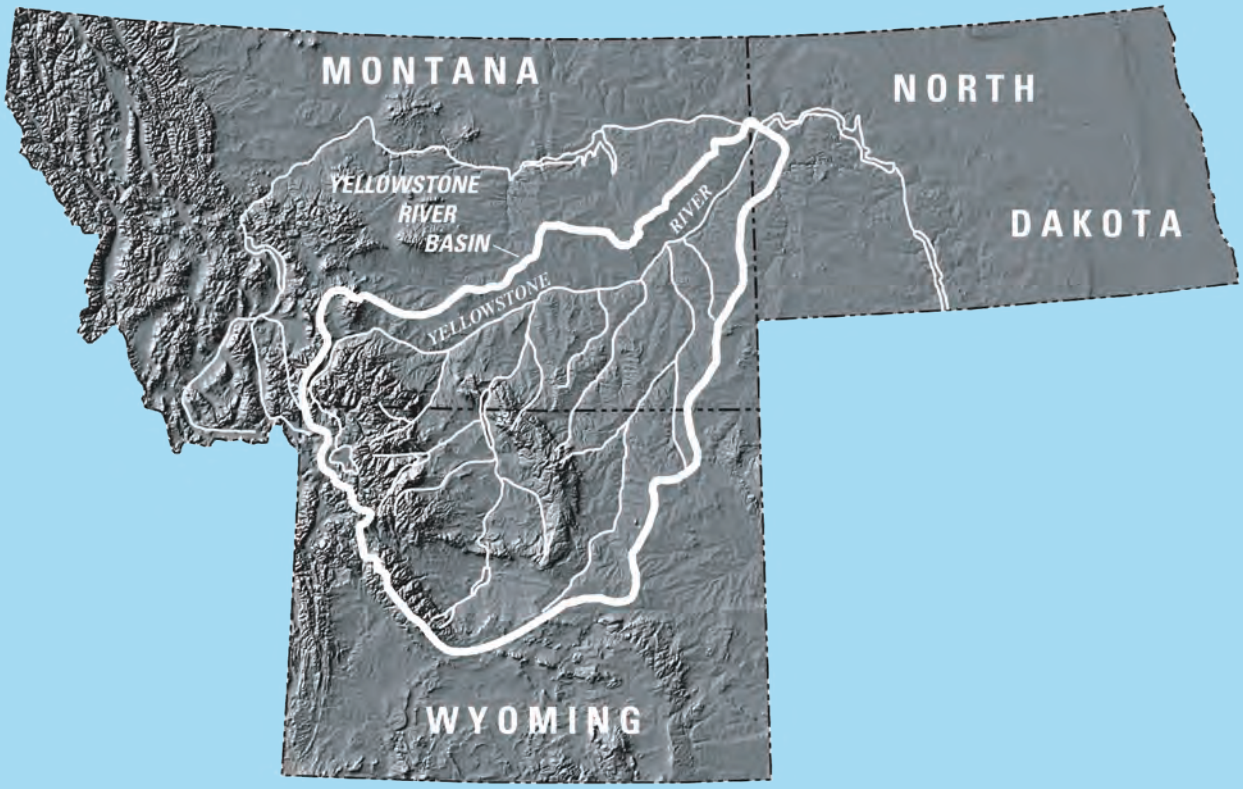
YELLOWSTONE RIVER COMPACT COMMISSION

WYOMING **MONTANA** **NORTH DAKOTA**



SIXTY-SEVENTH ANNUAL REPORT
2018

Yellowstone River Compact Commission

Sixty-Seventh Annual Report

2018

Contents

Figures

Tables

Conversion Factors

U.S. customary units to International System of Units

Multiply	By	To obtain
	Length	
foot (ft)	0.3048	meter (m)
mile (mi)	1.609	kilometer (km)
	Area	
acre	4,047	square meter (m^2)
acre	0.4047	hectare (ha)[1]
acre	0.4047	square hectometer (hm^2)
acre	0.004047	square kilometer (km^2)
square mile (mi^2)	2.590	square kilometer (km^2)
	Volume	
cubic foot per second per day (ft^3/s-day)	2,447	cubic meter (m^3)
cubic foot per second per day (ft^3/s-day)	0.0002447	cubic hectometer (hm^3)
cubic foot (ft^3)	0.02832	cubic meter (m^3)
acre-foot (acre-ft)	1,233	cubic meter (m^3)
acre-foot (acre-ft)	0.001233	cubic hectometer (hm^3)
acre-foot (acre-ft)	0.000001233	cubic kilometer (km^3)
	Flow rate	
acre-foot per year (acre-ft/yr)	1,233	cubic meter per year (m^3/yr)
acre-foot per year (acre-ft/yr)	0.001233	cubic hectometer per year (hm^3/yr)
acre-foot per year (acre-ft/yr)	0.000001233	cubic kilometer per year (km^3/yr)
cubic foot per second (ft^3/s)	28.32	liter per second (L/s)
cubic foot per second (ft^3/s)	28.32	cubic decimeter per second (dm^3/s)
cubic foot per second (ft^3/s)	0.02832	cubic meter per second (m^3/s)
feet per year (ft/yr)	0.3048	meter per year
gallons per minute (gal/min)	0.06309	liter per second

[1]The unit hectare is used with the International System of Units (SI), which is in common everyday use throughout the world. See: Taylor, B.E., and Thompson, Ambler, eds., 2008, The International System of Units (SI): U.S. Department of Commerce, NIST Special Publication 330, 92 p., available online at http://www.nist.gov/pml/pubs/sp330/.

YELLOWSTONE RIVER COMPACT COMMISSION

WYOMING

PATRICK TYRRELL
STATE ENGINEER
Wyoming State Engineer's Office
122 W 25th Street
Herschler Building
2nd Floor West
Cheyenne, Wyoming 82002

UNITED STATES

JOHN M. KILPATRICK
CHAIRMAN
U. S. Geological Survey
3162 Bozeman Avenue
Helena, Montana 59601

MONTANA

JAN LANGEL
ADMINISTRATOR
Water Resources Division
Montana Dept. of Natural Resources and Conservation
1424 9th Avenue, P.O. Box 201601
Helena, Montana 59620-1601

Honorable Mark Gordon
Governor of the State of Wyoming
Cheyenne, Wyoming 82002

Honorable Steve Bullock
Governor of the State of Montana
Helena, Montana 59620

Honorable Doug Burgum
Governor of the State of North Dakota
Bismarck, North Dakota 58501

Dear Governors:

Pursuant to Article III of the Yellowstone River Compact, the Commission submits the following sixty-seventh annual report of activities for the period ending September 30, 2018.

Minutes of December 4, 2018

Members of the Yellowstone River Compact Commission convened December 4, 2018, at 8:00 a.m. In attendance were Mr. John Kilpatrick, U.S. Geological Survey (USGS), Charmain and Federal Representative; Mr. Pat Tyrrell, Wyoming State Engineer's Office (SEO) and Commissioner for Wyoming; and Mr. Jan Langel, Montana Department of Natural Resources and Conservation (DNRC) and Commissioner for Montana. Also in attendance were Ms. Beth Callaway (via phone), Mr. Loren Smith, and Mr. David Schroeder, SEO; Mr. Mark Elison and Mr. Brian Holling (via phone), DNRC; Mr. Chris Brown, Wyoming Attorney General's Office; Mr. Bill Schuh (via phone), North Dakota State Water Commission; Mr. Art Hayes, Jr., Tongue River Water Users Association; Mr. Ronald Burns and Mr. Jason Whiteman, Northern Cheyenne Tribe; Mr. Clayton Jordan and Mr. Ryan Colloton, U.S. Bureau of Reclamation (USBR); Mr. Chris Morris (via phone), U.S. Bureau of Land Management (BLM); and Mr. Kirk Miller and Mr. Seth Davidson (via phone), USGS.

Chairman Kilpatrick called the meeting to order at 8:00 a.m.

Mr. Kilpatrick welcomed the attendees and introduced the Commissioners. Those in attendance and on the phone introduced themselves.

Mr. Kilpatrick asked if any additions to the proposed agenda were needed. Mr. Schuh requested that a report on the intake construction of the Lower Yellowstone Irrigation District be added to the agenda. Mr. Langel moved to approve the revised agenda and Mr. Tyrrell seconded the motion.

Mr. Kilpatrick requested an update on the Commission budget.

Mr. Miller distributed and presented a handout summarizing the operational budget for fiscal year (FY) 2019 and the proposed budgets for FY2020 through FY2023 (Appendix A).

Mr. Tyrrell asked why the cost to Wyoming and Montana is decreasing for fiscal year 2020.

Mr. Miller responded that the cost has dropped because the reporting costs were not included in previous years and the "catch-up" amount has been met. In addition, since the litigation between Wyoming and Montana has ended, the Commission decided the verbatim transcriptionist is no longer necessary which also reduced expenses.

Mr. Langel moved to approve the proposed budget. Mr. Tyrrell seconded the motion.

Mr. Kilpatrick requested a report on the administration for the Tongue River Judgement and Decree.

Mr. Schroeder replied that as part of the Decree, the States were to provide each other reports of existing surface water rights in the Tongue River Basin. Thereafter, the States are to report changes to existing water rights and new adjudications. In order to meet the 30-day deadline of the resolution of the Decree the report from Wyoming was submitted with the caveat that some information would need to be amended. Since the initial submission in March 2018, SEO staff verified each record and that information was distributed at the meeting.

The attendees discussed how the information of existing water rights and administration updates should be exchanged as the State's database provides different information.

[Action Item] The Commissioners assigned the Technical Advisory Committee with the task of sorting through the administration updates and proposing/ensuring that each State provides useful information that fits each State's needs. The two reports do not need to be consistent as each State uses different databases and has specific needs.

Mr. Brown noted that both States requested groundwater pumping information in the Tongue River Basin and Powder River Basin be reported in the administration updates and suggested that a discussion of this information take place.

Mr. Schroeder reported that Tongue River Basin and Powder River Basin groundwater is not typically regulated in Wyoming and that information is minimal.

Mr. Brown explained that Wyoming typically does not collect groundwater information unless there is a special reason to collect that data; and at this time there is no reason to collect that information in the Yellowstone River Basin.

Mr. Langel added that groundwater information collected by Montana in the Tongue River Basin or Powder River Basin is also limited.

Mr. Kilpatrick requested the streamflow conditions and reservoir contents reports.

Mr. Miller distributed handouts and presented the streamflow conditions report (Appendix B) and reservoir contents (Appendix C).

Mr. Kilpatrick requested an update on the 2018 water year administration highlights from Wyoming.

Mr. Tyrrell stated that a new governor will be elected in November. The Wyoming fiscal outlook has improved. Mr. Tyrrell then requested that Mr. Schroeder provide an update for SEO Division II.

Mr. Schroeder provided highlights of the Powder River Basin and Tongue River Basin. In the Powder-Tongue Basin, peak runoff flows were 100-150% average, especially in the Tongue River and its tributaries. Streamflow volumes were average to well above average, except for the Middle and North fork of the Powder River which was below average. The Tongue River experienced well above average precipitation in the 2018 water year (106-122%) while the Powder River was between 90-105%. Every major river peaked on May 28th due to a significant precipitation event. Many districts did not go into regulation in 2018, but for those that did all occurred around middle to late July.

Mr. Smith reported that streamflows from the basin were 69% to 188% of normal in SEO Division III. Adequate reservoir storage and good spring moisture limited administration to four streams with Gooseberry Creek the only stream that went into regulation before run-off due to the lack of snowpack. Gooseberry Creek remained in regulation for the entire season. The Greybull River went into regulation on July 18. Medicine Lodge Creek and Paint Rock Creek went into regulation on July 22. The Nowood River went into regulation near the mouth on August 20. Overall, the abundance of snowpack, reservoir storage, and moisture delayed calls for regulation by 2-3 weeks and prevented calls in the Lander area as those users manage the resource themselves. The Reservation drainages only observed minor late season shortages.

Mr. Kilpatrick requested administration highlights from Montana.

Mr. Langel informed the Commission that the former Billings Regional Office manager, Keith Kerbel, passed away from cancer in October.

Mr. Langel reported that Kevin Smith moved on to the Montana Department of Environmental Quality and has been replaced by Brian Holling.

Mr. Langel continued that Montana, generally, had a quiet year for water administration. The DNRC Billings Regional Office issued two new water right permits; one in the Powder River Basin and one in the Clarks Fork River Basin. There were three water right changes; two from the Bighorn River Basin and one on the Yellowstone River. These changes were handled by the local Conservation Districts, which have water on reserve and can change water rights to accommodate users. In addition, the Billings Regional Office issued forty new groundwater certificates.

Mr. Langel added that the Billings Regional Office has a couple of pending permits in the Yellowstone River Basin; one on the Powder River and one on the Clarks Fork. There are also two pending changes, with one on a tributary to the Little Bighorn River and one on Lodge Grass Creek.

Mr. Langel reported that DNRC is working with Montana Department of Environmental Quality to address salinity on the Tongue River. One possible approach is leasing some Tongue River Reservoir Compact water from the Northern Cheyenne to allow complete flushing flows in the spring.

Mr. Hayes clarified that in order to meet the requirement of the Special Master of 75 cubic-feet per second during low-flow years, the sodium content in the Tongue River at Miles City rises above the standard. Therefore, one proposal on the table is to lease water from the Northern Cheyenne to supplement flows during dry years. Mr. Hayes also noted that gate maintenance on Tongue River Reservoir suggested salinity levels vary by depth in the reservoir and that additional data collection is being performed in confirmation.

Mr. Langel added that this situation is still under assessment and that there is no consensus on the best method to solve the issue.

The attendants discussed the salinity issue found in the Tongue River Basin.

Mr. Hollings reported that Tongue River Reservoir held approximately 50,000 ac-ft at the beginning of the 2017 water year. This level was held until mid-March at which point the reservoir began to fill rapidly at which point flows were adjusted as needed. The reservoir peaked on June 1 and spilled until early July. Storage lasted through the irrigation season and the reservoir has been at approximately 50,000 ac-ft since on October 1. Cooney Reservoir held storage of approximately 21,000 ac-ft at the beginning of the 2017 water year. This level was held until early March at which point the reservoir was adjusted as needed. Cooney Reservoir spilled from May 28 through June and maintained storage through the irrigation season. On October 1, the storage was approximately 18,000 ac-ft. There is some damaged rip-rap at the new outlet weir structure that will be repaired this winter.

Mr. Langel said that the DNRC has made progress on restoring funding for USGS cost sharing of gages in the Yellowstone River Basin.

Mr. Kilpatrick asked for a report from the Technical Advisory Committee.

Ms. Callaway presented the Technical Advisory Committee's work on Table 10 of the Annual Report (Appendix D)

The attendees discussed table 10.

Mr. Tyrrell moved for the approval of Table 10 for the year with the following edits: 1) the removal of "Month-end usable" from the first sentence after the table title, the removal of "e-estimated" notation for years when there are no estimated values, and the removal of footnote 3 from Tie Hack, Twin Lakes and Fort Worthen Reservoirs. Mr. Langel seconded the motion.

Ms. Callaway reported that over the past few years, the Technical Advisory Committee has been investigating potential forecasting tools to assist with the administration of the Tongue River with the new decree and the terms of the Compact. The Technical Advisory Committee has been looking at forecasts of the total volume of stream-flows for April through June provided by the National Weather Service (NWS) and Natural Resources Conservation Service (NRCS). New capabilities have also been identified such as a new precipitation runoff model from NRCS. The NWS established a new forecasting point at the State Line which is equivalent to the Tongue River at Decker site. That data point has been running for a year and did produced some forecast data this past spring. At this point, the Technical Advisory Committee requires more direction from the Commission.

