089	9,273	3.3
		318			
8,262	313		1,407	8,955	4.3
		318			
8,261	303		1,725	8,638	5.3
		318			
8,260	293		2,042	8,320	6.3
		281			
8,259	288		2,323	8,039	7.3
		281			
8,258	283		2,604	7,758	8.3
		281			
8,257	279		2,885	7,477	9.3
		281			
8,256	274		3,166	7,197	10.3
		281			
8,255	269		3,446	6,916	11.3
		251			
8,254	262		3,698	6,66•9	12.3
		251			
8,253	255		3,949	6,413	13.3
		251			
8,252	248		4,200	6,162	14.3
		251			
8,251	241		4,452	5,910	15.3
		251			
8,250	234		4,703	5,659	16.3
		217			

Area/Capacity Data cont'd:

Elevation	Area	Acre-Ft./ Increment	Acre-Ft. Released	Acre-Ft. Remaining	Ft. Below spillway
8,249	227		4,920	5,442	17.3
		217			
8.248	221		5,138	5,224	18.3
		217			
8,247	214		5,355	5,007	19.3
		217			
8,246	208		5,573	4,790	20.3
		217			
8,245	201		5,790	4,572	21.3
		187			
8,244	195		5,977	4,385	22.3
		187			
8,243	190		6,164	4,1.98	23.3
		187			
8,242	184		6,3151	4,011	24.3
		187			
8,241	178		6,538	3,825	25.3
		187			
8,240	173		6,725	3,638	26.3
		169			
8,239	171		6,894	3,468	27.3
		169			
8,233	170		7,063	3,299	28.3
		169			
8,237	169		7,232	3,130	29.3
		769			
8,236	167		7,401	2,961	30.3
		169			
8,235	166		7,571	2,792	31.3
		154			
8,234	161		7,724	2,638	32.3
		154			
8,233	156		7,878	2,484	33.3
		154			
8,232	152		8,032	2,330	34.3
		154			
8,231	147		8,186	2,176	35.3
		154			
8,230	142		8,340	2,022	36.3
		130			
8,229	137		8,470	1,892	37.3
		130			
8,228	132		8,600	1,762	38.3
		130			
8,227	128		8,730	1,632	39.3
		130			
8,226	123		8,861	1,502	40.3
		130			
8,225	118		8,991	1,371	41.3
		105			
8,224	113		9,095	1,267	42.3
		105			
8,223	107		9,200	1,162	43.3
		105			
8,222	102		9,305	1,058	44.3
		105			
8,221	96		9,409	953	45.3

Area/Capacity table cont'd:

Elevation	Area	Acre-Ft./ Increment	Acre-Ft. Released	Acre-Ft. Remaining	Ft. Below spillway
		105			
8,220	91		9,514	848	46.3
		75			
8,219	84		9,588	774	47.3
		75			
8,218	78		9,663	699	48.3
		75			
8,217	71		9,738	625	49.3
		75			
8,216	65		9,812	550	50.3
		75			
8,215	58		9,887	475	51.3
		49			
8,214	55		9,936	426	52.3
		49			
8,213	51		9,985	378	53.3
		49			
8,212	47		10,034	329	54.3
		49			
8,211	43		10,082	280	55.3
		49			
8,210	39		10,131	231	56.3
		32			
8,209	36		10,164	199	57.3
		32			
8,208	32		10,196	166	58.3
		32			
8,207	29		10,228	134	59.3
		32			
8,206	25		10,261	101	60.3
		23			
8,205	22		10,284	78	61.3
		13			
8,204	18		10,297	65	62.3
		13			
8,203	15		10,311	52	63.3
		13			
8,202	12		10,324	38	64.3
		13			
8,201	8		10,337	25	65.3
		13			
8,200	5		10,350	12	66.3
		2			
8,199	4		10,353	10	67.3
		2			
8,198	3		10,355	7	68.3
		2			
8,197	2		10,357	5	69.3
		2			
8,196	0.95		10,360	2	70.3
		2			
8,195	0.00		10,362	0.00	71.3

Dam Construction Type: Earth Fill

Outlet: 60-inch pipe in main dam, 18-inch CMP in east dike that has never been used.

