

Wyoming State Engineer's Office



2018 Annual Report

Water Year 2018 (WY2018)

October 1, 2017 through September 30, 2018

STATE OF WYOMING

**WATER YEAR 2018
(WY2018)**

ANNUAL REPORT

OF THE

STATE ENGINEER

STATE BOARD OF CONTROL

BOARD OF PROFESSIONAL ENGINEERS AND
PROFESSIONAL LAND SURVEYORS

STATE BOARD OF EXAMINING WATER WELL DRILLING
CONTRACTORS AND WATER WELL PUMP INSTALLATION
CONTRACTORS

October 1, 2017 through September 30, 2018

TABLE OF CONTENTS

STATE ENGINEER.....	1
ADMINISTRATION DIVISION.....	4
GROUND WATER DIVISION	7
SURFACE WATER DIVISION	22
BOARD OF CONTROL DIVISION	33
INTERSTATE STREAM DIVISION	38
SUPPORT SERVICES DIVISION	55
WATER DIVISION I.....	57
WATER DIVISION II.....	66
WATER DIVISION III	81
WATER DIVISION IV	90
LEGAL ACTIVITIES	96
BOARD OF PROFESSIONAL ENGINEERS AND PROFESSIONAL LAND SURVEYORS	102
STATE BOARD OF EXAMINING WATER WELL DRILLING CONTRACTORS AND WATER WELL PUMP INSTALLATION CONTRACTORS.....	105
PERSONNEL, COMMITTEE, AND BOARD MEMBERS LISTS	109
ORGANIZATIONAL CHARTS.....	126

STATE ENGINEER

Patrick T Tyrrell, P.E.

INTRODUCTORY NOTE

The week after Thanksgiving, 2018, I tendered notice of my upcoming retirement to Governor Mead and incoming Governor-elect Mark Gordon. While that date is outside the normal period for which this report is written (October 1 2017 through September 30, 2018), it is relevant because this is the final Annual Report section I will write as state engineer. That being the case, I felt some literary license to expound on my tenure here in the office, and remark on some items of interest that occurred over the years since my initial appointment in mid-January 2001.

Since 2001, this agency has seen numerous changes. Our vision of e-Permit, an electronic permitting and records maintenance system, has come into being and is functional although it will continue to evolve. The Big Horn General Adjudication is done, a 37-year effort finally brought to a close in 2015. Every superintendent on the Board of Control (BOC) has changed since I started, and the BOC meetings now make use of electronic (not paper) maps. Coal Bed Natural Gas development waxed, and then almost as quickly waned, between 2001 and now. An interstate lawsuit between MT and WY under the Yellowstone River Compact began, and ended, during my tenure. We saw disastrous flooding in 2011 and 2017, and disastrous droughts, particularly in 2002 and 2012-2013. My second deputy, Harry Labonde, left in 2012 to become the Director of the Wyoming Water Development Office. Numerous long-time employees have left us, and some have passed away (Dick Stockdale, Mike O'Dell, Jeff Hansen, Kevin Wilde, and Brad Faigl, to name a few). Former state engineer (and my step-father) Floyd Bishop, who served from 1964 to 1975, passed away in late May 2018. And Jeff Fassett, my predecessor in this position, became the Director of the Nebraska Department of Natural Resources in August of 2016. (I guarantee you, in 2001 you could have won a lot of money betting on that happening).

In all, it has been a tremendous career, serving alongside remarkable professionals. I would do it again in a heartbeat, but after 18 years and over a quarter million miles traveled, it's time for a fresh face with fresh ideas. I believe that during the time I served, we respected Wyoming's water laws, treated our appropriators with dignity and respect, sought to educate and inform folks on what we do, developed and maintained strong and positive working relationships with other state agencies, and maintained significant credibility with the Wyoming legislature. Hopefully, the stage is set, and the conditions are favorable, for the next Wyoming State Engineer to succeed.

WATER YEAR 2018

In all, water year 2018 was a reasonable water supply year for Wyoming. We did not see the huge snowpacks of 2017, nor the dry conditions of 2012-2013, tending more toward average if you view the state as a whole. In general, we saw better snowpack in the northern mountains this year than in the south, with the largest snowpack of record seen in the Clarks Fork drainage in extreme northwestern Wyoming. Early and mid-summer rains were helpful, although generally

late summer and early fall (through September) conditions were quite dry with little helpful precipitation.

THE 2018 BUDGET SESSION

With revenue shortfalls plaguing Wyoming's coffers since about 2015, 2018 was not one in which the State Engineer's Office (SEO) sought any significant exception items in our budget. In fact, our budget exception request totaled a *negative* \$127,914 because of a position reduction requested by the Governor. In my tenure, we had never before offered a budget without some need for exception items, although it has decreased in recent years due to the same unfortunate revenue picture. Truly, the agency is probably operating skinnier than at any time (certainly since I've been around) in recent history. Our staffing levels reflect these conditions, and at 122 personnel we are 28 positions below our historic high in 2009.

During the legislative session, only one water bill of significance to SEO surfaced. That was Senate File 73, entitled "Permits for small underground water wells." Its intent was to remove restrictions for any wells producing or permitted for 25 gpm or less and allow those wells to be used however the owner wished. This bill was demonstrably dangerous to our existing statutory protections for stock and domestic uses, and it was finally killed in the house. Our legislative files in the office contain talking points developed for this bill, and can be reviewed on request. The brief description given here is but a hint of what the bill would have done, and the problems it no doubt would have caused.

INTERSTATE STREAMS

The Interstate Streams section will cover our work in this arena in more depth, but I will remark on a few of the more important items with which we dealt.

In the Yellowstone River basin, a final decree was issued in February on the MT v WY United States Supreme Court case. Beginning in 2007, the case lasted roughly 11 years, and primarily resulted in Wyoming shouldering the obligation for regulating post-compact water rights in the event pre-compact water rights in Montana were short. In 2018, like 2017, we had enough runoff in the Tongue River that no call for regulation came from Montana. Now that we have the decree in place, Wyoming will need to be vigilant in our operations and active in our communications with Montana on issues related to runoff forecasting.

Also in the Yellowstone River basin, we saw renewed activity out of Montana to revise the operations of Yellowtail dam to favor the fishery below. This topic had been strenuously studied earlier, and the 2008 operating criteria emerged. While agreeing that there is an important fishery in Montana on the river, the dam is not there solely to satisfy the desires of those below it. The SEO (chiefly Superintendent Loren Smith out of Division III) has been present at meetings on the subject, reminding everyone that there are users in Wyoming (Horseshoe Marina) and other, actually authorized, purposes for which Yellowtail was built and which must be respected. The last time this issue arose, it became political, with governors and congressional delegations in both states becoming involved. That is likely to happen again.

In the Bear River basin, the amended compact saw its 20-year review mostly finalized in 2018. While there are still a few reports to finish, the commission has agreed not to seek an amendment of the compact. Two issues from the review that do need resolution are 1) how to hear concerns of environmental interests without elevating their topics higher than the compact contemplated, and 2) addressing concerns from some in western Wyoming that too much water flows from the Central to the Lower Division (past Stewart Dam) while Wyoming users are in regulation. Both those topics should see work in water year 2019.

Drought contingency planning continues to be the topic du jour in the Colorado River basin. While most of the drought plans are in place and acceptable to many parties, interests in Arizona continue to put the agreements at risk. In particular, shortage sharing plans, and roles, are not settled between the Arizona Department of Water Resources and the Central Arizona Water Conservation District. The extreme importance of implementing both the Upper and Lower Basin Drought Contingency Plans means Arizona has to solve this problem if we hope to receive the necessary federal authorization in the 2018 lame duck session.

LITIGATION

In 2018, once the MT v WY case saw its final decree in February, we were party to no litigation.

AGENCY NOTES

In June of 2018, the Cheyenne offices of the SEO moved from the 1st floor of the old west wing to the renovated 1st and 3rd floors of the east wing. Construction distractions continued, but for the most part are able to be worked around. It is believed work will be complete on the Herschler Building in 2019, and the plan is for SEO to move, one final time, back to the (now renovated) west wing when it is ready.

In water year 2018 we saw the retirement of several long-time employees. Sheri Culver, who had served both the Ground Water Division and the Professional Water Well Driller and Professional Pump Installation Contractor Board retired this year, as did Leah Bratton, a long term employee in our Surface Water Division. Sharon Hackett retired from Water Division I, and Dave Pelloux retired from Water Division II. My best wishes to all of them in their retirement.

To continue from my beginning comments, it's been quite a ride. I thank all the employees of the SEO, from 2001 until now, for their service, friendship, dedication, and professionalism. This will be a tough position to leave with three years yet left on my last appointment, but the time has come. I will remain available to incoming Governor Mark Gordon if he needs assistance in any way, and I thank outgoing Governor Matt Mead for eight years of support and strong leadership. I also thank Governor Geringer for the opportunity to serve in this position, and Governor Freudenthal for the eight strong years of his leadership and support of our mission. Without a governor's support, a state engineer can't do the sometimes difficult things he must. All three under which I have served have allowed this agency to perform at its best, and I thank them for that.

ADMINISTRATION DIVISION

Submitted by:
Rick Deuell
Assistant State Engineer

GENERAL

The Administration Division is responsible for three separate functions in support of this agency. They include fiscal operations, human resources/personnel management, and support staff for the State Engineer. The Assistant State Engineer and Surface Water Administrator are responsible for preparing and publishing the Annual Performance Report, Strategic Plan, Annual Report and other special projects. This report covers the October 1, 2017 through September 30, 2018 time period, also known as Water Year 2018 (WY2018).

FISCAL OPERATIONS

Ms. Cricket Hoskins, including processing all fiscal transactions, budget preparation and management, grant fiscal management, payroll funding, fleet management, and inventory control of the agency, supervises fiscal operations. This includes accounts payable and accounts receivable.

The end of WY2018 coincided with the appropriation of the 2019-2020 biennium budgets as reduced by the Joint Appropriations Committee (JAC). The JAC also moved 100% of the funding for the Board of Control Division to the Water 1 Account. This separate accounting added to the complexity of fiscal oversight.

Table 1 provides a summary of the Agency's budget as recommended by the Governor, the approved budget, and supplemental budget reduced by the JAC.

The majority of this budget, \$21,709,381 represents the costs associated with salaries and benefits. Personnel costs are 83 percent of the Agency's budget; the agency's employment makeup is shown in Table 2.

TABLE 1. TOTAL AGENCY REQUEST FOR 2019-2020 BIENNIUM BUDGETS

Divisions	Base Budget 2019-2020	Governor's Budget Recommendations	2019-2020 JAC Approved Budget Appropriation
Administration	1,864,466	2,071,418	2,065,372
Ground Water	3,276,288	3,035,028	3,022,866
Surface Water and Engineering	2,509,621	2,386,505	2,274,487
Board of Control*	12,287,972	13,454,225	13,410,021
Support Services	2,324,176	2,188,403	2,183,253
Board of Professional Engineers and Professional Land Surveyors	946,458	949,632	947,809
Interstate Streams	1,322,004	1,360,812	1,358,232
Special Projects	17,820	17,820	17,820
North Platte Settlement	1,371,640	1,374,522	1,369,760
Well Drillers Licensing Board	271,219	232,166	231,516
Total By Division:	26,191,664	27,070,531	26,881,136
Sources of Funds			
General Funds	18,638,821	12,313,735	12,171,017
Special Projects	7,552,843	14,756,796	14,710,119
Total	26,191,664	27,070,531	26,881,136

*The Board of Control's Budget increased when moved off the General Fund, where leases are paid for in A&I's budget.

TABLE 2. AGENCY PERSONNEL

Position Type	Number
Full Time Employees	115
Part Time Employees	8
Total	123

HUMAN RESOURCES

Ms. Rachael Reinhardt administers Human Resources (HR) for the State Engineer's Office. Primary functions of the HR department include recruitment and selection activities; classification of positions; compensation analysis; benefit administration; payroll services; performance management and employee relations. HR also provides general counsel to employees, Division Administrators and Superintendents; conducts administrative actions as required; state and federal employment and labor law compliance, interpretation and advice; develop and implement policies, procedures, programs and practices with input from employees and management.

Last year, employee turnover within the agency totaled nearly ten percent of the workforce. A breakdown of each category is shown in Table 3.

TABLE 3. EMPLOYEE TURNOVER CATEGORIES

Category	No. of Employees
Retired	4
Transfer	4
Relocation	1
Compensation	0
Other	4

CAPITOL SQUARE PROJECT

As part of the Capitol Square Project, the Herschler Building is being renovated in phases. The first phase is renovation of the east wing. This necessitated a move for the SEO from the 4th floor east to the 1st floor west of the Herschler Building. The second phase is renovation of the west wing, which necessitated a move from the 1st floor west to the 1st and 3rd floor east in May of 2018. As a result of the move it was necessary to reduce the occupied floor area significantly. A reduction in offices, work cubes, and storage sizes required that files be consolidated and moved to electronic format as much as practicable. The final move to Herschler 2nd floor west is scheduled for 2019.

HEALTH AND SAFETY MANUAL

The Agency Health and Safety Manual was updated again in 2018 and submitted Wyoming Workers' Safety and Compensation Division (Division). This is planned to be a dynamic plan. It is being added to and modified by the personnel most directly impacted. It has been given as PMI goal for several field personnel to update portions of the safety plan where they have in-depth expertise.

GROUND WATER DIVISION

Submitted by:

Lisa Lindemann, P.G., Administrator

John Harju, Assistant Administrator

and

the Ground Water Division Staff

This report summarizes the activities of the Ground Water Division (GW) during Water Year 2018 (WY2018) which extends from October 1, 2017 to September 30, 2018.

PERMIT PROCESSING AND MAINTENANCE

Application Processing

According to the State Engineer's Office (SEO) electronic water rights database, GW received 1,732 U.W. 5 Forms, or *Applications for Permit to Appropriate Ground Water* in WY2018, 1,641 applications were approved to permit status (Figure1).

GW received 1,336 Forms U.W. 6 (*Statement of Completion and Description of Well or Spring*). Of these, 61 were submitted without pump information requiring a Form U.W. 8-P (*Proof of Appropriation and Beneficial Use of Ground Water- Pump Information*).

GW received 460 Forms U.W. 8 (*Proof of Appropriation and Beneficial Use of Ground Water*).

GW received, processed, and approved 62 Forms R&D-1, or *Applications to Relocate &/or Deepen an Existing Domestic &/or Stock Well*.

Permit Maintenance

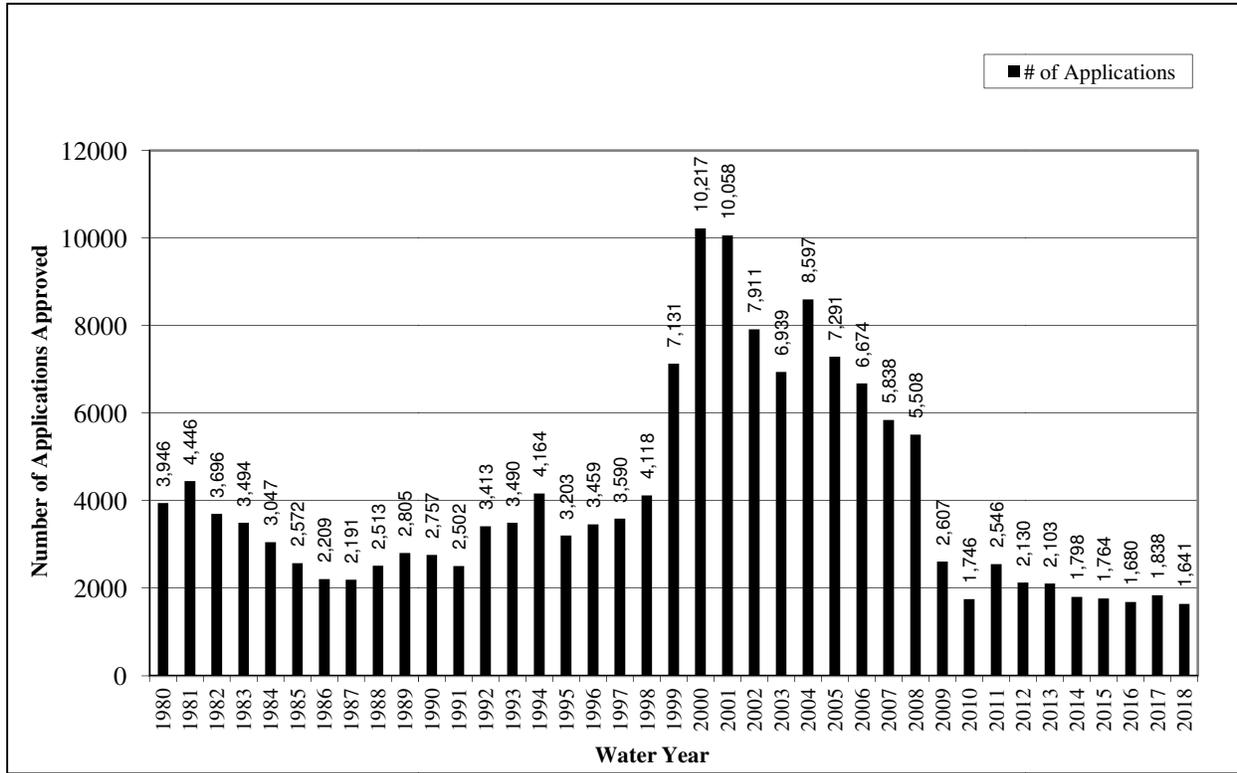
GW cancelled 595 groundwater permits for coal bed methane (CBM) use at the request of the applicant, Fidelity Exploration.

GW cancelled an additional 895 permits because 1) the permittee failed to submit the required notices (i.e., Forms U.W. 6, U.W. 8, and/or U.W. 8-P) within the statutory time limits, 2) the permittee requested cancellation of the permit, and/or 3) the well was physically abandoned.

GW prepared and mailed 1,602 expiration letters on September 1st, notifying applicants that their groundwater permits were about to expire because complete U.W. 6 and/or U.W. 8 Forms had not been submitted. To-date, GW received 484 requests for extension of time to complete construction or beneficial use.

GW assigned 2,035 water rights to reflect a different appropriator or address.

FIGURE 1. GROUND WATER APPLICATIONS APPROVED PER WATER YEAR



ADJUDICATION OF WATER RIGHTS

GW received 139 *Maps to Accompany Proof of Appropriation and Beneficial Use of Groundwater* (beneficial use or “BU” Maps), representing 126 water rights to be inspected by GW (Note: maps may depict more than one well/water right). Of the 139 BU maps, 67 were drafts submitted for review prior to the licensed surveyor or engineer submitting a final acceptable BU Map, 62 were first submissions, 10 were revisions.

GW staff inspected 161 water rights. Staff then prepared proofs, collected fees and signatures from the applicable appropriators, and presented the proofs to the Board of Control (BOC) for adjudication. Seventy-seven proofs were presented at the November 2017 BOC meeting, and 84 proofs were presented at the May 2018 BOC meeting. One hundred sixty-one groundwater proofs were adjudicated in WY2018.

During Fiscal Year 2018 (the reporting period captured in the SEO’s Strategic Plan, 78% (i.e., 177 of 228) of GW’s water right adjudication files were completed within three years or less from the date of acceptance, exceeding GW’s and BOC’s combined Performance Measure No. 6 Goal of 50% .

CONTROL AREAS

Laramie County Control Area

During WY2018, the Laramie County Control Area (LCCA) Advisory Board comprised:

- Ty Anderson, District 1,
- Jay Burnett, District 2,
- Casey Epler, District 3,
- Jay Berry, District 4, and
- David Romsa, District 5.

The LCCA Advisory Board met on February 7, 2018 and provided favorable recommendations for five petitions.

Compliance with the State Engineer's Order for the Laramie County Control Area

Adjudication of groundwater rights is required under the State Engineer's Order for the LCCA, and was to be completed by the end of November, 2017. Three separate notices have been sent to affected appropriators since the Order was issued in 2015 - two of those by certified mail. Those appropriators had approximately two and a half years to adjudicate their water rights. Of the 182 groundwater rights that required adjudication, 21% were eliminated or cancelled. Of the remaining 144 water rights, 37.5% were adjudicated, 21.5% were in some stage of the adjudication process, and 20% of the appropriators had taken no action to adjudicate their water rights by the end of WY2018. As the Division 1 water commissioner/hydrographer discovers unadjudicated wells, they will be foreclosed from use until adjudication is complete.

Of the 15 groundwater rights in the LCCA requiring adjudication that were approved after the effective date of the Order, two have been adjudicated, two are "pending" adjudication, one is complete (i.e., the required permit documents have been submitted but per the additional conditions and limitations attached to the permits, the adjudication process has not been initiated), three have expired, extension requests have been received for two permits, and five are incomplete (i.e., the permits remain active but not all required permit documents have been submitted).

Platte County Control Area

The Platte County Control Area (PCCA) Advisory Board members are:

- Silvia Rutherford, District 1,
- Rex Johnson, District 2,
- Jim Mathis, District 3,
- Jennifer Reyes-Burr, District 4, and
- Brooke Brockman, District 5.

The PCCA Advisory Board met on May 10, 2018. The Board provided favorable recommendations for one petition and five applications.

Prairie Center Control Area

The Prairie Center Control Area (PrCCA) Advisory Board members are:

- Dennis Isakson,
- Greg DesEnfants,
- Blake Ochsner,
- Kelly Francis, and
- Elden Baldwin.

There were no applications or petitions that required a recommendation from the PrCCA Advisory Board during WY2018.

MONITORING WELL NETWORK

GW maintains a network of 112 active monitoring wells throughout the state and a number of inactive monitoring wells. GW conducted an inventory of the agency's monitoring well network in WY2016 and identified wells that required 1) removal from the network, 2) rehabilitation, 3) secured installations (i.e., sanitary well caps, surface seals and locking steel protectors), and/or 4) plugging and abandonment. Remaining biennium funds were used to conduct these activities, in addition to acquisition and installation of new recording equipment (i.e., water level sensors/data loggers) which replaced aging equipment that could no longer be technologically supported. In WY2017, many new pressure transducers were installed and most obsolete equipment was removed. Many locations no longer have hourly data-collection equipment and are instead measured during scheduled spring and fall monitoring events.

Data for the SEO's monitoring wells are available at <http://seoflow.wyo.gov/>.

Furthermore, GW now presents maps of monitoring well locations and up-to-date hydrographs on the SEO website. These packages are organized by county to aid the general public in locating hydrographs of interest.

Thermopolis

GW does not currently maintain any groundwater monitoring wells in the vicinity of Thermopolis. For more information regarding historic monitoring locations, see the WY2016 Annual Report.

Albany County

Two monitoring wells are located in the Laramie, WY area. These wells are completed and used to track water levels in the Casper Formation. Data from these wells continue to be used as support for groundwater development projects in the vicinity.

Laramie County

Twenty-nine active monitoring wells are located within Laramie County. Data from the Laramie County monitoring well program continues to be used for Control Area Advisory Board recommendations and State Engineer actions. Extensive remedial work and evaluation of the Laramie County monitoring well network is described in the SEO WY2016 Annual Report.

Evaluation subsequent to the remedial work identified the Laramie County No. 15 well as potentially having limited connection with the surrounding aquifer. This well remains part of the Laramie County monitoring well network; however, water levels are not currently obtained. This well will be re-developed as funds are available.

During WY2018, GW performed work on the Laramie County No. 9 well. This well is located along Durham Road and could not be secured from tampering due to damaged steel casing. The casing was cut down and a “flush-mount” monitoring well plate and cement pad were installed.

Platte County

There are 14 active monitoring wells in Platte County. PCCA Advisory Board recommendations and State Engineer actions rely on data from the Platte County monitoring well program. These data sites remain a valuable tool in the review and processing of groundwater applications submitted for all uses within and subject to the Platte County Control Area.

The Cottonwood Creek #3 well was plugged and abandoned during WY2017.

La Grange Area

Nine active monitoring wells are located in the area surrounding LaGrange. GW installed three pressure transducers with built-in barometric loggers in WY2017.

Prairie Center Control Area and Madison Monitoring Wells

The PrCCA network consists of seven wells in northern Goshen County and three wells in the vicinity of Lusk. Additionally, two inactive and one active monitoring well are located north of Lusk (ETSI wells). Twelve active monitoring wells are located in northern Weston and Crook Counties.

Of particular note are developments with the ETSI location north of Lusk. Historically, the SEO maintained three monitoring wells at this location. The wells were completed in the Lakota, Minnelusa, and Madison Formations. When originally completed, the Lakota well was designated “O-2”, the Minnelusa well was designated “T-1”, and the Madison well was designated “O-2”. The Madison test-pumping well was originally named “T-2”, and was ultimately developed by the landowner under Permit No. U.W. 130460.

The Madison observation well drilled and originally designated as O-2 has been commonly referred to in GW as the ETSI T-2 East Well dating to at least 1984. In WY2017, the landowner applied to the SEO to use this Madison Formation monitoring well as back-up supply (TFN U.W. 44-7-284). Negotiations are still underway with respect to how the SEO could maintain the monitoring location while still authorizing an emergency use.

Additionally, the Lakota and Minnelusa wells in this area are both compromised with obstructions or casing collapse. GW does not currently have financial means to abandon the Lakota and Minnelusa wells. During WY2018, GW completed installation of locking monuments on these wells to limit unauthorized access.

Gillette Area Monitoring and Subdivision Wells

The Gillette area and subdivision monitoring wells provide information related to groundwater developments in Campbell County and in the vicinity of the City of Gillette. These wells continue to be used for verification of reported water level declines in the Fort Union Formation. The water systems and water system operator covering the majority of public water systems continue to communicate with this office, including the reporting of water levels on a routine basis, allowing the systems to have better control of well head protection and for GW to maintain the acquisition of water levels that are representative of 24-hour shut-in values. This cooperative effort will continue in the future.

Coal Bed Natural Gas

GW's series of coal bed natural gas (CBNG) monitoring wells provides data related to the long-term state of groundwater resources post-CBNG development.

Given that significant resources are expended on maintaining GW's network of CBNG wells, and the historic difficulty with maintaining these sites and collecting defensible information, GW is discussing the value of continued data acquisition.

Split Rock Monitoring Wells

During WY2017, GW staff attempted to find 16 wells in the area of Muddy Gap/Split Rock that had not been visited for approximately 25 years. Thirteen locations were successfully found and global positioning coordinates and depth details were recorded.

During WY2018, GW abandoned 11 of the wells. The Arkansas Flats and Upper Rush Creek locations were not plugged due to interest in developing them for stock watering. The SEO has no future plans for these locations.

During WY 2019, GW expects to abandon the Split Rock Project Site Well #1, and to finish rehabilitation efforts on the Split Rock project Site Well No. 2 (sometimes referred to as Split Rock #2 or Split Rock Recorder Site). GW also expects to secure the Split Rock Project Site Well #4 (also referred to as the Production Well).

GROUNDWATER INVESTIGATIONS/STUDIES

USGS/SEO Lance/Fox Hills Study

As part of the cooperative agreement with the United States Geological Survey (USGS), the SEO authorized the USGS to conduct a study that would provide additional characterization of the High Plains aquifer system in eastern Laramie County, as well as characterization of underlying Upper Cretaceous aquifers (Lance Formation and Fox Hills Sandstone) which likely have some potential to be utilized as a supplemental or alternative water supply to the High Plains aquifer system.

The objectives of the study are to:

1. Improve understanding of the physical and chemical characteristics of the Tertiary High Plains aquifer system and underlying Upper Cretaceous aquifers (Lance Formation and Fox Hills Sandstone) in eastern Laramie County, Wyoming, and initially evaluate the relative hydraulic connection between the aquifer system and aquifers; and
2. Improve understanding of recharge to and apparent groundwater age of the High Plains aquifer system and Upper Cretaceous aquifers through the use of chemical tracers in the unsaturated and saturated zones.
3. A USGS Scientific Investigations Report (SIR) will be prepared describing the results of the study. The report will consist of text, tables, illustrations, and photographs of core and/or thin sections, as well as one or two plates—the plates will graphically show/describe the physical, chemical, and geophysical characteristics of the entire exploratory borehole at the drilling site. The results of this study will be placed in the context of all previous investigations in order to improve understanding of these critically important aquifers in southeast Wyoming and in the United States.

As part of this project, the USGS drilled and logged a stratigraphic test hole in November 2012 to approximately 960 feet below ground surface. The test hole drilling included continuous coring from ground surface through the Fox Hills Sandstone.

During WY2014, the USGS installed a clustered set of three groundwater monitoring wells. A Fox Hills Sandstone well was completed between 810 to 840 feet below ground surface. A basal White River Group (Chadron Fm.) well was installed between 467 and 482 feet below ground surface. Additionally, a Brule Formation well was installed between 117 and 128 feet below ground. The wells were developed and groundwater quality sampling was performed.

During WY2015, the wells were equipped with groundwater level recording instrumentation. Additionally, the USGS collected a water-quality sample from a Fox Hills Sandstone completion installed under Permit No. U.W. 202090 (Shatto 1-10 WSW). Furthermore, the USGS collected

a water-quality sample from a Fox Hills Sandstone completion installed under Permit No. U.W. 203406 (FORNSTROM FRESH WATER SOURCE WELL).

No contract is currently in place associated with this project and the SEO's funding match for the project is exhausted. At this point, GW is not certain when we might receive a draft or final report for this project.

Crow Creek Study

During WY 2017, the State Engineer rejected several Surface Water filings (TFN 36 5/158 and TFN 36 1/145) and declared "*surface waters of Crow Creek, downstream of Cheyenne, to be so interconnected with the groundwater supply in the High Plains Aquifer System proximal to Crow Creek as to constitute in fact one source of supply*" (see State Engineer's Letter to Burnett Land and Livestock LTD, LLP, dated May 31, 2017 associated with the above referenced TFNs). During WY2018, GW developed a plan to install and measure Crow Creek in 12 locations downstream of the City of Cheyenne. Pressure transducers were purchased and installed to collect data. GW expects to retrieve these data and analyze the information during WY2019. Additionally, GW expects to present these preliminary data to a group of interested parties with the intention of developing other monitoring locations.

OIL AND GAS RELATED ACTIVITIES

Water Supply

During WY2018, GW received approximately 150 applications for water supply wells supporting oil and gas exploration, drilling, and completion activities, primarily in Converse and Campbell counties. Each application must comply with existing stipulations (e.g. control area limitations, sage grouse review, N. Platte River review, etc.) and follow the same review process as any other groundwater application.