Mr. Kilpatrick noted that forecasting science is changing rapidly and there could be more opportunities out there to help the Commission with administration.

Mr. Tyrrell believes that it is important for the Technical Advisory Committee to continue to pursue forecasting abilities for the Yellowstone River Compact Commission and would like a status report that summarizes the concerns and recommendations from the Technical Advisory Committee.

Mr. Kilpatrick agreed that a report would be useful and could help identify potential funding/resource sources.

[Action Item] The Technical Advisory Committee is to compile a summary report of forecast work identifying needs and making recommendations for next steps.

Mr. Langel noted that Mark Elison will assume Mr. Dalby's duties on the Technical Advisory Committee.

Mr. Kilpatrick requested the Montana state-wide adjudication report.

Mr. Langel reported that the DNRC adjudication staff continues to provide post-decree assistance to the Montana Water Court. In 2012 the Water Court issued a re-examination order requiring DNRC to review basins across the state decreed with a temporary preliminary decree. Ten summary reports were submitted to the Water Court in

2018 with only one of the basins reviewed being located within the Yellowstone River Basin (Basin 43-B, Bridger Creek).

Mr. Langel informed the Commission that 2017 HB110 allowed for the filing of pre-1973 water-right claims for instream stock, instream domestic, and domestic groundwater. Those had been previously exempt. Notices were sent to 350,000 unique property owners across the state. DNRC expects 15,000 new water rights will be added into the adjudication.

Mr. Kilpatrick requested the Wyoming state-wide adjudication report.

Mr. Smith reported that SEO Division III oversaw the completion of sixty surface-water and thirteen groundwater adjudications in 2018. Of the sixty surface-water adjudications, eighteen were larger reservoirs that did not meet the qualification for small stock reservoir filings. An additional small stock reservoir was adjudicated and another was endorsed as constructed within the terms of the permit. Thirty-six ditch/enlargement proofs were completed which could be adding acres, new facilities, or multiple points of use. Four instream flow permits were adjudicated. A long-term inspection (one to two years) is needed to collect enough data for these instream adjudications. The thirteen groundwater adjudications were either for miscellaneous use or small irrigation projects were completed. Division III also completed sixty-one dam safety inspections. The Board of Control finalized 30 surface petitions and 5 groundwater petitions. Additionally, 132 water-right verifications were completed to meet NRCS requirements for project funding.

Mr. Schroeder reported that SEO Division II oversaw 121 dam safety inspections. There were 19 reservoir adjudications and 97 stock reservoir endorsements. Many these endorsements were former coal-bed methane impoundments landowners chose to take over from the operator at the conclusion of coal-bed methane production.

Mr. Schroeder continued by noting that in 2017 he recommended the reinstatement of 73 safety of dam sized reservoirs. These dams had been previously permitted with proper notices of beneficial use having been filed. For various reasons permits for these facilities were considered expired 20 years after completion, however facilities known to exist have been reinstated and are now being adjudicated. Division II completed 15 pump/pipeline adjudications and four ditch enlargement adjudications. In addition, Division II adjudicated six groundwater rights. Last year the Wyoming State Engineer issued a policy changing permitting requirements of stock water pipelines. Under the new policy, wells less than 25 gallons/minute can serve multiple points of use and do not require a certified map. Mr. Schroeder expects fewer groundwater adjudications as a result of this policy change. Mr. Schroeder concluded his report by noting that 12 surface water and one groundwater petitions were finalized in 2018.

Mr. Kilpatrick requested an update of the Wyoming Governor's Water Strategy.

Mr. Tyrrell explained that the Governor's Water Strategy is multifaceted and includes more than the "10 reservoirs in 10 years" plan. Other issues tasked for the SEO include a groundwater management plan in Laramie County, a new hydrographer manual (which was completed in 2015), and a "credible data" initiative that enabled the SEO to instrument high mountain reservoirs for data collection.

Mr. Tyrrell noted that progress has been made on the "10-in-10" plan. The State is looking to repurpose some of Glendo Reservoir's flood storage space. By releasing the water more gradually, there may be a beneficial use of water in the flood pool which is managed by the Army Corps of Engineers. The Wyoming Water Development Council and the Army Corps of Engineers are investigating the feasibility of this plan.

Mr. Tyrrell informed the Commission that Federal legislation has authorized Wyoming to work with the Bureau of Reclamation on a Fontenelle Reservoir riprap project that would make more of the storage in the Reservoir available for the Colorado River Basin.

Mr. Smith provided details on the Alkali Reservoir and Levitt Reservoir projects in SEO Division III.

Ms. Callaway noted that the projects are in an expedited NEPA process and construction could start in 2020.

The attendees discussed the reservoir projects and Mr. Tyrrell explained the Colorado River Compact.

Mr. Kilpatrick requested an update on the Wyoming Water Planning and Other Activities.

Ms. Callaway reported that the State of Wyoming will be releasing an updated water plan for the Powder/Tongue/Northeast River Basin in mid-2019.

Ms. Callaway also noted that the Wyoming Water Development Commission (WWDC) is modernizing their approach to water planning. This modernization is occurring on two fronts; 1) a GIS data model to standardize GIS data collecting and presentation for Wyoming and allow for the assessment of supplemental water supplies across the State; 2) the USGS StreamStats Application which retrieves basin characteristics and streamflow information.

Mr. Kilpatrick asked for an update on the Lower Yellowstone Irrigation Project intake structure.

Mr. Colloton reported that the contract to replace the weir and fish bypass channel was awarded, however the second lowest bidder had filed a protest with the Army Corps of Engineers. The protest is under review with U.S. Government Accountability Office and that review could take up to 100 days. If the original award is upheld, the project could start soon. If the protest is upheld, things could drag on with appeals and other actions. Once the bidding process is resolved, the construction is expected to take 900 days to complete.

Mr. Kilpatrick requested that a Resolution of Appreciation be read.

Mr. Langel announced that he would like to recognize the service of Mr. Chuck Dalby to the Yellowstone River Compact Commission as Mr. Dalby would be retiring in early 2019. Mr. Langel read a Resolution for Mr. Dalby and made a motion that the resolution be read into the minutes (Appendix E). Mr. Tyrrell seconded the motion. The resolution was approved by acclamation.

Mr. Kilpatrick moved that if a Resolution of Appreciation had not been written for Mr. Kerbel that one be completed. Mr. Tyrrell seconded the motion.

Mr. Kilpatrick opened the floor for public comment.

Mr. Hayes will continue to work with Wyoming on issues in the Tongue River Basin and expressed his appreciation of Wyoming's work in the area.

Mr. Whiteman said that he appreciated the discussion of the salinity model and the information presented in the meeting. Mr. Whiteman noted that he has gained a better understanding of the adjudication process in both States and remarked that the Northern Cheyenne Tribe has experts that are reviewing claims on the Tongue River and Rosebud Creek.

Mr. Smith announced that a commencement for construction notice has been filed for a new spillway on Bull Lake. He mentioned that operations should not change during construction during the first year of the two year project.

The Technical Advisory Committee proposed a meeting on Tuesday, April 9th, 2019 in Sheridan, WY.

The Commission decided to hold the next Yellowstone River Compact Commission Meeting on Wednesday, December 4th, 2019 in Sheridan, WY.

Mr. Kilpatrick adjourned the meeting at 10:40 a.m.

Patrick T. Tyrrell
Commissioner for Wyoming

Jan Langel
Commissioner for Montana

John M. Kilpatrick
Chairman and Federal Representative

Appendix A

Yellowstone River Compact Commission Budget

FY 2019 costs

Clarks Fork Yellowstone River at Edgar	$16,530
Little Bighorn River near Hardin	16,530
Bighorn River above Tullock Creek, near Bighorn	16,530
Tongue River at Miles City	16,530
Powder River near Locate	16,530
Report	37,450
	$120,100

WSEO	$33,575
MDNRC	$33,575
USGS	$52,950

Estimated future cost

Year	WSEO	MDNRC	USGS	Total
FY2020	$33,675	$33,675	$49,950	$115,300
FY2021	$33,665	$33,665	$49,950	$117,280
FY2022	$34,655	$34,655	$49,950	$119,260
FY2023	$35,690	$35,690	$49,950	$121,330

Appendix B

Streamflows at Yellowstone River Compact streamgages, water year 2018

1. Clarks Fork Yellowstone at Edgar, Montana; minus diversions to White Horse Canal
   - 1,322,700 acre-ft
   - Largest during period of record (80 years)
   - 175 percent of average
   - Record low year was WY 2001 with 466,660 acre-ft

2. Bighorn River near above Tullock Creek near Bighorn, Montana; minus Little Bighorn River near Hardin, Montana; plus Agency Canal Tailwaste near Hardin, Montana; and adjusted for change in contents in Bighorn Lake
   - 4,196,500 acre-ft
   - 52 year period of record
   - 165 percent of average (Bighorn streamflows)
   - Record low year (with adjustments) was WY 2002 with 923,000 acre-ft

3. Tongue River at Miles City, Montana
   - 344,900 acre-ft
   - 61 year period of record
   - 113 percent of average
   - Record low year was WY 1961 with about 41,400 acre-ft

4. Powder River near Locate, Montana
   - 412,200 acre-ft
   - 80 year period of record
   - 101 percent of average
   - Record low year was WY 2004 with about 57,400 acre-ft

Total adjusted streamflows for the four basins in WY 2018 was 6,276,300 acre-ft

Compare to 6,498,000 acre-ft in WY 2017 and 2,932,200 acre-ft in WY 2016

Appendix C

Storage in main reservoirs as of September 30, 2018

Reservoirs completed after January 1, 1950

Bighorn Lake
952,8100 acre-ft (change of −62,460 acre-ft)

Boysen Reservoir
652,970 acre-ft (change of −64,060 acre-ft)

Anchor Reservoir
491 acre-ft (change of −679 acre-ft)

Reservoirs existing on January 1, 1950

Bull Lake
81,660 acre-ft (change of −38,870 acre-ft)

Pilot Butte Reservoir
16,540 acre-ft (change of −1,420 acre-ft)

Buffalo Bill Reservoir
489,380 acre-ft (change of −38,770 acre-ft)

Tongue River Reservoir
49,350 acre-ft (change of −850 acre-ft)

Total WY 2018 contents of the above reservoirs was [1]2,242,490 acre-ft, compared to 12,449,580 acre-ft at the end of WY 2017; 2,015,000 acre-ft at the end of WY 2016; and 2,097,000 acre-ft at the end of WY 2015.

[1]The WY 2018 and WY 2017 values are not a direct comparison to previous years due to the difference of reporting "contents" instead of "useable contents."

Storage in additional reservoirs as of September 30, 2018

Total usable contents of the additional reservoirs at the end of WY 2018 was 366,610 acre-ft, compared to 413,920 acre-ft at the end of WY 2017.

Appendix D

Table 10. Water-year-end contents for reservoirs or lakes located on interstate tributaries of the Yellowstone River.

[Month-end usable contents for additional reservoirs of interest to the Yellowstone River Compact are listed in table 10; only reservoirs with contents greater than 1,000 acre-ft are included. Contents are in acre-feet. Reservoirs or lakes are listed in alphabetical order by drainage basin. —, no data or not available]

Reservoir or lake name	Pre-compact 1950 water right	Post-compact 1950 water right	Total permitted water right	Contents on September 30, 2017	Contents on September 30, 2016	Change in contents[1]
Clarks Fork Yellowstone River Basin						
Cooney Reservoir[2]	28,230	0	28,230	21,000	14,100	6,900
Glacier Lake[2]	4,200	0	4,200	—	—	—
Bighorn River Basin						
(Lake) Adelaide Reservoir[3]	1,449	3,315	4,764	1,230	428	802
Anchor Reservoir[4,5]	0	9,252	9,252	1,174	548	626
Bighorn Lake[5]	0	1,116,000	1,116,000	1,014,600	942,400	72,200
Boysen Reservoir[5]	757,851	0	757,851	717,000	624,900	92,100
Buffalo Bill Reservoir[5]	456,640	187,940	644,580	528,200	421,300	106,900
Bull Lake[5]	151,951	0	151,951	120,500	38,300	82,200
Christina Reservoir[3]	3,860	0	3,860	3,860	260	3,600
Corral Reservoir[3]	0	1,027	1,027	608	711	−103
Diamond Creek Dike Reservoir[3]	0	18,378	18,378	314	237	77
Enterprise Reservoir[3]	1,494	204	1,698	307	28	279
Fairview Extension Reservoir[3]	791	620	1,411	1,290	1,410	−120
Greybull Valley Reservoir[3]	0	33,169	33,169	21,010	9,340	11,670
Harrington Reservoir[3]	315	887	1,202	800	1,200	−400
Lake Cameahwait Reservoir[3]	0	6,683	6,683	6,680	6,680	0
Lake Creek Reservoir[3]	1,373	0	1,373	655	460	195
Lodge Grass Reservoir[6]	22,900	0	22,900	14,100	13,900	200
Lower Sunshine Reservoir[3]	0	58,748	58,748	47,640	35,700	11,940
Newton Reservoir[3]	4,525	0	4,525	1,008	556	452
Perkins and Kinney Reservoir[3]	1,202	0	1,202	1,097	704	393
Pilot Butte Reservoir[5]	34,600	0	34,600	18,000	7,400	10,600
Sage Creek Reservoir[3]	440	2,345	2,785	2,785	2,700	85
Shell Reservoir[3]	1,949	0	1,949	1,017	269	748
Shoshone Lake Reservoir[3]	4,560	5,181	9,741	9,740	0	9,740
Upper Sunshine Reservoir[3]	52,988	0	52,988	46,660	29,150	17,510
Teapot Reservoir[3]	1,578	0	1,578	0	0	0
Ten Sleep Reservoir[3]	3,509	0	3,509	3,509	3,510	−1
Wiley Reservoir[3]	689	331	1,020	920	1,020	−100
Worthen Meadow Reservoir[3]	0	1,504	1,504	1,504	1,350	154

Table 10. Water-year-end contents for reservoirs or lakes located on interstate tributaries of the Yellowstone River.—Continued

[Month-end usable contents for additional reservoirs of interest to the Yellowstone River Compact are listed in table 10; only reservoirs with contents greater than 1,000 acre-ft are included. Contents are in acre-feet. Reservoirs or lakes are listed in alphabetical order by drainage basin. —, no data or not available]

Reservoir or lake name	Pre-compact 1950 water right	Post-compact 1950 water right	Total permitted water right	Contents on September 30, 2017	Contents on September 30, 2016	Change in contents[1]
Powder River Basin						
Cloud Peak Reservoir[3]	3,398	173	3,571	3,570	0	3,570
Dull Knife Reservoir[3]	0	4,345	4,345	35	546	−511
Healy Reservoir[3,7]	0	5,140	5,140	3,490	2,170	1,320
Kearney Lake Reservoir[3]	1,854	4,470	6,324	1,820	0	1,820
Lake DeSmet[3,8]	37,515	197,472	234,987	162,340	155,260	7,080
Muddy Guard Reservoirs[3,9]	0	2,336	2,336	924	344	580
Posy No. 1 Reservoir[3]	0	1,537	1,537	1,649	745	904
Tie Hack Reservoir[3]	1,647	788	2,435	656	1,464	−808
Willow Park Reservoir[3]	4,457	0	4,457	1,378	1,484	−106
Tongue River Basin						
Big Horn Reservoir[3]	2,749	1,875	4,624	0	210	−210
Dome Reservoirs[3,10]	1,843	188	2,031	923	627	296
Park Reservoir[3]	7,347	3,015	10,362	3,950	2,880	1,070
Sawmill Lakes Reservoir[3]	0	1,275	1,275	722	687	35
Tongue River Reservoir[2]	72,500	6,571	79,071	50,200	42,400	7,800
Twin Lakes Reservoir[11]	1,180	2,232	3,412	2,811	2,826	−15

[1]Change in contents is derived from subtracting the previous water year's contents from the current water year's contents.