Spillway: Emergency spillway: concrete, 50 feet wide, seven feet high in main dam

End-of-Month Storage Records: No

Water Rights: *(Source: 1980 Reservoir Filing Agreement on file in State Engineer's Office, Water Div. II and* 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)
Big Goose Park Res.	1176R	D,I,Mfg, Mun,Power,	01-07-1908	5055	15-53-086
Enl. Big Goose Park Res	1511R	D,I,Mfg, Mun,Power,	04-01-1909	2292	15-53-086
Enl. Big Goose Park	6179R	I	10-25-1954	676	15-53-086
Enl. Big Goose Park	6448R	I	10-30-1957	885	15-53-086
Union No. 1	7227R	I	08-19-1958	461.39	15-53-086
Enl. Union No. 1	7228R	I	12-18-1959	872.16	15-53-086
Hansen No. 3	7229R	I	05-27-1960	120.63	15-53-086
Enl. Hansen No. 3	7230R	I	7-12-1960	589.8	15-53-086

Note: The State Engineer's Office has issued an order eliminating rights in excess of the 10,362-acre-foot active pool. Permit No. 7230R has a volume in excess of the active pool and was transferred into the reservoir in the wake of a resurvey in the mid-1980s (Mike Whitaker, SEO Water Div. II Superintendent, 21 Feb. 2002).

Designated Use: Irrigation

Recreational Use: Fishing, driving recreational vehicles on banks in periods of low volume

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

Diversion	Tributary
P.K. Ditch	Big Goose
V.A. Hospital	Big Goose
Goose Canon Ditch	Big Goose
Alliance Ditch	Big Goose
Big Goose & Beaver No.s 1 & 2	Rapid Creek
Last Chance Ditch	Little Goose
Peralta Ditch	Little Goose
Red Hill Ditch	Little Goose
Muskrat Ditch	Little Goose
Colorado Colony Ditch	Little Goose

Note: Though diversions closer to the mountains have the only rights to reservoir water, the return flows generated by their stored water use makes it possible for downstream irrigators to satisfy their rights. In this sense, Big Goose Park Reservoir water is supplied to all of the diversions on the Big and Little Goose creeks.

Associated Industrial Diversions: None (manufacturing permit not in use)

Operational Discussion: The East Fork of Big Goose Creek flows into Big Goose Park, as does Cross Creek, once it has been released from Cross Creek and Bighorn reservoirs. Park's elevation prohibits releases until well

into the irrigation season because the channels in the mountain must be clear of ice.

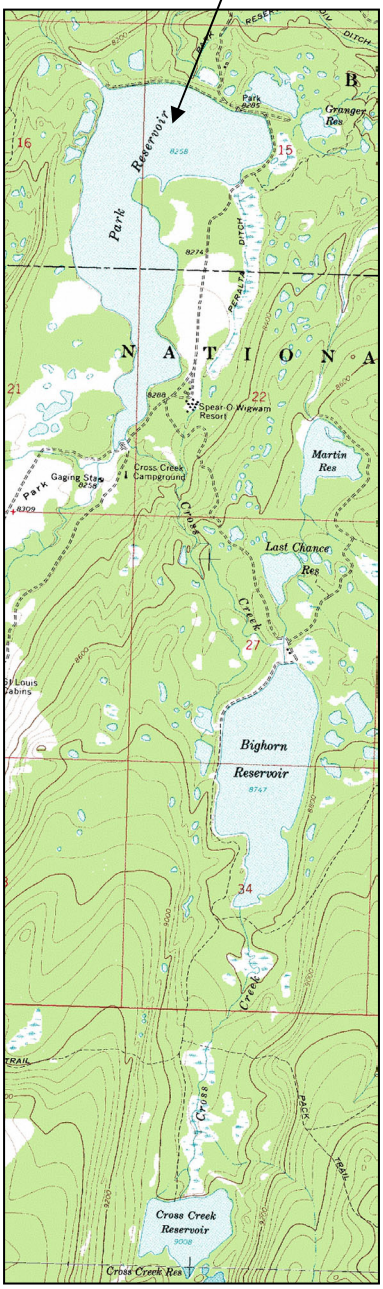
The first releases are scheduled in general based on the type of water year.