Water supply for oil and gas water hauls is a time-limited activity, does not receive a permanent water right, and provides the opportunity to request an extension of the permit period. Some of these wells will revert to the underlying landowner for stock watering or reservoir supply, but most will continue on a temporary basis.

Appropriators are required to install a flow meter and report monthly water production as a condition of the permit. Many companies are taking advantage of the online reporting option that was initiated in WY2016. Monthly water production reports can be submitted through GW's web portal or e-mailed to a designated website. This effort has streamlined the GW tracking efforts and facilitates the process of making those documents part of the permit record. Scanned images of the water production reports are currently available to the public through e-Permit.

Due to control measures restricting new well development in the LCCA, most water sources are secured through temporary water use agreements from existing, permitted water rights on a temporary basis. These agreements are currently administered by the Surface Water Division

regardless of whether the source of supply is surface or groundwater. Appropriators seeking new water well permits must comply with the State Engineer’s Order for the LCCA (April 1, 2015) by adhering to spacing requirements and possibly targeting deeper sources such as the Lance or Fox Hills Formations.

Coal Bed Natural Gas

Coal bed natural gas (CBNG) or coal bed methane (CBM) production remains suppressed in the Powder River basin and few groundwater permits have been issued as a result. Only 31 new CBM applications were received in WY2018 (Table 1).

TABLE 1. CBM GROUNDWATER PERMITS

Annual Report Year	Total Applications	Number Companies
2018	31	*
2017	65	*
2016	0	*
2015	42	*
2014	76	*
2013	50	*
2012	180	*
2011	654	*
2010	747	*
2009	706	*
2008	2157	30
2007	3405	34
2006	3632	56
2005	4784	52
2004	4758	39
2003	3938	48
2002	5663	58
2001	6093	55
2000	5811	86
1999	2532	51

**This search is no longer available.*

Conversion of a CBM Well to a Water Well

Landowners continue to show interest in converting existing CBM wells for water production using the process established by the Wyoming Oil & Gas Conservation Commission (WOGCC) and the SEO (<http://seo.wyo.gov/home/news-and-press-releases>). Any application received by GW after January 21, 2014 must be accompanied by both a landowner release form and an approved Sundry Notice from the WOGCC (and/or the U.S. Bureau of Land Management (BLM)), indicating the CBM well is appropriate for conversion to a water supply well.

Electronic Reporting of Water Production

The *Online Water Use Reporting Web Application* became available for use by the public in January 2017. To date, GW has received more than 1,500 monthly and annual water use reports through the web application, significantly reducing the time and effort normally required to upload reports into the Agency's electronic water rights database, e-Permit, by eliminating the manual scanning process.

GW also developed a data storage solution wherein water use data can be stored and queried, and a mechanism that tracks compliance of water rights affected by the State Engineer's LCCA Order.

MODIFIED NORTH PLATTE DECREE

GW continued to report to the North Platte Decree Committee (NPDC), on a monthly basis, applications received, and permits approved, for Irrigation use permits within the Wheatland Irrigation District, and for industrial and municipal use permits within the remainder of the basin, subject to the provisions of the Modified North Platte Decree. One application for municipal use, and three applications for industrial use were approved to permit status and reported.

GW also reported the annual groundwater production under 74 irrigation use permits within the Wheatland Irrigation District to the NPDC.

SUBDIVISION REVIEWS

The objective of this program is to identify and comment on water right issues associated with county subdivision permit applications that have been submitted by either the Wyoming Department of Environmental Quality (WDEQ) or the respective county for SEO review. Occasionally, county zoning plans or conditional use permit applications are also submitted to the SEO for review under this process.

Wyoming Statute § 18-5-306 (c) (i) provides WDEQ with the ability to request assistance from the SEO to furnish information or recommendations within a specific time frame relative to water right issues. GW provided 27 reviews – ten of which were requested by WDEQ and 17 that were related to minor or simple subdivisions requested by county government. Fourteen reviews (five WDEQ and nine county) yielded water right issues that had not been properly addressed.

SAGE GROUSE REVIEWS

GW reviewed 256 U.W. 5 Forms proposing de minimis uses of water, and attached applicable conditions and limitations to approved water rights compliant with Governor Mead's Executive Order 2015-4, Greater Sage-Grouse Core Area Protection. When necessary, applicants were directed to the WG&F when a Density and Disturbance Calculation Tool (DDCT) process was required.

GROUND WATER ADVISORY COMMITTEES

The Ground Water Advisory Committees did not meet in WY2018. Recruitment of active participants on the committees remains a challenge for GW.

RECENT DEVELOPMENTS

Beneficial Use Categories – Miscellaneous, Domestic, and Stock

Since the early 1980s, the SEO required permits that proposed use at more than four stock tanks or at tanks located more than one mile from the well or spring, to be permitted as miscellaneous use. Furthermore, use of groundwater at more than three single family dwellings was permitted as miscellaneous use.

Miscellaneous use permits require adjudication which necessitates hiring a licensed surveyor or engineer to prepare a survey and beneficial use (BU) map. Stock and domestic use permits do not require adjudication.

In February 2018, the State Engineer rescinded the 1980's policy. The limiting statutory requirement is that a single well or spring produce no more than 25 gallons per minute (gpm) for stock or domestic use. Certain large-scale domestic and stock use permits will have conditions that require global positioning system (GPS) coordinates for all points of use. A miscellaneous use permit is required if the flow will exceed 25 gpm.

Permit Processing

GW has made considerable strides in timely processing of permit applications. Mostly due to workload from CBNG applications and permit maintenance, in 2009 only 44% of applications were processed within 30 days. During Fiscal Year 2018 (the reporting period captured in the SEO's Strategic Plan), 98.5% of 1,760 acceptable ground water applications were processed within 30 days, exceeding GW's Performance Measure No. 2 Goal of 85%.

Custom Well Perforations

The SEO's Part III Rules (Water Well Minimum Construction Standards) do not allow custom perforations in most newly constructed groundwater wells. Several water well drilling contractors prefer to install wells with custom perforations. While the construction standards allow for a variance process (and GW routinely grants variances for customized perforations), GW spends considerable time responding to contractors as well as elected representatives regarding the construction requirements. Until new Part III Rules can be promulgated, this effort will continue.

Gillette Madison Wellfield Investigation

The Division has invested considerable time providing information related to well construction and also providing technical assistance to the WDEQ in investigating claims of groundwater chemistry impacts to private water wells east of Gillette.

Licensed Water Well Drilling Contractors Required to Submit Form U.W. 6, Statement of Completion and Description of Well or Spring

Information provided on completed U.W. 6 Forms, or "Statement of Completion and Description of Well or Spring", allows the SEO to collect and maintain accurate details regarding water well construction. In cooperation with the Water Well Contractor's Board and, after receiving the advice and consent of the BOC, the SEO now requires licensed water well drilling contractors to submit well completion documents within 30 days of well completion. Wyoming statute defines completion of a water well as "...when it is possible to install a pump and pump water. In the case of an artesian well, completion is the time when the drill rig is moved off of the drilling site."

Groundwater Monitoring Wells No Longer Require Permits

The Water Well Minimum Construction Standards (Chapter 2, Section 2 (ww)), define monitoring wells as, "A groundwater level observation well or a well from which water samples are retrieved for water chemistry analysis." Therefore, there is no production of water for beneficial use. As of March 2013, the SEO no longer requires permits for monitoring wells.

GROUND WATER DIVISION STAFF

In WY2015, GW comprised 20 employees, including seven Administrative Support staff and thirteen Technical Support staff. After budget cuts resulting in staff reductions, GW now comprises 17 employees in WY2018:

Administrative Support staff:

- one Natural Resources Specialist (ENNR08),
- four Office Support Specialists II (BAAS06), and
- one Office Support Specialist I (BAAS05).

Technical Support staff:

- one Natural Resources Program Manager (ENNR13)/Administrator,
- one Natural Resources Program Supervisor (ENNR11)/Assistant Administrator,
- one Senior Project Geologist (ENGE11),
- two Natural Resource Program Principals (ENNR10), and
- six Natural Resource Analysts (ENNR09).

Welcome

We are delighted to have the following individuals join the GW staff in WY2018:

- **Daniela Castle**, Office Support Specialist II (BAAS06), joined GW on December 1, 2017. Dani's previous experience in Support Services (2004 to 2017) and expertise in working with the SEO's electronic records, has been invaluable to GW.
- **Marla Wertz**, Natural Resources Specialist (ENNR08), joined GW on January 16, 2018 as the Supervisor of the Administrative Support Staff. Marla was previously employed by the U.S. Forest Service where she served as the Special Uses Coordinator for Lands, Minerals, and Recreation.
- **Brian Fawcett**, Business Office Coordinator II position (BABO09), joined GW on May 29, 2018 as the Executive Director of the *Examining Board of Water Well Drilling and Water Well Pump Installation Contractors*. Brian permitted water rights for his former employer, the U.S. Forest Service, and served with the Wyoming Army National Guard and the U.S. Army for 25 years.
- **Sue Kinsley** was offered the position of Office Support Specialist 1 (BAAS05) on September 10, 2018 with a proposed starting date of October 1, 2018. Sue has an extensive background in communications (written and social media) and is a welcome addition to GW.

Farewell

We wish the following the best as they pursue other personal and/or professional goals:

- **David Hastings** resigned his position as Office Support Specialist 1 (BAAS05) on August 10, 2018.
- **Sheri Culver** resigned as Business Office Coordinator II position (BABO09) in May 2018. Sheri served as the Executive Director of the Examining Board of Water Well Drilling and Water Well Pump Installation Contractors since April 2017. Prior to becoming the Executive Director, Sheri served as the Supervisor of GW's Administrative Support Staff (Natural Resources Specialist (ENNR08)) since December 2009.
- **Lindsay Morse**, Office Support Specialist 1, transferred to SEO/Fiscal on January 22, 2018.
- **Terry Carpenter**, Supervisor of the Administrative Support Staff (Natural Resources Specialist (ENNR08)) resigned December 11, 2017.

EDUCATION AND OUTREACH

GW took advantage of several low- or no-cost educational opportunities in an effort to remain current on new advances and technical information related to both the management of the state's groundwater resources and service to our groundwater appropriators.

GW staff also provided groundwater-related information to the public via several formats, including public presentations and written correspondence. Staff coordinated with other state and federal regulatory agencies, reviewed water management and usage proposals, investigated groundwater supply and quality issues, and fulfilled a broad variety of information requests, including:

- Review of the environmental impact statement (EIS) for the proposed Converse County Oil and Gas Project (Converse County EIS) utilizing and consistent with the Casper Resource Management Plan (RMP) and the USFS Thunder Basin National Grasslands (TBNG) Land and Resource Management Plan (LRMP);
- Review of BLM’s Pinedale Field Office’ draft Environmental Impact Statement (DIS) for the Normally Pressured Lance (NPL) Natural Gas Development Project;
- Review of the Water Development Office’s draft Northeast River Basin Plan (2018 Update);
- Provided BLM with information to facilitate the Powder River basin coal review – a regional technical study to help evaluate the impacts of coal development in the Powder River basin;
- Continued participation on the United States Army Corp of Engineers (USACE’s) Missile Site 4 Restoration Advisory Board (RAB) and Technical Project Planning (TPP) membership;
- Review of the geology of the southern Powder River basin to evaluate proposed development of the Fort Union Aquifer for water supplies for oil and gas development;
- Provided support to the WDEQ on the Gillette Madison Wellfield and Carlisle area private water well project;
- Selected to participate in the University of Wyoming’s Collaboration Program in Natural Resources;
- Served on the Wyoming Licensing Board for Water Well Drilling Contractors and Water Well Pump Installation Contractors; and
- Served on the Wyoming Geological Survey Advisory Board.

CHALLENGES

Groundwater Investigations and Studies

As the State of Wyoming faces more and more difficult groundwater resource issues, GW’s “resource data gathering” programs have been reduced, to accommodate budget reductions. In

the past, the Division was able to contract with outside resources to assist GW staff in conducting cooperative studies with the USGS and/or hydrogeologic consultants to evaluate groundwater use, characteristics, and effects in areas where either interference between water rights, over-appropriation, or interconnection between groundwater and surface water was problematic. Those funds no longer exist.

Observation Well Network

Collection and analysis of data from the Agency's observation well network allows the State Engineer's Office to evaluate changes in the amount of water available in water-bearing formations over time, develop groundwater models and predict future impacts to the state's groundwater resources, and support permitting decisions as well as the design, implementation, and monitoring of the effectiveness of groundwater management and conservation programs (e.g., an Order of the State Engineer or a voluntary agreement developed by appropriators in a control area).

The existing budget allows maintenance of the observation well network and some monitoring equipment replacement/repairs. However, drilling and completion of new wells, rehabilitating existing wells, and/or plugging and abandoning wells can no longer be accomplished.

SURFACE WATER AND ENGINEERING DIVISION

Submitted by:
Lee Arrington, Administrator

The Surface Water and Engineering Division report include surface water and weather modification permit activities, petitions submitted to the State Engineer, and dam safety activities. With the exception of the Dam Safety Program the numbers and comments are for the period from October 1, 2017 through September 30, 2018, which is referred to as WY2018.

SURFACE WATER SECTION

OBJECTIVES

The objectives of the Surface Water Section (SW) are directed by Wyoming Statutes, the State Engineer's Rules and Regulations, and the State Engineer's Office (SEO) core business functions. SW objectives include:

1. Timely review and processing of Applications for Permit to Appropriate Surface Water, petitions to the State Engineer and temporary water use agreements in preparation for consideration by the State Engineer.
2. Maintaining and updating all unadjudicated water right records to accurately reflect current status of said records.
4. Providing technical advice and instruction to constituents regarding procedures for filing applications, petitions and temporary water use agreements.
5. Providing technical assistance to the State Engineer, other divisions and water administration field personnel in matters requiring interpretation of surface water rights.

ACCOMPLISHMENTS

Applications and Petitions

Improved work-flow processes implemented in October 2012 continue to provide efficiency in processing applications. Goals established for the "processing life" of applications and petitions (i.e. each step in the "processing life" of an instrument has a maximum time allowed for its completion), has been tightened over the last six years, resulting in improved constituent service. The attainment of all goals is monitored and reported on a monthly basis. SW also began utilizing the agency's G.I.S. mapping software for electronic platting of water rights (instead of

hand drawing on paper plat maps). These changes have improved Division processing efficiency as well.

In WY2018, the backlog of applications with priority dates prior to October 1, 2017, was reduced from 91 to 43, while the petition backlog for the same time period decreased from 22 to 8. Additionally, new applications and petitions submitted to the Section during WY2018 included: a) applications for permits - 554; b) petitions and Authorization to Correct the Record (ACR) – 119.

Table 1 provides a comparison of applications and petitions filed with the State Engineer for the past years, beginning with WY2007 and continuing through WY2018.

TABLE 1. APPLICATIONS/PETITIONS RECEIVED, PROCESSED, BACKLOGGED

WY	APPLICATIONS			PETITIONS		
	No. Recd	Approve/Reject	EOY Backlog	No. Filed	Approve/Dismiss	EOY Backlog
07	1003	1439	983	23	15	124
08	913	1042	854	22	25	121
09	798	953	699	62	25	158
10	657	502	854	25	10	173
11	432	520	766	15	7	181
12	593	742	617	36	25	192
13	460	871	206	282	411	63
14	546	584	168	305	307	61
15	454	509	113	274	273	62
16	525	587	118	191	170	14
17	522	550	91	173	165	22
18	554	602	43	119	108	8

Types of applications fall into several categories. The more complex types include ditches/pipelines, enlargements, and reservoirs. The less complex applications (and those that can easily be reviewed and approved) include applications for stock reservoirs and temporary water uses.

The first application for an instream flow permit was received by the SEO in WY1987. According to Wyoming Statute, only the state of Wyoming, by and through the Wyoming Water Development Commission, can file an application for instream flow permits. Wyoming Statute requires the State Engineer to conduct a public hearing before an application is advanced to permit status or rejected. The division did not receive any instream flow applications and there were no public hearings held in WY2018.

Table 2 provides a breakdown of applications received for processing, by type, for WY2015-2018.

TABLE 2. APPLICATIONS RECEIVED

Category	WY2015	WY2016	WY2017	WY2018
Ditches/Pipelines	88	79	105	109
Enlargements	18	37	30	55
Reservoirs	135	116	168	173
Stock Reservoirs	115	180	120	104
Temporary Use	92	113	96	113
Instream Flow	6	0	3	0
Totals	454	525	522	554

Temporary Water Use Agreements (TWUAs)

A means of acquiring the right to use water for temporary purposes is provided by Wyoming Statutes §§ 41-3-110 through 41-3-112. These statutes authorize the temporary acquisition of an existing adjudicated or valid unadjudicated water right, not to exceed a two-year period of time, for temporary use. Persons interested in temporarily acquiring the ability to use an existing water right can enter into TWUAs with holders of valid water rights to obtain water for their temporary needs. Only that portion of a water right which has been consumptively used under historical practices may be acquired for temporary purposes.

TWUAs must be reviewed and approved by the SEO and an Order approved by the State Engineer that ratifies the agreement and approves the temporary change in use. TWUAs are quickly reviewed and approval Orders are normally issued within a few days of receipt. In the reporting period, a total of 76 TWUAs were received and approved. As of September 30, 2018, there existed 217 active TWUAs in the following use categories: Road construction (54), oil & gas development (41), irrigation (7), and other (or combined) Uses (115). The number of TWUAs received and processed in WY2018, compared with previous water years, is shown in Table 3.

TABLE 3. TEMPORARY WATER USE AGREEMENTS PROCESSED

Water Year	No. of TWUAs
2010	114
2011	123
2012	144
2013	138
2014	122
2015	94
2016	85
2017	98
2018	76

Permit Endorsements

When an application is approved and the permit is issued, it is recorded in the SEO e-Permit database system and a digital image is made and uploaded. Subsequent activities related to the permit must be recorded in the form of endorsements (updates) to the permit. Such activities include the filing of notices of completion of construction and/or beneficial use, approved requests for extensions of time to complete construction and/or beneficial use, eliminations of points of use, reinstatements, cancellations, assignments, or changes made through the granting of a State Engineer petition. Such endorsements require the updating of the e-Permit database. A total of 948 endorsements were completed in WY2018. Table 4 provides an overview of the number and type of permit endorsements executed in WY2018.

TABLE 4. WY2018 PERMIT ENDORSEMENTS

Endorsement Type	Number
90-day Notice of Cancellation	224
Extension Requests	117
Assignment Requests	222
Cancellations	183
Statements of Completion/Beneficial Use	202
Total Endorsements	948

Other Activities

The Division continues to participate in the activities of the U.S. Board of Geographic Names. This review provides for coordination of names used on maps, particularly those of streams, since every year, many streams are given names by issuance of water rights permits.

Historically, Surface Water Division maintained a complete file of all USGS maps covering the state of Wyoming for use by the State Engineer's office and field personnel. Beginning in May, 2018, the Board of Control Division assumed that task.

DATA VERIFICATION AND TECHNOLOGY USE

The e-Permit data base system continues to develop as the Division's primary tool for processing water right applications and maintaining permit records, and the Division has developed a reliance on the system. Verification of data in e-Permit for water rights that existed "pre-e-Permit" began in earnest in WY2014. During that period, staff verified 6691 reservoir permits and 3810 stock reservoir permits. In WY2015, 5658 reservoir permits and 1460 stock reservoir permits were verified, completing the reservoir permits verification task. The task of verifying approximately 40,000 ditch and enlargement permits began in WY2016, resulting in 13,462 permits being verified.

In WY2017 and WY2018, 9566 and 6767 ditch permits were verified respectively. Verification of ditch permits is complete and the Division has moved on to verifying enlargement permits. The project will likely continue through 2020 before being completed.

The Division made the move to electronic platting in June 2013. All paper plat maps were scanned and were made available electronically to agency staff in WY2014. Discussions continue regarding whether or not the digital copies of paper plats should be made available to the public. Additionally, all current permits and maps are scanned and uploaded to the e-Permit database which is available to the public online.

On May 1, the Division moved to a paperless permitting and water right document maintenance system. Ten years in the making (since e-Permit rolled out in 2008), the move to the paperless environment has benefitted constituents by decreasing application processing time and increasing accuracy of records. The consulting engineering/surveying community has welcomed the change due to the ease of submitting applications and not having to produce mylar maps for their submittals (the Division now accepts applications and maps via email or application can be made online, directly through the e-Permit database system).

STATE ENGINEER'S REGULATIONS AND INSTRUCTIONS

The SEO embarked on an effort to reduce and consolidate agency rules to respond to changes in technology, recognize new and changing uses for surface water and groundwater, recognize new methods that the public can use to obtain information, recognize new resources that the public can use to initiate and complete the process to appropriate surface water and groundwater, and recognize changes in the manner that the SEO conducts certain elements of business in response to implementing numerous statutory requirements that have been enacted since many of the current rules were filed.

A draft rules package was sent to the Wyoming Attorney General's Office in October 2015 for preliminary review before an official authorization to begin rulemaking is sought from the Governor's Office. The proposed draft rules should result in an approximate total rules reduction of 60%-70%. Previous step-by-step instructions for completing forms are proposed to be deleted in this revision and kept in a non-regulatory guidance document designed to be much more "user friendly" for the public. The Governor's Office will see this rules package when completed.

SAGE GROUSE PROTECTION

The SEO developed and implemented a process wherein all new applications, petitions and changes for water right permits where the proposed facilities are located in the following areas, are reviewed for compliance with Executive Order 2015-4, Greater Sage-Grouse Core Area Protection:

- a. Within a defined Greater Sage Grouse Core Population Area (SGCPA).

- b. Outside of a SGCPA but within two (2) miles of an active or occupied lek as defined by the Wyoming Game and Fish Department.
- c. Within Winter Concentration Areas.
- d. Within Connectivity Areas.

SEO involvement in implementation of Executive Order 2015-4 occurs primarily at the permitting stage and as such is focused on coordinating with other entities in Cheyenne. New development or land uses within SGCPAs are authorized or conducted only when it can be demonstrated that the activity will not cause declines in sage grouse populations. During the planning process, the SEO will put an application on hold if the proposed activity is in a sensitive sage grouse area, and will not move forward with processing the application until the applicant has submitted sufficient information to the WG&F to receive WG&F approval to proceed with the project.

The SEO has incorporated the requirements of Executive Order 2015-4 into otherwise routine permitting activities and partners with other agencies (such as DEQ and State Lands), that have additional authority to direct reclamation activities. The SEO provides other services and expertise including mapping support.

In July 2014, WG&F asked all state agencies operating under the Executive Order to begin entering permitting data into their newly created Greater Sage Grouse Permit and Mitigation Reporting database. WG&F requested that historic data from permits issued in SGCPAs in calendar years 2013-14 be provided as well as data from any new permits issued on an ongoing basis. SW complied with WG&F's request by providing data on 38 reservoir/stock reservoir permits and 20 ditch/enlargement permits that had been issued during the historic period, and continues to provide data as new permits are issued.

The SEO permits water sources that supply stock reservoirs and tanks. Often, stock tanks are pre-fabricated circular metal tanks with vertical sides. Greater Sage-Grouse may become trapped inside the tank. In partnership with the WG&F and others, the SEO has now incorporated information and requirements for Greater Sage-Grouse escape ramps into the permitting process for stock tanks.

Relative to enforcement of Attachment B to Executive Order 2015-4 stipulations, non-conformance with the conditions and limitations of a water right permit could jeopardize the permit and subject the permit to enforcement actions as provided in statute. That said, the SEO generally has a minor role in the planning of non-water related land use development such as roads, power lines, noise, etc. And, the SEO does not have statutory authority to extend regulation beyond the water right action. However, the SEO can impose timing and sequencing stipulations and conditions that deal with the construction of the permitted facility.

Additionally, as the coal bed methane activity recedes in the state, wells and reservoirs are either being reclaimed and/or transferred for other uses. The SEO is an active participant in the discussion and, if necessary, the permitting for conversion of wells and reservoirs to new uses,

such as for stock and/or domestic use. Some reservoir transfers can benefit sage grouse as well. Likewise, if reservoirs are not transferred to other uses, the SEO coordinates with other agencies to close out and reclaim the sites. The SEO also partners with the WOGCC and DEQ for well transfers.

The SEO is part of the Greater Sage-Grouse initiative team and is involved in the discussions and solution formulation, and provides public presentations and answers other related questions and issues associated with the program when applicable and/or when asked.

The SEO has a good working relationship with the WG&F. This relationship helps ensure uniform application of the requirements under Executive Order 2015-4 and serves to minimize challenges with the uniform and consistent application of the Order with federal agencies. As a matter of course in water rights, water development, and use, the SEO has working relationships with nearly all active federal agencies in the state and these relationships help in coordinating the needs and requirements of the Greater Sage-Grouse Core Area Protection as well.

REGIONAL WATER SUPPLY PROJECT-GREEN RIVER PIPELINE (TF#s 34 4/153 and 36 1/066)

On December 28, 2007, an application was received from the Million Conservation Resource Group (MCRG) proposing to divert water from the Green River and Flaming Gorge Reservoir for use in the state of Colorado. MCRG proposed to construct a 400 cfs pipeline that would convey water from the Colorado River basin with points of diversion from the Green River (downstream of the City of Green River) and from the body of Flaming Gorge Reservoir, across southern Wyoming, to the Colorado Front Range through a facility that was named the Regional Water Supply Project-Green River Pipeline. The water was proposed to be utilized for municipal, industrial, irrigation, domestic, recreational, fish and wildlife, environmental, hydropower, aquifer storage and recovery and other purposes. The application was designated TF# 34 4/153.

Over the following years, several requests were made for additional information in accordance with Wyo. Stat. § 41-4-502 in order for the State Engineer to consider the application complete and to proceed to permit status. Ultimately, additional information was not forthcoming and on February 27, 2015, the State Engineer rejected the application.

On March 4, 2015, the MCRG again filed an application for the Regional Water Supply Project-Green River Pipeline (TF# 36 1/066). The application was essentially the same as the previously rejected application except that irrigation use was not requested. The applicant was notified by letter that the project would have to comply with Executive Order 2011-5, Greater Sage-Grouse Core Area Protection, before being approved. The application was placed on administrative hold until compliance with the Executive Order could be confirmed.

On May 4, 2015, MCRG filed an appeal of the state engineer's rejection action of TF# 34 4/153 with the Wyoming Board of Control (Docket No. IV-2015-2-4). After several months of legal communications with the state of Wyoming, the MCRG voluntarily withdrew its appeal.

At the end of WY2018, TF# 36 1/066 remains on hold awaiting the applicant's compliance with the Executive Order.

WEATHER MODIFICATION PERMITTING ACTIVITIES

Objectives

The primary objective of the Weather Modification Program is to procure, compile, and evaluate information resulting from weather modification experiments, research and related activities conducted in the state of Wyoming. Weather Modification Permits are issued by the State Engineer for each weather modification program, experiment or activity.

Accomplishments

Four (4) permits were issued for weather modification (cloud-seeding) purposes during WY2018.

Permit Number 136 was issued to North American Weather Consultants for weather modification in the Uinta Range south of Lyman, Wyoming. This project is intended to increase flows in the streams flowing into Wyoming on the north side of the Uinta Mountain Range.

Permit Number 137 was issued to Idaho Power for two ground-based generators that were placed on hills near the Wyoming-Idaho border in the Star Valley to target the Salt and Wyoming Mountain Ranges. The objective of the activities of the project was to increase the water supply in the Salt and Wyoming ranges in Wyoming. The project was expected to provide positive benefits to the residents of the Salt River, the Greys River, and drainages on the eastern slope of the Wyoming Range in western Wyoming and was expected to provide additional spring and summer stream flow to this part of Wyoming.

Permit Number 138 was issued to Weather Modification, Inc. for cloud-seeding in the Wind River Mountains from northwest of Pinedale to the vicinity of Lander. This project is a fully operational spinoff of the 8-year long Wyoming Weather Modification Pilot Program, and was funded by the state of Wyoming as well as several downstream water user/interest groups, and is managed by the Wyoming Water Development Commission for the state of Wyoming.

Permit Number 139 was issued to the Eden Valley Irrigation and Drainage District in Farson, Wyoming, with the objective of their continuing weather modification program to increase the water supply in the Big Sandy River drainage. From November 15th through April 15th, two mobile, ground-based, cloud-seeding generators are strategically placed along Highway 191 and on Muddy Ridge. The generators are operated in accordance with daily weather conditions in order to positively affect snowpack conditions on the western side of the Wind River Mountain Range.

WATER RIGHTS EDUCATION OUTREACH

The Division continued with its water rights education outreach effort in WY2018. The “Water Rights 101” class mentioned in the WY2017 annual report was presented two times and continues to be in demand for engineer/surveyor and real estate groups.

In WY2017, several SEO personnel volunteered to assist the University of Wyoming Extension Department in reviewing/editing the “Living on Small Acreage” educational publication. That work was largely complete in January 2017. During WY2018, U.W. Extension requested our assistance in conducting training workshops centered on the publication. One event was held in Casper, Wyoming to train approximately 20 extension educators. Three additional trainings were conducted in Torrington, Sheridan and Pinedale, Wyoming, all three of which were designed to reach out to constituents living on small acreage with associated water rights or those interested in the educational opportunity. Average class size at those events was 30.

STAFFING LEVEL/CHANGES

Before staff reductions due to mandatory budget cuts, the Surface Water and Engineering Division employed 16 personnel. As of September 30, 2018, the Division is 100% staffed with one Natural Resources Program Manager, one Natural Resources Program Supervisor, five Natural Resources Analysts, one Senior Office Support Specialist, two Office Support Specialist IIs, and two Principal (Dam Safety) Engineers, totaling 12 personnel, which represents a 25% reduction in staff compared to WY2016.

During WY2018, the following staffing changes occurred:

1. In February 2018, Natural Resources Analyst Tyler McIlvain resigned to pursue other interests in his state of residence, Colorado.
2. In April 2018, Dr. Bryce Marston joined our staff as a Natural Resources Analyst. Dr. Marston, a graduate of the University of Wyoming (who spent many of his formative years in Laramie, Wyoming) recently completed his doctorate at Kansas State University and we welcome him back to his adopted home state of Wyoming.
3. In June 2018, Natural Resources Analyst Leah Bratton retired after nearly 34 years of service to the State of Wyoming. We thank Leah for her years of dedicated service and wish her well in her retirement years.
4. In June 2018, recent University of Wyoming graduate Ben Wollenzien joined our staff as a Natural Resources Analyst. Ben is a Wyoming native, being raised in Sheridan.
5. In July 2018, Senior Office Support Specialist Dana Blanks resigned her position with the State Engineer’s Office and began a new career with the Wyoming State Archives Department. We thank Dana for her years of valuable service and wish her well in her new endeavors.