[2]Reservoir managed and contents provided by the State of Montana.

[3]Private reservoir. Contents provided by the State of Wyoming.

[4]Anchor Reservoir was built to have a usable content of 17,410 acre-feet, but sinkholes and constructed dikes within the area contained by the dam prevent filling the reservoir to the designed volume. At present, only 9,252 acre-feet have been adjudicated, with the remaining capacity having been eliminated from the permit.

[5]Reservoir managed and contents provided by the Bureau of Reclamation.

[6]Lodge Grass Reservoir (Willow Creek Dam) managed and contents provided by Bureau of Indian Affairs.

[7]Reservoir managed and contents provided by the State of Wyoming.

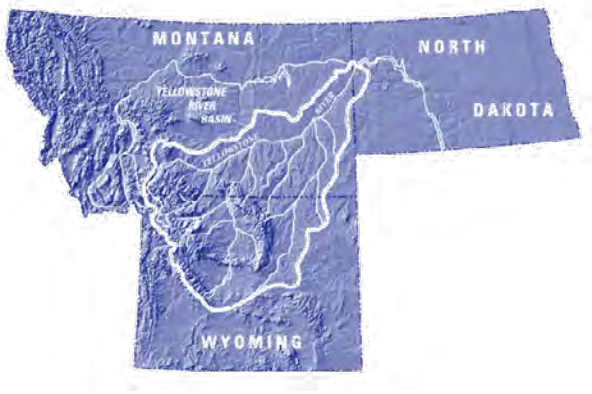
[8]Reservoir managed by Johnson County, Wyoming, and the State of Wyoming. Contents provided by the State of Wyoming.

[9]Data are combined contents of Muddy Guard No. 1 and Muddy Guard No. 2 Reservoirs.

[10]Data are combined contents of Dome Lake and Dome Lake No. 1 Reservoir.

[11]Data are combined contents of Twin Lakes No. 1 and Twin Lakes No. 2 Reservoirs.

Appendix E



RESOLUTION
of the
YELLOWSTONE RIVER
COMPACT COMMISSION
In Appreciation
of the
Contributions of
Chuck Dalby

WHEREAS, Chuck Dalby served on the Yellowstone River Compact Commission Technical Committee for over 10 years; and,

WHEREAS, the Yellowstone River Compact Commission was established by the Yellowstone River Compact of 1950; and,

WHEREAS, the Yellowstone River Compact was entered into by the State of North Dakota, the State of Montana, and the State of Wyoming who desired to further interstate comity and to remove all causes of present and future controversy between those states and the persons in those states with respect to the waters of the Yellowstone River and its tributaries, and to provide for an equitable division and apportionment of those waters and to encourage the beneficial use and development thereof; and,

WHEREAS, the Commissioners and advisors of the Yellowstone River Compact Commission recognize that, as a Surface Water Hydrologist with the Montana Department of Natural Resources and Conservation, Mr. Dalby's considerable hydrologic expertise and experience has contributed greatly to the sound management of water in the greater Yellowstone River Basin for over 30 years; and,

WHEREAS, Mr. Dalby has announced plans to retire in early 2019 from his position with the Montana Department of Natural Resources and Conservation; and,

NOW, THEREFORE, BE IT RESOLVED that the Yellowstone River Compact Commission, at its meeting held in Billings, Montana on December 4, 2018, does hereby express its gratitude and appreciation for Mr. Dalby's dedication to helping the Commission achieve its goals of intergovernmental cooperation during his tenure; and

BE IT FURTHER RESOLVED that the Commission wishes Mr. Dalby good health and much satisfaction and enjoyment of life in his retirement; and,

BE IT FURTHER RESOLVED that the Federal Representative and Chairman of the Yellowstone River Compact Commission is hereby directed to provide a copy of this Resolution to Mr. Dalby.

APPROVED, by unanimous action of the Yellowstone River Compact Commission this 4th day of December 2018 at Billings, Montana.

_____
Jan Langel, Commissioner for Montana

_____
John M. Kilpatrick, Chairman and
Federal Representative

_____
Patrick T. Tyrrell, Commissioner for Wyoming

General Report

Operation and Budget

Work funded by the Yellowstone River Compact Commission has been primarily concerned with the collection of required hydrologic data and funded through cooperative arrangements whereby Montana and Wyoming each bear an equal share of the cost, with the remaining cost borne by the United States. Salaries and necessary expenses of the State and U.S. Geological Survey representatives to the Commission and the cost to other agencies of collecting hydrologic data are not considered as expenses of the Commission.

The expenses of the Commission during Federal fiscal year 2018 were $120,100, in accordance with the budget adopted for the year.

The estimated budget for Federal fiscal year 2019 was approved, and proposed budgets for fiscal years 2020, 2021, 2022, and 2023 were tentatively adopted subject to availability of appropriations. The budgets for the 5 fiscal years are summarized as follows:

Fiscal year	Budget by agency			Total budget
	Wyoming State Engineer	Montana Department of Natural Resources and Conservation	U.S. Geological Survey	
2019	$33,575	$33,575	$52,950	$120,100
2020	$32,675	$32,675	$49,950	$115,300
2021	$33,665	$33,665	$49,950	$117,280
2022	$34,655	$34,655	$49,950	$119,260
2023	$35,690	$35,690	$49,950	$121,330

Streamflow-Gaging Station Operation

Operation of five U.S. Geological Survey streamflow-gaging stations at the measuring sites specified in the Yellowstone River Compact continued in water year 2018 with satisfactory records collected at each station. Streamflow-gaging stations, along with reservoir-content stations, are shown on a map of the Yellowstone River Basin at the end of this report.

The Commission is primarily interested in the streamflow near the mouths of the Clarks Fork Yellowstone River, Bighorn River, Tongue River, and Powder River.

Although the Little Bighorn River is excluded from the Yellowstone River Compact, its inclusion is necessary to compute streamflows of the Bighorn River in accordance with the Compact whereby the streamflow of the Little Bighorn River (including streamflow from Agency Canal) is subtracted from the streamflow of the Bighorn River. Additionally, the Bighorn River streamflow is adjusted monthly with the change in contents of Bighorn Lake. During water year 2018, annual streamflow was above normal (defined in this report as 80 to 120 percent of average) at all streamflow-gaging stations. Information and statistics about the 2017 and 2018 annual streamflows at Compact streamflow-gaging stations are displayed in the following table:

Station number	Streamflow-gaging station	Percentage of average streamflow for water year 2018[1]	Rank of annual streamflow by water year[2]		Year of lowest annual streamflow (rank equals 1)	Number of years of annual record
			2018	2017		
06208500	Clarks Fork Yellowstone River at Edgar, Montana, minus diversions to White Horse Canal	175	80	74	2001	80
06294500	Bighorn River above Tullock Creek, near Bighorn, Montana, minus Little Bighorn River near Hardin, Montana (06294000), plus Agency Canal Tailwaste near Hardin, Montana; and adjusted for change in contents in Bighorn Lake	168	64	65	2002	65
06308500	Tongue River at Miles City, Montana	117	50	57	1961	75
06326500	Powder River near Locate, Montana	101	43	53	2004	80

[1]Average is based on period of record at each station.

[2]The lowest annual streamflow is a rank of 1.

Tabulation of streamflow records for water year 2018 (tables 1–5) and graphical comparisons of statistical distribution of monthly and annual streamflow and of annual departures from mean annual streamflow (figures 1–4) are provided in the "Summary of Discharge for Yellowstone River Compact Streamflow-Gaging Stations" section. Tabulated streamflow records do not account for depletions from irrigation and other uses unless otherwise noted.

Diversions

No diversions were regulated by the Commission during water year 2018.

Reservoir Contents

Reservoirs Completed After January 1, 1950

As a matter of record and general information, month-end contents data (tables 6–8) and descriptions of these reservoirs are given in the "Month-End Contents for Yellowstone River Compact Reservoirs Completed after January 1, 1950" section of this report. Boysen Reservoir, located on the Wind River and operated by the Bureau of Reclamation, began the water year with 717,000 acre-feet (acre-ft) in contents and ended the water year with 653,000 acre-ft. Anchor Reservoir, located on South Fork Owl Creek and operated by the Bureau of Reclamation, began the water year with an estimated 1,170 acre-ft in contents and ended the water year with 491 acre-ft. Bighorn Lake, located on the Big Horn River and operated by the Bureau of Reclamation, is the largest reservoir in the Yellowstone River Basin and began the water year with 1,015,000 acre-ft in contents and ended the water year with 952,100 acre-ft.

Reservoirs Existing on January 1, 1950

As a matter of record and general information, month-end contents data for the four reservoirs in existence on January 1, 1950, upstream from the points of measurement, are given in table 9 in the "Month-End Contents for Yellowstone River Compact Reservoirs Existing on January 1, 1950" section of this report. These reservoirs include Bull Lake, Pilot Butte Reservoir, and Buffalo Bill Reservoir operated by the Bureau of Reclamation; and Tongue River Reservoir, operated under the supervision of the Water Resources Division of the Montana Department of Natural Resources and Conservation. These data are pertinent to allocation under Article V, Section C, Item 3 of the Compact.

Annual Contents of Reservoirs

Information on reservoir contents at the end of the 2018 and the previous water year for the 7 reservoirs listed above, in addition to 38 additional reservoirs with storage capacity greater than 1,000 acre-ft, was compiled at the request of the Commission. Those information are provided in table 10 in the "Water-Year-End Contents for Yellowstone River Compact Reservoirs or Lakes" section.

Summary of Discharge for Yellowstone River Compact Streamflow-Gaging Stations

06208500 Clarks Fork Yellowstone River at Edgar, Montana

LOCATION.—Lat 45°27′56.57″, long 108°50′38.78″ referenced to North American Datum of 1983, in SE¼SE¼SE¼ sec. 23, T. 4 S., R. 23 E., Carbon County, Hydrologic Unit 10070006, on right bank 400 ft downstream from county bridge, 0.5 mi east of Edgar, 6 mi upstream from Rock Creek, and at river mile 22.1.

DRAINAGE AREA.—2,034 mi².

PERIOD OF RECORD.—July 1921 to September 1969, October 1986 to present.

REVISED RECORDS.—Water Supply Paper (WSP) 1509: 1924; 1932, maximum discharge. WSP 1729: Drainage area. Water Data Report MT–04–1: Drainage area.

GAGE.—Water-stage recorder. Elevation of gage is 3,460 ft, referenced to the National American Vertical Datum of 1988. Prior to August 31, 1953, nonrecording gage located at same site and elevation.

REMARKS.—Diversions for irrigation include about 41,500 acres, of which about 840 acres lie downstream from the station. In addition, about 6,300 acres of land upstream from the station are irrigated by diversions from the adjoining Rock Creek Basin. **Discharge values and summary statistics given herein have the diversions to White Horse Canal subtracted.**

Table 1. Daily mean discharge for Clarks Fork Yellowstone River at Edgar, Montana (06208500), minus diversions to White Horse Canal, October 2017 through September 2018.

[e, estimated; —, no data; Max, maximum; Min, minimum; Acre-ft, acre-foot]

Day	Daily-mean discharge, in cubic feet per second											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	e1,050	e687	e717	e471	e448	e476	e463	e2,080	9,820	4,890	1,060	e637
2	e1,040	e719	e743	e473	e458	e476	e462	e1,880	8,820	4,230	1,050	e621
3	e1,010	e703	e780	e476	e438	e476	e484	e1,830	7,140	4,240	1,100	e605
4	e982	e721	e787	e481	e406	e477	e449	e1,990	6,960	4,250	1,140	e558
5	e949	e777	e739	e486	e411	e477	e507	e2,350	7,920	4,000	1,100	e542
6	e958	e751	e643	e489	e422	e477	e504	e2,790	9,330	3,850	1,080	549
7	e923	e770	e644	e489	e428	e476	e487	e3,730	9,520	4,010	1,010	532
8	e898	e740	e653	e487	e421	e476	e490	e4,680	9,040	4,220	884	518
9	e883	e717	e680	e485	e392	e476	e569	e5,180	8,990	4,230	822	558
10	e838	e819	e629	e466	e392	e476	e581	e5,700	9,030	4,270	744	560
11	e820	e841	e630	e440	e393	e476	e578	e5,970	8,050	4,170	712	539
12	e801	e810	e628	e444	e406	e476	e682	e5,330	6,060	3,970	701	525
13	e779	e783	e637	e450	e438	e478	e807	e4,430	4,690	3,580	710	519
14	e753	e776	e633	e460	e460	e480	e678	e4,340	4,600	3,160	700	511
15	e751	e780	e623	e470	e450	e483	e614	e4,170	6,030	2,800	689	482
16	e749	e740	e602	e476	e447	e489	e605	e4,670	6,910	2,590	641	477
17	e737	e751	e627	e476	e442	e491	e658	e5,490	6,960	2,480	607	497
18	e729	e783	e588	e477	e442	e493	e759	e5,830	7,090	2,370	629	494
19	e721	e715	e601	e474	e441	e497	e682	e6,090	9,730	2,190	792	484
20	e694	e669	e618	e459	e454	e504	e677	e5,730	8,330	2,050	763	502
21	e693	e711	e615	e445	e464	e485	e685	e5,980	6,870	1,920	823	515
22	e705	e730	e590	e447	e474	e483	e910	e7,080	6,790	1,800	874	508
23	e689	e748	e546	e455	e478	e504	e1,280	e7,750	6,900	1,730	859	494
24	e725	e907	e540	e467	e478	e531	e1,390	8,800	7,070	1,650	793	500
25	e709	e1,130	e489	e474	e477	e543	e1,120	8,210	6,410	1,580	745	503
26	e719	e977	e492	e462	e477	e504	e1,120	8,890	6,550	1,540	716	520
27	e719	e889	e527	e452	e476	e478	e1,330	9,550	7,070	1,510	707	538
28	e699	e880	e530	e453	e476	e462	e1,720	9,730	6,910	1,500	757	555
29	e701	e828	e503	e465	—	e470	e2,270	9,920	6,670	1,510	834	573
30	e699	e764	e479	e473	—	e466	e2,310	9,290	6,060	1,390	e714	607
31	e683	—	e471	e461	—	e462	—	9,570	—	1,200	e659	—
Total	**24,810**	**23,620**	**18,980**	**14,480**	**12,390**	**15,020**	**25,870**	**179,000**	**222,300**	**88,880**	**25,410**	**16,020**
Mean	**800**	**787**	**612**	**467**	**442**	**484**	**862**	**5,775**	**7,411**	**2,867**	**820**	**534**
Max	**1050**	**1130**	**787**	**489**	**478**	**543**	**2310**	**9920**	**9820**	**4890**	**1140**	**637**
Min	**683**	**669**	**471**	**440**	**392**	**462**	**449**	**1830**	**4600**	**1200**	**607**	**477**
Acre-ft	**49,200**	**46,840**	**37,650**	**28,730**	**24,570**	**29,790**	**51,310**	**355,100**	**441,000**	**176,300**	**50,410**	**31,780**

Summary statistics		
	Water year 2018	**Water years 1921–2018***
Annual total	666,800	—
Annual mean	1,827	1,044
Annual runoff (acre-ft)	1,323,000	756,000

*During periods of operation (water years 1921–69, 1987 to current year [2018]).