First release timing, Big Goose Park Reservoir

Wet Year	Average Year	Dry Year
1st week of August	2nd week of July	Last week of June

Diversions end as close to the end of the water year (Oct. 1) as operators can manage. The closure can happen a week early if the operator believes a snowstorm will close access to the reservoir.

Per the enlargement agreement, 4.5 cfs must be maintained in the E. Fork of Big Goose Creek throughout the season. In addition, 530 acre-feet of the active storage pool is tapped every year to provide a flow of 90 cfs in the same channel during high-flow times. This water is considered part of the water right pool held in active storage and the impact of its release is disbursed among all right holders in the pool.



References:

Bill Knapp, water commissioner, interview, State Engineer's Office, Sheridan, Wyoming, 13 Feb. 2001

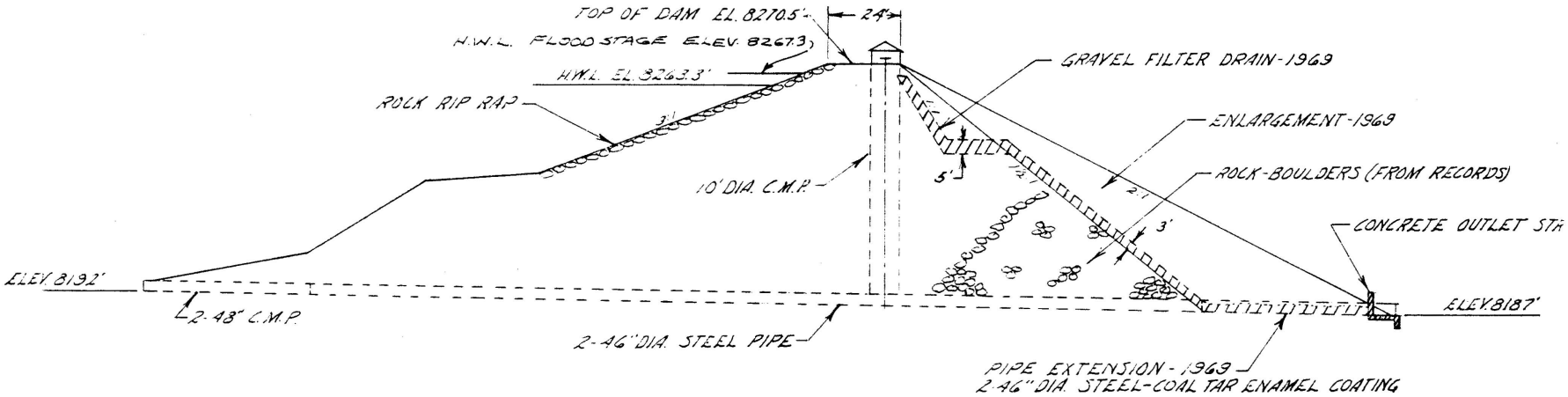
Sue Lowry, telephone conversation, 20 Feb. 2001.

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.

Map to Accompany Permit for Enlargement, Park Reservoir Company, 1988.

Cross-section, Park Reservoir Dam *(Source: Plat on file in State Engineer's Office, Water Div. II):*



MAXIMUM CROSS SECTION OF DAM

Net Evaporation from Park Reservoir:

Lewis Annual Evaporation (in.)	46
Total Storage (acre-feet)	12,500

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Average percent of total storage	56.72	57.55	57.87	60.80	71.16	72.71	68.17	64.03	57.62	57.03	58.79	60.84
Generated storage (acre-feet)	7091	7194	7234	7600	8895	9088	8521	8003	7202	7129	7349	7605
Corresponding area (acres)	269	269	274	279	303	313	293	283	274	269	274	279

Calculations:

Monthly Lewis Evap. (inches)	1.242	1.15	1.794	3.68	5.29	6.026	7.866	7.176	5.29	3.496	1.794	1.196	
Monthly Precipitation (inches)	1.75	1.25	2.25	2.75	3.25	2.75	1.75	1.25	2.25	1.75	1.75	1.75	
Net Evaporation (inches)	0	0	0	0.93	2.04	3.276	6.116	5.926	3.04	1.746	0.044	0	***TOTAL***
Total Net Evaporation (acre-feet)	0	0	0	22	52	85	149	140	69	39	1	0	***557***