6. In August 2018, Jessica Trembath joined our staff as Senior Office Support Specialist. Jessica began working for the State Engineer's Office, Board of Control Division in 2012 and brings valuable experience to our Division.

SAFETY OF DAMS SECTION

Submitted by:
Michael Hand, P.E.
Nathan Graves, P.E.

In 1977, the Wyoming Legislature, recognizing the potential hazards to public safety due to waters impounded by dams throughout the state, and the economic benefits of well maintained and safely operated dams, enacted the Wyoming Safety of Dams Act (Wyoming Statutes §41-3-307 through §41-3-318) (Act). The Act was amended in 1992 to clarify inspection requirements, duties of the State Engineer, and lien procedures.

While a permit from the State Engineer is required for all reservoirs, the Act pertains to dams greater than 20 feet high or which impound 50 acre-feet or more, and diversion systems with a capacity of 50 cubic feet per second or greater. However, the State Engineer may enforce any sections of the Act on any size facility, when necessary, to insure the public safety or the protection of property. Essentially, the Act requires applicable facilities be designed by a professional engineer and inspected every 10 years. Agency policy however, requires these dams to be inspected every five years.

OBJECTIVES

The objective of the Wyoming Safety of Dams program is to protect the public by reducing the potential for flooding and loss of life and property as a result of the failure of a dam. This objective is accomplished in part by assisting owners, operators, and engineers with resources needed to maintain a safe dam. This includes periodic dam inspections, owner education, plan and specification review for new and existing facilities, and outreach seminars and workshops. The authority to place a water storage restriction on an existing reservoir is also an option when dam repair is not practical or possible.

ACCOMPLISHMENTS

The Safety of Dams program reviewed plans and specifications for the construction of six new dams during the reporting period. During this period, plans and specifications for five repair or rehabilitation projects were also reviewed. The review process for new or rehabilitation projects involved working with the owners and their engineers to ensure the dam project meets current state of the practice design standards.

As described previously, all of the active dams in the inventory of the Safety of Dams program are inspected at least once every five years by personnel of the State Engineer's Office. There were 1547 active dams in the inventory during the reporting period. A total of 375 dams were

inspected from October 1, 2017 to September 30, 2018. Correspondence is delivered to the owners after every dam inspection detailing findings of the inspection and recommended repair or maintenance action. An effort to better involve the owners and operators of the dams with the inspection process and general education about dam safety is ongoing. The owners and operators of the dams are encouraged to inspect their facilities more often than required by state statute and agency policy.

OTHER ACTIVITIES

The Wyoming Safety of Dams program is active with the Association of State Dam Safety Officials (ASDSO). ASDSO is a national organization with over 3,000 members representing private dam owners, state and federal government, and consultants and engineers. Nathan Graves of the Safety of Dams program continues to serve on the national board of directors of ASDSO. The position allows Wyoming greater involvement in dam safety on the national level.

Wyoming receives funding from the Federal Emergency Management Agency (FEMA) in the form of the National Dam Safety Program (NDSP) grant. This grant is provided annually to states with active dam safety programs that meet several requirements set by FEMA. One of the requirements is to provide dam safety education to owners and anyone else involved with dams. A list of the training and educational opportunities provided is shown below:

1. October 4-6, 2017 - Internal Erosion Seminar and Workshop. Education was provided to 35 engineers from around the state of Wyoming.
2. December 5-6, - 2018-Dam Owner's Workshop. Several topics were presented to municipal and private dam owners.
3. March 6-7, 2018 - Dam Owner's Workshop. Similar to the December workshop with different attendees.
4. April 18-20, 2018 - Hydrographer's School. Field staff that assist with dam safety were presented training about inspection techniques and shown a demonstration of a remotely operated crawler camera at a local dam site.
5. May 2-4, 2018 - Hydraulics Training. Engineers from private consulting, state and federal government, and field staff were shown flood modeling techniques by Dr. Arthur Miller.
6. September 19-21, 2018 - Dam Inspection Workshop. Public and private engineers were shown several different aspects concerning dam inspection.

NDSP funds were used to purchase equipment for the Safety of Dams program. Advanced survey equipment and a small diameter video inspection camera were among the items purchased.

SUMMARY

The number of new dams constructed in the state continues to decrease every year. The average age of the existing dams in the state of Wyoming is 55 years old. The Safety of Dams section continues to work with dam owners, operators, and engineers to ensure that the existing dams in the state are in a safe condition and new dams are designed and constructed to the current state of the practice. This is accomplished with increased inspection efforts, technical assistance, and continuing education opportunities for everyone involved with dam safety.

BOARD OF CONTROL DIVISION

Cheryl Timm, Administrator
 Jed Rockweiler, Assistant Administrator
 Board of Control Division

OBJECTIVES

1. To promptly process petitions to amend adjudicated water rights and to present these petitions for review and consideration by the Board of Control.
2. To promptly review within 30 days water distribution plans and/or authorizations for detachment of water for consideration by the State Engineer or the Board of Control.
3. To promptly process proofs of appropriation for new adjudications and to present these proofs for review and consideration by the Board of Control.
4. To maintain and update the status of all adjudicated water right records to accurately reflect their current status.
5. To continuously evaluate the productivity of staff efforts in addressing the current workload.
6. To respond to inquiries by the public, as well as State and Federal agencies, regarding the current status of adjudicated water rights, and to give instructions and assist appropriators on the methods, procedures and format for filing petitions, plans, and authorizations for detachment with the Board of Control.
7. To provide technical and administrative support to the Board of Control members in matters concerning the evaluation of both surface water and groundwater rights and water administration.
8. To comply with statutory requirements and publish a tabulation of adjudicated water rights for the four (4) Water Divisions.

MAJOR ACCOMPLISHMENTS

Petitions

During the period of October 1, 2017 to September 30, 2018 (WY2018), the Board of Control Division received 188 petitions, an increase of 5 petitions or 2.7% received in the previous reporting period, throughout the State, in addition to those already on the agenda. These new petitions are listed by division in Table 1.

TABLE 1. PETITIONS RECEIVED

Water Division	Surface Water	Ground Water	Total
I	57	25	82
II	27	4	31

III	43	6	49
IV	24	2	26
TOTAL	151	37	188

Final action was taken on 171 petitions, which were either granted, denied, dismissed or withdrawn. This is an increase of 23 petitions or 15.5% from the previous reporting period. Some of the petitions were carried over from the previous reporting period to allow for the resolution of technical, engineering and legal problems, and in some cases for public hearings. The petitions dealt with by the Board of Control ranged from those with simple issues such as a change of point of diversion to those of a more complex nature such as change of use and declaration of abandonment.

Proofs

During WY2018, the Division received 388 proofs. One hundred and sixty one (161) or 41% of these proofs were for groundwater rights (wells), and 227 or 59% were for surface water rights. In addition to these 388 proofs, 324 stock reservoirs were inspected (which was an increase of over 51%) and found to be constructed within the terms of the permit. Under current Board of Control policy, these stock reservoir permits will be finalized, and will create their own report in the water right tabulation books; but no certificate of construction will be issued. The total number of proofs received and stock reservoirs received to be endorsed by division are shown in Tables 2 and 3 respectively.

TABLE 2. PROOFS RECEIVED

Water Division	Surface Water	Ground Water	Total
I	33	65	98
II	46	32	78
III	60	13	73
IV	88	51	139
TOTAL	227	161	388

TABLE 3. TOTAL STOCK RESERVOIRS ENDORSED

Water Division	Total
I	70
II	247
III	1
IV	6
TOTAL	324

E-Permit/ Tab Book Update

In WY2018, Division staff continued the certificate “verification” process. All certificate records need to be verified in order for all four (4) water division tab books to be printed

accurately. During WY2018, staff concentrated on Divisions II & III and continued to work on Division I. A Division IV tab book was published in February 2016 and was due to be re-published in WY2018. However, due to staffing and concentrating on the other Divisions, it was put on hold. Staff has also concentrated on assigning “trib sequence” numbers to stream sequences in all Divisions. A “trib sequence” number is a ten (10) digit number which, when assigned, allows for streams to print in the proper stream order in tab books. With the proper stream order and verification of data contained in the tab book, the Board will realize it’s goal of having “draft” versions of the Surface Water portions of Divisions I, II, and III in the next reporting period. While the field staff in these Divisions work on reviewing the “draft” Surface Water portions, the Board’s staff will continue work on verifying groundwater and stock reservoir information. Division IV should be ready to be re-published in WY2019 as well.

The above “verification” process for tab books and missing certificates has required the Division to establish “Board of Control e-Permit data entry rules.” This has been instrumental in staff following the same rules for data entry which increases data integrity. The Division continues to note improvements, defects, enhancements, etc. that can be made to e-Permit for improvements in functionality and consistency of records.

PROBLEM AREAS

There are still a few problematic issues with entering certain types of water rights into e-Permit. Most issues have been resolved. Due to previous cuts in staffing, the number of staff available to verify certificates has remained low.

During the drought years, water administration was a priority and, as a result, a backlog of proofs developed. To that end, the field staff in each division, as well as, the Ground Water Division, has worked diligently in recent years towards decreasing the backlog of proofs. This resulted in a rather large increase in the number of proofs and the number of stock reservoirs inspected and found to be constructed within the terms of the permit submitted to the Board of Control. During this period, specifically, the number to stock reservoirs inspected continued to rise while the number of proofs submitted for adjudication actually declined relative to last year.

The number of petitions submitted to the Division continues to increase. In addition, the previous loss of a petition team member due to budget cuts has continued to cause significant impacts to the petition team overall. In WY2018, the Division received a considerable amount of public comment in regard to the amount of time it takes to obtain final actions from the Board on petitions. The nature of petition work is such that if the analysis of new petitions or amended materials for previously reviewed petitions is not completed in time for the next scheduled Board meeting, the public may see a minimum three-month delay in obtaining a final action from the Board. The Board recognized that, in addition to the loss of a petition team member, one factor leading to the Board’s staff having difficulties getting new petitions and amended materials fully reviewed in time to discuss them at Board meetings was that a large proportion of new petitions were being received within two weeks of the cut-off date and a large amount of amended materials were being received within two weeks of the commencement of the Board meeting. Because of this, the Board adopted a policy to extend the cut-off date from 30 days prior to the commencement of each meeting to 45 days. This will hopefully lead to the petition team

completing review of new petitions with more time remaining to review amended materials prior to the Board meetings.

The Board of Control Division is also responsible for the timely review of subdivision water distribution plans and authorizations to detach water rights. It is required that a water distribution plan be submitted and approved by the State Engineer and/or an authorization for detachment of water rights be submitted and accepted by the Board of Control prior to approval of many County subdivisions. During WY2018, it was noted that several of these water distribution plans and authorizations for detachment of water rights projects were remaining unapproved as agents and/or developers submitted the plans but never followed up on correcting technical deficiencies. Because of this, the Division adopted a new process of following up on these projects within specific timelines so that agents, developers, and county governments remain aware of the status of these projects. If no progress is made towards resolving the technical deficiencies within a specified time period, all parties involved are notified that our office will no longer continue work on this project and the project is considered “inactive” in our records.

RECOMMENDATIONS

For Tab Books: Tab book verification has a high job priority in the Board of Control. However, so do petition and adjudication actions which affect the tab books. It has been difficult to meet established timelines with only two (2) Board of Control technical staff assigned to work part-time on tab books. The Board Administrator provided additional cross training on e-Permit for the Surface Water Division and other Board of Control staff, which proved very beneficial when working together to solve stream sequence issues in the tab book. This training also allowed additional staff to assist in the clean-up of and assigning of new “trib sequence” numbers that are required to create the correct stream order in the tab book. All Board of Control staff aid in this effort as time allows, but continues to press forward slowly, while maintaining their workload. If an additional time-limited technical position, or two (2), were available to help with data verification, it would greatly benefit our efforts to meet the statutory requirements of printing tab books in a timely manner. If hiring additional temporary staff is not possible, a summer intern position or, possibly, offering overtime to those staff eligible may aid our efforts.

Once the existing data has been verified, it will not have to be done again. Only updates and maintenance would be required for which the two (2) technical staff members currently assigned would be sufficient. Once this effort has been completed, the production of tab books could occur at any interval as all data would be up-to-date.

For the proof backlog: As the field staff worked through their back log of pending proofs, the number of proofs submitted to the Division for review and advertising has increased. In WY2012, the Division developed a plan to deal with the backlog of proofs that we received and refinements were made to the plan in WY2013. Although this plan has helped with the backlog, an additional staff member was assigned to assist in this area in WY2017. Cross-training on the processing of completed proofs has widened and improved the communication with the field staff. The staff continues to look for ways to decrease the backlog and assist the field in resolving proof issues and questions.

For petition backlog: As the number of petitions submitted to the Division continue to increase and with one (1) less petition team member to review petitions, processing times will continue to increase. Although current staff has worked diligently to avoid a backlog, adding an additional staff member to return the petition team to its previous staffing level, would greatly benefit the process and allow the Division to review and process petitions in a timelier manner.

During WY2018, with the improvements made in e-Permit the previous backlog on issuing certificate records has been addressed and staff strives to have all certificate records from one meeting finished before the next Board meeting begins.

INTERSTATE STREAMS DIVISION

Submitted by:
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Administrator

and

Beth Callaway,
River Basin
Coordinator

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INTRODUCTION

The State Engineer is charged with administering and overseeing all matters involving Wyoming's interstate and intrastate streams and rivers. A primary objective of the agency is to safeguard the State's current and future water supplies by preserving Wyoming's ability to use and develop our water allocations under our interstate compacts and court decrees. The Interstate Streams (ISS) Division provides technical and policy support for water allocation and administration issues associated with these governing compacts and decrees. The ISS Division also monitors most of the federal and congressional activities related to water management and coordinates the water planning activities of the agency.

INTERSTATE STREAMS ACTIVITIES

The following summarizes notable activities of the Interstate Streams Division by river basin or issue:

MISSOURI RIVER BASIN

National Integrated Drought Information System

The National Oceanic and Atmospheric Administration's (NOAA) National Integrated Drought Information System (NIDIS) program began the first Missouri River Basin Drought Early Warning System (DEWS) coordination efforts in 2014. The goal of this program is to focus on improving data and information for drought risk management at the state level in the greater Missouri River basin. The SEO joined the Missouri River Basin DEWS stakeholder group in 2017 and continues to monitor activities with this group as they arise.

Missouri River Recovery Implementation Committee

The 2003 Amendment to the U.S. Fish and Wildlife Service (FWS) Missouri River Biological Opinion outlined the need for a public stakeholder group to serve in an advisory capacity to the FWS and the Army Corps of Engineers (Corps) as they moved forward with the biological opinion projects. Accordingly, the Water Resources Development Act of 2007 defined and authorized Missouri River Recovery Implementation Committee (MRRIC) which now regularly meets in person on a quarterly basis at various locations throughout the Missouri River basin. MRRIC consists of 70 stakeholders who represent a wide array of local, state, tribal and federal interests. Wyoming has actively participated in MRRIC since its inception.

As Wyoming's representative to MRRIC, Beth Callaway monitored the development of the Missouri River Recovery Management Program (MRRMP) draft and final Environmental Impact Statements that have been in process since 2016. Although Wyoming is not located on the Missouri River mainstem, the state currently holds Cooperating Agency status in support of MRRMP efforts. In its review of the draft and final EISs, the agency's comment letter supports inclusion of adaptive management as a recovery program management action for implementation, and procedures to address state/federal consultation mechanisms at specific trigger points in addition to existing Corps' Annual Operating Plan outreach efforts.

YELLOWSTONE RIVER BASIN

On January 31, 2007, Montana filed a Motion for Leave to file a Bill of Complaint with the U.S. Supreme Court making the claim that Wyoming had violated the Yellowstone Compact by expanding water use in the Tongue and Powder River basins, by allowing groundwater pumping associated with coalbed methane development, and by constructing additional storage. The final judgement and decree was issued on February 20, 2018. More details on the activities regarding this lawsuit can be found in the Legal Activities section.

The Yellowstone River Compact Commission met on December 7, 2017 via webinar. The Technical Committee met April 12, 2018 in Billings, Montana. The technical committee continued efforts to work with the Natural Resources Conservation Service (NRCS) and NOAA with the goal of improving confidence in forecasting state line flows of the Tongue River to assist administration of the Tongue River under the terms of the Yellowstone River Compact and special master's findings. The two groups continued discussions on the status of Wyoming and Montana water supply and water rights issues in the basin, as well as updates on Montana's adjudication efforts. Agendas and minutes from these meetings can be found on the Compact Commission's website: www.yrcc.usgs.gov/index.html.

The Bureau of Reclamation's Long-Term Issues group that was examining operations at Yellowtail Dam continues to meet twice a year. It also includes water supply outlook and operations for Boysen and Buffalo Bill Reservoirs. Reclamation has instituted updated operating criteria that balance the needs dependent upon reservoir elevation to those dependent upon downstream channel releases. The focus of activities for Water Year 2018 (WY2018) was on evaluating the Bureau of Reclamation's proposed changes to operational improvements. In addition to participating in regular Long-Term Issues Group meetings, Loren Smith and Beth

Callaway attended the Spring 2018 Yellowtail Bighorn Lake Operations and Bighorn River Systems Issues Group Meeting on April 24, 2018.

BELLE FOURCHE RIVER BASIN

The annual coordination meeting between Wyoming, South Dakota, Bureau of Reclamation, U.S. Geological Survey, irrigation districts and local water users was held on November 30, 2017 in Hulett, Wyoming. This once-a-year meeting provides a good forum for the irrigators and the federal and state water administrators to discuss the previous year's deliveries and operations for the following year, as well as any potential issues. Minutes for each of these meetings are retained in the files of the ISS Division.

UPPER NIOBRARA RIVER BASIN

Nebraska and Wyoming held their annual Niobrara River Compact meeting on November 7, 2017 in Torrington, WY. Wyoming's hydrographer/commissioner Wray Lovitt reported that it had been a fairly "normal" year with no required regulation. Wyoming SEO's John Harju debriefed the assembly on recently approved groundwater permits. Nebraska Department of Natural Resources (NeDNR) staff reported on activities to drain Box Butte Reservoir in May 2017 as part of toe drain repairs, as well as various regulation activities. NeDNR reported that the contract deadline for the aquifer absent study was extended through 2017 and updated all on the ongoing NPS/USGS hydrogeologic modeling study surrounding National Scenic River portion of the Niobrara River.

The states' technical group met via conference call on April 19, 2018. Nebraska and Wyoming updated all on flows at the state line, and Wyoming presented newly approved groundwater permits. The Bureau of Reclamation (BOR) discussed work on draining Box Butte Reservoir, which was 20% complete. Nebraska received a request from the Upper Niobrara White Natural Resources District (UNWNRD) to begin work on a voluntary Integrated Management Plan (IMP) for the portion of their District not covered by a required IMP. UNWNRD requested that NeDNR place a stay on surface water diversions in the portion of the area for which the voluntary IMP will apply. NeDNR is reviewing the legal power to do so. IMP development is also continuing within the Middle Niobrara NRD. Nebraska also reported on the completion of the aquifer absent study and the ongoing NPS/USGS hydrogeologic modeling, which will finish in September 2018.

PLATTE RIVER BASIN

Modified North Platte Decree

The U.S. Supreme Court approved the Final Settlement Stipulation and entered the Modified North Platte Decree in *Nebraska v. Wyoming* on November 13, 2001. The goal of the settlement was protection of existing water rights while providing certainty about the extent of Wyoming's water use and future water development and management. In general, the settlement calls for an increase in monitoring, measurement, accounting, and reporting of water use, as well as future studies to be conducted by the North Platte Decree Committee (NPDC).

The NPDC consists of water officials from the BOR, and the states of Wyoming, Nebraska and Colorado that meets in the fall and spring every year. Jeff Fassett, Director Nebraska DNR, assumed the Chairmanship for 2017-18. The NPDC maintains several subcommittees to assist in fulfilling its duties under the Modified Decree: ground water wells, control crest, finance, consumptive use, replacement water, and official files.

Wyoming performs the following tasks to comply with the Modified North Platte Decree and Final Settlement Stipulation and as a cooperating member of the NPDC:

1. For WY2017, Wyoming reported in a December 29, 2017 letter to the NPDC, that the intentionally irrigated acreage for the North Platte River basin above Guernsey Reservoir, exclusive of the Kendrick Project, was 206,314 acres and in the Lower Laramie River basin, exclusive of the Wheatland Irrigation District (WID), was 30,846 acres. Of the 205,472 acres irrigated above Guernsey Reservoir, 154,764 acres were irrigated above Pathfinder Dam and 51,550 acres were irrigated between Pathfinder Dam and Guernsey Reservoir. In accordance with the Settlement Agreement, the intentionally irrigated acreage caps for these basin areas are 39,000 acres in the Lower Laramie Basin, excluding WID, and 226,000 acres above Guernsey Reservoir, of which the caps are 169,100 acres above Pathfinder Dam and 56,900 acres between Pathfinder Dam and Guernsey Reservoir.
2. For WY2017, Wyoming also reported in a May 15, 2018 letter to the NPDC that the ten-year calculated consumptive use of irrigation water in the North Platte basin upstream of Pathfinder Dam was 1,210,000 acre-feet for 2008 through 2017. In addition, Wyoming reported the ten-year calculated total was 840,000 acre-feet for the North Platte basin between Guernsey Reservoir and Pathfinder Dam. The limit for each of the basins is 1,280,000 acre-feet and 890,000 acre-feet respectively.

Seven (7) full-time field staff assigned to Division I, and one (1) Interstate Streams position in the Cheyenne office carry out the tracking and reporting requirements of the Settlement Agreement. Many existing staff positions continue to be faced with additional responsibilities to comply with the Settlement Agreement. By accurately tracking and reporting Wyoming's water use in the North Platte River basin, the State of Wyoming is able to protect its appropriation of this valuable water resource.

Platte River Recovery Implementation Program (PRRIP)

In 1997, the States of Colorado, Wyoming and Nebraska and the U.S. Department of the Interior (DOI) signed the "Cooperative Agreement for Platte River Research and Other Efforts Relating to Endangered Species Habitat along the Platte River in Central Nebraska" (Agreement). The Agreement addressed recovery of four species: the whooping crane, piping plover, least tern, and pallid sturgeon.

The PRRIP agreement was signed by the Governors of Colorado, Nebraska, and Wyoming and the Secretary of Interior in late 2006. The PRRIP remains in effect for the first increment, 13 years. In December 2016 the Governance Committee (GC) came to an agreement on a plan to extend the program for another 13 years. This process seems to make the most sense as the water goal for the first increment has not been met. The first increment comes to an end on December 31, 2019 and the draft federal legislation is in the works, but there are still several hurdles to clear before this program can be extended. Mr. Harry LaBonde, Director, Wyoming Water Development Office (WWDO), represents Wyoming on the GC and is spearheading the extension process.

Wyoming's Coordinator of Wyoming's Depletions Plan within the State Engineer's Office is tasked with preparing annual reports to satisfy the requirements of the Depletions Plan and performing federal and state consultations on new water-related projects. The Depletions Plan requires Wyoming to extensively track and report municipal, industrial, rural domestic, agricultural water uses, and various new water uses implemented since July 1, 1997. On March 8, 2018, Wyoming reported for the 2017 water year that Wyoming's total water uses are less than the 1997 baselines, and those under-runs translated to the state line are 39,187.96 acre-feet for the irrigation season and 4,778.16 acre-feet for the non-irrigation season. In addition to the reporting of depletions, Wyoming remains responsible to evaluate every new or enlarged beneficial water use in the North Platte and every new or enlarged surface water facility in the South Platte basins that may potentially create a new depletion for the state of Wyoming.

More information regarding the status of the PRRIP is available at the following website: <http://platteriverprogram.org>.

LARAMIE RIVER BASIN

After initial meetings in 2006 between Wyoming and Colorado to review the provisions of the *Laramie River Decree of 1922*, Colorado has continued to provide Wyoming with year-end delivery numbers for the Laramie River. In the 2017 water year, 21,559 acre-feet were diverted out of the Laramie River. The diversion amounts for the past few water years are as follows; 13,529 acre-feet (2016), 11,785 acre-feet (2015), 15,406 acre-feet (2014), 20,898 acre-feet (2013) and 19,746 acre-feet (2012). No meetings were held during this reporting period with Colorado.

COLORADO RIVER BASIN (GREEN RIVER AND LITTLE SNAKE RIVER BASINS)

Upper Colorado River Commission Activities

The 1948 Upper Colorado River Basin Compact divided the water apportioned to the upper basin states on an annual flow percentage, giving Colorado: 51.75 percent, New Mexico: 11.25 percent, Utah: 23 percent and Wyoming: 14 percent. The Compact created the Upper Colorado River Commission (UCRC); an administrative agency addressing all matters affecting the operation and administration of the Colorado River system in the upper basin.

During WY2018, the UCRC met several times. This included formal Commission meetings held December 13, 2017, in Las Vegas, NV, and June 20, 2018, in Santa Fe, NM. The Commission also held in-person work sessions on December 12, 2017, (Las Vegas) and June 20, 2018, (Santa Fe). The Commission also met via conference on a few occasions. The technical and legal committees also met on several occasions.

During WY2018, several issues were worked on by all four states under purview of the Commission. These included:

- Drought Contingency Planning
 - Upper Basin Drought Plans
 - Lower Basin Drought Plans
- System Conservation Pilot Program (SCPP)
- Agricultural Consumptive Use Studies

Drought Contingency Planning (DCP): Drought contingency planning efforts have continued throughout the basin. These include ongoing efforts in the Upper Basin (Colorado, New Mexico, Utah and Wyoming), and in the Lower Basin (Arizona, California and Nevada). All efforts include both state and federal parties, as well as water contractors. Brief descriptions of each of these efforts are provided below.

- Upper Basin Drought Planning - The upper basin plan has three main components – weather modification, Colorado River Storage Project (CRSP) reservoir operations, and demand management. Weather modification activities are ongoing in WY, CO, and UT, with some funding being contributed by lower basin water contractors. An eight-year programmatic funding agreement between the four upper basin states and the lower basin funders was completed during WY2018. The draft agreement reservoir operations is essentially complete and waiting execution as part of the overall DCP process. The primary element relative to demand management contained in DCP draft agreements concerns storage at the CRSP facilities to support an upper basin demand management program if and when such a program is implemented.
- Lower Basin Drought Planning - The lower basin has been working on process documents to enable the conservation of additional water in Lake Mead. Ultimately, these efforts could conserve up to 1.2 million acre-feet of water in Lake Mead annually during times of drought and very low water levels, but would allow much of this water to be recovered once the system recovers. All parties were hopeful a final DCP package (including necessary federal legislation) would be completed by the end of calendar year 2018. However, Arizona has not been able to resolve intra-state issues and such a deal is unlikely in 2018.
- Binational Negotiations with Mexico - Minute 323 to the Treaty between the United States and Mexico relative to utilization of the waters of the Colorado River was signed in September 2017. Binational work groups formed under Minute 319 have remained active under Minute 323. Steve Wolff represents the upper basin on the Salinity Work Group.

System Conservation Pilot Program: The System Conservation Pilot Program (SCPP) was a program funded by the BOR and four large municipal water providers. The purpose was to seek solutions to the long-term imbalance of supply and demand in the Colorado River system, by compensating willing water right holders to not use or reduce their water use temporarily. The program, originally approved for WYs 2015 and 2016, was extended through 2017, was then extended further through 2018, due to continued interest and additional financial support. The upper basin states and the UCRC decided not to extend the pilot program to a 2019 season, to focus resources on the development of a broader demand management program. From 2015 through 2018, over \$8.5 million was paid to water users in the upper basin, with about \$4.1 million of that coming to Wyoming water users. Officially, this was a stand-alone program, but was very supportive to our efforts relative to demand management discussed above.

Agricultural Consumptive Use Study: ISS personnel continue to spend significant time on the UCRC-sponsored “Agricultural Consumptive Use Study”. This study reviews the methodologies utilized by each upper basin state and is evaluating the possibility of using remote sensing technologies to assess consumptive use across the entire upper Colorado basin. Phase I of this study was completed in late WY2013. Phase II included analysis and funding for the siting of up to 29 weather stations and one eddy covariance (EC) tower across the upper basin. Phase III was scoped and initiated at the end of 2016. In 2017 and early 2018, BOR and the upper basin states installed one EC tower in each state, with the Wyoming tower located 5 miles west of Big Piney. The EC tower data will support the analyses of remote sensing data. The WY2017 Phase III data-year draft report is currently under review by the upper basin states, with WY2018 analysis underway. Preliminary discussions are underway for extending funding and analysis into WY2019.

Colorado River Basin Salinity Control Program

Established by the Governors of the seven Colorado River basin states in 1973, the Salinity Control Forum works jointly with federal agencies and the Congress to develop, fund and implement salinity reduction measures to meet national, international and state water quality objectives for the Colorado River system. The Salinity Program is a unique cooperative watershed effort resulting from EPA’s interpretation that the 1972 amendments to the Clean Water Act required water quality standards, including beneficial use designations, numeric salinity criteria, and a plan of implementation for the Colorado River. Numeric criteria stations were subsequently established (below Hoover Dam, below Parker Dam and at Imperial Dam) by the Forum. To date, the Program has controlled more than a million tons of salt discharge annually and has reduced the salt concentration in the lower Colorado River basin by approximately 130 milligrams per liter.

The SEO’s ISS Division actively participates in the activities of the Salinity Control Forum, the forum’s work group and the Salinity Control Advisory Council (established as a Federal advisory committee by the 1974 Salinity Control Act). The Forum and Advisory Council met in Sacramento, CA on October 25-26, and in St. George, UT on May 16-17. The Work Group met on several additional occasions during the year.

In 2015, BOR and Wyoming awarded Eden Valley Irrigation and Drainage District with \$2.2 million from the Basin States Program to continue piping canals in the district. Due to increases in pipe costs, BOR and Wyoming worked to approve a budget increase to this project in late 2017. In 2017, the USGS initiated a study funded via the salinity control program, to assess the hydrosalinity conditions in the Blacks Fork drainage of Wyoming. Work with Austin Wall Irrigation District and landowners began in late 2017, with installation complete and the start of data collection in April 2018.