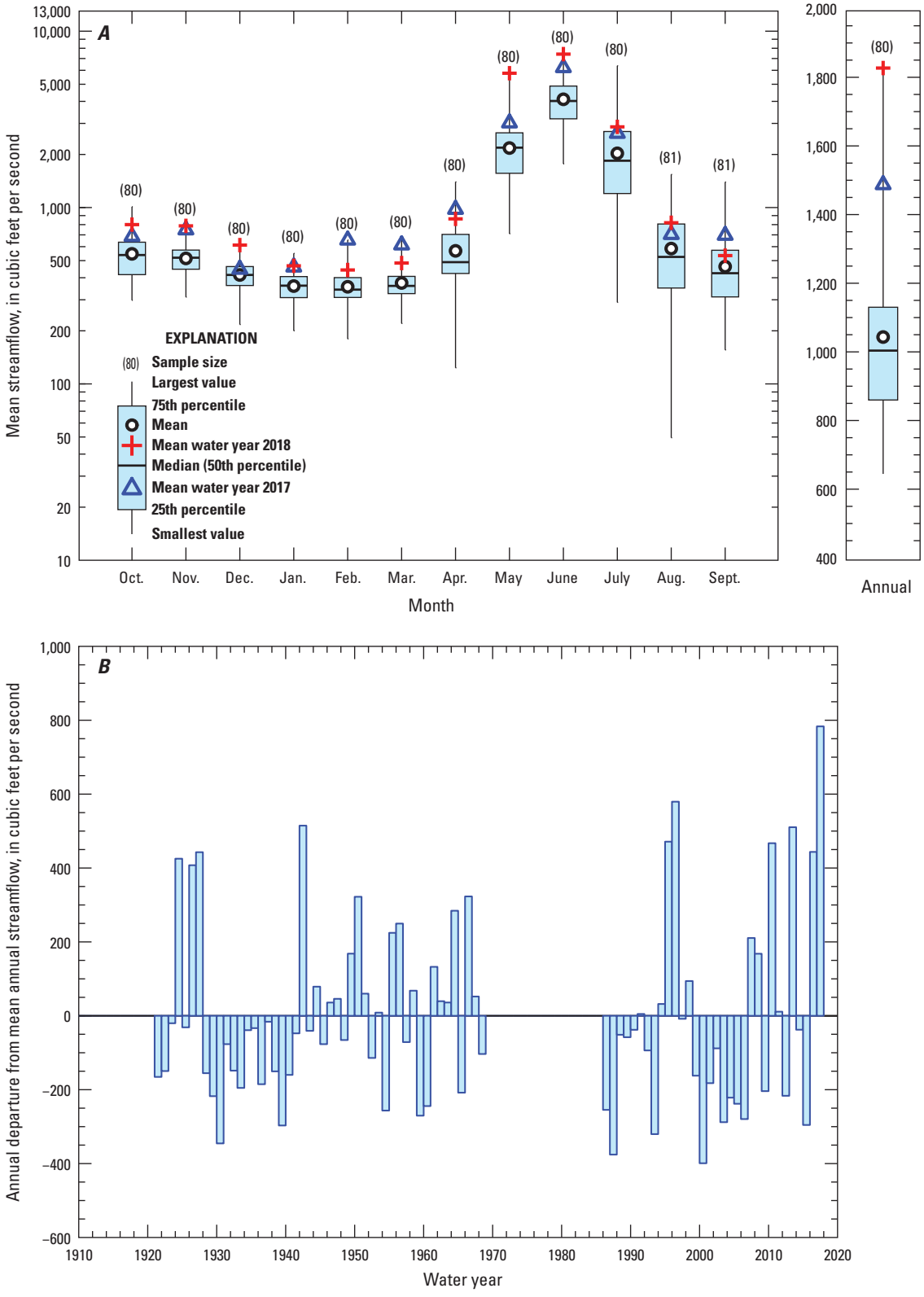


Figure 1. Streamflow data for Clarks Fork Yellowstone River at Edgar, Montana (06208500), minus diversions to White Horse Canal, water years 1921–2018. *A*, Statistical distribution of monthly and annual streamflow. *B*, Annual departure from the mean annual streamflow.

06294000 Little Bighorn River near Hardin, Montana

LOCATION.—Lat 45°44′08.47″, long 107°33′26.89″ referenced to North American Datum of 1983, in SE¼NE¼NE¼ sec. 19, T. 1 S., R. 34 E., Big Horn County, Hydrologic Unit 10080016, on left bank 50 ft downstream from bridge on Sarpy Road, 0.2 mi upstream from terminal wasteway of Agency Canal, 0.6 mi upstream from mouth, and 2.3 mi east of Hardin.

DRAINAGE AREA.—1,294 mi².

PERIOD OF RECORD.—June 1953 to present.

REVISED RECORDS.—Water Data Report MT–86–1: 1978. Gage height and discharge data for the period Apr. 28 to June 19, 2017, were revised on Dec. 12, 2019, based on reanalysis of reference readings.

GAGE.—Water-stage recorder. Elevation of gage is 2,882.29 ft, referenced to the National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to October 7, 1953, nonrecording gage located at site 0.4 mi downstream. October 7, 1953, to May 6, 1963, water-stage recorder located at site 0.3 mi downstream. May 6, 1963, to November 6, 1963, nonrecording gage located at site 0.4 mi downstream. All locations had different elevations. November 7, 1963, to August 15, 1976, water-stage recorder located at site 35 ft downstream at present elevation. August 15, 1976, to September 30, 1979, water-stage recorders were located on each bank downstream from Sarpy Road Bridge and were used depending on control conditions.

REMARKS.—Streamflow partly regulated by Willow Creek Reservoir (also known as Lodge Grass Reservoir, capacity 22,900 acre-ft). Diversions for irrigation include 20,980 acres upstream from station. **Discharge values and summary statistics given herein include the streamflow of terminal wasteway of Agency Canal.**

Table 2. Daily mean discharge for Little Bighorn River near Hardin, Montana (06294000), including diversions to Agency Canal, October 2017 through September 2018.

[e, estimated; —, no data; Max, maximum; Min, minimum; Acre-ft, acre-foot]

Day	Daily-mean discharge, in cubic feet per second											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	137	152	e124	e123	e122	e121	576	560	3,340	473	139	118
2	141	161	e123	e123	e122	e121	466	697	2,770	429	130	109
3	151	178	e123	e123	e122	e121	430	639	2,500	398	120	105
4	144	167	e123	e123	e122	e122	376	545	2,090	382	118	109
5	144	153	e123	e123	e122	e138	372	486	1,780	358	116	99.8
6	140	e148	e123	e123	e122	e161	423	460	1,630	342	120	101
7	141	e125	e123	e123	e122	e186	482	466	1,510	333	116	98.6
8	143	121	e123	e123	e122	e213	418	506	1,460	308	99.2	87.8
9	140	146	e123	e123	e121	e242	458	587	1,380	301	92.1	79.3
10	139	158	e123	e123	e121	e280	863	645	1,270	285	89.3	71.9
11	140	154	e123	e123	e120	e318	1,320	712	1,190	278	87.6	70.1
12	139	141	e123	e123	e119	e363	1,690	773	1,130	259	86.8	75.1
13	147	156	e123	e123	e119	e421	1,720	818	1,040	241	87	82.9
14	144	146	e123	e123	e118	e487	1,190	793	956	227	78.6	87
15	139	144	e123	e123	e118	e586	830	721	894	212	87.9	87.3
16	139	141	e123	e123	e118	e700	659	695	886	202	102	91.4
17	137	143	e123	e123	e117	e740	620	723	919	168	128	103
18	136	138	e123	e123	e117	e719	648	800	890	160	131	111
19	135	138	e123	e123	e117	e656	652	896	860	154	144	114
20	135	136	e123	e123	e117	e513	560	906	906	141	155	141
21	132	137	e123	e123	e116	e394	499	861	994	126	179	149
22	130	134	e123	e123	e116	e303	456	856	875	116	186	166
23	129	132	e123	e123	e117	e254	439	951	1,050	96.3	175	162
24	129	130	e123	e123	e116	e234	487	1,220	922	80.2	154	156
25	130	130	e123	e123	e115	e286	542	1,370	795	75.4	136	159
26	130	131	e123	e123	e115	e401	549	1,420	709	69.9	125	161
27	134	128	e123	e122	e117	e526	510	1,380	622	64.5	123	165
28	139	129	e123	e122	e120	e653	442	1,770	555	73.8	124	171
29	135	131	e123	e122	—	725	398	2,630	524	118	131	172
30	136	130	e123	e122	—	616	431	2,710	502	155	144	192
31	137	—	e123	e122	—	621	—	3,270	—	144	128	—
Total	**4,272**	**4,258**	**3,814**	**3,808**	**3,330**	**12,220**	**19,510**	**31,870**	**36,950**	**6,770**	**3,832**	**3,595**
Mean	**138**	**142**	**123**	**123**	**119**	**394**	**650**	**1,028**	**1,232**	**218**	**124**	**120**
Max	**151**	**178**	**124**	**123**	**122**	**740**	**1720**	**3270**	**3340**	**473**	**186**	**192**
Min	**129**	**121**	**123**	**122**	**115**	**121**	**372**	**460**	**502**	**64.5**	**78.6**	**70.1**
Acre-ft	**8,473**	**8,446**	**7,564**	**7,553**	**6,605**	**24,240**	**38,690**	**63,210**	**73,290**	**13,430**	**7,602**	**7,131**

Summary statistics		
	Water year 2018	**Water years 1954–2018**
Annual total	134,200	—
Annual mean	367.7	275.6
Annual runoff (acre-ft)	266,200	199,700

06294500 Bighorn River above Tullock Creek, near Bighorn, Montana

LOCATION.—Lat 46°07′28.10″, long 107°28′07.65″ referenced to North American Datum of 1983, in SE¼SE¼NE¼ sec. 3, T. 4 N., R. 34 E., Treasure County, Hydrologic Unit 10080015, on right bank 1.9 mi upstream from Tullock Creek, 3.6 mi southwest of Bighorn, 4.5 mi southeast of Custer, and at river mile 3.0.

DRAINAGE AREA.—22,419 mi². Area at site used October 7, 1955, to September 30, 1981, 22,885 mi².

PERIOD OF RECORD.—October 1981 to present. Previously published as "06294700 Bighorn River at Bighorn, MT" from 1956–81, and as "06294700 Bighorn River near Custer" from 1945–55. Streamflows are equivalent at all sites.

GAGE.—Water-stage recorder. Elevation of gage is 2,700 ft, referenced to the North American Vertical Datum of 1988. May 11, 1945, to December 6, 1945, nonrecording gage, and December 7, 1945, to October 6, 1955, water-stage recorder located 1.7 mi upstream at different elevation. October 7, 1955, to September 30, 1981, located at site 2.3 mi downstream at different elevation.

REMARKS.— After November 1965, streamflow has been regulated by Bighorn Lake (usable contents, 1,312,000 acre-ft). Major regulation prior to November 1965 occurred from 14 reservoirs in Wyoming and 1 in Montana with combined usable contents of about 1,400,000 acre-ft. Diversion for irrigation of about 445,200 acres occurs upstream from the station.

Table 3. Daily mean discharge for Bighorn River above Tullock Creek, near Bighorn, Montana (06294500), October 2017 through September 2018.

[e, estimated; —, no data; Max, maximum; Min, minimum; Acre-ft, acre-foot]

Day	Daily-mean discharge, in cubic feet per second											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	4,640	5,280	4,320	3,650	4,280	4,650	8,060	8,630	11,200	14,500	4,210	3,270
2	4,660	5,060	4,320	e3,800	4,400	4,650	7,930	8,920	12,300	13,900	4,020	3,220
3	4,740	4,880	4,320	e3,820	4,540	4,660	8,000	8,850	11,500	13,500	3,800	3,180
4	4,830	4,870	4,360	e3,840	4,540	4,660	8,050	8,560	11,700	12,900	3,660	3,130
5	4,810	4,790	4,320	e3,840	4,490	4,690	8,510	8,350	12,000	12,200	3,570	3,110
6	4,730	4,770	4,320	e3,850	4,440	4,670	9,250	8,280	12,700	11,100	3,510	3,140
7	4,740	4,720	4,310	3,870	4,400	4,690	9,310	8,310	13,300	10,100	3,470	3,190
8	4,820	4,700	4,340	3,860	4,430	4,830	9,060	8,340	13,500	9,200	3,360	3,190
9	4,850	4,730	4,350	3,860	4,390	5,120	9,460	8,390	13,400	8,650	2,990	3,160
10	4,900	4,760	4,330	3,910	4,250	5,290	11,300	8,520	13,300	8,160	2,860	3,150
11	4,830	4,780	4,360	e3,990	4,450	5,350	11,700	8,540	13,200	7,540	2,900	3,150
12	5,020	4,790	4,120	e4,110	4,210	5,470	11,100	8,680	13,600	6,970	2,870	3,170
13	5,330	4,830	4,020	e4,110	4,470	5,560	10,900	8,800	13,900	6,700	2,840	3,190
14	5,260	4,870	4,030	4,070	4,580	5,610	10,200	8,880	13,800	6,630	2,990	3,170
15	5,120	4,830	3,920	e4,070	4,560	5,860	9,320	8,650	13,800	6,570	3,110	3,180
16	5,150	4,700	3,900	e4,080	4,670	6,360	8,870	8,810	14,100	6,580	3,060	3,200
17	5,210	4,480	3,880	e4,070	4,660	6,580	8,790	9,000	14,500	6,630	3,050	3,190
18	5,160	4,320	3,860	e4,050	4,700	6,630	9,390	9,120	14,700	6,200	3,110	3,210
19	5,140	4,310	3,910	4,060	4,580	6,480	9,110	9,360	14,900	5,690	3,220	3,230
20	5,160	4,320	3,890	4,120	4,510	6,710	8,720	9,330	15,800	5,170	3,180	3,320
21	5,190	4,350	3,840	4,230	4,560	7,170	8,540	9,320	16,500	4,940	3,230	3,250
22	5,220	4,320	3,830	4,250	4,620	7,430	8,420	9,310	16,300	4,920	3,200	3,170
23	5,240	4,330	3,810	4,150	4,620	7,660	8,490	9,720	16,000	4,870	3,300	3,170
24	5,130	4,330	3,770	4,120	4,820	8,280	8,820	10,200	16,200	4,800	3,380	3,200
25	5,010	4,320	e3,800	4,090	4,950	8,670	9,020	8,970	16,000	4,790	3,320	3,220
26	5,050	4,310	e3,790	4,090	4,650	8,600	8,850	8,140	15,700	4,470	3,280	3,230
27	5,060	4,330	e3,810	4,080	4,640	8,430	8,590	7,940	15,600	4,080	3,290	3,240
28	5,080	4,340	e3,800	4,080	4,640	9,100	8,420	8,740	15,500	3,950	3,270	3,260
29	5,110	4,320	3,810	4,060	—	9,220	8,370	12,700	15,500	4,000	3,280	3,220
30	5,120	4,340	3,840	4,080	—	8,790	8,420	12,000	15,400	3,980	3,330	3,320
31	5,130	—	3,810	4,300	—	8,480	—	10,100	—	4,080	3,330	—
Total	**155,400**	**138,100**	**125,099**	**124,600**	**127,000**	**200,400**	**273,000**	**281,500**	**425,900**	**227,800**	**102,000**	**96,030**
Mean	**5,014**	**4,603**	**4,035**	**4,018**	**4,538**	**6,463**	**9,099**	**9,079**	**14,199**	**7,347**	**3,290**	**3,201**
Max	**5330**	**5280**	**4360**	**4300**	**4950**	**9220**	**11700**	**12700**	**16500**	**14500**	**4210**	**3320**
Min	**4640**	**4310**	**3770**	**3650**	**4210**	**4650**	**7930**	**7940**	**11200**	**3950**	**2840**	**3110**
Acre-ft	**308,300**	**273,900**	**248,100**	**247,100**	**252,000**	**397,400**	**541,400**	**558,300**	**844,800**	**451,800**	**202,300**	**190,500**

