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**TECHNICAL MEMORANDUM**

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**SUBJECT:           Green River Basin Plan**  
***Instream Flows in Wyoming***

**PREPARED BY:** Pat Tyrrell, States West Water Resources Corporation

### **Instream Flows**

In 1986, the State of Wyoming enacted legislation defining “instream flow” as a beneficial use of water, and stipulated how instream flow water rights would be filed, evaluated and ultimately regulated. The legislation is codified within Wyoming Statutes at S41-3-1001 to 1014.

The law allows for instream flow water rights to be filed and granted on unappropriated water originating as natural flow or from storage in existing or new reservoirs. For natural flow sources, the flow amount is defined as the minimum needed to “maintain or improve existing fisheries.” The language relating to stored water is slightly different, defining the minimum needed to “establish or maintain new or existing fisheries.” Generally speaking, instream flow is considered a non-consumptive beneficial use. However, sentiment exists that some consumption is associated with instream flows due to increased evaporative area, increased evapotranspiration along banks, and decreased return flows from water not diverted and stored in shallow zones.

The law requires that the Game and Fish Commission be the entity to define those stream segments for which an instream flow will be filed, and to identify the optimum flows required for the fishery. The Wyoming Water Development Commission (WWDC) then files the application with the State Engineer’s Office in the name of the State of Wyoming, who is, by current law, the only entity allowed to hold such a permit. Following filing, the WWDC performs the hydrologic analyses necessary to determine feasibility of providing the flows requested. A report on the findings of the hydrologic work is then submitted to the Game and Fish Commission, the Legislature and the State Engineer for use in evaluating the application for approval. Unique to water right filings in the state, the instream flow application is then subject to a public hearing administered by the State Engineer.

The law also makes provision for protection of senior rights and compact-allocation water. For example, no instream flow shall be allowed to interfere with existing water rights, and no instream flow permit shall be issued where the amount thereof “would be included as a portion of the consumptive share of water allocated to the State of Wyoming under any interstate compact or United States Supreme Court Decree.” Also, “The amount of water appropriated for instream flow in each river basin in Wyoming shall not result in more water leaving the state than the amount of water that is allocated by interstate compact or United States Supreme Court Decree for downstream uses outside of Wyoming.”

Further, the law provides that instream flow waters may be diverted for (other) beneficial consumptive use within 1 mile upstream from where the instream flow segment crosses the state line, or from where

it enters a reservoir that straddles the state line. In the Green River Basin, this includes specifically the Flaming Gorge Reservoir. The reasoning behind such language is to allow the subsequent use of instream flow water for other needs within a reasonable distance of where its availability for beneficial consumptive use in the stream would be lost anyway (as by entering a reservoir).

In the Green River Basin (including the Little Snake River Basin), there are currently 34 instream flow filings "on the books." Only two of these filings have resulted in permits being granted as of May, 2000. All 34 of these filings are tied to natural flow, although two are influenced by reservoirs above the segments.

The two pending applications influenced by reservoirs include one on the Hams Fork (TF No. 26 3/332), where water is delivered from Viva Naughton Reservoir, and one on the East Fork Smith Fork (TF No. 28 2/84) below Stateline Dam (which is in Utah). Both of these applications are filed on water that enters the stream by virtue of the reservoir above them, and not on storage water in the reservoir. At Naughton, the filing is on water released for use downstream by the Naughton powerplant, water that provides sufficient minimum flow where natural flow otherwise would not. This water is only in the stream by virtue of the efforts of, and at the whim of, Naughton, a senior water right holder. At Stateline, the instream flow filing is on water releases required as a minimum flow bypass by the reservoir's Special Use Permit, as granted by the Forest Service. While the water below Stateline essentially becomes "natural flow" upon entering the channel below the dam, it is dependent on the dam. In other words, without the dam in place, these minimum flows may not be available. In both applications, which have yet to be granted, the State Engineer will have to recognize that the instream flow right may not survive should either dam move or be dismantled, and may condition the permits in this fashion.

The two permits that have been issued are No. 6IF on the Green River near Warren Bridge and No. 7IF on the West Fork of the New Fork River. Many of the remaining yet-to-be-issued filings are on streams containing Colorado River Cutthroat Trout, and are intended to protect that species.

All instream flow filings are described in Table 1. Of note is the fact that more than one flow value can be associated with any given Instream Flow water right. In essence, the Game and Fish determine that different instream flow amounts are recommended for different seasons, depending on aquatic habitat needs. GIS coverage describing the instream flow segments is shown on Figure 1.