Glen Canyon Adaptive Management Program

The Glen Canyon Dam Adaptive Management Program (AMP) was developed to provide an organization and process for cooperative integration of dam operations, downstream resource protection and management, and monitoring and research information, as well as to improve the values for which the Glen Canyon National Recreation Area and Grand Canyon National Park were established.

The Adaptive Management Work Group, a federal advisory committee, is chaired by a designee, appointed by the Secretary of the Interior. Membership is appointed by the Secretary of Interior with representation from each of the cooperating agencies, Colorado River basin states, environmental groups, recreation interests, and contractors for federal power from Glen Canyon Dam. State representatives are nominated by Governors and then officially appointed by the Secretary of Interior. Steve Wolff is Wyoming's representative to the AMP.

The AMP met twice during WY2018. The two primary issues in front of the AMP during WY2018 were review and approval of experiments under the Long-Term Experimental and Management Plan (LTEMP), and a funding issue that developed with the proposed FY19 federal budget.

Upper Colorado River Endangered Fish Recovery Program

The Upper Colorado River Endangered Fish Recovery Program has been an essential component to allow water development activities in the basin since 1988. Despite some significant impacts by non-native fish species, three of the four species are on track for down-listing by 2019 and delisting by 2023. This program is a model on how ESA compliance can work. Under this program, water development activities have continued, the species are being recovered and there has been no litigation.

The Implementation Committee (IC) met twice in WY2018, once in person and once via webinar. No major issues came before the IC. The Management Committee met several times during WY2018, with the three major issues being capital construction activities, post-2023 planning discussions, and necessary federal reauthorization activities that resulted in a FY2019 funding issue. We continue to seek a resolution to the reauthorization and funding issues.

In addition to the above committee activities, a group of program partners travel to Washington DC each year to brief staff members of all Senate and House members from each state, authorizing and appropriating committees and executive branch offices about the program's status. Steve Wolff organized and participated in these briefings for Wyoming. During this year's briefing trip, 29 appointments to both congressional and executive branch offices were attended. The number of visits was reduced this year due to a closure of the federal government due to a snow storm on the Wednesday of our trip.

Green River Basin Consumptive Use Program

In the last 18 years, the Colorado River basin has been in a serious drought, bringing the subject of water use to the forefront. Understanding Wyoming's current and future water use is key to complying with our interstate compact obligations and ultimately protecting water users in our Green and Little Snake River basins (collectively called the Green River basin). The Green River Basin Consumptive Use Program has three main components: 1) basin instrumentation, 2) remote sensing and 3) consumptive use modeling. Basin instrumentation work has entailed the installation of approximately 150 stream, diversion and reservoir measuring and recording devices throughout the basin. This effort has been led by Division IV field staff. In late 2016 and early 2017, five additional automated weather stations were installed in the basin, bringing the Wyoming Green River basin total to 10 stations. These weather stations are part of the SEO's Wyoming Agricultural Climate Network (WACNet) discussed later. We now have satellite-based ET imagery (remote sensing) for two complete irrigation seasons in the basin (2011 and 2015), and now have BOR Basin Funds approved for two more years (between WY 2016 – 2020). Having four years of actual ET data in a decade is a big step towards achieving the Program's goals of obtaining more accurate estimations of consumptive use.

In 2013, Wilson Water Group was hired to develop a consumptive use model (StateCU) for the Green River basin. The StateCU model framework was completed at the end of 2016; however, there are still some issues to work through concerning water rights and ditches before it can be used to determine consumptive use in the future. In addition to being useful as an additional model for calculating consumptive use, it will also be useful as a tool for considering potential curtailment scenarios. We will continue to refine the model input as time allows.

Based on the tools mentioned above, ISS calculates Wyoming's annual consumptive use each water year in the Green River basin and provide them on our website¹, with main use sectors for water year 2017 detailed in Table 1 below.

¹ <https://sites.google.com/a/wyo.gov/seo/interstate-streams/know-your-basin/green-river-basin>

TABLE 1. SUMMARY OF 2017 ESTIMATED CONSUMPTIVE USE IN THE GREEN RIVER BASIN

Use Sector		2017 Consumptive Use (Ac-Ft)
Agriculture	Sector Total	528,620
Agricultural Irrigation (Adjusted CU)	Surface Water and Groundwater	521,765
Livestock ^A	Surface Water and Groundwater	6,855
Municipal/Industrial	Sector Total	60,601
Urban	Surface Water	6,740
Urban	Groundwater	817
Rural	Surface Water	0
Rural	Groundwater	3,042
Thermal Electric Power	Surface Water	25,187
Thermal Electric Power	Groundwater	4,683
Mineral Resources	Surface Water	18,178
Mineral Resources	Groundwater	1,954
Transbasin Diversions (Exports)	Sector Total	6,914
City of Cheyenne Diversions	Surface Water	5,673
Broadbent Supply	Surface Water	1,241
Reservoir Evaporation	In-State Reservoirs ^B	27,000
	Main Stem, Shared CRSP Evap ^C	—
Grand Total		623,135
Notes		
^A Livestock use includes depletions from livestock watering and stock pond evaporation.		
^B Wyoming depletion schedule		
^C "Shared CRSP Evap" refers to evaporation from the reservoirs constructed under the Colorado River Storage Project (CRSP) Act. This evaporation amount is the anticipated long-term average whose evaporative losses are to be shared among the Upper Basin states. Evaporation will vary annually depending on reservoir storage and climatic conditions.		

The vast majority of water is consumed by irrigated agriculture, which changes annually based on winter snowpack and summer precipitation, followed distantly by thermal electric power generation. There are only two major trans-basin exports, the Broadbent Supply and the City of Cheyenne diversions. Other uses are urban and rural municipal/domestic use as well as water use for mineral extraction and claimed by reservoir evaporation. Since 2011, there has been relatively little fluctuation in water used by the different sectors other than irrigated agriculture. The estimated water use in water year 2017 was the highest since water year 2011, which is because of the very large water supply to the agricultural sector resulting from the historic high snowpack in surrounding mountains. This allowed water users to irrigate longer into the season and irrigate more acreage. Table 2 includes the last seven years of total consumptive use in the Green River basin.

TABLE 2. SUMMARY OF 2011 TO 2017 TOTAL CONSUMPTIVE USE IN THE GREEN RIVER BASIN

<u>Year</u>	<u>Wyoming Green River Basin Total Consumptive Use (Ac-ft)</u>
2011	654,402
2012	555,816
2013	505,508
2014	480,788
2015	517,466
2016	615,403
2017	623,135

BEAR RIVER BASIN

The Bear River Commission (BRC) met November 21, 2017 and April 17, 2018. The April meeting commenced the 20-year review period for the Amended Bear River Compact. The review consists of an examination of operations and water distribution under the Amended Compact and input from water users, as well as receipt of public comment. As part of the review effort, the BRC scheduled a series of public meetings around the Bear River Basin. Meetings were held in Evanston, WY, Logan, UT, Grace, ID, Montpelier, ID and Salt Lake City, UT during October 2017.

After review of public comments, the BRC determined no changes to the compact were warranted. It was also determined that the BRC’s bylaws were in need of amendment to formally recognize the Technical Advisory Committee (TAC) and assign the TAC the responsibility of hearing reports, meeting with organizations and researching environmental and watershed health issues that impact the operation of the Compact and the use and allocation of waters thereunder. The TAC is currently in the process of preparing a report to come from the BRC that addresses every one of the public comments received during the 20-year review, which will be summarized in next year’s Annual Report.

Agendas and minutes from these meetings can be found on the BRC’s website: <http://bearrivercommission.org>.

SNAKE RIVER BASIN

The SEO, the Wyoming Game and Fish Department, the BOR, and other interested parties have been meeting each fall and spring since Wyoming acquired 33,000 acre-feet of storage in Palisades Reservoir in 1990. The contracted water out of both Jackson Lake and Palisades Reservoir is delivered to lands downstream of Palisades in Idaho, therefore the BOR and the State of Idaho - Water District 01 allows Wyoming (through a paper transfer) to use the

Palisades water right storage out of Jackson Lake to support winter flow releases in the Snake River downstream of Jackson Lake.

The spring agency meeting was held May 15, 2018. At the time, the BOR's snowmelt forecast was very high. Winter releases from Jackson Lake for November through February were 300 cfs. Starting about March 1, BOR increased releases from the lake significantly to begin to make space for the forecasted run-off. Peak releases above 7,000 cfs occurred in June and remained high through the remainder of WY2018

The fall agency meeting was held on September 20, 2018. BOR reported that Jackson Lake Reservoir filled during WY2018. In addition, minimum winter releases from the reservoir were set at 400 cfs.

ISS personnel also attended the Water District 1 (WD1) (Idaho) Annual Meeting in March. The state of Wyoming has an advisory seat on the board of WD1 due to our storage right in Palisades Reservoir. WD1 is a recognized government entity created and supervised by the Idaho Department of Water Resources (IDWR) to distribute water consistent with water rights on record with IDWR. WD1 is the only water delivery entity specifically authorized to administer the delivery of Idaho water from a public water source or water system. Distribution of water within a water district is accomplished by the elected and appointed watermaster, who is overseen by the WD1 Board.

Wild and Scenic Rivers: The congressional action designating Wild and Scenic segments in the Snake River basin occurred in March 2009, and Bridger-Teton Forest and Grand Teton National Park personnel have now completed developing the Outstandingly Remarkable Values for each of the segments. Both agencies have completed the update of their comprehensive river management plans (CRMP) and are also continuing to gather flow data related to their segments. Two new stream gages were installed in support of the Wild and Scenic flow data: USGS 13011820 Blackrock Creek below Split Rock Creek near Moran, WY; and USGS 13014300 Gros Ventre River above Upper Slide Lake near Kelly, WY.

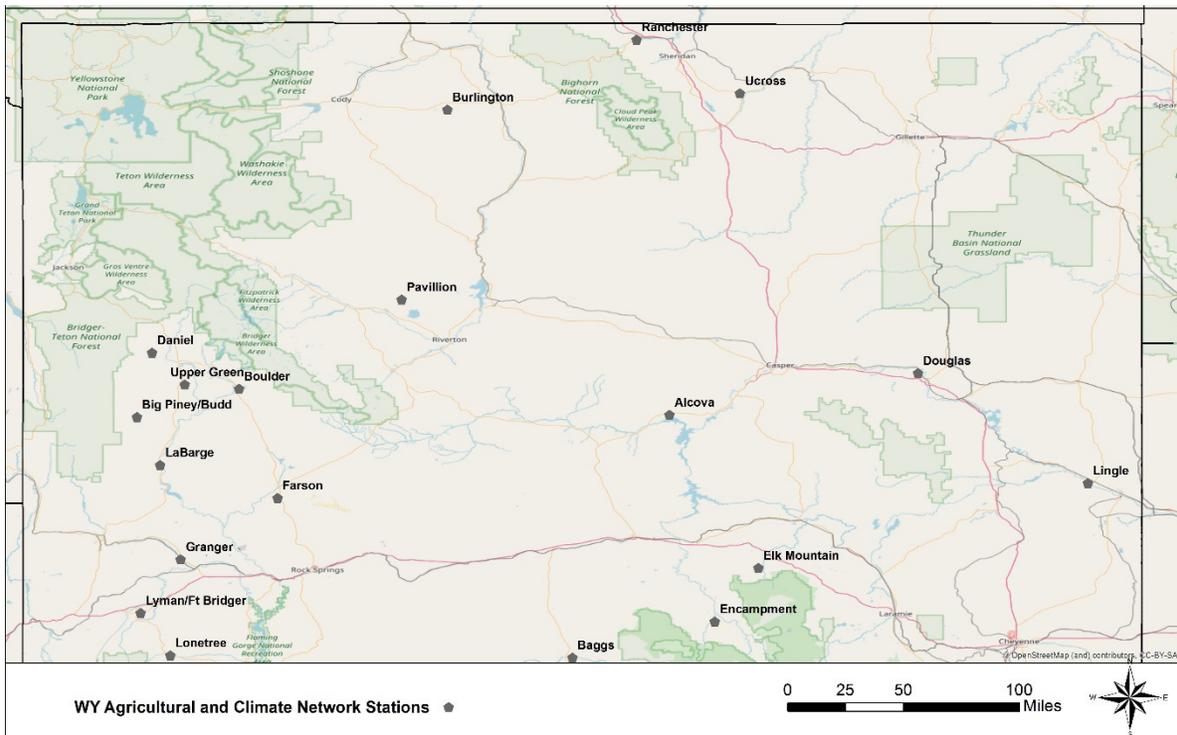
The SEO and the two federal agencies have held preliminary coordination meetings to decide how best to incorporate the Wild and Scenic water rights into the states permitting system. The federal agencies are currently in the process of inventorying existing water rights diverting from the relevant Wild and Scenic River segments and gathering data from stream gages.

WYOMING AGRICULTURAL CLIMATE NETWORK

Over the last 12 years, the SEO has installed 19 fully-sensored weather stations. Currently there are six stations in Division 1, two in Division 2, two in Division 3 and nine in Division IV. This network of stations is termed the Wyoming Agricultural Climate Network (WACNet) and is maintained by ISS Division personnel. See map below (Fig. 1) for station locations. For the most part, these stations have been installed in specific basins to support Wyoming's consumptive use monitoring efforts relative the intrastate compact and decree compliance.

Collected weather data provides the baseline for the consumptive use work and is used in estimating potential evapotranspiration (ET), for calibrating remote sensing analysis and in support of the modeling efforts. All collected data is currently downloaded, maintained and served by the Water Resources Data System at the University of Wyoming.

FIGURE 1. LOCATION OF WYOMING AGRICULTURAL CLIMATE NETWORK (WACNet) STATIONS



WATER ORGANIZATIONS AND POLICY ISSUES

Water Forum

The State Engineer serves as the Chairman of the Wyoming State Water Forum. The Water Forum meets monthly beginning in September and ending in May and provides state, federal, and county agency personnel as well as those in private practice, a regular opportunity to share information and insight on water activities that are ongoing in their respective agencies and businesses. Each month, a special program is presented providing a more in-depth view of a specific water related issue or topic.

During the 2017-18 season, topics for Water Forum covered: USGS sediment monitoring, Western State Water Council water data systems, BLM’s Aquatic Assessment Inventory Monitoring Protocol, groundwater characterization studies, national flood insurance and flood risk issues, compensatory mitigation, statewide fish passage projects, and LANDSAT satellite imagery-based water data . The current schedule and past and current Water Forum

presentations are kept on the State Engineer's Office website at: <http://seo.wyo.gov/interstate-streams/water-forum>.

Governor's Planning Office

The Interstate Streams Division is responsible for reviewing and responding to all National Environmental Policy Act (NEPA) and related notices received from the Governor's Planning Office or directly. The notices include, but are not limited to: proposed actions, scoping statements, environmental impact statements (draft and final), environmental assessments and resource management plans as well as other National Environmental Policy Act (NEPA) documents. Beth Callaway is the Division's lead contact for agency review of NEPA and Governor's Planning Office activities. During this last reporting period, seven SEO comments were submitted.

The Interstate Streams Division is also responsible for attending any meetings that pertain to projects of special interest to the SEO. These meetings often include tours of the affected area, open houses and public meetings. Meetings with other cooperators to help develop purpose and need statements and alternatives for projects are also attended by this division. Notable meetings that Interstate Streams participated in during this reporting period include cooperating agency meetings regarding Bureau of Land Management's environmental review of the proposed Leavitt and Alkali Creek reservoir projects in Division III.

The Governor's Planning Office regularly holds State and Federal Coordinating Committee (SFCC) meetings. These meetings convene on a monthly basis and provide an opportunity for state and federal agencies to discuss NEPA projects and other activities occurring around the state. Beth Callaway attends these monthly meetings.

It should also be noted that in May 2018, the Governor's Planning Office requested support from Beth Callaway during the last several months of Governor Mead's administration. Ms. Callaway has been working in that office nearly full-time since May and will continue in that role through the end of the calendar year.

Western States Water Council (Council)

As Past Chair, State Engineer Tyrrell served on the Management Committee of the Council. Agency personnel attended the following Council meetings during WY2018.

Fall 2017 (185th) Council Meetings
Albuquerque, New Mexico
Marriott Pyramid North
October 18-20, 2017

Spring 2018 (186th) Council Meetings (DC Roundtable)
Arlington, Virginia
Crystal Gateway Marriott
March 14-15, 2018

Summer 2018 (187th) Meetings
Newport, Oregon
Best Western Agate Beach Inn
August 1-3, 2018

Upper Missouri Water Association

The 2018 Annual Meeting was held jointly with the Wyoming Water Association in Sheridan, Wyoming, October 25-27, 2017. Beth Callaway attended and presented on behalf of the Division.

Wyoming Inter-Agency Coordination Meetings

During this reporting period, the Division also served on the NRCS's State Technical Committee and coordinated the inter-agency meetings with Water Development Commission, Department of Environmental Quality, Game and Fish Department, Department of Agriculture and State Lands.

Water Planning

There are seven water basin planning areas within Wyoming: Bear, Green/Little Snake, Powder/Tongue, Northeast Wyoming (Little Missouri, Belle Fourche, Cheyenne, and Niobrara), Snake/Salt, Wind/Bighorn, and Platte basins. The products created for each plan consist of a series of technical memorandum describing each topic outlined in the contract with the WWDC. An executive summary and final report, spreadsheet models of the basin's water supply and uses, and various mapping products are also part of the final product. Beth Callaway is the lead SEO representative assigned to technical review of WWDC planning products.

The following is a list of key Water Year 2018 WWDC River Basin Planning activities:

General Strategic Planning

With the pending completion of updated River Basin Plans for all seven basins within the state, in 2018 the WWDC River Basin Planning Division re-directed its planning efforts to focus on water data enhancement in support of planning products. Current water planning projects underway are as follows:

- **GIS Data Model Implementation** - This project is focused on developing statewide water infrastructure data. With this data, the Office can ensure consistency and accuracy and create cost savings on all future Level I projects. Outcomes include an inventory of water infrastructure by basin and a statewide GIS dataset of that infrastructure.
- **Water Supply Index** - This statewide analysis provides a simplified method to assess current and future water use and availability trends. The results will provide a consistent, credible method to assess needs for supplemental water supplies. Outcomes include a medium to effectively communicate the findings to the public, the WWDC, and legislators.

- **National Hydrography Dataset Update** - The National Hydrography Dataset (NHD) is a digital representation of the water surface features found on topographic maps. These features form a stream network and represent the water drainage network across Wyoming. This update to the NHDPlus High Resolution (NHDPlus HR) integrates other hydrographic, topographic, and watershed information at a local resolution. NHDPlus HR will form the foundation for StreamStats.
- **StreamStats Web Application** - StreamStats is a web-based application for retrieving basin and streamflow characteristics. This application will provide the public an assortment of analytical tools that are useful for water resource planning and management. The StreamStats tool will assist all WWDC projects that rely on streamflow quantities and flow duration. This application will lower individual project costs and improve consistency and defensibility in work products.

A summary of existing River Basin Plans and related products that have been completed in WY2018 are outlined below:

Bear River Basin

The Bear River Plan update was completed in June 2012 and was conducted in-house by the water planning team consisting of the WWDO, WRDS, and the SEO. In June 2016 the WWDC commenced the Bear River Data Model Pilot Level 1 Study project. This project developed and organized the water resource data needed for the WWDC planning program and established standards that improve consistency and usability of Geographic Information System (GIS) data. The newly adopted WWDC GIS standards and data can be accessed here: <http://water.geospatialhub.org/pages/wwdc-gis-standards>.

Powder/Tongue and Northeast River Basins

Two separate river basin plans were developed for the Powder/Tongue basin and Northeast river basin (Belle Fourche, Cheyenne, Little Missouri, and Niobrara rivers). The plans were completed concurrently in 2002. Currently, the plans are undergoing a comprehensive update. Separate groundwater studies led by the WSGS are also being developed. Final reports are still in process. Information on the status of the basin plan updates can be found here: <http://waterplan.state.wy.us/plan/powder/2017/2017Plan.html>.

Platte River Basin

The Platte River basin plan was first conducted in 2006 by Tri-hydro Corporation and updated in 2016 by Wenck Associates. The final report can be found via the WWDC website link below, including the Platte River Basin Water Atlas, a web-based presentation tool that houses the data, mapping and modeling information from the plan: <http://waterplan.state.wy.us/plan/platte/platte-plan.html>.

The separate Platte River Basin groundwater study led by the WSGS was completed in 2013 and can be found here:

http://waterplan.state.wy.us/plan/platte/2013/gw-finalrept/gw_toc.html.

Wyoming Water Updates

Throughout the water planning process, the Wyoming Water Update meetings gather stakeholders from throughout each basin and provide an opportunity for community members at-large to learn about WWDC river basin planning and give feedback about local water concerns. “Wyoming Water Updates” are held in all of the basins in the spring of each year. When basins start into the active planning process, public outreach meetings are conducted multiple times throughout the project period. At least one member of Interstate Streams and/or SEO staff attends these meetings. Due to the revised strategic direction for FY 2018-19 River Basin Planning Projects, there were no Wyoming water updates meetings held in 2018.

Environmental and Recreational Water Use

The Basin Planning Environmental and Recreational Water Use Study was completed in April 2012 by Harvey Economics. The purpose of this study was to refine the statewide water planning process to better address environmental and recreational water uses. This report also includes a handbook to guide future planners in the methods:

[http://library.wrds.uwyo.edu/wwdcrept/Wyoming/Wyoming-Environmental and Recreational Water Use Study-Final Report-2012.html](http://library.wrds.uwyo.edu/wwdcrept/Wyoming/Wyoming-Environmental%20and%20Recreational%20Water%20Use%20Study-Final%20Report-2012.html).

In 2016, the WWDC approved funding to complete a second study that covers the entire state. Final reports for the Bear, Green, and Wind/Bighorn River Basins were completed in 2018. These reports can be accessed here: <http://waterplan.state.wy.us/plan/envrec/EnvRec-Reports.html>.

SUPPORT SERVICES DIVISION

Submitted by:
Martin Zimmerman

The Support Services division has a total of eight employees and is responsible for the following operations:

- e-Permit - The State Engineer's Office (SEO) began a journey in 2005 to convert the agency's work processes from a traditional paper-based system to a fully electronic system. A custom software package called e-Permit was developed for the SEO. Due to the complexity of Wyoming's water law, changing permitting procedures over the last 125+ years, the requirements to accurately represent all variations of those water rights in the new system, and original source code development; it took five (5) years before e-Permit became operational. The focus of this project has now shifted from development to maintenance and support. It is important that e-Permit maintain and adapt its functionality as the technological and regulatory environments change. During reporting period, the system was upgraded to version 7.2 and maintenance contract for version 8+ was executed.
- Aquarius - The State Engineer's Office (SEO) currently owns Aquarius software by Aquatic Informatics for the storage and processing of stream gage, ditch diversion data and ground water well data. Aquatic Informatic's, Aquarius software is a powerful suite of highly intuitive data management and processing tools that handle the near real time reporting of streamflow and diversion data in an accurate and legally defensible manner. The tools available in this one package allow state hydrographers to process data from over 800 stream, canal and well gages statewide. Preliminary data is available in a web presentable form within minutes of being transmitted from the remote collection stations as well as the tools necessary to accurately reduce the data consistent with standards imposed by the United States Geological Survey. During reporting period, Aquarius server/workstation systems were upgraded to version 3.10.905 and Aquarius WebPortal systems were upgraded to version 2017.2.93.
- Agency Enterprise Systems - Hardware, software, backup, and business continuity of Agency specific applications.
- Help Desk & Support – Agency specific applications.
- GIS – ArcServer, ArcGIS, and ArcSDE application support, and spatial data management. Including expanded and updated GIS layers in Agency SDE database. These included sage grouse leks, BLM GCDB, statewide parcel data, groundwater well data, new and historic imagery, and update of the NHD stream layer and platting operations in GIS. During the reporting period, core ArcGIS systems supporting e-Permit were upgraded to version 10.5.1.
- GIS training for Agency staff.

- Microfilm and Imaging group continued scanning the Agency's inventory of over 6,000,000 microfilm images along with millions of paper documents. The group supported other divisions in scanning daily incoming applications and correspondence for uploading into e-Permit. The group continues to make progress of scanning of historic documents including Interloctory Books, Minute Record Books, Ground Water Permit Books, Surface Water Enlargement Books, and Surface Water Small Ditch Books. Over 3.56 million documents are available to the public via e-Permit.

- Planning, coordination and move of Agency staff and records from temporary location at Herschler 1 West to temporary location at Herschler 1 and 3 East.

WATER DIVISION I

Submitted by:
Brian Pugsley, Superintendent
Torrington, Wyoming

INTRODUCTION

This report is a summary of water related activities and trends within Water Division I for the period October 1, 2017, to September 30, 2018, referred as Water Year 2018 (WY2018). Water Division One is comprised of the North Platte, South Platte, Niobrara, and Little Snake River drainages in southeast Wyoming. Water Division I consists of twenty water districts served by a staff of one Division Superintendent, one assistant-Superintendent, one division secretary, eleven hydrographer-commissioners, one field investigator, three acreage inspectors, one well inspector and one tributary inspector.

GENERAL AND CLIMATIC CONDITIONS

WY2018 started off with very dry conditions and was comparable to the beginning of Water Year 2017. Rainfall varied considerably throughout Division I and was generally around average during October through February. In February, precipitation increased with above average conditions in the North Platte drainage. Snowpack levels through the winter averaged from 0% to 137% of the 30-year median in the different drainages throughout Division 1. While April and May are historically the most productive months for precipitation, WY2018 fell somewhat short with all sites recording below average snowfall and approximately average rainfall amounts.

North Platte River reservoirs began the water year with approximately 1.9-million acre feet of carryover from the previous year (Table 1).

TABLE 1. DIVISION I RESERVOIR STORAGE

District 14 Bureau of Reclamation Ownerships		
Reservoir/Ownership	Content on Oct. 1, 2017	Content on Sept. 30, 2018
North Platte Project	576,540 A.F.	449,112 A.F.
Kendrick	1,144,173 A.F.	1,013,268 A.F.
Glendo Unit	152,540 A.F.	138,582 A.F.
District 2 Reservoirs		
Hawk Springs Reservoir	3746 A.F.	3631 A.F.
Goshen Hole Reservoir aka Springer	1,672 A.F.	1,972 A.F.
Goshen Reservoir aka Bump Sullivan	894 A.F.	776 A.F.
Districts 4 ABC Reservoirs		
Lake Hattie	63,500 A.F.	50,500 A.F.
Wheatland Res No. 3	61,600 A.F.	54,800 A.F.
Wheatland Res. No. 2	34,800 A.F.	25,200 A.F.
Grayrocks Reservoir	96,135 A.F.	91,449 A.F.

The February 1st snowpack in all 3 major drainages averaged close to 79% of the 30-year median. It looked to be a below average year and have a low potential for flooding throughout the drainages. Through March and April, snowpack percentages increased to close to 85%. However, by May snowpack levels drastically declined to 71% of the 30-year median and stream flows never quite produced the volume expected (Table 2.).

TABLE 2. DIVISION I PEAK FLOWS FOR WY2018

Station	Date of Peak	Peak Amount (CFS)
North Platte River near Sinclair	May 29	4,196
Medicine Bow River near Hanna	May 31	597
Sweetwater River near Alcova	June 1	341
North Platte River near Orin Junction	June 20	3,926
North Platte River at WY-NE Stateline	September 6	1,750
Crow Creek at 19 th Street	August 25	43
Horse Creek at Go.-Lara. Co. Line	April 16	74
Laramie River Nr. Woods Landing	May 28	1,098
Laramie River Nr. Bosler	May 31	1,058
Little Laramie River Nr. Filmore	May 27	983
Laramie River above Grayrocks	February 20	370
Laramie River near Fort Laramie	April 18	337

NORTH PLATTE RIVER HIGHLIGHTS

Many North Platte River Reservoirs in Division I had average to above average carryover from WY2017.

The Bureau of Reclamation (BOR) runoff forecast from February through May predicted that WY2018 would likely not be an allocation year. The BOR’s forecasts showed 1,615,979 A.F. for February, 1,594,070 A.F. for March, 1,576,109 A.F. for April and 1,441,539 A.F. for May. All were well above the 1,100,000 A.F. allocation year threshold under the North Platte Modified Decree. Therefore, regulation above Guernsey for the Federal Reservoirs was not warranted throughout WY2018.

The following ownerships within the North Platte Project reservoirs filled in WY2018: Guernsey, Glendo Irrigation, Glendo Evaporation, Glendo Power, Pathfinder Irrigation, and Pathfinder’s Wyoming Account. Inland Lakes, Pathfinder Environmental, and Kendrick did not fill.

Guernsey ownership was the first to fill on March 10, followed by Glendo Irrigation on March 28, Pathfinder Irrigation on June 7, Pathfinder Wyoming Account on September 19, and Glendo Evaporation Pool on September 22. No other BOR Reservoir accounts filled in WY2018.

NORTH PLATTE DECREE HIGHLIGHTS

The North Platte Modified Decree (Decree), Exhibit 10, obligates Wyoming to replace 24.4 A.F. per active “Triangle” irrigation well the following water year. For WY2017 Wyoming determined there were 242 active irrigation wells within the “Triangle”. This resulted in 5,905 A.F. having to be replaced during WY2018. Along with the well replacement water, Wyoming is also obligated under Exhibit 11 to monitor surface water diversions from tributaries within the Whalen Dam to Stateline reach of the North Platte River and replace 50% of the out-of-priority diversions the following month. For diversions in September, replacement occurs the following irrigation season as a supplement to natural flow upon first release of storage water from the North Platte Project. Diversion amounts for the year are shown in Table 3 below. Wyoming Water Development Commission has secured replacement water for these obligations on a permanent basis through their long-term contract with the BOR for Wyoming’s portion of Glendo water and available water from the Wyoming Account of the Pathfinder Modification Project. This year, the State of Wyoming was obligated to replace a total of 6,304 A.F. for the WY2017 active triangle wells and WY2018 triangle tributary diversions. The replacement water was released from Guernsey to supplement natural flow from June 18 to July 17, August 8 and, September 7. Wyoming will be obligated to also replace September diversions in Water Year 2019.