Summary statistics		
	Water year 2018	**Water years 1967–2018**
Annual total	2,227,000	—
Annual mean	6,238	3,774
Annual runoff (acre-ft)	4,516,000	2,734,000

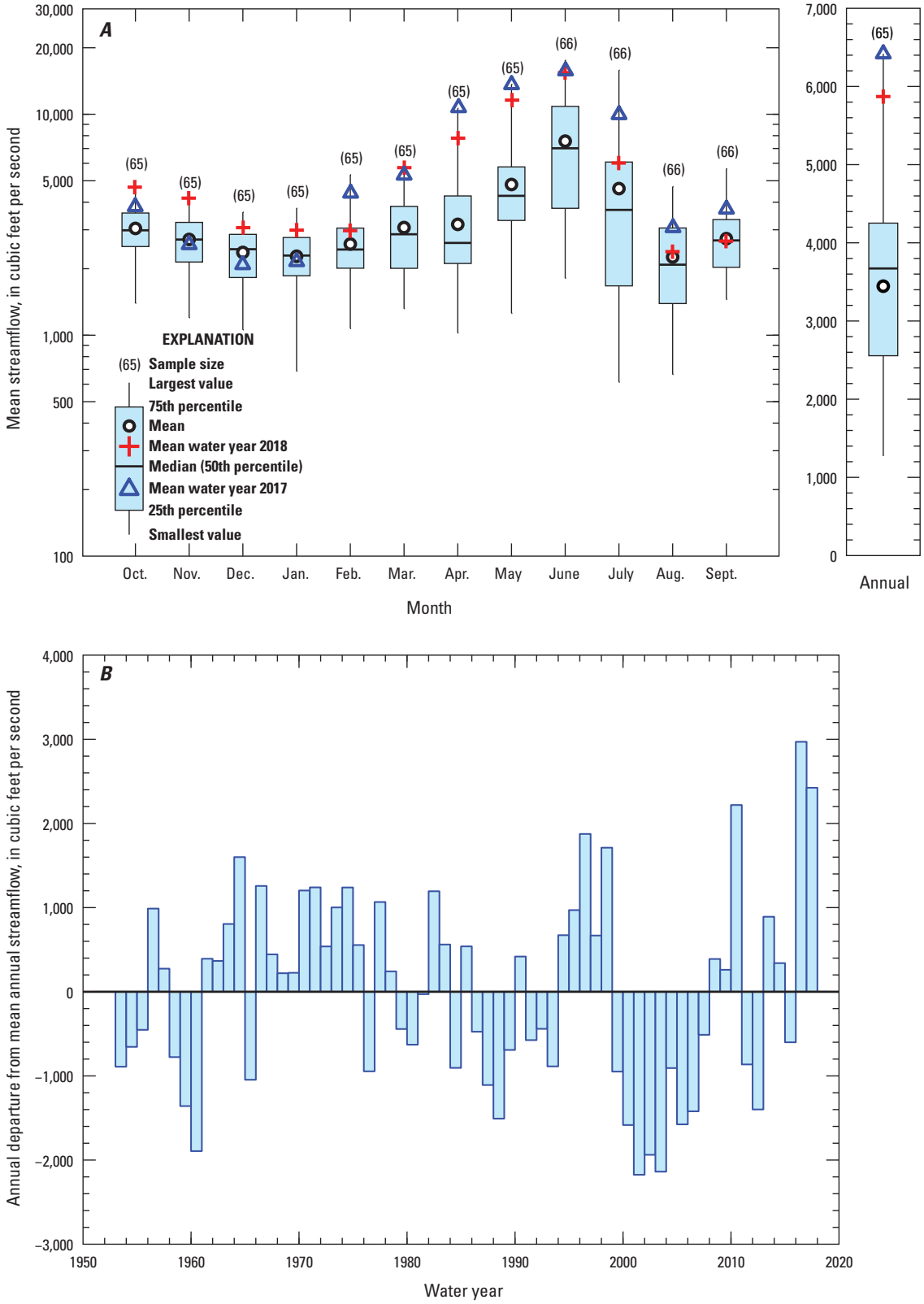


Figure 2. Streamflow data for Bighorn River above Tullock Creek, near Bighorn, Montana (06294500), minus Little Bighorn River near Hardin, Montana (06294000), including Agency Canal Tailwaste near Hardin, Montana; and adjusted for change in contents in Bighorn Lake, water years 1954–2018. *A*, Statistical distribution of monthly and annual streamflow. *B*, Annual departure from the mean annual streamflow.

06308500 Tongue River at Miles City, Montana

LOCATION.—Lat 46°23′04.54″, long 105°50′43.88″ referenced to North American Datum of 1983, in SE¼SE¼SE¼ sec. 4, T. 7 N., R. 47 E., Custer County, Hydrologic Unit 10090102, on right bank 1.5 mi south of Miles City and at river mile 2.3.

DRAINAGE AREA.—5,397 mi². Area at site used before October 4, 1995, 5,379 mi².

PERIOD OF RECORD.—April 1938 to April 1942, April 1946 to present. Published as "near Miles City" April 1938 to April 1942. Not equivalent to records published as "near Miles City" May 1929 to October 1932. April 1946 to October 4, 1995, at site 2.5 mi upstream from present site. Streamflows at present site are equivalent with streamflows at site operated from 1946. Monthly discharge only for some periods, published in Water Supply Paper (WSP) 1309.

REVISED RECORDS.—WSP 1729: Drainage area.

GAGE.—Water-stage recorder. Elevation of gage is 2,351.40 ft, referenced to the North American Vertical Datum of 1988. April 1938 to April 1942, nonrecording gage located at site 8 mi upstream from present site at different elevation. April 1946 to September 30, 1963, located at elevation 1.00 ft higher than present site. October 4, 1995, gage was moved 2.5 mi downstream.

REMARKS.—Streamflow is regulated by Tongue River Reservoir (station 06307000) with total capacity of 79,071 acre-ft, and many small reservoirs in Wyoming with combined capacity of about 15,000 acre-ft. Diversions for irrigation include about 100,800 acres upstream from station.

Table 4. Daily mean discharge for Tongue River at Miles City, Montana (06308500), October 2017 through September 2018.

[e, estimated; —, no data; Max, maximum; Min, minimum; Acre-ft, acre-foot]

Day	Daily-mean discharge, in cubic feet per second											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	253	263	243	e25.2	e174	e190	577	667	2,720	675	134	222
2	268	263	241	e52.4	e175	e194	552	655	3,440	626	135	223
3	287	263	228	e151	e174	e199	498	617	3,990	900	130	229
4	272	264	242	e198	e172	e202	491	583	3,200	778	123	223
5	273	267	e205	e202	e172	e205	539	569	2,820	604	143	209
6	295	249	e221	e188	e170	e207	535	555	2,580	477	168	203
7	291	135	168	e173	e170	e210	505	541	2,250	408	179	208
8	288	206	209	e171	e169	e216	497	531	2,080	362	158	210
9	287	193	204	e171	e153	e224	517	514	1,990	334	154	216
10	287	e187	223	e172	e138	e240	543	532	1,900	305	112	214
11	290	e242	253	e172	e139	e262	564	561	1,810	236	86.2	217
12	289	e307	235	e175	e147	e282	625	653	1,680	197	108	207
13	288	e310	263	e180	e160	e310	1,130	652	1,570	184	122	212
14	289	e273	252	e170	e178	e345	937	555	1,470	172	137	226
15	289	e236	226	e134	e200	e396	687	518	1,330	166	154	227
16	289	e237	214	e125	e201	e460	616	517	1,300	157	171	230
17	289	e238	202	e159	e192	e522	598	524	1,320	175	179	228
18	288	e240	216	e196	e183	e589	636	563	1,170	185	166	201
19	287	e257	218	e227	e179	e701	587	592	1,060	185	183	191
20	284	253	211	e236	e177	e833	568	622	1,020	179	226	217
21	283	251	e111	e232	e176	e965	562	652	1,010	157	262	231
22	284	249	e70.7	e218	e177	e1,180	554	698	1,160	165	266	223
23	283	250	e51.2	e201	e179	e2,200	564	787	1,400	147	274	224
24	271	251	e51.2	e189	e182	e3,990	669	1,060	1,180	136	260	225
25	266	247	e88.2	e182	e184	e3,170	783	1,200	1,060	130	235	233
26	263	246	e121	e180	e185	1,740	667	1,330	921	143	222	232
27	264	246	e140	e179	e187	1,100	596	1,550	855	147	228	245
28	267	244	e166	e178	e189	1,060	583	1,750	854	141	256	253
29	268	244	e163	e177	—	934	581	1,920	809	162	265	236
30	268	243	e150	e177	—	790	654	2,110	769	157	252	246
31	259	—	e94.8	e175	—	666	—	2,340	—	154	230	—
Total	**8,659**	**7,354**	**5,681**	**5,366**	**4,882**	**24,580**	**18,420**	**26,920**	**50,720**	**8,944**	**5,718**	**6,661**
Mean	**279**	**245**	**183**	**173**	**174**	**793**	**614**	**868**	**1,691**	**289**	**184**	**222**
Max	**295**	**310**	**263**	**236**	**201**	**3990**	**1130**	**2340**	**3990**	**900**	**274**	**253**
Min	**253**	**135**	**51.2**	**25.2**	**138**	**190**	**491**	**514**	**769**	**130**	**86.2**	**191**
Acre-ft	**17,180**	**14,590**	**11,270**	**10,640**	**9,683**	**48,760**	**36,530**	**53,390**	**100,600**	**17,740**	**11,340**	**13,210**

Summary statistics		
	Water year 2018	**Water years 1938–2018***
Annual total	173,900	—
Annual mean	476.4	407.4
Annual runoff (acre-ft)	344,900	296,600

*During periods of operation (April 1938 to April 1942, April 1946 to current year [2018]).

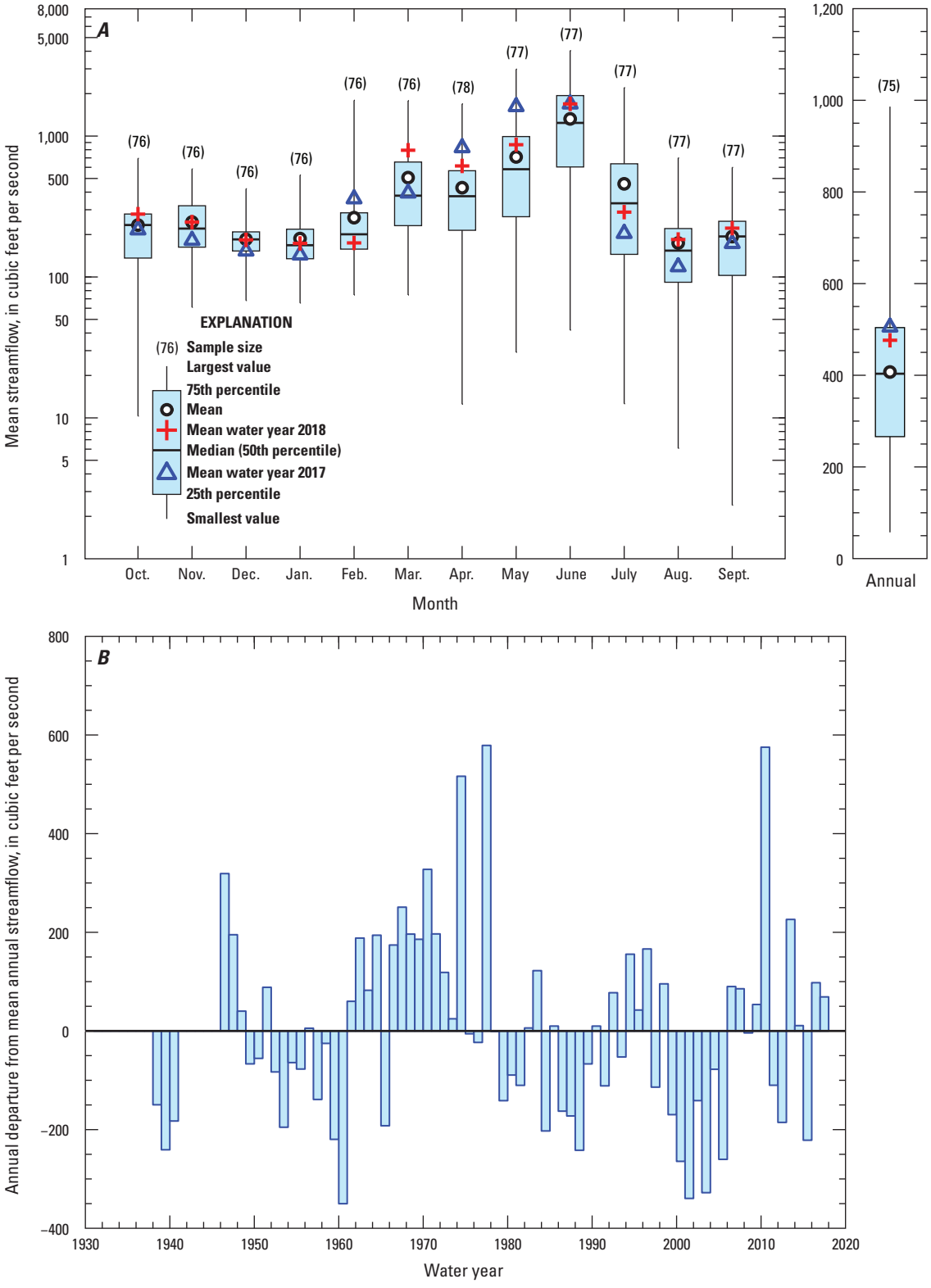


Figure 3. Streamflow data for Tongue River at Miles City, Montana (06308500), water years 1938–2018. *A*, Statistical distribution of monthly and annual streamflow. *B*, Annual departure from the mean annual streamflow.

06326500 Powder River near Locate, Montana

LOCATION.—Lat 46°25′45.97″, long 105°18′37.19″ referenced to North American Datum of 1983, in SW¼SW¼SE¼ sec. 23, T. 8 N., R. 51 E., Custer County, Hydrologic Unit 10090209, on left bank at downstream side of bridge on U.S. Highway 12, 0.1 mi west of Locate, and 25 mi east of Miles City, and at river mile 29.4.

DRAINAGE AREA.—13,060 mi^2.

PERIOD OF RECORD.—March 1938 to present.

REVISED RECORDS.— Water Supply Paper (WSP) 926: 1939. WSP 1309: 1938–39, maximum discharge. WSP 1729: Drainage area. Water Data Report MT–04–1: Drainage area.

GAGE.—Water-stage recorder. Elevation of gage is 2,384.7 ft, referenced to the National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to July 11, 1947, nonrecording gage located at bridge 1.5 mi upstream, and July 11, 1947, to September 30, 1965, water-stage recorder located at site near upstream bridge at different elevation. October 1, 1965, to October 4, 1966, nonrecording gage, and October 5, 1966, to March 21, 1978, water-stage recorder located at present site and elevation. March 22, 1978, to April 23, 1981, water-stage recorder located 1.5 mi upstream at different elevation, April 24 to August 20, 1981, water-stage recorder located at present site and elevation, and August 21, 1981, to September 30, 1981, water-stage recorder located 1.5 mi upstream at different elevation. October 1, 1981, to April 5, 1995, water-stage recorder located at site 1.5 mi downstream at different elevation. April 7, 1995 to present, water-stage recorders located on each bank and used depending on control conditions.