### **Mapping Data Source**

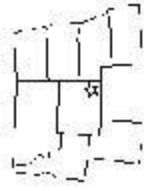
- "Wyoming Instream Flow Applications," Database obtained from the Wyoming State Engineer's Office.

### **Mapping Procedure**

Portions of 1:100,000 scale USGS stream coverages were extracted using AutoCad version 14 based on public land survey section (PLSS) points of beginning and ending provided by the State Engineer's Office database. Stream reaches were taken to the greatest extent of the beginning and ending PLSS

section. The extracted portions were modified by joining segments of single instream flow application features into single arc segments as much as possible. The extracted portions were imported as an ArcCad Version 14 line coverage. Unique sequence (SEQ) numbers were assigned to each stream reach, then joined through the SEQ attribute with all remaining attributes of the data set provided by the Wyoming State Engineer's Office. With one exception, the length of the GIS layer instream flow feature was within 1.2 miles of the length indicated on the database. North Cottonwood Creek was over 4 miles shorter, but with the PLSS indicated as point of beginning and ending, the published length is not attainable. The actual stream locations are located as accurately as the source 1:100,000 USGS stream coverage allows.

<b>NUMBER</b>	<b>SEQ</b>	<b>PRIORITY</b>	<b>PERMIT#</b>	<b>ISSUED</b>	<b>STREAM</b>	<b>LENGTH (Miles)</b>	<b>CFSMIN</b>	<b>CFSMAX</b>
1	6	01/10/89	6IF	01/07/92	Green River	9.84	101.0	350.0
2	7	02/02/89			Ham's Fork	10.87	34.5	41.0
3	8	02/10/89	7IF	01/07/92	W Fork New Fork River	1.50	95.0	135.0
4	11	06/27/89			S Cottonwood or Lander Creek	2.93	17.0	
5	12	07/12/89			N Cottonwood Creek	8.90	16.0	35.0
6	16	12/17/90			LaBarge Creek	3.30	17.0	25.0
7	20	03/11/91			N Piney Creek	7.60	25.0	40.0
8	21	03/11/91			M Piney Creek	3.60	4.0	15.0
9	22	03/11/91			S Piney Creek	7.00	9.0	15.0
10	23	03/11/91			Fish Creek	4.20	6.0	10.0
11	25	06/21/91			N Fork Little Snake River	9.10	2.0	
12	26	06/21/91			Solomon Creek	3.20	1.0	
13	27	06/21/91			Rose Creek	1.90	0.8	
14	28	06/21/91			Granite Gulch/Green Timber	1.70	1.0	
15	29	06/21/91			Harrison Creek	1.30	1.0	
16	30	06/21/91			Deadman Creek	0.80	2.0	
17	31	06/21/91			Ted Creek	0.30	1.0	
18	32	06/21/91			Third Creek	0.20	1.0	
19	33	06/21/91			W Fork N Fork Little Snake River	6.60	3.5	
20	34	06/21/91			Rabbit Creek	0.90	1.5	
21	42	01/21/93			E Fork Smith's Fork Creek	4.60	7.0	41.0
22	54	12/19/95			Dirtyman Fork Seg No. 1	0.90	0.5	1.4
23	57	12/19/95			Douglas Creekeek Seg No. 1	1.00	0.3	3.6
24	58	12/19/95			Deep Creekeek Seg No. 1	3.50	0.5	4.6
25	62	6/27/96			N Fork Big Sandstone Creek Seg No. 1	0.70	1.6	19.0
26	63	6/27/96			Big Sandstone Ck Seg No. 1	3.00	3.5	22.0
27	65	6/27/96			Roaring Fork L. Snake River Seg No. 1	3.20	1.6	4.4
28	66	6/27/96			Mill Creekeek Seg No. 1	3.10	1.7	6.8
29	75	12/6/99			Little Gilbert Creek IF Segment No 1	1.70	0.2	3.5
30	76	12/6/99			Gilbert Creekeek IF Segment No 1	4.40	1.3	
31	77	12/6/99			Red Creekeek IF Segment No 1	5.70	0.7	4.8
32	78	12/6/99			Trout Creekeek IF Segment No 1	3.80	1.5	13.0
33	79	12/6/99			Sage Creekeek IF Segment No 1	3.60	1.1	3.9



State Water Resources Organization

### Legend

- Permit Application Approved
- Permit Application On File



20 0 20 Miles

Figure 1  
Green River Basin  
In stream Flow  
Applications