TABLE 3. NORTH PLATTE TRIANGLE TRIBUTARY REPLACEMENT WATER

Month	Total Diversions (A.F.)	Natural Flow (A.F.)	Out Of Priority Diversion (A.F.)	Total Replacement (A.F.)
MAY	53.15	53.15	0.00	0.00
JUNE	214.77	188.31	26.46	13.23
JULY	521.51	273.91	247.60	123.80
AUGUST	554.90	172.32	382.58	191.32
SEPTEMBER	155.85	105.77	50.08	25.04
TOTAL	1,500.18	793.46	706.72	353.39

The State of Wyoming is also required to monitor and limit the pump diversions from Alcova Reservoir to Guernsey Reservoir during allocation years. Under Exhibit 5 of the North Platte Modified Decree, cumulative irrigation diversions of 6,600 acre-feet for each two-week period cannot be exceeded during allocation years. Even with WY2018 not being an allocation year, Wyoming continues to monitor these diversions. This data was not reported to the North Platte Decree Committee for compliance purposes. However, Wyoming continues to track these diversions throughout the irrigation season. The State of Wyoming monitored this information on a monthly basis rather than bi-monthly. The maximum amount of water diverted in a one month period was 8,644-A.F. during the month of July.

Wyoming is also tasked with shepherding Environmental Account (EA) water from Glendo Reservoir to the Wyoming-Nebraska State line. At the state line, Nebraska conveys the EA water

to Lake McConaughy. The EA water is to be use for the North Platte Recovery and Implementation Plan. During September, the BOR transferred 19,457 A.F. from the Pathfinder Environmental Account along with 8,100 A.F. from the Pathfinder Wyoming Account to Glendo. This water, less the conveyance losses of 2,910 A.F., was then released from Glendo in September and transferred to Lake McConaughy. The 25,647 A.F. of water transferred to Glendo was then released from Guernsey and 24,451 A.F. arrived at the WY-NE Stateline.

NORTH PLATTE IRRIGATED ACRES AND STORAGE

WY2018 acreage and storage accrual numbers were below the Modified North Platte Decree limitations. Per Exhibit 4, Paragraph III D 1 and Exhibit 12, Paragraph III A. 6 of the North Platte Modified Decree, surface water diversions and stored irrigation water supplies continued to be tracked.

In WY2018, Acreage Inspectors reported 178,890 “intentionally irrigated” acres in the North Platte basin; well below the acreage cap imposed by the Decree of 226,000 acres. This was also true in the Lower Laramie River basin in that there were 26,423 “intentionally irrigated” acres reported (Table 4.), also well below the 39,000 acre Decree limit (Table 4.).

TABLE 4. IRRIGATED ACRES

Stream Reach	Irrigated by Surface Water Diversions of Natural Flow (acres)	Irrigated Solely from Stored Irrigation Water (acres)	Irrigated Solely from Hydrologically Connected Groundwater (acres)	Equivalent Acreage under Transfers: (acres)	Total (acres) Decree Limits
NPR above Pathfinder Dam	132,700	1	1,365	1411	135,477 (169,100 limit)
NPR bet. Pathfinder and Guernsey Excl. Kendrick	33,975	4,974	1,588	2,876	43,413 (56,900 limit)
L. Laramie River basin Excl. W.I.D.	21,597	167	4,659	0	26,423 (39,000 limit)
Totals	188,272	5,142	7,612	4288	205,313 (265,000 limit)

For WY2018, a total of 13,686 A.F. of accrued storage was monitored and recorded by the hydrographer/commissioners and acreage inspectors for reservoirs above Pathfinder. This was well above the 10 year running average of 11,907 acre feet. Reservoir storage carry-over into

WY2019 was 6,745 acre feet, which was also below the 10 year running average of 7,748 acre feet. Storage accruals for each reservoir were calculated by subtracting the WY2017 carry-over amount from the WY2018 highest recorded stage. WY2018 storage accruals were below the 18,000 acre-foot accrual cap set forth in Appendix A II (b) (3) of the Decree.

This year acreage inspectors utilized Dell tablet computers for mapping WY2018 intentionally irrigated acres. A totally paperless system was implemented and allows for real time digitization as fields are being inspected. This year, the final irrigated acre report was completed and compiled by December 2, 2018 which is approximately two and half months ahead of the February 28, 2018 deadline for reporting to the North Platte Decree Committee.

HORSE CREEK

The Horse Creek drainage kicked off with relatively dry and mild weather pattern in the fall of WY2018. But in true fashion by mid December, temperature went from 60 degree highs to 15 degree highs and snow. Flows in most creeks in the Horse Creek drainage were quite similar to the WY2017. The diminished water supply in this drainage can be attributed to a warm mild fall and minimal snowpack throughout the winter months on the Laramie Range and surrounding region. However, flows still managed to recover quite nicely through the winter months, allowing many reservoirs to reach or exceed their capacities. (Table 2)

Most all irrigation reservoirs within the Horse Creek drainage were able to achieve their one time fill. In some instances similar to WY2017, many reservoirs were in surcharge conditions by the first part of May. Hawk Springs Reservoir filled on March 28, 2018, two full months later than the previous year. The rest of the reservoirs within the drainage filled by the first part of May with the exception of Goshen Reservoir (aka Bump Sullivan) which actually should have filled. Excessive amounts of moss growing in the reservoir's supply ditch, poor ditch conditions, low carry-over volume, and supply ditch length limited the reservoir's ability to fill. These factors all attributed to the early shut down of the supply ditch

WY2018 was the second year of the three-year First Amended Order of the State Engineer – Horse Creek basin, which was implemented on May 31, 2017. The majority of the original Order remained in effect with only a few amendments to the total allotment of groundwater withdrawal within the LaGrange aquifer. These changes consisted of an increase in the annual allotment to a total of nine (9) acre-inches (36 acre-inches to 45 acre-inches from WY2017 to water year 2019). Additionally, total maximum acre-inches allowed to be withdrawn in any year increased by five (5) acre-inches (15 acre inches to 20 acre-inches). Lastly, carry-over for appropriators who use less than their total allotment during the three-year Order increased by four (4) acre-inches (6 acre-inches to 10 acre-inches). Similar to last year, flows from Horse Creek steadily declined throughout the irrigation season leaving well owners no choice but to withdraw groundwater. However, groundwater withdrawals were lower this year with the exception of one appropriator who has groundwater as their sole source of irrigation. Cooler summer weather and timely rains greatly contributed to the lower usage amounts. Average groundwater use this year was down in excess of 3 acre inches per acre.

CROW CREEK DRAINAGE

Crow Creek drainage started the year off with average snowpack and soil moisture conditions. Spring seemed to arrive earlier than usual with mild temperatures, average precipitation, and below average snowpack. Thankfully, there were several months with above average rainfall that helped maintain soil moisture. With that, there were higher flows in Crow Creek, allowing all reservoirs on the system to fill and spill. In mid July, the southeastern portion of Laramie County was hit by several severe storms that brought damaging hail and heavy rains. These storms produced so much hail in the Cheyenne area that the ground was white and motorists had a difficult time negotiating roadways.

This was the third full year of the Laramie County Control Area Order (Order). The Order was issued in April of 2015 and required that all irrigation, municipal, industrial, and miscellaneous use wells located within the Laramie County Control Area (LCCA) and completed in the High Plains aquifer, be fitted with properly sized, functional and accurate totalizing flow meters. These meters were to be installed prior to use in water year 2017. The other requirement of the Order was “All unadjudicated appropriations must be adjudicated by November 30, 2017. Wells that are not adjudicated by this date will be tagged, locked, and foreclosed from use until adjudication is completed“. The hydrographer for this area spent much of his time in WY2018 checking these wells for Order compliance. In some cases, he was forced to regulate wells that were not in compliance with the meter requirement.

LARAMIE RIVER DRAINAGE

The Laramie River drainage started off much better compared to last year with above average snowfall throughout the month of October that changed to average conditions until January, after which it sharply declined. The February snowpack came in at an average of 101% of the 30-year median. The initial forecast led appropriators to have hopes for an average water year. Unfortunately, the snowpack averages only maintained the same during March and April. However, in May those numbers dropped to 96%. The early conditions led Wheatland Irrigation District to place a call on the Laramie and Little Laramie River system for Wheatland Reservoir No. 2 and later for Wheatland Reservoir No. 3. Stream flows had drastically decreased by the end of June due to high irrigation demand and low precipitation requiring further regulation for irrigation rights and later, stock water. These calls lasted until late August and into mid October before being lifted (Table 5.).

Several major reservoirs on the Laramie River Drainage filled this season including Wheatland Reservoir No. 2 and Grayrocks Reservoir. Wheatland Reservoir No. 1 and Reservoir No. 3 were able to partially fill while Lake Hattie was out of priority and never received any water this water year. Many irrigators were able to rely on natural flow early in the season but then needed to rely heavily on their reservoir supply during the summer. This would result in WY2018 ending with a reduction of carryover storage in all major reservoirs (Table 1). The highest carryover was Grayrocks Reservoir and Wheatland Reservoir No. 3 which ended the season with 88% and 77% of their storage capacity as carryover, respectively. Wheatland Reservoir No. 2 ended the

season with below average carryover storage while Lake Hattie ended the season with above normal carryover storage for this season.

UPPER NORTH PLATTE RIVER DRAINAGE

The winter of WY2018 for the most part produced below normal precipitation. As of May 1, 2018, snow-water equivalent (SWE) for the Upper North Platte River drainage was at 85% of historical median. The Brush Creek and Sage Creek drainage was one of the lowest snow-pack areas in the region with 4% and 0% of median SWE as of May 1. The Upper North Platte River basin received a cool spring and early summer. Temperatures rose in June and stayed hot throughout early September. Precipitation was scarce from June through September. Despite the below normal available soil moisture, hay yields and irrigated meadow production were near average across the region, however, non-irrigated upland hay and pastures appeared to suffer. The North Platte River in Saratoga peaked on May 28, 2018 at a discharge of 4,110 cubic feet per second.

District 17 appropriators requested aid in administration of direct flow water rights and stored water rights. Five of the six reservoirs in District 17 were used in their entirety along with District 16 having heavily used Turpin Reservoir.

LITTLE SNAKE RIVER DRAINAGE

The Little Snake River drainage started the water year with above average precipitation during the month of October. However, no snowfall was recorded at the Baggs, WY weather station (USC00480484) until December and was well below average. The month of January did record above the 10-year average for snowfall, but no additional snowfall was recorded at this site for the remainder of the water year and the total amount of snowfall was the lowest recorded in the past 10 years. These dry conditions were reflected in the first snow report on February 1 which averaged 72% of the 30-year median. The conditions would only slightly improve the next two months before drastically falling for the final report on May 1 with 62% of the 30-year median recorded. Total precipitation at the Baggs weather station for the year was better than the snowfall amounts with 7.83 inches recorded in 2018 compared to the 10-year average of 7.49 inches.

High Savery Reservoir only filled to about 72 % of its capacity and therefore released 8,678 acre-feet of water downstream for irrigation during the July 20 to September 30, 2018 time period. Water was tight but appropriators and ditch companies did a good job of working together to mitigate conflict, and to keep municipal water available to the town of Baggs, WY.

There were no calls for regulation on the Little Snake River in Wyoming; however, the Colorado Division of Water Resources did receive calls for regulation on the Little Snake River and Yampa River within Colorado. After further reconnaissance by Colorado, it was determined that those calls were “futile” and no action in Wyoming was taken. Work needs to continue to develop the “Interstate Priority Schedule” that is mentioned in Article XI, (b) (2) of the Upper Colorado River Basin Compact, 1948. Also, it is imperative that the State of Wyoming and Colorado come to a mutual agreement on this interstate priority schedule of water rights as to whether Colorado water rights should be regulated and administered by their “decreed date” or

“appropriation date” when compared to Wyoming water rights? These topics along with probably others will be discussed later this winter between the two states.

TABLE 5. DIVISION I CALLS FOR REGULATION

District	Stream	Calling Facility	Date Of Request	Action Taken
4A	Laramie River and Little Laramie River	Wheatland Res. #2	10/02/2018	Approved
4C	Laramie River	Grayrocks Reservoir	04/12/2018	Approved
16	Pass Creek	Bowie # 1 Ditch	04/23/2018	Approved – Denied inadequate measuring device
6	South Fork Jack Creek	Charles and Marion Ditches	05/07/2018	Approved
6	Jack Creek	Forney, North Side & South Side Ditches	05/08/2018	Approved
6	Spring Creek	Crawford Ditch	05/21/2018	Denied – No measuring device
4A	Laramie River and Little Laramie River	Wheatland Res. #3	06/06/2018	Approved
6	South Spring Creek	Monroe Ditch	06/11/2018	Approved
16	Rattlesnake Creek	Rattlesnake # 1 Ditch	06/18/2018	Approved
4A	Laramie River	Dowlin Ditch	06/25/2018	Approved
4A	Laramie River	Oasis Canal	06/25/2018	Approved
4B	Little Laramie River	Scott Ditch	06/28/2018	Approved
4B	Little Laramie River	Harris No. 2 Ditch	06/28/2018	Approved
4B	Little Laramie River	Fillmore Ditch	06/28/2018	Approved
11	Bates Creek	Bates Creek Ditch	06/29/2018	Approved

District	Stream	Calling Facility	Date Of Request	Action Taken
4B	Little Laramie River	Lee Hughes and Greasewood Ditch	08/31/2018	Approved

PERSONNEL

WY2018 has seen one new face in Division I. After 18 years of service with the agency, Support specialist Sharon Hackett retired. Ashley Carter has taken Sharon's place.

ACCOMPLISHMENTS

I prepared for and attended each of the four quarterly Board of Control (Board) meetings during the past year. In 2018, Division I had 31 new surface water petitions and 31 new groundwater petitions docketed with the Board. The Board granted 34 surface water petitions and 35 groundwater petitions within Division I. Staying up to speed on the various petitions, meeting preparation, hearings, field inspections of the proposals, and communication with the agents and engineers takes considerable time.

Division I staff continues to work on completing field proof inspections. This includes not only backlogged stock reservoir proofs but also new proofs that come out of Cheyenne that are either requested by the appropriator or are in the final stages of the permitting process. During this year we have completed and adjudicated 34 surface water rights and 37 groundwater rights. The Board has also recorded 31 stock reservoirs that were inspected and found to be in good standing but the owners requested that they remain unadjudicated.

Proofs for instream flow permits began within Division I four years ago and the staff continues to find these proofs more difficult to complete than first thought. Field staff members were finally able to complete proofs at 7 of the sites within the Snowy Range area and the Board adjudicated those proofs at the August meeting. Field staff has begun reconnaissance on approximately 14 segments of instream flow in the Sierra Madre range, 1 segment in the Sweetwater drainage and 1 segment in the Deer Creek are near Douglas. They will be verifying that the permitted stream flows are available during the specific time frames of the permit. Many of these segments are also located in very remote wilderness areas and in many cases, it takes hours to hike into and make these measurements.

I would like to express my sincere thanks and appreciation to State Engineer Tyrrell and the other members of the Board for all the support and guidance they have given me throughout the year. I would also like to thank all of my staff for all their hard work and dedication that they have put in this year. I look forward to working with and alongside each and every one of them in the coming years.

WATER DIVISION II

Submitted by:
David Schroeder, Superintendent
Sheridan, Wyoming

The following annual report submitted for Water Division II is a summary of the water-related activities and conditions which occurred within the division in the 2018 Water Year (WY2018). Division II is generally located in northeast Wyoming and contains 11 distinct water districts lying in the drainages of the Little Horn River, Tongue River, Powder River, Belle Fourche River, Little Missouri River, and the South Fork of the Cheyenne River. Division II employs seasonal water commissioners in Kaycee and Casper, one full-time hydrographer/commissioner in Sundance, five full-time hydrographer/commissioners and one administrative professional at the division headquarters located in Sheridan.

GENERAL CONDITIONS

WY2018 started off with somewhat normal reservoir capacity carryover in Division II (Tables 1 and 2) with 38% carryover in the Tongue River basin and 37% in the Powder River basin excluding Lake DeSmet (80% including Lake DeSmet). Lake DeSmet is better removed from the carryover analysis as it carries over a large amount of its storage in any given year and is not indicative of general conditions in the basin. These carryovers were approximately 20% lower than the previous water year throughout Powder River basin.

TABLE 1. DIVISION II RESERVOIR STORAGE - POWDER RIVER BASIN

Reservoir Name	Pre-Compact Capacity (AF)	Post-Compact Capacity (AF)	Total Capacity (AF)	Contents on Sept. 30, 2018	Contents on Sept. 30, 2017	Change in Contents
Cloud Peak	3,398	173	3,570	342	3,570	-3,228
Dull Knife	0	4,345	4,345	0	35	-35
Healy	0	5,140	5,140	3,658	4,221	-563
Kearney Lake	1,854	4,470	6,324	1,979	1,822	157
Lake DeSmet	37,515	197,472	234,987	200,873	201,296	-423
Muddy Guard	0	2,336	2,336	1359	1435	-76
Tie Hack	1,647	788	2,435	2,255	2,440	-185
Willow Park	4,457	0	4,457	1278	981	297

Posy No. 1	0	1,537	1,537	349	1,398	-1,049
Basin Wide (Total)	48,871	216,261	265,131	212,093	217,198	-5,105

One significant change in regard to Tables 1-3 from past years is that I removed the column of “usable contents” to simply stating the “total capacity” and the “contents” at the conclusion/commencement of the water year. This was done for several reasons, but mainly because the Yellowstone River Compact Commission recently adopted this reporting protocol, as the term “usable contents” was somewhat confusing. A certain number of reservoirs in the Powder-Tongue basin have well-defined inactive storage (or dead pools) and in-place fish allocations while others do not; oftentimes the differences between usable and permitted contents is not obvious and leads to discrepancies in published figures outside of this report. It is much easier to report (and keep track of) the total contents, and I believe is of no consequence to administration.

TABLE 2. DIVISION II RESERVOIR STORAGE - TONGUE RIVER BASIN

Reservoir Name	Pre-Compact Capacity (AF)	Post-Compact Capacity (AF)	Total Capacity (AF)	Contents on Sept. 30, 2018	Contents on Sept. 30, 2017	Change in Contents
Big Horn	2,749	1,876	4,624	942	0	942
Cross Creek	0	798	798	16	396	-380
Dome	1,843	188	2,031	1302	945	357
Granger	146	0	146	0	0	0
Last Chance	210	0	90	120	50	70
Martin	561	0	561	0	40	-40
Park	7,347	3,015	10,362	3,230	4,534	-1304
Sawmill	0	1,275	1,275	743	722	21
Twin Lakes	1,180	2,231	3,411	2,334	2,811	-477
Weston	370	0	370	0	0	0
Willits	79	0	79	2	4	-2
Basin Wide (Total)	14,485	9,383	23,747	8,689	9,502	-813

In the Belle Fourche River basin, Keyhole Reservoir carried over 67% of its permitted storage going into WY2018 (Table 3). Fortunately, conditions improved in northeast Wyoming and Keyhole made up for the losses experienced in 2016 and 2017, acquiring almost 36,000 acre-feet and carrying over 84% of total storage heading into WY2018 (See Table 3). Aiding in this regard was the fact that the Bureau of Reclamation did not receive nor release any contract orders from Wyoming or South Dakota irrigators.

TABLE 3. DIVISION II RESERVOIR STORAGE - BELLE FOURCHE RIVER BASIN

Reservoir Name	Pre-Compact Capacity (AF)	Post-Compact Capacity (AF)	Total Capacity (AF)	Contents on Sept. 30, 2018	Contents on Sept. 30, 2017	Change in Contents
Keyhole	0	188,671	188,671	158,110	122,129	35,981

Unlike recent winters that exhibited wild swings in snow water equivalent (SWE) and precipitation, 2017-2018 was fairly consistent (Table 4). The snowpack hovered around 100% nearly all winter across all basins in Division II. Of the basins with high-mountain snowpack, the Powder River was higher in comparison to the Tongue River. The Tongue River basin suffered from low water-year accumulated precipitation early on but gained steadily throughout the winter.

TABLE 4. DIVISION II SNOW WATER EQUIVALENTS AND PRECIPITATION
(values listed are % of normal)

River Basin	1-Jan-18		1-Feb-18		1-Mar-18		1-Apr-18		1-May-18		1-Jun-18	
	Snow Water Equivalent	Precipitation										
Powder	114	90	114	91	128	104	123	101	118	94	10	100
Tongue	92	71	91	70	109	82	105	82	104	84	8	95
Belle Fourche	95	87	119	96	108	106	131	111	367*	108	0	94
Cheyenne	98	79	106	86	108	95	108	94	63	93	0	92
Basin Wide Average	100	82	108	86	113	97	117	97	95	95	5	95

*value not included in calculation for basin average

The much lower elevation Belle Fourche and Cheyenne River basins typically melt out by late spring, and this past year was no different. However, the Powder and Tongue River drainages melted out much earlier than normal, as a significant rain event over Memorial Day weekend combined with warmer temperatures brought down all but the highest snowpack. This led to moderate flooding on certain streams, and in particular Big Goose Creek west of the city of Sheridan. Every major river in the Powder-Tongue peaked on Monday, May 28, and some of the peaks were 2-3 times higher than the previous year. The high water conditions were short lived though considering the lack of snowpack remaining, and flows receded abruptly. However, cool

weather persisted throughout June and early July, pushing out regulation of most streams into a normal timeframe of mid-to-late July. Typical hot and dry conditions persisted through late August, when the region was blessed with appreciable rains. Several streams came out of regulation briefly during this period, including Wolf Creek and Clear Creek, but the relief was short lived and regulation ensued in early September and continued through the remainder of the water year.

POWDER RIVER HIGHLIGHTS

Carryover values beginning WY2018 were significantly lower in the Powder River basin than in WY2017. This was primarily due to Cloud Peak Reservoir evacuating its storage late in the summer (typically Willow Park and Cloud Peak Reservoirs are managed as one system, and they only release Cloud Peak when Willow Park is near empty). Otherwise, the overall trend of reduced carryover figures was due in large part to heavier demand on stored resources because of the lower flow volumes experienced throughout the basin as compared to the relatively wet WY2017. While annual volumes were markedly less, peak flows were significantly higher than in WY2017. The Powder River basin as a whole exhibited above average snowpack throughout the winter, but most of the snow was concentrated in the northern and central Bighorn Mountains, whereas the southern Bighorns struggled, and it manifested with reduced runoff in the southern drainages. All together, the flows in the Powder River basins were average to slightly above average (Table 5).

TABLE 5. POWDER RIVER PEAK AND SEASONAL FLOWS

Station	Date of Peak	Peak Amount (CFS)	Total Seasonal Flow (April - September)
Piney Creek at Kearny, Wy	28-May	2,250	48,200 AF=98% of 33 year average
Clear Creek at Buffalo City Park	28-May	1,080	38,200 AF=115% of 32 year average
Clear Creek at Double Crossing, Wy	29-May	3,480	104,000 AF=107% of 45 year average
French Creek near Buffalo, Wy	28-May	145	10,500 AF=115% of 7 year average
Rock Creek near Buffalo, Wy	28-May	1,340	26,836 AF=114% of 34 year average

With the high peaks and strong early runoff, every major storage facility filled easily before senior appropriators began diverting irrigation water. As is typically the case, mountain reservoirs such as Willow Park, Cloud Peak, and Kearney Lake were dumping storage as high water approached, and all filled and spilled in June and early July. Lake DeSmet began filling

out of their diversion on Piney Creek on April 19, and by May 24 had filled all of its appropriations from that source.

Dull Knife Reservoir on the North Fork of the Powder River filled in late May. By early July, they began aggressively moving water out of their facility to accommodate a large scale repair to their spillway, as well as slip-lining of the outlet conduit. This was the second consecutive year of this exercise, as the project was originally slated to occur in summer 2017, but it was delayed when the bids came in too high for allotted project funding. Design of the repair was modified slightly (specifically the roller compacted concrete originally specified for the spillway was altered to mass concrete, which brought the project cost down considerably). The goal of the project engineers and the chosen contractor was to have the reservoir nearly empty by August 1. The North Fork Irrigation District, who owns the storage in Dull Knife, signed a call for regulation on July 19 requesting that their reservoir water be shepherded to their individual head gates and kept out of non-shareholder diversions, which was approved. The regulation under this call lasted until approximately the first week of August when storage was depleted. From this point forward, natural flows of North Fork Powder River were pumped out of the reservoir and conveyed below the dam.

Otherwise, it was a fairly routine year for regulation in the Powder River basin (Table 6). Streams that typically are regulated annually were regulated again this year at the usual times with some exceptions. French Creek, tributary to Rock Creek, was not regulated as their imported water from North Fork Clear Creek was in priority throughout the water year (aided by the fact that as the natural flow recedes so does their ability to divert, which keeps water in the stream for senior appropriators). For the first time in recent memory, Beaver Creek (tributary Middle Fork Powder River) was placed into regulation by a call from a senior appropriator. This was mainly due to poor stream flow conditions caused by the aforementioned struggles of the southern Bighorns in regard to snowpack. This system remained in regulation for the rest of the water year.

TABLE 6. DATES OF REGULATION IN TRIBUTARIES OF THE POWDER RIVER

District	Stream	Requested By	Date of Request	Action Taken
2	Clear Creek	Big Bonanza Ditch	24-Jul	Approved
2	Clear Creek	Clear Creek Land & Ditch Company Ditch	10-Sep	Approved
2	Crazy Woman Creek			No regulation in 2018
3	Rock Creek	Willow Park Reservoir Co.	24-Jul	Approved - delivered reservoir water
3	French Creek			No regulation in 2018

8	North Fork Powder River	North Fork Irrigation District	19-Jul	Approved - delivered reservoir water
8	Beaver Creek	Beaver Creek Ditch	20-Jul	Approved
9	Clear Creek	Pratt & Ferris Ditch #2 and #3	13-Aug	Approved
11	North and South Piney Creek	Prairie Dog Ditch	24-Jul	Approved

Irrigators on lower Clear Creek voluntarily ordered their contract water out of Lake DeSmet beginning July 19; this kept this system out of regulation until mid-August. Similarly, Healy Reservoir near Buffalo began releases to contract holders on July 25, but this was due to regulation on upper Clear Creek initiated by the Big Bonanza Ditch, which carries a large senior appropriation. After the conclusion of summer releases, Healy Reservoir dumped most of its storage down Clear Creek in order to accommodate a repair of its inlet gate, which was successfully completed in October 2018. The manager of Healy Reservoir closed the gate on the diversion dam on Clear Creek on November 7 and began filling, and will continue to do so until all of the storage rights are full.

The big announcement concerning Lake DeSmet was the finalization of the purchase of 67,624.9 acre-feet of storage rights in both Lake DeSmet and Healy Reservoir by the Wyoming Water Development Commission (WWDC). The sale was approved by the Commission on June 15th. This transaction was the result of many negotiations throughout the last few years between Sasol Synfuels, LTD and Wyoming Water Development Office Director Harry LaBonde. To evaluate long-term potential uses of this resource, WWDC recently commissioned a Level 1 study. The contract was recently awarded, and the study will commence as soon as the Wyoming Legislature convenes in Cheyenne this winter and approves the necessary funding.

Crazy Woman Creek irrigators benefitted from the strong runoff, favorable growing conditions, and secondary supply water available in Muddy Guard #1 and #2 reservoirs; consequently, the system was not regulated this year, which has become more common in recent times. Releases commenced out of Muddy Guard Reservoirs on July 19 and continued throughout the rest of WY2018.

The Bull Creek Reservoir project made little progress this past year. The project was first proposed in Governor Matt Mead's 2015 Water Strategy report, and would provide approximately 14,500 acre-feet of irrigation, municipal, and recreation/fish use storage. The large hurdle continues to be deciding on the best method of diverting and conveying water from Clear Creek into Bull Creek, which is problematic given that the estimated \$100+ million project cost, seems prohibitive in these times of reduced state revenues and budgets. However, the needed land swap between the state and a private landowner was approved by the State Board of Land Commissioners, which would allow for the construction of the facility at a more geologically friendly site identified by the consultant.

A new addition to the State Engineer’s stream gaging network was the installation of telemetry to the measuring device for Prairie Dog Ditch in Story. It was installed in fall 2017 and made operational this past year and has already demonstrated tangible benefits in regard to administration and regulation in District 11. Prairie Dog Ditch, with its large appropriation of senior water rights, is the driver of regulation on upper Piney Creek. Because it is an important diversion, no longer does our hydrographer/commissioner have to manually check the weir before heading out to adjust other head gates. As more of these gages come online and are accessible on the SEO’s stream gaging website seoflow.wyo.gov, the hydrographer/commissioner and ditch rider’s jobs get easier, but more importantly our operation is more efficient and the public benefits as well by having better access to the data.

Originally planned to occur in summer 2018, the Lower Clear Creek Irrigation District’s WWDC funded-project to place approximately one mile of the Leiter Ditch into 72” pipe was delayed until 2019. The main driver of this project is the ditch being prone to sloughing and erosion, and severely limiting the volume of water that could be diverted and conveyed safely. Included in the cost are improvements to the head gate structure on Piney Creek and a large-scale cleaning of the rest of the ditch. This diversion not only is the primary supplier of the District’s 11,800 acre-feet of storage rights in Lake DeSmet, but would be vital to fill the upper elevations of Lake DeSmet because of limitations with the gravity fed tunnel that Johnson County uses farther downstream. The ability to fill these upper rights is necessary should a future use develop for the water rights appropriated to the upper elevations of Lake DeSmet.

In general, it was a good year in the Powder River; cooler than normal temperatures persisted into July, which provided a cushion to area growers limiting irrigation until after the first cutting. Mid-July through late August were fairly typical (hot and dry) until several sizable rain events briefly took some streams out of regulation (Clear Creek in particular). The end of the water year in late September was marked by unseasonably cold temperatures and significant snow in the mountains, which gave hope to everyone that WY2019 would be another productive season.

TONGUE RIVER HIGHLIGHTS

In the Tongue River drainage, conditions were similar to the Powder River – high peak flows and average to much above-average runoff volumes (Table 7).

TABLE 7. TONGUE RIVER PEAK AND SEASONAL FLOWS

Station	Date of Peak	Peak Amount (CFS)	Total Seasonal Flow (April - September)
Big Goose Creek above P.K. Ditch	28-May	1,498	54,650 AF=148% of 18 year average
Little Goose Creek in Canyon near Big Horn, Wy	28-May	950	30,040 AF=107% of 33 year average
Wolf Creek near Wolf, Wy	28-May	511	13,938 AF=153% of 33 year average
Priarie Dog Creek	28-May	156	14,400 AF=200% of 38 year average

By the time high water arrived (late May and early June), every storage reservoir located in the Little Goose and Big Goose Creek drainages had filled to capacity. Park Reservoir began releasing storage ahead of the major runoff event of Memorial Day weekend, but its flood storage capacity was overwhelmed with flood flows. Big Goose Creek ended up coming out of its banks in historical spots west of Sheridan, damaging several homes and businesses.