REMARKS.—Some regulation occurs by three reservoirs in Wyoming with combined usable contents of 36,800 acre-ft. Diversions for irrigation include about 101,800 acres upstream from station.

Table 5. Daily mean discharge for Powder River near Locate, Montana (06326500), October 2017 through September 2018.

[e, estimated; —, no data; Max, maximum; Min, minimum; Acre-ft, acre-foot]

Day	Daily-mean discharge, in cubic feet per second											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	226	274	343	e65.3	e208	e199	982	819	2,710	1,030	91.7	143
2	239	298	336	e88.0	e223	e202	969	879	2,210	833	453	137
3	248	298	332	e117	e214	e208	861	727	1,790	1,150	441	141
4	274	293	342	e146	e158	e208	805	681	1,630	859	377	128
5	282	305	321	e187	e180	e211	745	689	1,630	689	315	131
6	276	334	312	e227	e186	e212	669	815	1,460	616	248	127
7	267	e342	298	e254	e187	e211	655	832	1,290	557	195	117
8	278	e336	291	e254	e187	e229	603	775	1,200	485	148	102
9	289	e329	324	e251	e178	e240	585	729	1,220	457	126	87.5
10	301	325	294	e230	e131	e342	611	759	1,230	435	104	84
11	320	312	243	e179	e164	e518	683	707	1,280	384	89	78.4
12	331	300	e205	e168	e190	e684	921	768	1,200	388	75.1	77.7
13	337	317	e180	e168	e189	e957	1,340	816	1,120	358	63.3	80.6
14	331	348	e171	e158	e190	e1,450	1,070	942	1,060	290	88.8	76.2
15	325	368	e160	e49.2	e188	e2,190	803	965	981	253	84.7	70.8
16	321	349	e155	e23.9	e181	e2,730	667	933	1,180	227	66.9	62.2
17	315	343	e157	e50.8	e189	e2,830	619	895	1,170	196	58.2	68.5
18	306	341	e153	e89.6	e188	e3,210	609	900	948	194	51.2	66.2
19	305	342	e151	e158	e187	e3,160	594	935	803	157	50.9	65
20	296	327	e151	e244	e184	e2,700	558	903	776	162	50.2	85.1
21	281	331	e106	e257	e164	e2,600	571	825	811	181	52.3	84.3
22	272	311	e85.5	e252	e194	e2,860	607	837	832	153	103	86.6
23	252	329	e58.0	e252	e189	e5,350	555	799	908	129	190	91.6
24	272	322	e66.3	e252	e186	e9,100	636	702	1,010	127	171	94.8
25	259	373	e80.7	e251	e188	8,750	610	640	1,190	179	159	92.7
26	257	369	e98.1	e251	e189	5,510	624	633	946	160	141	97.9
27	275	351	e121	e250	e189	3,130	649	1,060	942	126	151	107
28	259	337	e135	e250	e195	2,380	632	1,180	863	112	153	119
29	237	321	e136	e250	—	1,730	729	1,410	835	99.4	170	137
30	253	341	e134	e249	—	1,330	1,030	1,580	1,140	85.3	182	149
31	275	—	e123	e240	—	1,090	—	2,130	—	71	165	—
Total	**8,759**	**9,866**	**6,062**	**5,862**	**5,195**	**66,520**	**21,990**	**28,270**	**36,360**	**11,140**	**4,814**	**2,988**
Mean	**283**	**329**	**196**	**189**	**186**	**2,146**	**733**	**912**	**1,212**	**359**	**155**	**99.6**
Max	**337**	**373**	**343**	**257**	**223**	**9100**	**1340**	**2130**	**2710**	**1150**	**453**	**149**
Min	**226**	**274**	**58**	**23.9**	**131**	**199**	**555**	**633**	**776**	**71**	**50.2**	**62.2**
Acre-ft	**17,370**	**19,570**	**12,020**	**11,630**	**10,310**	**131,900**	**43,620**	**56,060**	**72,130**	**22,100**	**9,549**	**5,927**

Summary statistics		
	Water year 2018	**Water years 1939–2018**
Annual total	207,800	—
Annual mean	569.4	565.3
Annual runoff (acre-ft)	412,200	410,700

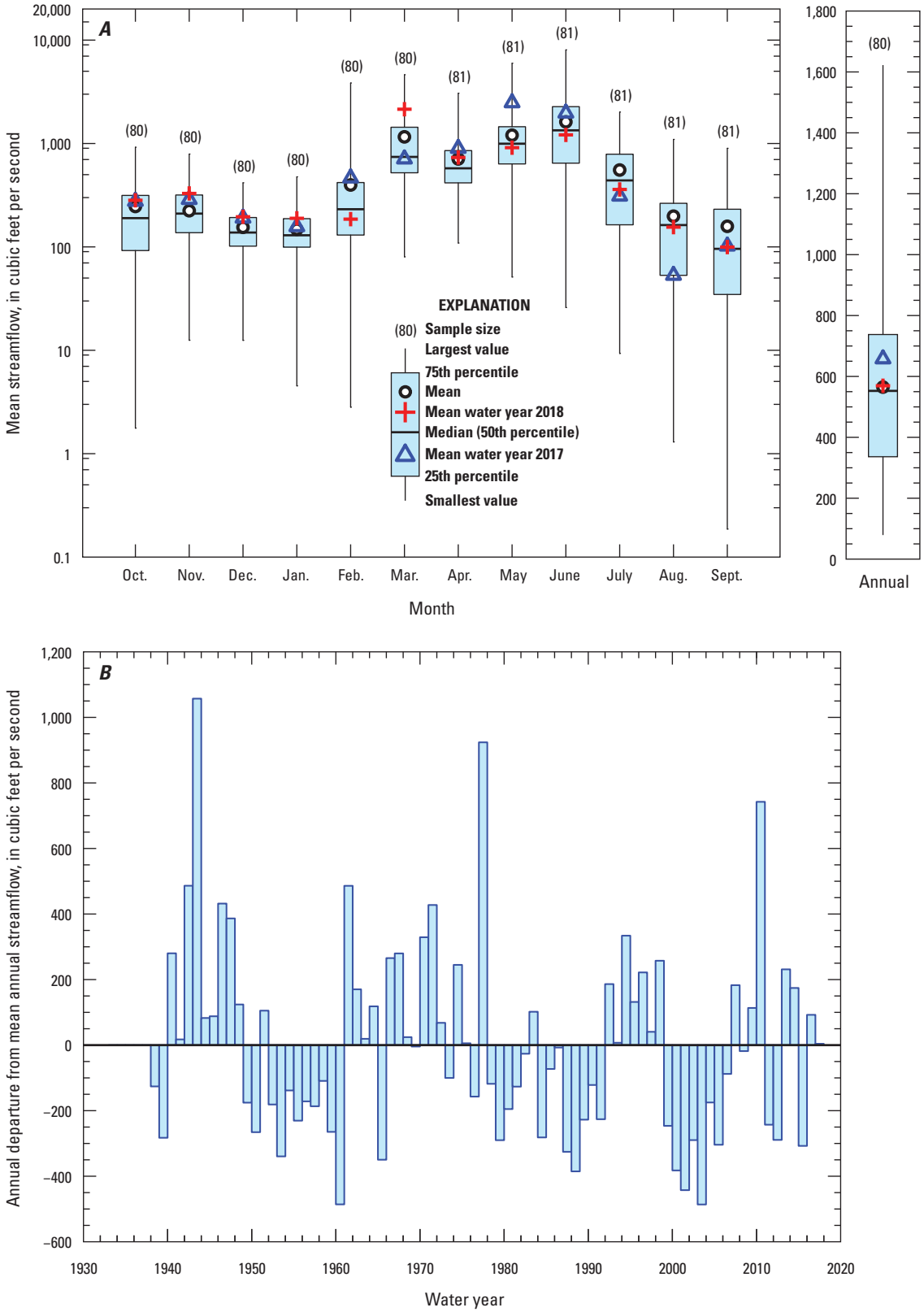


Figure 4. Streamflow data for Powder River near Locate, Montana (06326500), water years 1939–2018. *A*, Statistical distribution of monthly and annual streamflow. *B*, Annual departure from the mean annual streamflow.

Month-End Contents for Yellowstone River Compact Reservoirs Completed after January 1, 1950

06258900 Boysen Reservoir, Wyoming

LOCATION.—Lat 43°25′00″, long 108°10’37″ referenced to North American Datum of 1927, in NW¼NW¼ sec. 16, T. 5 N., R. 6 E., Fremont County, Hydrologic Unit 10080005, at dam on Wind River and 13 mi north of Shoshoni, Wyoming.

DRAINAGE AREA.—7,700 mi^2.

PERIOD OF RECORD.—October 1951 to present.

GAGE.—Water-stage recorder. Datum of gage is referenced to the National Geodetic Vertical Datum of 1929 (levels by Bureau of Reclamation).

REMARKS.—Reservoir is formed by rock-fill dam completed in October 1951. Storage began October 11, 1951. The elevation at the top of dead pool (outlet and penstock invert pipe) is 4,657.00 ft and contents of 40,080 acre-ft. The elevation at the top of inactive contents is 4,685.00 ft and contents 219,200 acre-ft. The elevation of the top of the joint-use pool (top of spillway gate) is 4,725.00 ft and contents of 741,600 acre-ft. Top of exclusive flood control is 4,732.20 ft and contents of 892,200 acre-ft. Top of Crest of dam is at elevation 4,758.00 ft. Water used for power production, flood control, irrigation, and recreation.

COOPERATION.—Elevations and contents table furnished by Bureau of Reclamation. Data available at https://www.usbr.gov/gp-bin/arcweb_boyr.pl.

EXTREMES FOR PERIOD OF RECORD.—Maximum daily contents, 922,400 acre-ft, July 6, 1967, elevation, 4,730.83 ft; minimum daily contents since normal use of water started, 235,700 acre-ft, September 24, 2002; minimum elevation, March 18, 1956, 4,684.18 ft.

Table 6. Month-end contents for Boysen Reservoir, Wyoming (06258900).

[Data provided by the Bureau of Reclamation. —, no data]

Date	Water-surface elevation, in feet	Contents, in acre-feet	Change in usable contents, in acre-feet
September 30, 2017	4,723.73	717,000	—
October 31, 2017	4,722.66	696,800	−20,200
November 30, 2017	4,721.72	679,400	−17,400
December 31, 2017	4,720.67	660,300	−19,100
January 31, 2018	4,719.42	638,200	−22,100
February 28, 2018	4,718.12	615,900	−22,300
March 31, 2018	4,715.37	571,400	−44,500
April 30, 2018	4,707.49	458,900	−112,500
May 31, 2018	4,721.23	670,400	211,500
June 30, 2018	4,726.79	777,300	106,900
July 31, 2018	4723.73	717,000	−60,300
August 31, 2018	4,721.67	678,400	−38,600
September 30, 2018	4,720.26	653,000	−25,500
2018 water year	—	—	**−64,000**

06260300 Anchor Reservoir, Wyoming

LOCATION.—Lat 43°39′50″, long 108°49′27″ referenced to North American Datum of 1927, in sec. 26, T. 43 N., R. 100 W., Hot Springs County, Hydrologic Unit 10080007, at dam on South Fork Owl Creek, 2 mi downstream from Middle Fork, 3 mi southeast of Anchor, and 32 mi west of Thermopolis, Wyoming.

DRAINAGE AREA.—131 mi^2.

PERIOD OF RECORD.—November 1960 to present.

GAGE.—Water-stage recorder. Datum of gage is referenced to the National Geodetic Vertical Datum of 1929 (Bureau of Reclamation bench mark).

REMARKS.—Reservoir is formed by concrete-arch dam completed in 1960. The elevation of the dead pool (invert of river outlet) is 6,343.75 ft and contents of 66 acre-ft. The top of the active conservation pool is 6,441.0 ft and contents of 17,230 acre-ft. Water is used for flood control, recreation, and irrigation of land in Owl Creek Basin. Anchor Reservoir was built to have contents of 17,410 acre-ft, but sinkholes within the area contained by the dam prevent filling the reservoir to the designed volume, and at present, only 9,252 acre-ft have been adjudicated, with the remaining capacity having been removed from the permit.

COOPERATION.—Elevations and contents table furnished by Bureau of Reclamation. Data available at https://www.usbr.gov/gp-bin/arcweb_ancr.pl.

EXTREMES FOR PERIOD OF RECORD.—Maximum daily contents, 9,250 acre-ft., July 3, 1967, elevation, 6,418.52 ft; no contents on many days some years.

Table 7. Month-end contents for Anchor Reservoir, Wyoming (06260300).

[Data provided by the Bureau of Reclamation. —, no data]

Date	Water-surface elevation, in feet	Contents, in acre-feet	Change in usable contents, in acre-feet
September 30, 2017	6,373.63	1,174	—
October 31, 2017	6,375.91	1,355	181
November 30, 2017	6,373.55	1,168	−187
December 31, 2017	6,368.31	809	−359
January 31, 2018	6,364.27	593	−216
February 28, 2018	6,361.54	474	−119
March 31, 2018	6,364.58	608	134
April 30, 2018	6,374.73	1,260	652
May 31, 2018	6,410.35	6,567	5,307
June 30, 2018	6,410.60	6,624	57
July 31, 2018	6,396.24	3,818	−2,806
August 31, 2018	6,360.61	437	−3,380
September 30, 2018	6,361.98	491	54
2018 water year	—	—	**−683**

06286400 Bighorn Lake near St. Xavier, Montana

LOCATION.—Lat 45°18′27″, long 107°57′26″ referenced to North American Datum of 1927, in SW¼SE¼ sec. 18, T. 6 S., R. 30 E., Big Horn County, Hydrologic Unit 10080010, in block 13 of Yellowtail Dam on Bighorn River, 1.3 mi upstream from Grapevine Creek, 15.5 mi southwest of St. Xavier, and at river mile 86.6.

DRAINAGE AREA.—19,626 mi².

PERIOD OF RECORD.—November 1965 to present (month-end contents only). Prior to October 1969, published as "Yellowtail Reservoir." Records of daily elevations and contents on file at the U.S. Geological Survey, Wyoming-Montana Water Science Center in Helena, Montana.

GAGE.—Water-stage recorder located in powerhouse control room. Elevation of gage is 3,296.5 ft, referenced to the National Geodetic Vertical Datum of 1929 (levels by Bureau of Reclamation).

COOPERATION.—Elevations and contents table furnished by Bureau of Reclamation. Data available at https://www.usbr.gov/gp-bin/arcweb_bhr.pl.

REMARKS.—Reservoir is formed by thin concrete-arch dam; construction began in 1961 and was completed in 1967. Storage began November 3, 1965. The elevation of the dead pool is 3,296.50 ft, contents of 17,724 acre-ft. The top of the inactive conservation pool is 3,547.00 ft, contents of 469,910 acre-ft. The elevation of spillway crest is 3,593.00 ft. The top of the exclusive flood pool (top of gates) is 3,657.00 ft, contents of 1,278,896 acre-ft. The top of the surcharge pool is 3,660.00 ft, contents of 1,331,725 acre-ft. All elevations are referenced to the National Geodetic Vertical Datum of 1929. Water is used for power production, flood control, irrigation, and recreation.

EXTREMES FOR PERIOD OF RECORD.—Maximum daily contents, 1,365,000 acre-ft, July 6, 1967, elevation, 3,656.43 ft; minimum daily contents since first filling, 519,400 acre-ft, March 11, 2003, elevation 3,572.81 ft.