After repairs to the dam were completed in the fall of 2017, Big Horn Reservoir began the winter season essentially empty, but had no trouble filling during the late spring runoff period. However, due to its lack of carryover storage, it was the last high mountain reservoir to spill. Following the approval of the repair, Big Horn’s storage restriction was lifted by the State Engineer, which had been in place since 2015 when dam deficiencies were initially discovered. This was a welcome relief to the shareholders of the reservoir and Colorado Colony Ditch Company, as they suffered from reduced water apportionments during the reservoir storage restriction. Weston Reservoir, while adjudicated for 370 acre-feet, has been under a similar storage restriction dating back to the 1970’s because of issues with the dam and spillway. It did not accumulate any water and remains at essentially zero storage.

Little Goose Creek has traditionally been the first major stream in Division II to go into regulation, as it is highly over-appropriated, and this past year was no different (Table 8). A call was received on July 12, and regulation activities remained through the rest of the summer.

TABLE 8 DATES OF REGULATION IN TRIBUTARIES OF THE TONGUE RIVER

District	Stream	Requested By	Date of Request	Action Taken
4	Little Goose Creek	Colorado Colony Ditch	12-Jul	Approved
4	Big Goose Creek			No regulation in 2018
5	Tongue River			No regulation in 2018
5	Wolf Creek	Hardin & Campbell Ditch	29-Aug	Approved
11	Prairie Dog Creek			No regulation in 2018

Things were a little rosier on Big Goose Creek, and it did not go into regulation chiefly because junior rights on the P.K. Ditch and Alliance Ditch voluntarily ordered stored water to supplement the natural flows in the creek. Return flows from Big Goose and Beaver and other upper-end ditches helped to satisfy senior appropriators downstream.

Prairie Dog Creek was quiet this past year, and consistent with most years was not regulated. Imported water from Piney Creek, both natural flows and stored water from Kearney Lake Reservoir, kept fields wet and appropriators happy. One facet that is unique to this drainage is

the volume of water right petitions docketed with the State Board of Control (BOC). Most often, these petitions seek to change the point of diversion and means of conveyance of water from hard to maintain ditches to new (or existing) pump points in the creek. Another common request is re-describing territorial blanket water rights to better align with the historical irrigation on the ground. As of this writing, 6 of the 18 docketed petitions in Division II emanate from this small drainage, and no doubt there are more to come.

Every year during the winter and early spring season, water managers involved with Tongue River administration eagerly read the latest snowpack and water runoff forecasts to estimate whether Tongue River Reservoir will fill to full capacity. This is very important to both the State of Montana and Wyoming, because the act of the reservoir filling precludes the need for the Montana to place an interstate call for regulation on Wyoming post-1950 uses. With the snowpack and annual precipitation amounts looking robust, Montana officials informed their counterparts in Wyoming at the Yellowstone River Compact Commission's spring technical meeting on April 12 in Billings that Montana would not make a call to fill Tongue River Reservoir. Their foresight was rewarded, as Tongue River Reservoir easily filled on May 20, and would have spilled much earlier if outflows from the dam weren't ramped up prior to that time. Having responded to calls in 2015 and 2016, Wyoming hydrographer/commissioners are well aware of what post-1950 direct flow rights need to be turned off (or usually just prevented from turning on) as well as which reservoirs of significant storage volumes in the Tongue River basin must be surveyed and reported. However, it is a relief when a call does not occur and this flurry of activity is not necessary, and this past year was no exception.

WY2018 ushered in a new era of Yellowstone River Compact administration. The special master appointed to preside over the case by the U.S. Supreme Court (Court) provided the states with a draft final report and a proposed decree of the Tongue River on November 2, 2017, to which the states provided comments to those documents shortly afterwards. The final report was filed on January 10, 2018, to which neither state took exceptions, and it was ultimately adopted as written and issued by the Court shortly afterwards on February 20. Once and for all, the legal proceedings were concluded and the states could get to work implementing the decree. The final report covered many topics, but one main point of significance was the declaration of Montana's pre-compact right in Tongue River Reservoir of 72,500 acre-feet. This was a point long belabored between the states during the lawsuit. Also of significance was the judgment entered in favor of Montana, as they were found to be the prevailing party in regards to costs. The decree offers guidelines on many facets of administration in the basin, and is summarized below:

- Montana cannot make a call to fill Tongue River Reservoir unless substantial evidence exists that it will not fill by the end of the water year.
- Montana must attempt to remedy water shortages to its pre-1950 water rights through intrastate means before it can place a call on Wyoming.
- Montana must lift a call when its pre-1950 water rights are satisfied, or it has substantial evidence that Tongue River Reservoir will fill.
- If Montana makes a valid call, Wyoming must regulate its post-1950 water rights (if physically possible) if they have not been regulated already for the benefit of senior rights in Wyoming.

- Wyoming can release water stored after a call under post-1950 rights when possible upon request.
- The Compact does not guarantee Montana a fixed quantity or flow of water, nor does it limit Wyoming to the net volume of water actually consumed in Wyoming prior to January 1, 1950.
- All pre-1950 water rights in Wyoming can be fully satisfied before Montana is entitled to any water. Essentially, all of Wyoming's pre-1950 water rights are senior to all of Montana's water rights, no matter their priority date.
- Pre-1950 water users in Wyoming can increase their irrigation efficiencies, such as switching to sprinkler irrigation, even if it increases water consumption and interferes with uses in Montana.
- Wyoming users also maintain the ability to change their water rights under Wyoming law.
- Any water stored in Wyoming under post-1950 water rights prior to a call can be used at any time, including when Montana pre-1950 water rights are not being satisfied.
- Wyoming reservoirs can continue to operate consistently with Wyoming's reservoir laws and rules.
- Montana has a right to fill the pre-Compact capacity of Tongue River Reservoir, or 72,500 acre-feet.
- Montana must avoid wasting water in its operation of Tongue River Reservoir and employ good engineering practices.
- The Decree sets reasonable range for winter outflows from the Tongue River Reservoir at 75 to 175 cubic feet per second.
- Each state must share with the other a list of its surface water rights in the Tongue River basin within 30 days (March 19, 2018). Further, each state must share other information as requested and necessary to administer calls under the Compact, primarily designed to avoid future controversies.
- The Yellowstone River Compact Commission is still free to modify or supplement the information sharing provisions of the Decree.

The 2nd to last bullet point is something that led to a lot of tireless work by certain members of my staff. We had the unenviable and almost impossible task of providing this water rights list to Montana in a presentable format in a very short window. Deborah Reed and Jessica Winter took on the heavy lifting for this project, and the fact that we met the deadline is a credit to their abilities, work ethic, and intestinal fortitude!

Following the submittal of the water rights, our duties as ordered by the Court were complete. All that was left to do was inform the public of the developments and how the decree would be implemented. Peter Michael and Chris Brown of the Wyoming Attorney General's Office, State Engineer Patrick Tyrrell, and I gave a public presentation on April 4 in Sheridan. The presentation covered the history of the compact and lawsuit, the parameters of the new decree, and also implementation of the decree. The presentation was well received, and I am glad that we went to the effort to inform the public from the perspective of gentleman that lived and breathed the case from beginning to end.

On the point of compact administration, in 2016 Division II personnel installed five (5) reservoir elevation stream gages on remote, high elevation storage facilities in the Bighorn Mountains that contain significant post-1950 storage rights and are difficult to physically access. The gage at Dome Lake No. 1 Reservoir was damaged by ice in the winter of 2016-2017, but was repaired in the fall of 2017 and has provided reliable data since. Unfortunately, a similar fate fell upon the gage at Cross Creek Reservoir; the pressure transducer was ripped from its housing and staff discovered the sensor floating on the lake this summer. The record will not be published this year, the gage components were removed this fall and will be reinstalled next year to an area on the dam where this is a more accessible and deeper dead pool (area below the elevation of the outlet pipe) where the transducer is less likely to be damaged.

One important event that occurred this last year was the first appeal to the Superintendent of one of my hydrographer/commissioner's regulation activities. I received the appeal on September 9, 2018 from an appropriator on Wolf Creek near the town of Ranchester; he felt he had been regulated off improperly when senior rights holders were not actually using the water. Wolf Creek went into regulation on July 25, and the gentleman that appealed was on one of the more junior ditches that had his ditch turned down, and then later regulated off completely. My investigation revealed that the appointed hydrographer/commissioner acted appropriately, even putting water back into the appellee's ditch when rains improved the stream flow in late August. I wrote a letter to the individual denying his appeal on September 13, 2018 and he chose to accept the decision rather than appeal to the State Engineer.

Back to the Tongue River, and continuing the prevailing theme, natural flows were sufficient to not necessitate any regulation on the Tongue River, or its smaller tributaries Smith Creek and Columbus Creek. The latter tributaries are not large watersheds and therefore stream flow is limited, but the appropriators in the area are used to the usual low flow conditions and in most cases voluntarily cease irrigation for the benefit of senior appropriators.

In other news, the WWDC Goose Creek Watershed Level 1 study was finalized in December of 2017. The report detailed issues pertaining to the Goose Creek drainage and proposed 87 water projects for further consideration. Most likely this will spawn further attention and possible design and construction of chosen projects.

BELLE FOURCHE and CHEYENNE RIVER HIGHLIGHTS

The Belle Fourche River basin was a tale of two distinct seasons. After suffering through prolonged drought conditions in 2016 and 2017, this past winter brought renewed hope (and ample early runoff) that things would turn around. As shown earlier in Table 4, the Bear Lodge Mountains had significant snowpack into early March. Temperatures warmed, the frost came out of the ground, and the Belle Fourche River began an impressive runoff that saw Keyhole Reservoir recapture a sizeable amount of storage that had been lost (through irrigation releases as well as seepage and evaporation) during the dry conditions of the previous years. The USGS-operated stream gage above Keyhole Reservoir near the town of Moorcroft jumped from approximately 10 cfs to over 100 cfs almost overnight once the runoff started in early March. The strong runoff in northeast Wyoming, combined with the cool early summer kept South Dakota and Wyoming irrigators from calling for releases from Keyhole Reservoir entirely in

WY2018. Consequently, the seasonal volume that flowed past the SEO operated gage on the Belle Fourche River near Alva was one of the poorest on record (Table 9), but this information must be taken with a grain of salt; much of the flow at this gage is historically (or at least since the construction of the reservoir in 1952) sourced from irrigation releases from Keyhole, which is located upstream.

While a call for regulation is not uncommon from Wyoming irrigators on the Belle Fourche River, the most common initiation of regulation occurs when the Belle Fourche Irrigation District in South Dakota orders their water out of Keyhole Reservoir via the Bureau of Reclamation (who manages the facility). As stated earlier, there were no irrigation releases from the reservoir this last summer, and absent a call from any Wyoming irrigators there was no regulation in WY2018 on the Belle Fourche River (Table 10).

TABLE 9. BELLE FOURCHE RIVER PEAK AND SEASONAL FLOWS

Station	Date of Peak	Peak Amount (CFS)	Total Seasonal Flow (April - September)
Belle Fourche River near Alva, Wy	26-Jun	912	13,646 AF=40% of 30 year average

TABLE 10. DATES OF REGULATION IN TRIBUTARIES OF THE BELLE FOURCHE RIVER AND CHEYENNE RIVER

District	Stream	Requested By	Date of Request	Action Taken
1	Wagon-Hound Creek	Fiddleback, LLC	5-Jul	Denied - futile call
7	Belle Fourche River			No regulation in 2018

For the first time in recent memory my water commissioner in Casper received a call for regulation on a tributary of the South Fork Cheyenne River. The call originated in northeast Converse County from the owner of a large reservoir, who desired upstream use to be curtailed. Ultimately, the call was denied as a futile call, as Wagon Hound Creek was found to go dry upstream of the reservoir, and any water stored earlier was done so under priority and therefore safe from regulation.

In closing, the Belle Fourche and South Fork Cheyenne River basins experienced the brunt of drought conditions that existed in Wyoming in 2016-2107, but with ample snow and rain throughout the winter and early spring conditions rebounded nicely. I heard reports that dry land grass production was the best in some time, and livestock (and wildlife for that matter) benefitted greatly.

ACCOMPLISHMENTS

Since I became superintendent in April of 2016, one of my goals has been to significantly reduce the sizable proof backlog that has existed in this Division for some time. By working with and making this a chief goal of each of the affected staff, and coordinating with Surface Water and BOC personnel in Cheyenne, we have made tangible progress to date. In WY2018, Division II staff completed 247 stock reservoir endorsements, and finalized 46 SW adjudications. Five permits were recommended for cancellation; oftentimes this is due to a follow-up filing coming in or the facility does not exist. Despite receiving new proofs almost daily (160 in the last year), we were able chip away at the proof backlog and made a net reduction of 298 proofs! Some of these proofs were former coal bed methane reservoirs that have been properly transitioned to the landowner from the lease operator. Most of these closeouts are in the Powder River basin, although some continue to come in from the Belle Fourche and Tongue River basins.

The Safety of Dams (SOD) program involves an inspection every five years of reservoirs that exceed 20 feet in dam height and 15 A.F. in capacity, or are greater than 50 A.F. in capacity. According to the Safety of Dams Office in Cheyenne, there are approximately 1547 active dams falling under SOD jurisdiction statewide. Of those, 748 dams fall into this program in Division II, of which 182 were inspected in WY2018. Division II hydrographer/commissioners continue to focus on getting unadjudicated SOD size reservoirs adjudicated, as unfortunately many of the older facilities are not. Back in 2017, 72 SOD facilities in Division II were reinstated to active permits and proofs generated. A water right is considered expired if it is not adjudicated or granted an extension by the BOC within twenty years from the date of completion. This effort led to a large number of these reservoirs being adjudicated in conjunction with the periodic safety inspections, which will continue for the foreseeable future.

During WY2018, 24 new petitions to the BOC were filed that originated in Division II. Of these, 20 were Surface Water and 4 were Ground Water petitions. Along with carryover petitions from previous years, three Ground Water and 22 Surface Water petitions were finalized by the BOC. In the case of petitions, sometimes it is necessary to hold a public hearing, typically due to the inability to garner all the required consents. There were eight petitions that were referred to hearing, and two of them are currently in contested-case formal proceedings. One petition was protested at the pre-hearing scheduling conference call, but the protest was retracted before a public hearing was scheduled. In the case of the other five hearings, no protestors appeared at the noticed pre-hearing scheduling conference calls and all were later granted at the next scheduled Board meeting.

Division II saw more personnel changes this past year. First, longtime SEO employee Dave Pelloux resigned his assistant superintendent position in February. Shortly afterwards, John Mumm was chosen among a group of well-qualified candidates to replace Mr. Pelloux. John has ascended up the ranks in this agency quickly, from an entry level hydrographer/commissioner to lead hydrographer, to now assistant superintendent. His technical expertise in hydrology and stream gaging software has been a boon to the other employees of not only Division II, but throughout the agency. To backfill his lead hydrographer position, Jessica Winter was in turn promoted. Jessica is a licensed professional engineer, and since her appointment in 2015 has wasted no time in making her mark in the Prairie Dog Creek drainage, as well as any other task she has been given. With John and Jessica's growth, we have a management team that is working in harmony, and serving the public and their needs in a positive, efficient, and friendly manner.

With the void created by Mr. Pelloux' departure, Amelia Rothleutner was hired as the hydrographer/commissioner in Districts 2 and 3, as Mr. Mumm resumes his commissioner duties in District 9, 10, and 11. Amelia was recently granted her masters degree in geology, and brings a fresh perspective and Wyoming raised know-how to the job. By the end of the summer she demonstrated that she has no problem navigating the complex plumbing and characters typical to her area. Lastly, District 4 hydrographer/commissioner Bryan Lozier resigned in May and was replaced by Paul Ratigan, who brings a good education and work experience, as well as a strong work ethic to the position. Paul demonstrated he is capable of taking on more responsibility and I will be more than happy to oblige. I can easily say this is the best team I have worked with in my almost 12 years in this agency.

One of the challenges of being a new superintendent, and therefore constitutionally a member of the BOC, is learning the vast and complex facets of the petition process. Being able to guide a consultant and their client in their project before, during, and after a petition is docketed to the BOC is an important role that I do not take lightly. Giving bad advice can cost appropriators thousands of dollars if their petition runs into a snag because of concerns from the other BOC members, whether it is historical use concerns, injury to other water rights holders, or protests from other users. So much of my time is spent reviewing new proposals or amended petition materials, meeting with consultants and landowners, performing field inspections (which is important to the other BOC members that the project works on the ground as depicted on the map), and preparing for BOC meetings that I sometimes feel there is never enough time to get my other duties accomplished. But in all honesty, I wouldn't have it any other way. The job of superintendent is unique in the State of Wyoming, and we are truly the ambassadors of Wyoming's water laws and their administration. I say that not to "toot my own horn", but to remind myself how important this position is and why my colleagues and I take it so seriously. No matter what criticism we may receive, unfair or not, we continue to do what we think is just and correct.

Division II continues to measure three instream flow permits; two on Clear Creek in District 2 and the other in District 6 on Dry Fork of the Little Horn River. The segment on Dry Fork is very difficult to access, as it involves a five mile hike each way up the Little Horn River canyon. Consequently, in the fall of 2017 Division II personnel installed continuous pressure transducer data loggers to gather stage data during the winter months when access is difficult or impossible. By measuring the chosen site and developing rating curves, the stage data can then be quantified to minimum instream flows as the permit requests. These water rights are very near to being sent in to the BOC for adjudication.

The SEO continues on with our cooperative agreement with the Natural Resources Conservations Service (NRCS) to perform snow survey measurements and maintenance. Not only is the work vitally important to ensure quality data is available to runoff forecasters, but the activity is highly enjoyable for the staff to get out in the field for up to 5 days for each end-of-month snow survey run. SEO staff measures both manual snow courses as well as performs ground truths to the scattered snotel sites to ensure that the data is accurate and consistent with the telemetry that exists.

SUMMARY

WY2018 was in most senses of the word an average year. It began the year with typical reservoir carryovers, and the snowpack throughout much of the winter was normal to slightly above normal throughout all 4 major drainage basins. The real lone exception to the theme was the exceptionally high peak flows which were brought on by a significant late May rain event that stripped most of the snowpack in the Bighorn Mountains. All storage facilities in the Powder and Tongue River basins filled to capacity, and the cool weather that persisted into July kept the moderate flows from injuring appropriators by early regulation. The Belle Fourche River basin, while it did come out of being declared a drought zone, was still affected by less than normal flows, although Keyhole Reservoir made great strides in capturing storage that was lost in previous years. Heavy rains in late August lessened or removed regulation on some systems, and the end of the water year was marked by cold and snowy conditions, which brought to an end the irrigation season and signaled hope that WY2019 would carry forward the productive climactic conditions.

Lastly, I would like to send my warmest wishes to our departing State Engineer Patrick Tyrrell. He has been a terrific boss and a good friend, and I hope he enjoys his retirement. When he concludes his term in April 2019 he will be the longest-serving State Engineer in Wyoming history. Certainly this is something to be proud of, but Pat has navigated this agency through some difficult times and leaves behind a legacy of achievement that will be even harder to match than a longevity record. Whoever is chosen to replace him has large shoes to fill.

On-line reporting of data by the NRCS, United States Geological Survey, NWS and NOAA, and the United States Department of Interior-Bureau of Reclamation was used in this report.

WATER DIVISION III

Submitted by:
Loren Smith
Riverton

This report will summarize Water Year 2018 (WY2018) for the Wind River/Big Horn River system as well as that of the Clark's Fork River drainage in North Central Wyoming. Water Division III is made up of thirteen water districts served by a staff of seven hydrographer-commissioners, one lead hydrographer, one assistant-superintendent and one division secretary.

The beginning of WY2018 found Division III beginning to dry out significantly after a huge runoff year through the spring and early summer of 2017. That season set many new all time high flow records across the Wind and Big Horn River basins but as we got into the last 3 months of the water year, all precipitation pretty well ceased. October 2017 found us seriously dry and things didn't begin to turn around until we got into December. Soil moisture profiles were in the normal range going into the water year and they seemed to hold fairly steady through the winter months. Most reservoirs in the division were trying to evacuate some extra water to regain normal flood control space and to get to their regular winter carryover levels before ice up. All major reservoirs in the division were at or well above their normal carryover volumes which lead to a solid irrigation season in 2018. As the season progressed, each drainage had its unique set of conditions to deal with. This led to our mean stream flows to range between 69% (Gooseberry drainage) of the long term average to nearly 188% of average on the Upper Wind River.

While the on channel reservoirs in the basin were drafting storage to get down to their winter carry over levels, the major off channel reservoirs were trying to fill as much as possible before winter began to set in later in November. Pilot Butte Reservoir was allowed its customary fall fill of Boysen water captured higher in the basin, in coordination with our office, the Bureau of Reclamation and Midvale Irrigation District as this water was needed to replenish their exchange account, which provides minimum flows throughout the winter months below Bull Lake Reservoir as that water is relocated downstream into Boysen Reservoir. Once the spring moisture subsided, the reservoirs were called upon fairly heavily across the entire division to

make up for natural flow shortages. Table 1 provides information as to the depth that reservoirs in the division were relied upon to make up natural flow shortages across the division. The “Change in Contents” column clearly shows that most reservoirs ended the water year much lower than they had started it.

TABLE 1 - DIVISION III RESERVOIR STORAGE TABULATION:

Reservoir Name	Usable Contents (AF)	Usable Contents on Sept 30, 2017 (AF)	Usable Contents on Sept 30, 2018 (AF)	Change in Contents (AF)
(Lake) Adelaide Reservoir	4,764	2,388	1128	1,260
Anchor Reservoir	9,252	491	1174	-683
Bighorn Lake	1,116,00	952,310	1,014,564	-62,254
Boysen Reservoir	757,851	652,966	717,007	-64,041
Buffalo Bill Reservoir	644,580	489,384	528,150	-38,766
Bull Lake	151,951	81,665	120,528	-38,863
Christina Reservoir	3,860	0	3860	-3,860
Corral Reservoir	1,027	512	608	-96
Diamond Creek Dike	18,378	271	314	-43
Enterprise Reservoir	1,698	0	307	-307
Fairview Extension	1,411	1,411	1,290	121
Greybull Valley Reservoir	33,169	1,243	21,010	-19,767
Harrington Reservoir	1,202	400	800	-400
Lake Cameahwait Reservoir	6,683	6,683	6,683	0
Lake Creek Reservoir	1,373	655	655	0
Lower Sunshine Reservoir	58,748	38,767	47,637	-8,870
Newton Reservoir	4,525	1276	1008	268
Perkins and Kinney	1,202	1,045	1,097	-52
Pilot Butte Reservoir	34,600	16,537	17,956	-1,419
Sage Creek Reservoir	2,785	2,785	2,785	0
Shell Reservoir	1,949	53	1017	-964
Shoshone Lake Reservoir	9,741	0	9,740	-9,740
Sunshine Reservoir	52,988	45,000	46,657	-1,657
Teapot Reservoir	1,578	0	0	0
Tensleep Reservoir	3,509	3,789	3,509	280
Wiley Reservoir	1,020	887	920	-33
Worthen Meadow Reservoir	1504	999	1504	-505

April through September stream flow averages as compared to the long term average at State of Wyoming stream gaging points are reflective of a quite varied snowpack and season of varied spring rains across the division. Stream flows averaged between 69% on Gooseberry Creek and 188% of the long term normal on the Wind River below Diversion Dam, with most averaging slightly better than normal.

TABLE 2 - DIVISION III STREAM FLOW PERCENTAGES WY2018

(April through September Flows)			
Stream Source	% of Average	Stream Source	% of Average
Middle Popo River	110%	Nowood River near Manderson	95%
Little Popo River	71%	Nowood River at Tensleep	71%
Big Horn River near Boys School	159%	Tensleep Creek	87%
Wind River at Hywy 26 bridge	188%	Shell Creek near Shell, WY	123%
South Fork Owl Creek Above Anchor Res.	123%	Medicine Lodge Creek	136%
South Fork Owl Creek below Anchor Res.	134%	Paint Rock Creek	103%
North Fork Owl Creek	113%	Gooseberry Creek	69%
Owl Creek at Arapahoe Ranch	129%	Cottonwood Creek	91%
		Greybull River Meeteetsee	135%

Administrative regulation was called for on only 4 drainages during the 2018 season. Pre-runoff regulation was only called for on Gooseberry Creek and this administration continued until the end of the water year. This is expected and fairly typical as the appropriators watch the snow pack religiously and they know when water supplies are going to be tight. Without a significant runoff event, it is generally best to keep regulation in place so the appropriators aren't trying to play catch-up as the stream drops off quickly after peak.

TABLE 3 - DIVISION III CALLS FOR REGULATION WY2018

District	Date of Call	Stream System	Calling Facility	Calling Party	Status
13	4/25/2018	Gooseberry	Blake Denton	Travis Griemsman	Approved
8	7/18/2018	Greybull River	Wood & Burnett	Darrell Bulling	Approved

12	7/22/2018	Medicine	George & Bayne & Anita	Martin Mercer	Approved
6	8/20/2018	Nowood	Shafer	Mike Kimsey	Approved

Spring planting of crops was on time for once this year as the rains were few, and timed so as to not cause much delay. This generally results in good production which is direct result of a good germination period with good temperatures and sufficient moisture. According to the National Agricultural Statistics Service, sugar beet production in this area of Wyoming was forecast at 958,000 tons which is up from the 891,000 tons last year with nearly 700 fewer acres planted in 2018. Barley this year came in with very good tonnage and quality, mostly due good planting conditions and excellent early season growing conditions. This is one of the first years I can remember where rain didn't hamper the harvesting of alfalfa. All reports are that alfalfa production was in about average shape as far as quantity is concerned and the quality is significantly better than recent years due to good conditions for growing and harvest. A new twist this year is that many of those harvesting barley turned up the fans a bit on their combines. This forces some of the smaller heads through and out the chute with the straw. Once they have the grain off the field some would do a very light discing while others went right back on with the water to grow some fall fodder for their cattle. I would estimate that most barley crops were finished in this manner, increasing water use and reducing the field burning which typically happened as the fields were prepped for the winter.

ACCOMPLISHMENTS

The primary duties of this position dictate that a significant amount of time each year be dedicated to Board of Control (Board) activities. This past year was no exception, as we were able to shepherd 30 surface water and 5 ground water petitions through the Board processes. Oftentimes, petitions can take numerous meetings to get finalized while others sail through rather easily. Over the past year, there have been some discussions outside of the agency regarding why the process takes so long. It is often a result of the depth of complexity of the rights involved while other times it is a delay by the petitioners or their agents in getting the statutorily required information to Board of Control Division staff. Regardless, the Board works extremely hard to assist the agents and their clients in understanding the reasons behind the requests for the required information. Water rights are a private property right and they must be concisely and accurately described in the records to prevent conflicts and problems in the administration of those rights. Currently, there are 29 surface water petitions and 4 ground water petitions on the Division III docket with 6 of the surface water petitions currently scheduled for hearings next year.

The staff of Division III continue to press forward with completing field inspections for proof of construction and proof of appropriations. As of this writing we currently have 79 proofs remaining in our files needing inspection and finalization of the proof for adjudication. Included in this number are 12 proofs for instream flow permits and one wild and scenic permit. These inspections can take one to two years to complete as we must field verify the requested flow levels which means we must gage those drainages, to ascertain whether the request flow levels ever exist or not on these often very remote, small streams. We are awaiting the submission of a few documents from the U.S. Forest Service that should be in hand prior to the end of 2018 which will bring the total backlog down to only 43 inspections!

The field staff of Division III continues to stay current with periodic 5 year, dam safety inspections by completing 61 such inspections this year. Three dams in the division currently have fill restrictions in place. The Ewen Reservoir in Big Horn County off of Beaver Creek continues under a fill restriction issued in 2016. Late this year I was successful in brokering what I hope is a long term solution to the problems with this dam. I was able to connect folks who own the dam with others who have the means to complete the repairs and I believe they will be working along with Wyoming Office of State Lands to return this facility to a useable safe condition. In the Nowood drainage, the Wyoming Game and Fish Department worked through the summer to reconstruct the Renner Wildlife Reservoir and its' associated infrastructure. It appears that this work was completed at the close of the water year and refilling has begun. Finally, the Prince Reservoir near Wapati is being significantly impacted by a landslide which is damaging the outlet channel/spillway of this facility. This reservoir remains under restriction but its primary source is a groundwater well that is easily controlled.

A significant amount of time in this position is spent working with and growing staff. Building and growing a well trained, confident staff continues to be a regular goal of mine. With the lack of turnover in this division for the past 6 years my intermediate supervisors and I have continued to expand the training of our staff by involving them in more and more of the finer details of their jobs. We have utilized PMI goals to get the division hydrographers more familiar with the petition work going on in each of their areas, we have had them research and write a manual for stream gaging, reviewing each and every water right and its' associated details in preparation for the upcoming review of a long awaited new tab book for Division III. All of these efforts are designed to build their knowledge base and confidence levels so that they can approach their job in the best way possible. As many of us are getting closer to retirement, it is important that we leave behind a staff that is well suited to move up the chain and succeed at higher level positions. Again this year with no appeals of any hydrographer decisions coming in, I can only conclude that we are really benefitting from these efforts.

The cooperative snow survey program has now been completely run out of the Division III office for the Wind River basin for the last 6 years. The surveys are completed on time and with professionalism now that a consistent and dedicated crew of 4 surveyors are doing all of this work. It is my firm belief that the quality of the surveys continues to improve due to these efforts. The NRCS still provides good snow machines, safety items and other equipment to keep this cooperative program moving forward. It also appears that having a trained instructor in the field for the required CPR and First aid certification is paying dividends by allowing us to efficiently train all snow surveyors in a timely manner, and at a reduced cost to the State. Surveys of the four sites in our circuit which have been impacted by wildfire continue to be a bit of a problem but we now have a few years of data to rely on, under what we must consider as the new normal for these sites. Regardless, the data continues to be representative of the basin as those fires have had a large scale affect on the snow accumulation and runoff.