Table 8. Month-end contents for Bighorn Lake, Montana (06286400).

[Data provided by the Bureau of Reclamation. —, no data]

Date	Water-surface elevation, in feet	Contents, in acre-feet	Change in usable contents, in acre-feet
September 30, 2017	3,639.52	1,015,000	—
October 31, 2017	3,638.44	1,001,000	−13,200
November 30, 2017	3,636.79	981,800	−19,500
December 31, 2017	3,631.94	929,700	−52,100
January 31, 2018	3,625.80	874,700	−55,100
February 28, 2018	3,614.89	793,900	−80,800
March 31, 2018	3,611.57	773,200	−20,700
April 30, 2018	3,603.86	730,200	−43,100
May 31, 2018	3,633.36	944,100	213,900
June 30, 2018	3,645.16	1,090,000	146,300
July 31, 2018	3,640.34	1,025,000	−65,500
August 31, 2018	3,636.47	978,100	−46,800
September 30, 2018	3,634.12	952,100	−26,000
2018 water year	**—**	**—**	**−62,500**

Month-End Contents for Yellowstone River Compact Reservoirs Existing on January 1, 1950

The extent, if any, to which the use of reservoirs in this section may be subject to Compact allocations was not determined. As a matter of hydrologic interest, the month-end contents in acre-feet of four reservoirs are given in table 9. Three of the reservoirs (Bull Lake, Pilot Butte Reservoir, and Buffalo Bill Reservoir) are in the Bighorn River Basin, Wyoming, with contents data furnished by the Bureau of Reclamation. The height of the Buffalo Bill Dam was increased for power operations in 1992, which increased storage of the reservoir from 456,600 to 644,500 acre-ft (listed as 646,565 acre-ft by the Bureau of Reclamation). The Tongue River Reservoir in Montana is operated under the supervision of the Water Resources Division of the Montana Department of Natural Resources and Conservation, who furnished the water-level data and the reservoir-contents data. The spillway of Tongue River Dam was raised in 1999 which increased storage of Tongue River Reservoir from 68,040 to 79,071 acre-ft.

Table 9. Month-end contents for Yellowstone River Compact reservoirs existing on January 1, 1950.

Date	Contents, in acre-feet[1,2]			
	06224500 Bull Lake	Pilot Butte Reservoir	06281500 Buffalo Bill Reservoir	06307000 Tongue River Reservoir
September 30, 2017	120,500	17,960	528,200	50,210
October 31, 2017	104,200	28,380	500,900	48,870
November 30, 2017	104,200	28,200	500,200	49,020
December 31, 2017	104,600	28,120	491,300	48,220
January 31, 2018	104,300	28,070	485,300	48,880
February 28, 2018	104,300	28,030	467,400	49,490
March 31, 2018	104,500	27,910	423,400	62,450
April 30, 2018	102,400	29,130	349,600	62,200
May 31, 2018	100,300	28,850	535,300	83,260
June 30, 2018	139,400	29,330	615,200	79,680
July 31, 2018	149,100	26,490	622,900	71,080
August 31, 2018	128,300	17,320	562,000	56,780
September 30, 2018	81,670	16,540	489,400	49,350
Change in contents during water year 2018	**−38,830**	**−1,420**	**−38,800**	**−860**

[1]Contents data provided by the Bureau of Reclamation and Montana Department of Natural Resources and Conservation.

[2]Pre-compact water rights and post-compact water rights for these reservoirs are presented in table 10, "Water-year-end contents for Yellowstone River Compact reservoirs or lakes."

Water-Year-End Contents for Reservoirs or Lakes Located on Interstate Tributaries of the Yellowstone River

Table 10. Water-year-end contents for reservoirs or lakes located on interstate tributaries of the Yellowstone River.

[Contents are in acre-feet. Reservoirs or lakes are listed in alphabetical order by drainage basin; only reservoirs with contents greater than 1,000 acre-ft are included. —, no data or not available]

Reservoir or lake name	Pre-compact 1950 water right	Post-compact 1950 water right	Total permitted water right	Contents on September 30, 2018	Contents on September 30, 2017	Change in contents[1]
Clarks Fork Yellowstone River Basin						
Cooney Reservoir[2]	28,230	0	28,230	17,800	21,000	−3,200
Glacier Lake[2]	4,200	0	4,200	—	—	—
Bighorn River Basin						
(Lake) Adelaide Reservoir[3]	1,449	3,315	4,764	2,388	1,130	1,258
Anchor Reservoir[4,5]	0	9,252	9,252	491	1,174	−683
Bighorn Lake[5]	0	1,116,000	1,116,000	952,100	1,015,000	−62,500
Boysen Reservoir[5]	757,851	0	757,851	653,000	717,000	−64,000
Buffalo Bill Reservoir[5]	456,640	187,940	644,580	489,400	528,200	−38,800
Bull Lake[5]	151,951	0	151,951	81,670	120,500	−38,830
Christina Reservoir[3]	3,860	0	3,860	0	3,860	−3,860
Corral Reservoir[3]	0	1,027	1,027	512	608	−96
Diamond Creek Dike Reservoir[3]	0	18,378	18,378	271	314	−43
Enterprise Reservoir[3]	1,494	204	1,698	0	307	−307
Fairview Extension Reservoir[3]	791	620	1,411	1,411	1,290	121
Greybull Valley Reservoir[3]	0	33,169	33,169	1,243	21,010	−19,767
Harrington Reservoir[3]	315	887	1,202	400	800	−400
Lake Cameahwait Reservoir[3]	0	6,683	6,683	6,683	6,680	3
Lake Creek Reservoir[3]	1,373	0	1,373	655	655	0
Lodge Grass Reservoir[6]	22,900	0	22,900	20,000	14,100	5,900
Lower Sunshine Reservoir[3]	0	58,748	58,748	38,767	47,640	−8,873
Newton Reservoir[3]	4,525	0	4,525	1276	1,010	266
Perkins and Kinney Reservoir[3]	1,202	0	1,202	1045	1,100	−55
Pilot Butte Reservoir[5]	34,600	0	34,600	16,540	17,960	−1,420
Sage Creek Reservoir[3]	440	2,345	2,785	2,785	2,780	5
Shell Reservoir[3]	1,949	0	1,949	53	1,020	−967
Shoshone Lake Reservoir[3]	4,560	5,181	9,741	0	9,740	−9,740
Upper Sunshine Reservoir[3]	52,988	0	52,988	45,000	46,660	−1,660
Teapot Reservoir[3]	1,578	0	1,578	0	0	0
Ten Sleep Reservoir[3]	3,509	0	3,509	3,789	3,510	279
Wiley Reservoir[3]	689	331	1,020	887	920	−33
Worthen Meadow Reservoir	0	1,504	1,504	999	1,500	−501

Table 10. Water-year-end contents for reservoirs or lakes located on interstate tributaries of the Yellowstone River.—Continued

[Contents are in acre-feet. Reservoirs or lakes are listed in alphabetical order by drainage basin; only reservoirs with contents greater than 1,000 acre-ft are included. —, no data or not available]

Reservoir or lake name	Pre-compact 1950 water right	Post-compact 1950 water right	Total permitted water right	Contents on September 30, 2018	Contents on September 30, 2017	Change in contents[1]
Powder River Basin						
Cloud Peak Reservoir[3]	3,398	173	3,571	342	3,570	−3,228
Dull Knife Reservoir[3]	0	4,345	4,345	0	35	−35
Healy Reservoir[3,7]	0	5,140	5,140	3,658	4,220	−562
Kearney Lake Reservoir[3]	1,854	4,470	6,324	1,979	1,820	159
Lake DeSmet[3,8]	37,515	197,472	234,987	200,873	201,300	−427
Muddy Guard Reservoirs[3,9]	0	2,336	2,336	1,359	1,440	−81
Posy No. 1 Reservoir[3]	0	1,537	1,537	349	1,400	−1,051
Tie Hack Reservoir	1,647	788	2,435	2,255	2,440	−185
Willow Park Reservoir[3]	4,457	0	4,457	1,278	981	297
Tongue River Basin						
Big Horn Reservoir[3]	2,749	1,875	4,624	942	0	942
Dome Reservoirs[3,10]	1,843	188	2,031	1,302	945	357
Park Reservoir[3]	7,347	3,015	10,362	3,230	4,530	−1,300
Sawmill Lakes Reservoir[3]	0	1,275	1,275	743	784	−41
Tongue River Reservoir[2]	72,500	6,571	79,071	49,350	50,200	−850
Twin Lakes Reservoir[11]	1,180	2,232	3,412	2,334	2,820	−486

[1]Change in contents is derived from subtracting the previous water year's contents from the current water year's contents.

[2]Reservoir managed and contents provided by the State of Montana.

[3]Private reservoir. Contents provided by the State of Wyoming.

[4]Anchor Reservoir was built to have a usable content of 17,410 acre-feet, but sinkholes and constructed dikes within the area contained by the dam prevent filling the reservoir to the designed volume. At present, only 9,252 acre-feet have been adjudicated, with the remaining capacity having been eliminated from the permit.

[5]Reservoir managed and contents provided by the Bureau of Reclamation.

[6]Lodge Grass Reservoir (Willow Creek Dam) managed and contents provided by Bureau of Indian Affairs.

[7]Reservoir managed and contents provided by the State of Wyoming.

[8]Reservoir managed by Johnson County, Wyoming, and the State of Wyoming. Contents provided by the State of Wyoming.

[9]Data are combined contents of Muddy Guard No. 1 and Muddy Guard No. 2 Reservoirs.

[10]Data are combined contents of Dome Lake and Dome Lake No. 1 Reservoir.

[11]Data are combined contents of Twin Lakes No. 1 and Twin Lakes No. 2 Reservoirs.

RULES AND REGULATIONS FOR ADMINISTRATION OF THE YELLOWSTONE RIVER COMPACT

A compact, known as the Yellowstone River Compact, between the States of Wyoming, Montana, and North Dakota, having become effective on October 30, 1951, upon approval of the Congress of the United States, which apportions the waters of certain interstate tributaries of the Yellowstone River which are available after the appropriative rights existing in the States of Wyoming and Montana on January 1, 1950 are supplied, and after appropriative rights to the use of necessary supplemental water are also supplied as specified in the Compact, is administered under the following rules and regulations subject to the provisions for amendment revision or abrogation as provided herein.

Article I. Collection of Water Records

A. It shall be the joint and equal responsibility of the members of the States of Wyoming and Montana to collect, cause to be collected, or otherwise furnish records of tributary streamflow at the points of measurement specified in Article V (B) of the Compact, or as near thereto as is physically or economically feasible or justified.

1. Clarks Fork

The gaging station known as Clarks Fork near Silesia, Montana and located in NW1/4 SE1/4 sec. 1, T. 4 S., R. 23 E., shall be the point of measurement for the Clarks Fork.

2. Bighorn River (exclusive of Little Bighorn River)

The gaging station known as the Bighorn River above Tullock Creek, near Bighorn, Montana, and located in SE1/4 SE1/4 NE1/4 sec. 3, T. 4 N., R. 34 E., shall temporarily be the designated point of measurement on that stream. The flow of the Little Bighorn River as measured at the gaging station near Hardin, Montana, and located in SE1/4 NE1/4 NE1/4 sec. 19, T. 1 S., R. 34 E., shall be considered the point of measurement for that stream, except that if or when satisfactory records are not available, the records for the nearest upstream station with practical corrections for intervening inflow or diversion shall be used.

3. Tongue River

The gaging station known as the Tongue River at Miles City, Montana, and located in NE1/4 NE1/4 SE1/4 sec. 23, T. 7 N., R. 47 E., shall temporarily be the point of measurement for that stream.

4. Powder River

The gaging station known as the Powder River near Locate, Montana, and located in NW1/4 SW1/4 sec. 14, T. 8 N., R. 51 E., shall temporarily be the designated point of measurement for that stream.

B. Records of total annual diversion in acre-feet above the points of measurement designated in the Compact for irrigation, municipal, and industrial uses developed after January 1, 1950, shall be furnished by the members of the Commission for their respective States, at such time as the Commission deems necessary for interstate administration as provided by the terms of the Compact. Providing that if it be acceptable to the Commission, reasonable estimates thereof may be substituted.

C. Annual records of the net change in storage in all reservoirs, not excluded under Article V (E) of the Compact, above the point of measurement specified in the Compact and completed after January 1, 1950, and the annual net change in reservoirs existing prior to January 1, 1950, which is used for irrigation, municipal, and industrial purposes developed after January 1, 1950, shall be the primary responsibility of the member of the Commission in whose State such works are located; providing such data are not furnished by Federal agencies under the provisions of Article III (D) of the Compact, or collected by the Commission.

Article II. Office and Officers

A. The office of the Commission shall be located at the office of the Chairman of the Commission.

B. The Chairman of the Commission shall be the Federal representative as provided in the Compact.

C. The Secretary of the Commission shall be as provided for in Article III of these rules.

D. The credentials of each member of the Commission shall be placed on file in the office of the Commission.

Article III. Secretary

A. The Commission, subject to the approval of the Director of the United States Geological Survey, shall enter into cooperative agreements with the U.S. Geological Survey for such engineering and clerical services as may reasonably be necessary for the administration of the Compact. Said agreements shall provide that the Geological Survey shall:

1. Maintain and operate gaging stations at or near the points of measurement specified in Article V (A) of the Compact.

2. Assemble factual information on stream flow, diversion, and reservoir storage for the preparation of an annual report to the Governors of the signatory States.

3. Make such investigations and reports as may be requested by the Commission in aid of its administration of the Compact.

B. The Geological Survey shall act as Secretary to the Commission.

Article IV. Budget

A. At the annual meeting of each even-numbered year or prior thereto, the Commission shall adopt a budget for operation during the ensuing biennium beginning July first. Such budget shall set forth the total cost of construction, maintenance and operation of gaging stations, the cost of engineering and clerical aid, and other necessary expenses excepting the salaries and personal expenses of the Commissioners. On odd-numbered years revisions of the budget shall be considered.

B. It shall be the obligation of the Commissioners of the States of Montana and Wyoming to endeavor to secure from the Legislature of their respective States sufficient funds with which to meet the obligations of this Compact, except insofar as provided by the Federal government.

Article V. Meetings

An annual meeting of the Commission shall be held each November at some mutually agreeable point in the Yellowstone River Basin for consideration of the annual report for the water year ending the preceding September 30th, and for the transaction of such other business consistent with its authority; provided that by unanimous consent of the Commission the date and place of the annual meeting may be changed. Other meetings as may be deemed necessary shall be held at a time and place set by mutual agreement, for the transaction of any business consistent with its authority.

No action of the Commission shall be effective until approval by the Commissioners for the States of Wyoming and Montana.

Article VI. Amendments, Revisions and Abrogations.

The Rules and Regulations of the Commission may be amended or revised by a unanimous vote at any meeting of the Commission.

Gary Fritz
Commissioner for Montana

George L. Christopulos
Commissioner for Wyoming

ATTESTED:

L. Grady Moore
Federal Representative

Adopted November 17, 1953
Amended December 16, 1986

RULES FOR THE RESOLUTION OF DISPUTES OVER THE ADMINISTRATION OF THE YELLOWSTONE RIVER COMPACT

December 19, 1995

Section I. General Framework

According to Article III(F) of the Yellowstone River Compact,

"In case of the failure of the representatives of Wyoming and Montana to unanimously agree on any matter necessary to the proper administration of this compact, then the member selected by the director of the United States Geological Survey shall have the right to vote upon the matters in disagreement and such points of disagreement shall then be decided by a majority vote of the representatives of the states of Wyoming and Montana and said member selected by the director of the United States geological survey, each being entitled to one vote."