The NRCS water rights verification forms continued streaming in for projects being proposed for funding through the NRCS programs. This year Division III completed 132 of these verifications down only slightly from 141 last year. The verifications are used to confirm that all lands under a federal cost share project being considered for funding under NRCS programs, are adequately covered with water rights so as to not leave or create conflicting water rights or unpermitted

water use on project lands. These reviews each take a lot of staff time to research and complete, but they do serve well to advise appropriators where the deficiencies are so that they can be remedied prior to funding. It is estimated that 25-30% of the proposed projects require some amount of petition work or additional permitting prior to moving forward with funding. With the NRCS holding up their end of the deal by not funding anything that will create illegal water use, we have been able to help producers get their rights in order so they don't create administrative problems for us and them in the future.

The Big Horn River Long-term Issues Group (LTIG) led by the Bureau of Reclamation in Montana has nearly ground to a halt. The issues though are alive and well. The Big Horn Alliance and many landowners in the Big Horn River basin in Montana has become a powerful player in lobbying the Bureau of Reclamation to change the operations of Yellowtail Dam to their benefit with near total disregard to the interests south of the state line. The Bureau has held firm but has assembled a new smaller technical group to evaluate the operating criteria that is currently in place to determine whether or not the goals and objectives outlined years ago by the LTIG are being met or not. Many meetings have been attended over the past year and much time has been invested by this superintendent in this review process. We are nearing completion of this task and it is anticipated that a final report will be coming early in 2019.

Again this year, numerous meetings have been attended as part of a multi agency group of officials tasked with working toward a new operating plan and criteria for the Willwood diversion dam in Park County. This 100 plus year old structure had stored significant silt over its lifespan and once they had repaired a regulation gate damaged many years ago, it was opened which led to a major unintended flush of silt down the Shoshone River. The focus of this group has shifted a bit over the last year as more time is spent on working toward development of some proper operating criteria, turbidity limits etc., with continued efforts still monitoring the flow levels for turbidity, and assessing the amount of silt still behind the dam.

The State's Performance Management Initiative (PMI) time demands continue to ebb and flow with each season. Extensive time demands are placed upon supervisors three times during each calendar year. Goal planning, mid-term review and annual evaluation stages all take time away from the jobs we were hired to do. Every year it seems that there is a new twist or version or something which changes things for everyone involved. I still hold that a good supervisor doesn't need prodding to grow a quality staff; it should be a basic job duty.

AREA HIGHLIGHTS

With good carryover storage and a moderately good snowpack in the Wind River basin, WY2018 did not qualify as an accounting year by the Bureau of Reclamation in Mills. None the less, our accounting system is run daily every year regardless, and it continues to be such an important tool for myself, my staff and the appropriators throughout the entire year. There continues to be more turnover within the Bureau of Reclamation and it is evident that our accounting was the only system in operation again this past year. The Bureau turnover has led to many long conversations as we work to assist new people in that agency, in learning this extremely complex system and the reasons water is split out the way it is. At the close of this water year, it appears we will get to do this all over again as those who we have been helping

have recently moved on to new positions elsewhere. As bad as it may sound, it may be time for a less than stellar water year to come along where the Bureau must declare an accounting year so everyone is actually pushed to spend the necessary time to learn all of this.

The Shoshone and Clark's Fork drainages had received substantial snowpack to work with during WY2018. Early spring brought the need for early storage evacuation from Buffalo Bill Reservoir to create enough space to handle the runoff, followed by a good irrigation season with ample natural flow, normal storage releases late season and excellent good growing conditions. Landis Webber the lead hydrographer for this area has worked diligently to reduce the proof backlog, keeping pace with new proof inspections being assigned to him while continually working with and growing his staff. The new Heart Mountain Irrigation District enlargement application has now been submitted and the engineers are working through amendments to mapping etc. with our agency at this time. With the wet conditions and high snow pack this year more landslide issues have surfaced, some of which have had water right impacts. Prince Reservoir spillway is being impacted by a landslide in the upper North Fork drainage, the Higgins Pipeline serving a subdivision near Cody was destroyed and I issued a temporary change for a point of diversion so they could get this facility back in place and operating as soon as possible. Meanwhile, a major landslide destroyed a permitted spring development and collection system, while also destroying three cabins/homes and associated facilities in the Crandall.

Shell Creek continues to be a hot spot in Division III. Currently there are two separate unrelated sets of petitions before the Board of Control on the same ditch system. Both of these petitions are intending to move water rights from the Whaley Ditch up to the McDonald/Shell Canal and both sets are being protested by other appropriators on those systems. The hearings for these matters are set for January and March of next year. Otherwise, the Shell drainage as a whole had a rather decent year for water supply and growing conditions. The Leavitt Reservoir rebuild and enlargement project has continued to move slowly forward toward final design, permitting and now the expedited NEPA process. We are working with the Wyoming Water Development Office on some of the finer details of gaging etc. as we transition into the next water year. There continues to be sporadic interest by folks on the Shell Canal to add some additional gaging to their system to assist with internal operations. We have provided instrumentation alternatives to them multiple times and suggestions of where we believe the gages would do the best for them but as of yet they haven't jumped forward with any purchases of equipment.

WY2018 began with a fair snow pack in for the Nowood drainage and its tributary streams. Snow pack had reached as high as 160% of normal prior to melt out. Warm spring temperatures led to a fairly early runoff and when coupled with the good snow pack this created some quick high flows in the area streams. The warm spring temperatures gave way to hot dry summer days which depleted the remaining snow quickly leaving most streams near baseline much earlier than ever expected. This led to administrative regulation on major tributaries like Paint Rock Creek and Medicine Lodge Creek. These same dry conditions fed a nasty fire season with one lightning caused wild land fire on BLM managed lands burning 40,000 acres near Worland. After a couple of years of frustration, it appears that the Medicine Lodge stream restoration project in the State Park is finally about complete. This project washed out and was significantly damaged by the same high flows it was supposed to help mitigate during the spring runoff. Reconstruction looks like it may be more stable so we shall see how it fares next spring.

The Owl Creek drainage did not appear to benefit from much snow accumulation through the 2017-18 winter. Basing our forecast on the Owl Creek Snotel data and anecdotal views of Monument Ridge made for a bad assumption though. The run off that we witnessed down was tempered by cooler early temperatures. This was also evidenced by early demand to release water being held in Anchor Reservoir and as temperatures began to increase, stream flows quickly followed. These events resulted in the need to actually make flood control releases from Anchor Reservoir in May and the fact that it filled to 7179 Acre-feet on June 14. No actual regulation requests were submitted in the Owl Creek or Cottonwood Creek drainages this year. There remains much petition work to be accomplished in the Owl Creek drainage as appropriators have been notified that there exists many improperly recorded points of diversion etc. in that system. These folks were given two years to accomplish the clean up and much effort has been expended on keeping their agent moving forward. As of this writing only one petition has been filed with the Board to make these corrections to the record, leaving the remainder in jeopardy of being denied water under regulation next season if they don't get their petition work completed.

For the second year in a row, the normal request for regulation of the Greybull River and its tributaries didn't come until well after the runoff had begun to subside. Most years, regulation occurs in April but it was July 19th. A good water supply, full reservoirs and a good hot growing season led to very few problems in the entire Greybull valley. This fall, the Greybull Valley Irrigation District drained Greybull Valley Reservoir (aka. Roach Gulch Reservoir) so that thorough inspections of the outlet tubes could be completed prior to beginning their winter fill. Hopefully, this doesn't adversely impact the district next season.

The Popo Agie and Little Wind River drainages endured what is believed to be a near average year. Not as good of a snow pack as the last couple years, but probably, enough. No flooding, no major storm events, nothing earth shattering to really make note of. The snow pack, stream flows, reservoir storage and usage were all about average and that isn't a bad thing. No administrative regulation took place in 2018 on the Popo Agie systems. A storage release from Worthen Meadows Reservoir was tested by the City of Lander over a two week period in August. The City in concert with the irrigators on Middle Fork of the Popo Agie River, worked together to shepherd this release through the system to be used as a dilution flow for the City's water treatment effluent. This release allowed the City to meet their water quality targets below town while providing a portion of the release to the appropriators on the stream. It was great to see the City and all of the appropriators working together to make this happen as these parties and many government agencies continue moving forward with their Healthy Rivers Initiative.

SUMMARY

WY2018 was a nice reprieve from what we have faced over the last couple of years. We had good water but nothing out of the banks or damaging in most of the Division. We continue to work diligently with the appropriators of this division to keep their water right and water use in concert with each other. We make every attempt to be quick to respond to any and all inquiries and requests that come our way. With reduced staff numbers it often times makes for some long days for those of us who are exempt employees. This next year we will be learning operations

under a new administration in Cheyenne and as is usual that could mean change. We are always willing to do whatever it takes to get those who are entitled to the water, their fair share. This job can't be done without the continued support from everyone in the agency. The Cheyenne staff support is essential for the success of the field staff and vice versa. The dedicated staff of this water division continues to do more with less while doing everything necessary to accurately divide and administer the waters of the State of Wyoming. Thank you.

WATER DIVISION IV

Submitted by:
Kevin Payne
Cokeville

INTRODUCTION

This report summarizes Water Year 2018 (WY2018) for the Green, Bear and Snake River drainages located west of the Continental Divide that includes its westerly Red Desert Basin in Wyoming. Detailed accounts of respective local areas can be obtained from the individual summaries published in the Hydrographers' Annual Report. (The Little Snake drainage, although part of the Green [Colorado River] basin, is administered under Water Division I, which includes the easterly Separation/Soldier/Dry Lakes portion of the Great Divide Basin.)

GENERAL CONDITIONS

Snow conditions varied drastically between different areas within the division. A line could be drawn between the Northern portion of the division and the Southern portion of the division. The snowpack in the Northern portion of the division started about average and continued to build throughout the winter months, ending with percentages over 100%. The southern portion of the division was the complete opposite, with very little snowpack and ending the winter season with well below average conditions. Many days I would receive phone calls from users complaining of flooding issues in the Jackson area and the same day have multiple calls from the Lyman area complaining that there was not enough water for stock watering. Most reservoirs ended the 2017 season with higher than average carryover amounts, which greatly benefited the users in the 2018 season. The Uinta Mountains seemed to have the greatest impact in the lack of moisture, with reports of the deepest regulation that has ever occurred in the history of our agency. Hot and windy spring and summer weather added to the stark conditions due to the lack of precipitation.

Twenty (20) requests for regulation were received during WY2018 and were responded to within the two business days required by the strategic plan. This total includes two interstate calls for regulation which required us to shepherd water to the state line. With the continuation of the dry summer months extending into fall, there were a few regulation requests that continued into the 2019 water year.

As expected, crops were above average to average in the northern portion of the Division and well below average in the southern portions. Hay prices were extremely high with good alfalfa hay marketing at over \$200 a ton in some locations. Cattle prices were similar to 2017, with very little increase.

GREEN RIVER BASIN

Snowpack in the Upper Green River basin in January was 120% of normal with the soil moisture at 46% saturation. The end of May snowpack in the Upper Green River was at 132% compared to 417% at the same time the previous year. On the first day of January, the snowpack in the lower Green River basin was 85% and by the first of June had dropped to 7% compared to 183% on the same date the previous year.

Most of the upper Green River water users were able to enjoy a full supply of water. Water users on Wyoming Range tributaries began to request regulation the end of June. South Piney Creek was regulated for a short amount of time with regulation only lasting 13 days. After the call for regulation was dropped on South Piney Creek, regulation was requested on the Fish Creek tributary and continued well into the 2019 water year.

In a sharp contrast to the relatively good conditions experienced by the upper Green River basin users, lower Green River basin users experienced extreme drought conditions. The first call for regulation occurred on May 3 on the Black's Fork by non-project users, which limited storage in Meek's Cabin Reservoir. Flows increased enough by mid-May to allow Meek's Cabin Reservoir to fill for a short time. By early June, flows dropped again enough to require storage deliveries. Some appropriators were concerned that the dry conditions would impact stock water deliveries in the fall and chose to hold some of their storage water to cover that need. To compound the drought conditions occurring on the Black's Fork, the Smith's Fork also experienced record drought conditions. As deep natural flow regulation cuts were being made on the Smith's Fork, supplemental supply water demands being delivered from the Black's Fork to the Smith's Fork continued to increase. This increased demand from Black's Fork brought additional scrutiny to the places of use within the Smith's Fork supplemental supply areas. Several issues were identified and are being addressed. Braided river channels, especially on the Smith's Fork, added to the complexities of regulating low flows. As water levels dropped, rocks were removed from one channel and placed to block the other channel to change the flows from one channel to the other. There are multiple users in each channel, making it difficult to determine which individual is responsible for manipulating the flows.

The Henry's Fork drainage experienced a very dry summer also. Deep regulation cuts were made on the three streams in regulation including Henry's Fork, Burnt Fork and Beaver Creek. Island Lake releases were made on June 6, and as the flows diminished, increases were made from Beaver Meadows Reservoir to keep the flow consistent. Several letters were sent to repair headgates and measuring devices with a deadline of April 15, 2019. We also worked with the State of Utah to send orders to repair and install several measuring devices on the Utah side, regulated by the joint hydrographer.

Once again the Ham's Fork Water Users entered into an agreement with PacifiCorp to be able to utilize 6,000 acre feet of Viva Naughton Reservoir storage to supplement their irrigation needs. In addition to the 6,000 acre feet, another 4,000 acre-feet of storage was offered up for lease. Historically, 6,000 acre-feet has been utilized under a temporary water use agreement and with the additional 4,000 acre-feet being offered up, a new filing was required. Only a small portion of Viva Naughton Reservoir storage was initially permitted for irrigation. A new enlargement permit has been approved that allows all water stored under the original priority date to now be

used for irrigation under the new priority date. The entire 6,000 acre-feet were used along with ~650 acre-feet of the lease pool.

Generally, carryover storage in Green River basin reservoirs suffered with many reservoirs containing significantly less stored supplies compared to the end of water year 2017 (Table 1.).

I was able to attend the ground breaking ceremony for Middle Piney Reservoir that was held on July 18, with Governor Mead speaking at the ceremony. Although Middle Piney Reservoir is not very big, at ~4200 acre-feet, it has a 1919 priority date and is an important pre-compact right that will be good to maintain. This reservoir has been unusable for years due to safety of dam concerns and is located at a high elevation on the Wyoming Range. Located on Forest Service lands, this reservoir was in jeopardy of being removed to address the safety of dam concerns. The Wyoming Water Development Commission will be heavily involved in funding this project as one of Governor Meads “10 in 10” projects.

At my request, in mid July Chris Brown and Steve Wolff presented an update of all the issues that were currently going on in the Colorado River basin. This timely update proved very beneficial to all the staff involved that has dealings with the Colorado River basin within Division IV. State Engineer Pat Tyrrell and Assistant State Engineer Rick Deuell also stopped by to take part in the discussions as they were already in the division from the previous day’s Middle Piney Reservoir ground breaking ceremony. After the July staff update, drought contingency planning meetings also took place in Rock Springs and Pinedale in October to provide the public with much of the same information that was shared with staff, along with the more recent developments.

TABLE 1 – GREEN RIVER BASIN RESERVOIR STORAGE

Reservoir Name	Usable Contents	Content on Sept. 30, 2017 (AF)	Content on Sept. 30, 2018 (AF)
Beaver Meadows	2,461	0	0
Big Sandy	39,700	25,408	12,704
Boulder Lake	22,280	11,808	7,263
Eden No. 1	18,489	8,505	4,622
Fontenelle	345,397	262,502	262,502
Fremont Lake	30,899	26,264	13,286
Hoop Lake	4,026	2,416	2,013
Island Lake	778	0	0
McNich #1	1,089	555	577
McNich #2	490	28	130
Meeks Cabin	33,571	15,107	5,002
Middle Piney	4201	1,134	840
New Fork Lake	20,340	14,035	7,526
67 Reservoir	5,211	1,808	1902
Sphaeralcea	99	99	56
Stateline	14,020	5,888	3,699
Viva Naughton	45,465	36,900	31,528
Willow Lake	18,816	15,053	6209

SNAKE RIVER BASIN

In January, the Snake River above Palisades Reservoir had 115% of normal snowpack and this total continued fairly steady with a snowpack of 103% on June 1. Flows above Jackson Lake peaked by the end of May.

This year we were not able to continue the emergency water commissioner appointment within District 13. This change resulted in training of a new water commissioner with backup authorities to regulate within this district. Many flow measurements were made and gains were found to exist within certain reaches of the Teton Creek drainage. After reviewing the Roxanna Decree, it was determined that a meeting should be held with the State of Idaho to reassess who should be getting credit for the additional gains. Previously, splits were made using only the Teton Creek gage as the reference to split the flows. After meeting with the State of Idaho it was determined that the flows should be split based upon a total divertible flow, by adding all the diversions up to obtain a total and then allocating the flows to each state.

A large landslide named the “Porcupine Landslide” occurred in early February. The slide was located 17 miles up the Greys River Road. We were asked to perform an initial assessment of this slide. Although the slide was only accessible by snow machine due to being located far into the back country, we were able to access this slide and provide an initial overview of our findings. The slide was about ½ mile wide and was backing up approximately 13.5’ of water. An emergency closure of the 17 mile stretch of the Greys River went into effect due to concerns of flooding houses and bridges should a breach of the slide-caused natural dam occur. On March 1, multiple agencies including myself representing the SEO toured the site and explored options to physically alter the slide to lessen the breach concern. It was determined to allow the slide to stabilize and not take actions that could potentially make the situation worse. Later reports lessened the concerns of inundated areas if the breach occurred. During the spring, a temporary road was established through the slide and the slide was then mostly removed late this fall.

On June 18, after a large rain and hail event, a land-slide blocked the Dill Ditch south of Jackson. The ditch blockage caused water to overtop the ditch and flooded multiple houses. Our staff assisted in contacting owners to quickly shut off the ditch and continued to work with agencies and individuals to resolve the issue.

Carryover storage at the end of WY2018 in the Snake River basin was slightly less than experienced at the end of the 2017 water year (Table 2.).

TABLE 2 – SNAKE RIVER BASIN RESERVOIR STORAGE:

Reservoir Name	Usable Contents (A.F.)	Content on Sept. 30, 2017 (AF)	Content on Sept. 30, 2018 (AF)
Grassy Lake	15,204	12,163	11,707
Jackson Lake	838,000	653,640	645,260

BEAR RIVER BASIN

The Bear River basin as a whole started January with an 82% of normal snowpack which continued to drop to 48% by the first of May. The Smith’s Fork skewed this overall number by having a near average snowpack. Flows into Woodruff Narrows Reservoir peaked at less than 1,000 CFS, which was 75% of normal compared to the previous year’s almost 2,500 CFS extended period inflow. Hot and windy conditions combined with a lack of precipitation continued throughout the summer months and late into the fall. As reservoir storage was quickly used up in the Upper Division there was a growing concern that stock water would not be available by fall. Working with the hydrographer, the reservoir companies began to lessen their storage use to be able to carry enough stock water to last until fall.

Regulation was triggered in the Upper Division on June 14 and continued throughout the end of the water year. Deep regulation cuts were made, getting to 1875 priority dates, along with reservoir storage depleted to some of the lowest amounts in the last 10 years. With Bear Lake levels remaining high from the previous year’s high runoff upstream, storage was not restricted and all reservoirs were able to fill and spill. High carryover amounts from the previous year became very important in their ability to fill the vacant space (Table 3.).

The 20-year review of the Bear River Compact continued from last year. Wyoming users submitted multiple written comments mostly in support of no changes to the compact; especially from the Upper Division users. Lincoln County Conservation District submitted written comments with some suggested changes to Article IV, Section 2, regarding how the Central Division is regulated. The first suggested change would have allowed flexibility to not have regulation triggered once Border Gage dropped below 350 CFS. The second change would have disallowed water flowing into the Lower Division while Wyoming users were being restricted. At the April Commission Meeting, the Commission voted to not make any changes to the Compact, but also directed further review of regulation concerns voiced by Wyoming Central Division users.

An application was made by the states of Idaho and Utah to allow additional storage in Bear Lake flood pool elevations. If approved, the application would allow an additional 400,000 acre-feet to be stored when available. The application would also allow the additional 400,000 acre-feet to be used for aesthetic, mitigation, municipal, and irrigation uses. Wyoming will be monitoring and maintaining a seat at the table to make sure there will be no negative impacts to Wyoming if the application is approved.

TABLE 3 – BEAR RIVER BASIN RESERVOIR STORAGE

Reservoir Name	Usable Contents (AF)	Content on Sept. 30, 2017 (AF)	Content on Sept. 30, 2018 (AF)
Ben	303	210	158
Bonneville	43	43	11

Broadbent	893	262	204
Coy	80	3	0
Hatch (Grassy Lake)	350	266	166
Sulphur Creek	19,774	15,306	12,106
Whitney	4,664	1,862	504
Woodruff Narrows	57,300	38,867	19,379

PERSONNEL

Bodean Barney resigned his position as District 16 Hydrographer in December of 2017. Hayes Buxton was appointed to fill the vacancy in February of 2018 with backup authorities in District 13. With the loss of Jim Wilson in District 13, Hayes immediately became the primary in District 13.

SUMMARY

Above average precipitation conditions in the northern portion of the division was conducive to a productive WY2018, while the Southern portion experienced record drought conditions. High reservoir carryover amounts from the previous year's record wet conditions turned out to be the saving grace for the drought impacted areas. Rangeland suffered greatly from the lack of rain in the spring and summer months and stock water became a very key concern, especially later in the water year.

Staffing changes and shortages continues to create an ever changing focus back to our core duties of regulating water. Proof backlogs, gaging station upgrades, water right mapping and other items that we have been accustomed to doing are being delayed to make sure we are providing training to new staff and covering our staff shortages in other areas.

Along with day to day activities as a Superintendent, preparations for the quarterly Board of Control meetings require additional time throughout the year. During WY2018, twelve (12) Division IV surface water petitions were granted by the Board of Control along with three (3) groundwater petitions. One contested case hearing was held in Lyman and the petition ultimately was granted. Four (4) stock reservoirs were endorsed and eighty-eight (88) surface water proofs were adjudicated. There were sixty-nine (69) Ground Water proofs that were adjudicated within Division IV.

The professional manner of Division IV staff is greatly appreciated with all the work that they do, along with the support we receive from Cheyenne to make all the things we do come together. The hard work and guidance provided by the State Engineer and other Board of Control members is key to providing consistent defensible answers to our constituents. I appreciate all of the dedication everyone has provided throughout the year.

LEGAL ACTIVITIES

Christopher M. Brown
Senior Assistant Attorney General

Attorneys within the Water and Natural Resource Division of the Wyoming Attorney General's Office have the pleasure of advising and representing the Wyoming State Engineer's Office and the Wyoming Board of Control on water related issues. As has been the case for the last several years, the State did not see much activity with regard to formal litigation during Water Year 2018 (WY2018). Accordingly, the bulk of legal activities during the year, some of them described below, took the form of day-to-day advice and representation.

MONTANA V. WYOMING, UNITED STATES SUPREME COURT, NO. 137, ORIGINAL

The United States Supreme Court case of *Montana v. Wyoming* concluded during WY2018. The States previously contested the trial to determine liability in WY2014, and the Special Master assigned to hear the case issued his Second Interim Report in WY2015. Also in WY2015, Montana and Wyoming each took one exception to the Special Master's Report to the United States Supreme Court. During WY2016, the Supreme Court did not explicitly rule on the states' exceptions, but instead issued an Order and Judgment adopting the Special Master's liability recommendations. After that ruling, the remedies phase of the case began and each state filed a motion for summary judgment. The Special Master issued his Opinion on Remedies on December 20, 2016. Generally, the Special Master recommended granting both summary judgment motions in part, which resolved the remedies issues without the need for a second trial. Summaries of previous years' activities can be found in previous versions of this annual report.

After hearing and both states providing recommended language, the Special Master filed his Final Report and proposed Judgment and Decree with the Supreme Court on January 10, 2018. Montana and Wyoming agreed not to take exceptions to the Final Report.

Judgement and Decree

The Supreme Court issued its Judgment and Decree on February 20, 2018, addressing Wyoming's nominal Compact violations which occurred in 2004 and 2006.

- For the 2004 and 2006 violations, amounting to 1,356 acre-feet of water, the Court awarded Montana damages in the amount of \$20,340, plus interest.

- The Court found that Montana was a prevailing party for the purposes of costs, but only for the costs it incurred through February 10, 2010, the date the Special Master filed his First Interim Report. For the most part, Montana did not prevail on its claims after that date.
- Montana submitted a bill of costs for \$67,270.87, and Wyoming did not object to those costs.
- The Judgment dismisses with prejudice all of the remaining claims in Montana's Bill of Complaint.

The remaining portions of the Judgment and Decree incorporate the legal rulings made during the course of the litigation, and also include additional Compact rights and obligations. Among other things, the Decree generally provides:

- The Compact protects pre-1950 water rights in Montana from uses made under post-1950 water rights in Wyoming. This provision respects the priority of rights under the doctrine of appropriation as adopted by the Compact, but it does not affect pre-1950 water rights in Wyoming, which make up the vast majority of water rights in Wyoming's Tongue River Basin.
- The Compact does not guarantee Montana a fixed quantity or flow of water, nor does it limit Wyoming to the net volume of water actually consumed in Wyoming prior to January 1, 1950. Montana had repeatedly claimed it was entitled to the same quantity of water it received in 1950. However, Montana is only entitled to the amount of water necessary to satisfy actual beneficial uses under its pre-1950 water rights. Further, Montana is not entitled to water for non-beneficial uses, and its rights are not protected to the extent they are wasteful.
- If Montana's pre-1950 water rights are not being satisfied, it must place a call on Wyoming. It must make a demand for water. Montana had argued throughout the litigation that it had no obligation to place a call.
- Montana must attempt to remedy any water shortages to its pre-1950 water rights through intrastate means before it can place a call on Wyoming. Although Montana had argued that it had no obligation to inform Wyoming about the actions it takes internally, the Decree requires that it do so when Wyoming requests.
- Montana must lift a call when its pre-1950 water rights are satisfied, or it has substantial evidence that Tongue River Reservoir will fill.
- If Montana makes a valid call, Wyoming must regulate its post-1950 water rights if they have not been regulated already for the benefit of senior water rights in Wyoming.

- All pre-1950 water rights in Wyoming can be fully satisfied before Montana is entitled to any water. Essentially, all of Wyoming's pre-1950 water rights are senior to all of Montana's water rights, no matter their priority date.
- Pre-1950 water users in Wyoming can increase their irrigation efficiencies, such as switching to sprinkler irrigation, even if it increases water consumption and interferes with uses in Montana. Wyoming users also maintain the ability to change their water rights under Wyoming law.
- Any water stored in Wyoming under post-1950 water rights prior to Montana making a call can be used at any time, including when Montana pre-1950 water rights are not being satisfied. Wyoming does not have to release that water for the benefit of Montana. Wyoming reservoirs can continue to operate consistently with Wyoming's reservoir laws and rules.
- Montana has a right to fill the pre-Compact capacity of Tongue River Reservoir, or 72,500 acre-feet. Wyoming would recognize a similar right in its own reservoirs.
- Montana must avoid wasting water in its operation of Tongue River Reservoir, and employ good engineering practices. The decree sets reasonable range for winter outflows from the Tongue River Reservoir at 75 to 175 cubic feet per second. Additionally, Montana cannot make a call to fill Tongue River Reservoir unless substantial evidence exists that it will not fill by the end of the water year.
- Each state must share with the other a list of its water rights in the Tongue River Basin. Further, each state must share other information as requested and necessary to administer calls under the Compact, primarily designed to avoid future controversies. The Yellowstone River Compact Commission is still free to modify or supplement the information sharing provisions of the Decree.
- The Decree does not contain an injunction against Wyoming. Montana had repeatedly sought injunctive relief in an effort to deter Wyoming from violating the Compact in the future. Even though injunctions are frequently issued in interstate water cases, the Special Master found that there was no cognizable danger of recurrent violation by Wyoming and recommended that the Court deny Montana's claim for injunctive relief.

Montana and Wyoming exchanged the water right information as required by the Decree within the designated time. Further, the states continue to work cooperatively to implement the terms of the Decree.

INTERSTATE LEGAL ACTIVITIES

The Wyoming Attorney General's Office provided advice and representation to the State Engineer's Office regarding various interstate legal matters during WY2018. Those matters

related to almost all of Wyoming's interstate compacts and decrees, with only a few summarized here.

Colorado River

The Attorney General's Office works closely with the State Engineer's Office Interstate Streams Division regarding Colorado River issues. Due to, in large part, the extended and historic drought within the Colorado River Basin, those issues were many and commanded much attention from the Attorney General's Office during WY2018. However, because they are likely described in the Interstate Streams Division portion of this report, some of those issues are only briefly mentioned here.

1. Drought Contingency Planning. To develop plans in response to the sustained historic drought, both the Upper and the Lower Basins have been actively engaged in drought contingency planning since WY2013. Representatives of the seven Colorado River Basin States and water entitlement holders in the Lower Basin worked diligently throughout WY2018 on a set of draft DCP agreements that would implement Drought Contingency Plans in the Upper and Lower Basins. The agreements include an Upper Colorado River Basin Drought Contingency Plan and a Lower Colorado River Basin Drought Contingency Plan (DCPs).

- The Upper Basin DCP is designed to: a) protect critical elevations at Lake Powell and help assure continued compliance with the 1922 Colorado River Compact, and b) authorize storage of conserved water in the Upper Basin that could help establish the foundation for a Demand Management Program that may be developed in the future.
- The Lower Basin DCP is designed to: a) require Arizona, California and Nevada to contribute additional water to Lake Mead storage at predetermined elevations, and b) create new flexibility to incentivize additional voluntary conservation of water to be stored in Lake Mead.

The Basin States seek to finalize the Upper and Lower Basin DCPs during WY2019 through a set of agreements and federal legislation. The following are the key documents necessary to implement the Upper and Lower Basin DCPs, with the Upper Basin specific documents described in greater detail:

- Companion Agreement
- Upper Basin Drought Response Operations Agreement
- Upper Basin Demand Management Storage Agreement
- Lower Basin DCP Agreement
- Lower Basin Drought Contingency Operations

The draft Upper Basin Drought Response Operations Agreement provides for the parties thereto to collaboratively develop a drought response operations plan for the management of the 1956 Colorado River Storage Project Act (CRSPA) Initial Units. The goal of the agreement is to facilitate a process for the Upper Division States and Secretary to rely on available water supplies from the CRSPA Initial Units as needed to reduce the risk of Lake Powell dropping below elevation 3,525'. It effectively allows protection of the

elevation in Lake Powell to be incorporated into the existing operations of the CRSPA Initial Units, and incorporates provisions for recovery of storage at the CRSPA Initial Units, consistent with existing authorities when Lake Powell elevation 3,525' is no longer at risk. It also includes provisions for consultation with the Lower Division States throughout the development and implementation of a drought response operations plan.