Section II. Purpose and Goal

A. The purpose of these rules is to clarify and more fully develop the dispute resolution process outlined in Section I.

B. The goal of the dispute resolution process outlined in these rules is to encourage joint problem solving and consensus building. It consists of three phases -- unassisted negotiation, facilitation, and voting.

C. Any agreement reached through this process is binding on Montana, Wyoming, and the United States Geological Survey (USGS).

D. Either state can initiate the dispute resolution process defined in Sections IV, V, and VI, and the other state is obligated to participate in good faith. The states agree that the issues pursued under this dispute resolution process shall be both substantive and require timely resolution.

Section III. Consensus

A. In the process of administering the Yellowstone River Compact, the representatives from Montana and Wyoming agree to seek consensus.

B. For purposes of this rule, consensus is defined as an agreement that is reached by identifying the interests of Montana and Wyoming and then building an integrative solution that maximizes the satisfaction of as many of the interests as possible. The process of seeking consensus does not involve voting, but a synthesis and blending of alternative solutions.

Section IV. Unassisted Negotiation

A. In all situations, the representatives from Montana and Wyoming shall first attempt to seek consensus through unassisted negotiation. The federal representative will not serve as chairperson in the unassisted negotiation process.

B. During a negotiation process, the representatives from Montana and Wyoming shall identify issues about which they differ, educate each other about their needs and interests, generate possible resolution options, and collaboratively seek a mutually acceptable solution.

C. To help facilitate negotiations, the representatives from Montana and Wyoming in cooperation with the USGS agree to share technical information and develop joint data bases. Other data sources may also be used.

D. The USGS shall serve as technical advisor in the two-state negotiations.

Section V. Facilitation

A. If the representatives from Montana and Wyoming are not able to reach consensus through unassisted negotiation, they shall each identify, articulate, and exchange, in writing, the unresolved issues.

B. The representatives from Montana and Wyoming shall then jointly appoint a facilitator to assist in resolving the outstanding dispute. If the representatives from Montana and Wyoming cannot identify a mutually acceptable facilitator, the representative appointed by the USGS shall appoint a facilitator.

C. A facilitator, for purposes of this rule, is defined as a neutral third party that shall help the representatives from Montana and Wyoming communicate, negotiate, and reach agreements voluntarily. The facilitator is not empowered to vote or render a decision.

D. The facilitator shall assist the representatives from Montana and Wyoming in developing appropriate ground rules for each facilitated session including establishing a deadline for completion of the facilitation process, setting an appropriate agenda, identifying issues, collecting and analyzing technical information, developing options, packaging agreements, and preparing a written agreement. The facilitator reserves the right to meet privately with each representative during the facilitation process.

Section VI. Voting

A. If, and only if, the representatives from Montana and Wyoming are unable to reach consensus with the assistance of a facilitator, then a dispute may be settled by voting.

B. The representatives from Montana and Wyoming, along with the representative appointed by the director of the USGS, are each entitled to one vote.

C. If the USGS representative does not vote in accordance with Article III, then the director of the USGS will select, with concurrence from Wyoming and Montana, a neutral third party to vote.

D. If the representative appointed by the director of the USGS is not involved in the steps outlined in Sections IV and V, each state shall have the opportunity to present appropriate information to that representative. This information may be presented through both oral presentations and written documents. All information will be shared with the other state.

   The representative of the USGS may also consult the facilitator referenced in Section V in an attempt to resolve any disputes.

E. The USGS shall pay the expenses of the representative appointed by the director of the USGS.

F. Points of disagreement shall be resolved by a majority vote.

Section VII. Funding

A. The USGS will pay one-half and the states of Montana and Wyoming shall each pay one-quarter of the expenses of the facilitator, which shall not exceed $10,000, unless agreed to by both states and the USGS.

Section VIII. Amendments

A. These rules may be amended or revised by a unanimous vote of the Commission.

Section IX. Execution

These rules for the resolution of disputes over the administration of the Yellowstone River Compact are hereby executed on the date indicated below.

Gary Fritz
Commissioner for Montana

Gordon W. Fassett
Commissioner for Wyoming

William F. Horak
Federal Representative

July 22, 1996
Date

RULES FOR ADJUDICATING WATER RIGHTS ON INTERSTATE DITCHES

Article I. Purpose

The purpose of this rule is to determine and adjudicate, in accordance with the laws of Montana and Wyoming, those pre-Compact (January 1, 1950) water rights diverting from the Powder, Tongue, Bighorn and Clarks Fork Rivers and their tributaries where the point of diversion is in one State and the place of use is in the other State which have not yet been adjudicated.

Article II. Authority

In accordance with the Yellowstone River Compact, the State of Montana and the State of Wyoming, being moved by consideration of interstate comity, desire to remove all causes of present and future controversy between the States and between persons in one State and persons in another State with respect to these interstate ditches. Article III (E) of the Compact provides the Yellowstone River Compact Commission with the authority "...to formulate rules and regulations and to perform any act which they may find necessary to carry out the provisions of this Compact...."

Article III. Definitions

The terms defined in the Yellowstone River Compact apply as well as the following definitions:

1. "Acre-feet" means the volume of water that would cover 1 acre of land to a depth of 1 foot.

2. "Cfs" means a flow of water equivalent to a volume of 1 cubic foot that passes a point in 1 second of time and is equal to 40 miners inches in Montana.

3. "Interstate Ditches" shall include ditches and canals which convey waters of the Bighorn, Tongue, Powder, and Clarks Fork Rivers and their tributaries across the Wyoming-Montana State line where the water is diverted in one State and the place of use is in the other State.

4. "Department of Natural Resources and Conservation," hereafter called the "Department," means the administrative agency and Department of the Executive Branch of the Government of Montana created under Title II, Chapter 15, MCA which has the responsibility for water administration in that State.

5. "Water Court" means a Montana District Court presided over by a water judge, as provided for in Title III, Chapter 7, MCA.

6. "State Engineer" shall be the current holder of the position created by the Wyoming Constitution as Chief Water Administration Official for the State of Wyoming.

7. "Board of Control," hereinafter called the "Board," is defined as the constitutionally created water management agency in Wyoming composed of the four Water Division Superintendents and the State Engineer.

8. "Superintendent" is the member of the Board who is the water administration official for the Water Division where the interstate ditch is located. (The two Water Divisions in the Yellowstone River drainage are Water Division Numbers Two and Three.)

9. "Date of Priority" shall mean the earliest date of actual beneficial use of water, unless evidence and circumstances pertaining to a particular claim establish an earlier date.

10. "Point of Diversion" is defined to be the legal land description by legal subdivision, section, township, and range of the location of the diversion structure for an interstate ditch from a natural stream channel.

11. "Place of Use" is defined to be the legal land description (legal subdivision, section, township, and range) of the lands irrigated by an interstate ditch.

12. "Person" is defined as an individual, a partnership, a corporation, a municipality or any other legal entity, public or private.

13. "Claimant" is defined as any person claiming the use of water from an interstate ditch as herein defined.

Article IV. Procedures

The procedures for determining and adjudicating water rights associated with interstate ditches shall be categorized as follows: (A) Where the point of diversion is in Wyoming and place of use in Montana, and (B) Where the point of diversion is in Montana and place of use in Wyoming.

A. Wyoming Procedure

1. The Yellowstone River Compact Commission will provide a claim form to be completed by the claimant that will describe the location and point of diversion and land being irrigated, the priority date claimed, method of irrigation and such other information required to describe the claim. (A sample form for this purpose is attached.)

2. The Yellowstone River Compact Commission will send the claim form to water users on the interstate ditches.

3. Water users will complete the claim form and file it with the Yellowstone Compact Commission, which, when found to be correct and complete, will be forwarded to the Board for verification.

4. Upon receipt of the form, the Board shall forward it to the appropriate Superintendent, who, in cooperation with the Department, will validate the information including the use that has been made of the water, the number of acres and location of lands being irrigated, the priority date, and all other relevant information. The Superintendent and the Department will utilize aerial photography and other information to have prepared a reproducible map showing the location of the ditch system, lands irrigated, point of diversion, etc., of the claim.

5. After the validation procedure, the Superintendent will hold a hearing, after appropriate notice and advertisement, at which time the claimant shall describe, in detail, the use that has been made of the water and the lands that are being irrigated, establish a priority date, etc. Costs incurred in advertising shall be paid by the claimant. If a single hearing is held to consider several claims, the costs of advertising shall be shared equally among the claimants. Anyone who opposes the claim shall appear and state the reasons, if any, for opposition to the claim. If there is no opposition to the claim, cost incurred in holding the hearing shall be paid by the claimant. If protestants do appear and oppose the claim, hearing costs will be paid 50 percent by the claimant and 50 percent by the protestant, or if there is more than one protestant, the remaining 50 percent shall be shared equally among the protestants.

6. At the conclusion of the hearing, the Superintendent shall forward the record to the Yellowstone River Compact Commission with his findings and recommendations. The Yellowstone River Compact Commission will make the

determination of the amount of the right, the location, and the priority date, and then send the record to the Board.

7. The Board shall review the record and integrate it into its water rights system. Upon entry of the record by the Board, the information shall be forwarded to the Department and the Chairman of the Yellowstone River Compact Commission.

8. Upon the entry of the right into the Board's records, it will have the following attributes:

   a. The right will be a Wyoming water right with a priority date as established by this procedure.

   b. The amount of the right will be determined as provided by Wyoming law.

B. Montana Procedure

1. The Yellowstone River Compact Commission will provide a claim form to be completed by the claimant that will describe the location and point of diversion and land being irrigated, the priority date claimed, method of irrigation and such other information required to describe the claim.

2. The Commission will send the claim form to water users on the interstate ditches.

3. Water users will complete the claim form and file it with the Yellowstone River Compact Commission, which, when found to be correct and complete, will be forwarded to the Department for verification.

4. Upon receipt of the form, the Department, in cooperation with the Wyoming State Engineer's Office, will validate the information, including the use that has been made of the water, the number of acres and location of lands being irrigated, the priority date, and all other relevant information. The appropriate Superintendent and the Department will utilize aerial photographs and other information to have prepared a reproducible map showing the location of the ditch system, land irrigated, point of diversion, etc., of the claim.

5. The Department will then forward the record to the Yellowstone River Compact Commission with its findings and recommendations. Upon approval by the Commission, the record shall be submitted to the Montana Water Court for adjudication. A duplicate record will be forwarded to the Wyoming State Engineer's Office, the Board, and the Chairman of the Yellowstone River Compact Commission upon adjudication.

6. Upon adjudication of the right by the Montana Water Court, it will have the following attributes:

   a) The right will be a Montana water right with a priority date as established by this procedure.

   b) The amount of the right will be determined as provided by Montana law.

Article V. Exclusions

A. These rules recognize the limitation in Article VI of the Yellowstone River Compact regarding Indian water rights.

B. These rules shall not be construed to determine or interpret the rights of the States of Wyoming and Montana to the waters of the Little Bighorn River.

Article VI. Claim Form Submission Period

All claims must be submitted to the Yellowstone River Compact Commission, c/o District Chief, United States Geological Survey, 821 E. Interstate, Bismarck, ND 58501, within 90 calendar days after the claimant has received the claim form from the Commission. The blank claim form will be sent certified mail to the water user and the submission period of 90 calendar days will begin with the next day following receipt of the form, as evidenced by the certified mail receipt card. For good cause shown in writing, an extension of time beyond the 90 days for submittal may be obtained from the Commission.

YELLOWSTONE RIVER COMPACT COMMISSION

WYOMING

GORDON W. FASSETT
STATE ENGINEER
HERSCHLER BUILDING
4TH FLOOR EAST
CHEYENNE, WYOMING 82002
(307) 7777354

UNITED STATES

WILLIAM F. HORAK
CHAIRMAN
U.S. GEOLOGICAL SURVEY
821 E. INTERSTATE AVENUE
BISMARCK, NORTH DAKOTA 58501
(701) 250-4601

MONTANA

GARY FRITZ
ADMINISTRATOR, WATER RESOURCES DIVISION
DEPT. OF NATURAL RESOURCES & CONSERVATION
1520 EAST SIXTH AVENUE
HELENA, MONTANA 59620
(406) 444-6603

YELLOWSTONE RIVER COMPACT COMMISSION

CLAIM FORM FOR INTERSTATE DITCHES

1. Name of ditch or canal: _____

2. Source of water supply: _____

   Tributary of _____

3. Name of claimant: _____

   Address _____

   City _____ State _____Zip Code _____

   Home Phone No. _____ Business Phone No. _____

4. Person completing form: _____

   Address _____

   City _____ State _____Zip Code _____

   Home Phone No. _____ Business Phone No. _____

5. Method of irrigation: _____

6. Point of diversion: County _____ State _____

   Headgate located in the ___¼ ___¼, Section ____, T.___R.____

   (a) Description of headgate: (Briefly describe the materials and general features, date constructed or last known work, general condition.) _____

   _____

   _____

(b) Describe water measuring device: _____

_____

_____

(c) If the point of diversion is in Montana:

1. What flow rate has been claimed?

_____ ☐ cubic feet per second

☐ gallons per minute

☐ miner's inches

2. What volume of water has been claimed?

_____ acre-feet

7. Dimensions of ditch at headgate: Width at top (at waterline) _____ feet; width at bottom _____ feet; side slopes (vertical:horizontal) _____:_____; depth of water _____ feet; grade _____ feet per mile.

8. Place of use and acres irrigated: County_____ State ____ Give legal subdivisions of land owned by you on which water is being used (acres claimed): An example field is shown in the first line.

T.	R.	SEC.	NE¼				NW¼				SW¼				SE¼				TOTAL
			NE¼	NW¼	SW¼	SE¼	NE¼	MW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	
58N	95W	18			25.1											10.2			35.3

9. Describe any additional uses of water claimed from the ditch: _____

10. Date of first beneficial use of water (priority date) on lands described above for _____ Ditch is _____ (mo/day/yr) and shall be the same for all lands claimed on this form.

11. Has irrigation water been diverted onto all lands shown in the above tabulation each year since completion of works?__ If not, state exceptions and reasons therefore: _____

_____

_____

12. Attach documentary evidence or affidavits showing your ownership or control of the above lands, as well as the historic use of water on these lands. _____

_____

_____

13. What permit or claim numbers have been assigned to known records filed with either the Wyoming State Engineer's Office or the Montana Department (DNRC) for irrigating the above lands? _____

_____

_____

14. Have personnel in the Wyoming State Engineer's Office or the Montana Department (DNRC) been contacted to obtain the information given in No. 13? ( ) Yes ( ) No

15. Describe any flumes or pipelines in the ditch conveyance system: _____

_____

_____

16. Describe ordinary annual period of use: _____ to _____
(mo/day) (mo/day)

_____.

17. Attach copies of aerial photographs, U. S. Geological Survey maps or other such documents showing the ditch and lands irrigated that give evidence to this claim and may be useful to the Commission.

* * * * * * * * * *

State of _____)
) SS
State of _____)

I, _____, having been duly sworn, depose and say that I, being of legal age and being the claimant of this claim for a water right, and the person whose name is signed to it as the claimant, know the contents of this claim and the matters and things stated there are correct.

_____

_____

Subscribed and sworn before me, this ____day of _____, 19__.

_____
Notary Public

Residing at: _____

My commission expires: _____

LOCATION MAP

YELLOWSTONE RIVER COMPACT COMMISSION

YELLOWSTONE RIVER BASIN

EXPLANATION

▲ COMPACT STREAMFLOW-GAGING STATION

◧ COMPACT RESERVOIR-CONTENT STATION

06260300 STATION NUMBER

0 10 20 30 40 MILES

0 10 20 30 40 KILOMETERS