The draft Upper Basin Demand Management Storage Agreement authorizes storage of conserved water in the CRSPA Initial Units, without charge. By securing the storage authorization, the Upper Colorado River Commission (UCRC) can effectively consider the feasibility of a demand management program in which water users in the Upper Basin could actively conserve water that would otherwise be put to beneficial use, for the purpose of helping to assure continued compliance with the Colorado River Compact. The terms of the agreement provide that if the UCRC determines that a Demand Management Program is feasible in the Upper Basin (as agreed to by each of the Upper Division States), then it may develop and agree to a demand management program in conjunction with the Secretary, and in consultation with the Lower Basin, in which water that has been previously put to beneficial consumptive use may be conserved and conveyed to a CRSPA Initial Unit (Powell, Aspinall, Navajo, Flaming Gorge). Any water stored prior to 2026, upon verification of the conservation and conveyance, will not be subject to release from Lake Powell through 2057 under operational rules except as necessary for compact compliance purposes, and upon the request of the UCRC. After 2026, any demand management storage program would be informed by and considered as part of the renegotiation of the 2007 Interim Guidelines (set to begin in 2020).

2. System Conservation Pilot Program. In 2014, a consortium of mostly municipal interests and the Bureau of Reclamation funded a demand management pilot, the “System Conservation Pilot Program.” The program in the Upper Basin is currently administered by the UCRC, and will inform the demand management element of the Upper Basin’s drought contingency plan. In WY2018, eight projects were awarded in Wyoming, two in Colorado, six in Utah, and three in New Mexico. This Office closely reviewed and monitored the Wyoming projects and their individual contracts, as well as provided advice regarding the contract between the program funders and the UCRC. On June 20, 2018, the UCRC adopted a Resolution ending its role as the program administrator in the Upper Basin once all of the 2018 project are complete.

Bear River

In response to a joint filing by Utah and Idaho for new storage rights in Bear Lake, Utah, Idaho, Wyoming, and Rocky Mountain Power engaged in discussions about the water supply, power operations, and future needs throughout the Bear River Basin, including Bear Lake. In addition, all of these parties have reached out to their associated stakeholders in order to reflect the important and diverse interests within the basin. This discussion included addressing a comment received as part of the 20-year Bear River Compact review process, in which Wyoming appropriators voiced concerns over the detrimental impact of regulation in the Central Division while large amounts of water flow through to the Lower Division. This Office provided

representation regarding the Compact review process and the related storage right filing in Bear Lake.

Bighorn Lake

As part of its ongoing efforts to improve management of Bighorn Lake and Yellowtail Dam, the Bureau of Reclamation is reviewing whether changes to the current dam management rules and procedures should be made. In coordination with Wyoming stakeholders, this Office and the State Engineer's Office actively participated in Reclamation's review process to address the potential impacts on Bighorn Lake from proposed changes to the current management practices. To this end, the State Engineer's Office submitted comments in response to a draft report circulated by Reclamation.

OTHER MATTERS

During WY 2018, this Office continued to participate in federal litigation involving EPA's water transfers rule. These cases challenge whether water transfers require a National Pollutant Discharge Elimination System (NPDES) permit under the federal Clean Water Act. Generally, under the current rule a permit is not required for water transfers such as trans-basin diversions when the water is not subjected to intervening use through the transfer. Wyoming, along with several western states, has supported the EPA's current rule which exempts such transfers from NPDES permitting. The Second Circuit Court of Appeals reversed a previous trial court ruling and upheld the rule. Some members of the three plaintiffs and plaintiff-intervenors/appellees' groups filed petitions for certiorari with the U. S. Supreme Court on September 15, 2017. The Supreme Court denied those petitions on February 26, 2018. Accordingly, the EPA's water transfers rule, which Wyoming supported, remains in effect.

BOARD OF PROFESSIONAL ENGINEERS AND PROFESSIONAL LAND SURVEYORS

Submitted by:
Shannon Stanfill
Executive Director

INTRODUCTION

The primary responsibility of the Board of Professional Engineers and Professional Land Surveyors (Board) is self-regulation of the engineering and land surveying professions. The Board's mission is to safeguard life, health and property of the public by assuring that those who practice the profession of engineering and land surveying are licensed and attain and maintain competence in those professions. The Board makes the final licensure decision for all professional engineers, professional land surveyors, and engineers and land surveyors in training, and businesses that offer professional engineering and/or land surveying services. The Board develops and administers state specific land surveying exams, ethics exams and contracts with the National Council for Examiners of Engineering and Surveying (NCEES) to administer national exams for both engineers and land surveyors. The Board, staff and assigned representatives from the Attorney General's office work closely with Board members to ensure complaints are properly investigated and vetted. In addition, the Board directs continuing education audits and engages in statewide outreach. The Board is active with NCEES at the regional and national level with several board members holding committee or elected roles. This involvement ensures Wyoming's input during critical conversations and development of model language to facilitate reciprocity across state lines for these professions. The information provided is for the period from October 1, 2017, through September 30, 2018 (WY2018).

ACCOMPLISHMENTS

The Board's outreach efforts continue to be a valuable opportunity to connect Board and staff with various stakeholders. Board representatives presented at eight different meetings or conferences during the year reaching both licensees and entities that use professionals.

Outreach to youth continued to grow. Engineers Week, held in February, matched 130 professional engineers with over 3,333 3rd grade students across Wyoming. The presentations included a hands-on engineering design project. This event was made possible through a partnership with the University Of Wyoming College Of Engineering and Applied Sciences (UWCEAS) and the Wyoming Engineering Society (WES). A similar outreach effort in its second year for Surveyors Week was held in March. The 2018 effort matched 27 professional

surveyors with 23 middle school classrooms across Wyoming reaching approximately 1,419 students. This collaborative effort was made possible with help from the Professional Land Surveyors of Wyoming (PLSW), UWCEAS and WES.

The 2018 Legislative session brought a slight change to the Board Practice Act and how an applicant's background is considered within the licensure process. This required a change to Rule. Proposed rule revisions were open for public comment from August 24 through October 15, 2018.

The Board launched a new online renewal system in October 2018 regulating in 87% of renewers using the system with minimal issues. The renewal system is a component of a larger licensing system which will include online applications and exam administration.

The Board continues to provide exceptional leadership at the national level. Four of the nine Board members provided their service in areas such as fiscal guidance, assessing model law and rules, determining how to adapt to changing practices and technology, and developing national examinations. Several members serve as officers, committee chairs or committee members of the NCEES. The purpose of the NCEES is to provide an organization through which state Boards may act and counsel together to better discharge their responsibilities of regulating the practice of engineering and land surveying as it relates to the welfare of the public in safeguarding life, health and property.

ENFORCEMENT ACTIVITY

The Board and staff work closely with the Attorney General's office to work through complaints and ensure due process for licensees. During WY2018, the Board worked on 21 different dockets. Of those dockets, 14 were resolved and 7 are ongoing.

Every complaint concerning the practice of the licensees is investigated by the Board. All docketed cases are assigned to an investigative Board member who oversees and works with the prosecuting attorney on the investigation and presents recommendations to the entire Board for decision. When required a formal hearing is conducted. The Board has assistance from two investigators and hires subject matter experts on an as-needed basis. This has streamlined the process and resolution on most cases is accomplished without a formal hearing.

Where the Board is made aware of situations where individuals or business may have engaged in unlicensed practice, the Board issues an inquiry letter to help determine if unlicensed practice has occurred. The Board issued 37 letters during WY2018. Responses resolved 33 of those situations with 4 outstanding.

The Board continues to use the National Council of Examiners for Engineering and Surveying's (NCEES) national database for retrieving information on disciplinary matters, as well as providing information on Wyoming licensees who are disciplined.

PROBLEMS AND RECOMMENDATIONS

Administering the land surveying State Specific Exam has been difficult for several years in part due to the age of the exam and quality of questions and graphics. In April, a contractor led a group of Wyoming professionals met to review the exam framework and assess the question bank. The group then resorted and developed new questions. The reworked exam framework and questions were planned for implementation in WY2018, however other system priorities moved exam implementation to WY2019.

A high profile regulatory case in North Carolina has spurred conversation across the continent about the role and oversight of regulatory boards. This climate makes dialogue even more important especially as focused on this Board’s mission and efforts to support that mission through reasonable regulation.

LICENSING ACTIVITY

The Board makes the final licensure decision for all professional engineers, professional land surveyors, and engineers and land surveyors in training, and businesses that offer professional engineers and/or land surveying services. Applications are vetted through Application Review Committees (ARC) and in specific instances application review has been delegated to the Executive Director. All recommendations are ratified by the full Board. See Table 1 for a listing of license counts as of the end of WY2018.

TABLE 1. PE/LS LICENSES

Summary of Licenses as of October 10, 2018 *				
		Resident	Non-Resident	Total
Professional Engineer	Individual	1146	5787	6933
	Corporation	109	927	1036
	Total	1255	6714	7969
Professional Land Surveyor	Individual	118	165	283
	Corporation	17	24	41
	Total	135	189	324
Professional Engineer & Land Surveyor	Individual	39	23	62
	Corporation	42	43	85
	Total	81	66	147

Engineer-In-Training	949	661	1610
Land Surveyor-In-Training	47	8	55
Total	2467	7638	10,105

* Data transition to new licensing software identified discrepancies from previous system. The above figures are based on data available as of 10/10/2018 from the new system.

STATE BOARD OF EXAMINING WATER WELL DRILLING CONTRACTORS AND WATER WELL PUMP INSTALLATION CONTRACTORS

Submitted by:
 Brian Fawcett, Executive Director
 Cheyenne, Wyoming

REPORT PERIOD

This report covers the period of October 1, 2017 through September 30, 2018, also known as Water Year 2018 (WY2018).

BASIC FACTS

The State Board of Examining Water Well Drilling Contractors and Water Well Pump Installation Contractors (Board) was created by legislation in the 2003 session. The Board consists of seven members and has been a functioning entity since June 2003.

MISSION

Since the 2008 Legislature passed HB0055, *Water Well Drilling And Pump Installation Licensure*, which requires mandatory licensing of water well drilling contractors and water well pump installation contractors, the Board's role is now one of administering a mandatory licensing program. The purpose of the licensing program is to protect the public from incompetent or unethical water well drilling and water well pump installation contractors, as well as to promote excellence in the practice of their area of expertise. The Board is authorized to suspend or revoke the license of water well contractors that fail to meet established standards of the profession. Additionally, licensing protects the groundwater resources of the state, and promotes excellence in water well drilling and pump installation practices.

APPLICABLE STATUTES

The statutes governing the mandatory licensing program can be found in Title 33 – Professions and Occupations, Chapter 42 – Water Well Drilling Contractors and Water Well Pump Installation Contractors, W.S. §§ 33-42-101 through 117.

GOALS AND KEY INITIATIVES

The Board established the following goals and key initiatives to guide the direction of Board activities:

Goal # 1: Update and amend the Board's Policy & Procedure Manual.

- Finalized updates and amended three chapters of the Board's rules, approved through the Secretary of State's office.
- Continue to utilize the joint Board/Wyoming Ground Water Association (WGWA) panel to address future policy and rule changes.

Goal # 2: Increase Budget and Board Revenue.

- Continue to enforce license laws and increase the number of licensed contractors.
- Send out license renewals and work closely with licensed contractors to support license renewal.

Goal # 3: Regulate compliance with State Statutes, Rules and Regulations and State Minimum Construction Standards.

- Continue to educate licensed contractors on compliance with minimum construction standards.
- Meet with and establish a good working rapport with licensed contractors while attending continuing education classes.
- Meet with County and Municipal Officials throughout the state to increase awareness of current rules and regulations, statutes, and minimum construction standards.
- Help to educate the public about required rules and standards.
- Conduct a minimum of forty well site visits/inspections to verify compliance with construction standards and build positive relationships with the well drilling and pump installation industry.

Goal # 4: Establish Public Support.

- Continue to perform well and pump site visits for the public.
- Review public complaints for license violations.
- Investigate public complaints.
- Work closely with Board Members and the Board's Attorney General on docketed public complaints.
- Provide education to the public on the importance of licensure for water well contractors.

Goal # 5: Create and Submit Annual Report.

- Review, evaluate, and update previous year's goals and initiatives, and create new ones for coming year.
- List accomplishments.

- List on-going and new goals.

LICENSING

As of September 30, 2018, a total of 279 license holders comprise:

- 94 Well Drilling Contractors.
- 90 Pump Installation Contractors.
- 95 with a combined Well Drilling and Pump Installation Contractors license.

ACCOMPLISHMENTS

- Issued 21 new licenses.
- Renewed 72 licenses out of a possible 98 that were up for renewal.
- Drafted and submitted an Annual Report for WY2017.
- Performed approximately 64 public well site visits.
- Amended three chapters of the Boards rules amended and approved through the Secretary of State’s office.
- Amended the contract for one contract employee.
- Sent sixteen advisory letters to Contractors for non-compliance with the state minimum construction standards
- Worked closely with the Board of Control to require water well contractors to submit a completed Form U.W. 6, Statement of Completion and description of well or spring, to the State Engineer’s Office.

BUDGET

Compliant with (W.S. § 9-1-904(b)), a portion of the groundwater application fees collected by the State Engineer is deposited into an account created under W.S. § 33-42-116 to support the costs of operating the Board. Additional revenues for Board operations include new license fees, license renewal fees, and miscellaneous fees. In **Fiscal Year 2018 (FY18)**, revenues from all sources totaled **\$114,050.00** (Table 1).

TABLE 1. FEES COLLECTED IN FY18

Type Fee	Amount (\$)
Groundwater Permits / Applications	\$84,800
License Renewals	\$29,250
Total	\$114,050.00

In WY2017, the Board presented Senate File No. SF0160 to the legislature. This bill would have imposed fines or probation on licensees as specified; provided for a hearing before a disciplinary action by the board; provided for the recovery of costs, expenses and attorney’s fees by the Board; and provided for an effective date. The bill died in committee. On April 26, 2017, the Board formed a penalty committee to work together with the WGWA on structuring penalties and possibly developing new legislation, to promote compliance with Wyoming Statutes, State Engineer’s Office and Board’s Rules and Regulations. That committee again met during WY2018 to further discuss disciplinary action change to the Board’s rules and regulations. The

work done by this committee will be made available for the WGWA at their annual members' conference for comment and feedback early in WY2019.

BOARD MEETINGS

In WY2018, the Board met four times as a quorum (Table 2).

TABLE 2. Board Meeting Dates And Locations

Date of Meeting	Location
January 24, 2018	Cheyenne, Wyoming
April 1, 2018	Cheyenne, Wyoming
May 24, 2018	Via Conference Call
September 6, 2018	Cheyenne, Wyoming

NEW STAFF

The Board's Executive Director, Sheri Culver resigned from state service on June 30, 2018. On May 25, 2018, Mr. Brian Fawcett was hired as the new Executive Director.

PERSONNEL LISTS

STATE ENGINEER'S OFFICE (As of September 30, 2017)

ADMINISTRATION DIVISION

NAME	TITLE
Tyrrell, Patrick T.	State Engineer
Deuell, Rick	Assistant State Engineer
Bales, Nancy	Human Resource Associate II
Reinhardt, Rachael.....	Human Resource Supervisor
Hoskins, Cricket.....	Senior Accounting Analyst
Jenkins, Susan	Senior Office Support Specialist
Wertz, Tina	Accountant
Lindsay Morse	Accounting Assistant

SURFACE WATER DIVISION

NAME	TITLE
Arrington, Lee	Natural Resources Program Manager
Feltner, Jason	Natural Resources Program Supervisor
Graves, Nathan.....	Principal Engineer
Hand, Mike	Principal Engineer
Lamblin, Cindy	Office Support Specialist II
Lorentz, Sandra.....	Office Support Specialist II
Marston, Bryce.....	Natural Resources Analyst
Messer, Shelley.....	Natural Resources Analyst
Smith, Jay.....	Natural Resources Analyst
Wright, Cheryl	Natural Resources Analyst
Trembath, Jessica.....	Senior Office Support Specialist
Wollenzien, Ben.....	Natural Resources Analyst

SUPPORT SERVICES DIVISION

NAME	TITLE
Zimmerman, Martin	Computer Technology Program Manager II
Bourne, Andrea.....	Records & Data Management Clerk
Carpenter, Elva.....	Records & Data Management Clerk
Coy,Carolynn.....	Records & Data Management Specialist II
Merrill, Kimberly.....	Records & Data Management Clerk
Vossler, Steve.....	Natural Resources Specialist
Wallace, Tony.....	Computer Technology Business Applications Analyst
Wickham, Brent.....	Computer Technology Supervisor

GROUND WATER DIVISION

NAME	TITLE
Lindemann, Lisa	Administrator
Harju, John	Assistant Administrator
Blain, Liberty.....	Natural Resources Program Principal
Calhoun, Kelley.....	Office Support Specialist II
Castle, Dani	Office Support Specialist II
Kinsley, Sue.....	Office Support Specialist I
Koldeway, Josh.....	Natural Resources Analyst
Lett, Sunny.....	Natural Resources Analyst
Linn, Cyndee.....	Office Support Specialist II
Malessa, Markus.....	Natural Resources Analyst
Manley, Jeremy.....	Natural Resources Program Principal
Miller, Linda	Office Support Specialist II
Moser, George.....	Senior Project Geologist
Neely, James	Natural Resources Analyst
Quist, Adam.....	Natural Resources Analyst
Tebben, Beth.....	Natural Resources Analyst
Wertz, Marla.....	Natural Resources Specialist

BOARD OF CONTROL DIVISION

NAME	TITLE
Timm, Cheryl	Natural Resources Program Manager
Rockweiler, Jedadiah.....	Natural Resources Program Supervisor
Duncan, Bonnie.....	Office Support Specialist I
Hallberg, Debra.....	Natural Resources Analyst
Hardy, Cullen.....	Natural Resources Analyst
Hull, Laretta.....	Office Support Specialist II
McCann, Nancy.....	Natural Resources Program Principal
Moore, Taylar.....	Office Support Specialist I
Mumper, Karen.....	Natural Resources Analyst
Nichols, Trista.....	Office Support Specialist II
Pierce, Dixie.....	Natural Resources Specialist
Pino, Roxanne.....	Senior Office Support Specialist
Quick, Kevin.....	Natural Resources Analyst
Tully, Karyl.....	Natural Resources Program Principal
Pugsley, Brian	Superintendent
Water Division No. I.....	Torrington
Schroeder, David	Superintendent
Water Division No. II.....	Sheridan
Smith, Loren	Superintendent
Water Division No. III.....	Riverton
Payne, Kevin	Superintendent
Water Division No. IV.....	Cokeville
Tyrrell, Patrick	State Engineer
State Engineer.....	Cheyenne

INTERSTATE STREAMS DIVISION

NAME	TITLE
Wolff, Steve	Administrator
Callaway, Beth	River Basin Coordinator
Cowley, Jeff	River Basin Coordinator
Ferrantelli, Charlie	River Basin Coordinator

WATER ADMINISTRATION PERSONNEL

(As of September 30, 2018)

Key to Title Abbreviations:

AI	=	Acreage Inspector
WI	=	Well Inspector
PI	=	Pump Inspector
LHC	=	Lead Hydrographer
HC	=	Hydrographer-Commissioner
TI	=	Tributary Inspector

WATER DIVISION I

PERSONNEL AT LARGE

NAME	TITLE
Brian Pugsley	Superintendent
Trevor Hiegel	Asst. Superintendent and At Large
Rob Foreman.....	Natural Resources Program Principal
Ashley Carter	Office Support Specialist II

WATER ADMINISTRATION PERSONNEL

NAME	TITLE
Adam Skadsen	HC Districts 1, assist 4A, 4B and 4C
Cory Rinehart.....	HC District 2
Ryan Barker	HC Districts 3, 4C
Steven “Josh” DeBerard	HC District 4A
Justin Stern.....	HC Districts 6, 7, 8, 16, 17, 18
Susan Kersey.....	HC District 4B
Robin Blake	HC Districts 6, 7, 8, 18
Rod Oliver.....	LHC Districts 9, 13
Forrest Kiezer.....	HC Districts 10, 11, 12, assist 14
Kent Becker	HC District 14
Tracy Brown	TI North
J. Scott Haskamp.....	AI North Platte River
Chad Pickett.....	AI North Platte River
Kelly Mehling.....	WI, North Platte River
Wray Lovitt.....	PI North Platte River; HC Districts 14, 15-5, 19, 20

WATER DIVISION II

PERSONNEL AT LARGE

NAME	TITLE
David Schroeder.....	Superintendent
Deborah Reed.....	Office Support Specialist II

WATER ADMINISTRATION PERSONNEL

NAME	TITLE
Amelia Rothleutner.....	HC Districts 2, 3
Kody Steinbrecher	HC Districts 7, 10, assist 1
Robert Furnival	HC District 8
Pat Boyd.....	HC Districts 5, 6, assist 4
Karla Gallegos	HC Districts 1, 8
John Mumm	Asst. Superintendent Districts 9, 10, 11, assist 1, 2, 3, 8
Paul Ratigan	HC District 4, assist 5
Jessica Winter	LHC Districts 9, 11, assist 4, 5, 7

WATER DIVISION III

PERSONNEL AT LARGE

NAME	TITLE
Loren Smith	Superintendent
David Deutz	Asst. Superintendent and At Large
Janet Wempen.....	Office Support Specialist II

WATER ADMINISTRATION PERSONNEL

NAME	TITLE
Ryan Mikesell	HC Districts 1, 11
Josh Fredrickson	HC Districts 1, 3
Timotheè Hawkins.....	HC Districts 5, 14
Philip Beamer.....	HC Districts 6, 12
Heber Jensen	HC District 8
Landis Webber	LHC Districts 9, 10, 15, and At Large
Mike Riley	HC Districts 13, 16
Dan Laursen	HC Districts 7, 15

WATER DIVISION IV

PERSONNEL AT LARGE

NAME	TITLE
Kevin Payne	Superintendent
John Yarbrough.....	Asst. Superintendent, Districts 1, 3, 9, 14, 15 and At Large
Carol Reed	Office Support Specialist I

WATER ADMINISTRATION PERSONNEL

NAME	TITLE
Mike Johnson	LHC Districts 2, 4, 8, 12, 13, 16
Ethan Overton	HC Districts 2, assist 4, 8, 12
Michael Livingston	HC District 3
Travis McInnis	HC District 4
Ed Boe.....	LHC Districts 5, 6, 7, 10, 11, 13, 16
Courtney Skinner	HC Districts 6, 10, 11, assist 7
Jeff Davis	HC Districts 7, 10, assist 11
John Hunsaker.....	HC Districts 8, 12
Reed Thomas	HC District 14
Tim Redmon	HC District 15, assist 3, 14
Hayes Buxton.....	HC District 16, assist 13

**STATE BOARD OF PROFESSIONAL ENGINEERS AND PROFESSIONAL
LAND SURVEYORS**

BOARD MEMBERS

NAME	POSITION	E-MAIL	TERM EXPIRES
Thomas V. Anderson thomas.anderson@wyoboards.gov	President	1781 Moonstone Lane Casper, WY 82604 307-377-5561	3/31/2021
Skylar V. Wilson, LS skylark.wilson@wyoboards.gov	Vice-President	P.O. Box 938 Pinedale, WY 82941 307-367-6417	3/31/2019
Shelley R. Macy, PE shelley.macy@wyoboards.gov	Secretary- Treasurer	217 W. 18 th Street Cheyenne, WY 82001 307-631-4049	3/31/2019
Steven Barrett, PhD PE Steven.barrett@wyoboards.gov	Member	College of Engineering Department 3295 1000 E University Ave. Laramie, WY 82071 307-766-6181	3/31/2020
Paul A. Blough, LS paul.blough@wyoboards.gov	Member	1402 Stampede Ave. Cody, WY 82414 307-587-6282	3/31/2022
Jeffery B. Fuller, PE Jeff.fuller@wyoboards.gov	Member	3099 Big Horn Avenue Sheridan, WY 82801 307 673-4984	3/31/2021
Jeffrey B. Jones, LS jeffrey.jones@wyoboards.gov	Member	6451 Big Sky Trail Cheyenne, WY 82009 307-634-7273	6/30/2021
Robert R. Norton, PELS robert.norton@wyoboards.gov	Member	P.O. Box 1599 Jackson, WY 83001 307-733-2087	6/30/2021
Patrick T. Tyrrell, PE patrick.tyrrell@wyo.gov	State Engineer Member	122 W. 25 th Street, 4E Cheyenne, WY 82002 307-777-6150	Indefinite

ATTORNEY GENERAL CONTACT

NAME	ADDRESS	PHONE	E-MAIL
Christopher Brown	2320 Capitol Ave. Cheyenne, WY 82002	307-777-3406	chris.brown@wyo.gov

**STATE BOARD OF PROFESSIONAL ENGINEERS AND PROFESSIONAL
LAND SURVEYORS**

BOARD STAFF

NAME	POSITION
Shannon Stanfill	Executive Director
Krista M. Wilson	Assistant Executive Director, Licensing Specialist
Troy A. Niesen	Outreach and Exam Coordinator, Licensing Specialist

**STATE BOARD OF EXAMINING WATER WELL DRILLING
CONTRACTORS AND WATER WELL PUMP INSTALLATION
CONTRACTORS**

BOARD MEMBERS

NAME	REPRESENTING	TERM EXPIRES
Jerry Hunt	At-large Water Well Drilling Contractors	3/31/19
John Midkiff	Water Well Driller	3/31/21
Wes Moody	Water Well Driller	3/31/22
Steven R. Barbour	Water Well Pump Installation Contractors	3/31/21
Michelle Christopher	Public Who Owns an Active Well	3/31/21
Lisa Lindemann	State Engineer's Office Designee	3/31/21
James O'Connor	Department of Environmental Quality Designee	3/31/19

* All terms expire March 31st of the year indicated.

ATTORNEY GENERAL CONTACT

NAME	ADDRESS	PHONE	E-MAIL
Sean Towles	2320 Capitol Ave. Cheyenne, WY 82002	307-777-7376	sean.towles@wyo.gov
Eric Easton	800 Werner Court Ste 190 Casper, WY 82602	307-265-2225	eric.easton@wyo.gov

GROUND WATER ADVISORY COMMITTEES

WATER DIVISION	NAME	TERM EXPIRES
I	Ben Jordan	9/30/2023
	David Evans	9/30/2024
	Ralph Brokaw	9/30/2023
II	Larry Suchor	9/30/2023
	Jerry Hunt	9/30/2023
	Sheridan Little	9/30/2024
III	Gerald Geis	9/30/2024
	Jeanette Sekan	9/30/2023
	Doyle Ward	9/30/2020
IV	Nick Bettas	9/30/2023
	John Reed	9/30/2023
	Kellen Lancaster	9/30/2023

CONTROL AREA ADVISORY BOARD MEMBERS

CONTROL AREA	NAME	CITY	TERM EXPIRES
Laramie County	Ty Anderson	Pine Bluffs	7/31/2020
	Jay Berry	Cheyenne	7/31/2019
	Jay Burnett	Carpenter	7/31/2020
	David Romsa	Albin	7/31/2019
	Casey Epler	Hillsdale	7/31/2020
Platte County	Brooke Brockman	Wheatland	7/31/2019
	Silvia Rutherford	Wheatland	7/31/2020
	Rex E Johnson	Wheatland	7/31/2020
	Jennifer Reyes-Burr	Wheatland	7/31/2019
	Jim Mathis	Wheatland	7/31/2020
Prairie Center	Kelly Francis	Torrington	7/31/2022
	Dennis Isakson	Van Tassel	7/31/2019
	Greg DesEnfants	Torrington	7/31/2019
	Elden Baldwin	Torrington	7/31/2022
	Blake Ochsner	Torrington	7/31/2022

**WYOMING MEMBERS OF INTERSTATE COMPACT COMMISSIONS
AND REGIONAL AND INTERSTATE COMMITTEES RELATING TO
WATER RESOURCES**

(As of September 30, 2018)

**BEAR RIVER COMMISSION
(Idaho, Utah and Wyoming)**

NAME, TITLE	POSITION
Patrick T. Tyrrell, Wyoming State Engineer	Commissioner
Tim Teichert, Citizen	Commissioner
Adrian Hunolt, Citizen	Commissioner
Kevin Payne, Superintendent, Water Division IV	Alternate Commissioner; Member, Technical Advisory Committee
David Waterstreet, Water Quality Division, Department of Environmental Quality (DEQ)	Member, Water Quality Committee
Beth Callaway, River Basin Coordinator, ISS	Member, Technical Advisory Committee

**UPPER COLORADO RIVER COMMISSION
(Colorado, New Mexico, Utah and Wyoming)**

NAME, TITLE	POSITION
Patrick T. Tyrrell, State Engineer	Commissioner
Benjamin C. Bracken, Citizen	Alternate Commissioner
Keith Burron, Citizen	Alternate Commissioner
Randy Bolgiano, Citizen	Alternate Commissioner
Steve Wolff, Administrator, ISS	Member, Engineering Committee
Charlie Ferrantelli, River Basin Coordinator, ISS	Member, Engineering Committee
Chris Brown, Senior Assistant Attorney General	Member, Legal Committee

**SALINITY WORK GROUP;
MINUTE 323 OF THE INTERNATIONAL TREATY WITH MEXICO**

NAME, TITLE	POSITION
Steve Wolff, Administrator, ISS	Upper Basin Representative

COLORADO RIVER 7-STATES MANAGEMENT WORK GROUP

NAME, TITLE	POSITION
Steve Wolff, Administrator, ISS	Member
Chris Brown, Senior Assistant Attorney General	Member

COLORADO RIVER BASIN SALINITY CONTROL ADVISORY COUNCIL

NAME, TITLE	POSITION
Patrick T. Tyrrell, State Engineer	Member
David Waterstreet, Water Quality Division, DEQ	Member
Chad Espenscheid, Citizen	Member
Steve Wolff, Administrator, ISS	Alternate
Lindsay Patterson, Water Quality Division, DEQ	Alternate

COLORADO RIVER BASIN SALINITY CONTROL FORUM

NAME, TITLE	POSITION
Patrick T. Tyrrell, State Engineer	Member
David Waterstreet, Water Quality Division, DEQ	Member
Chad Espenscheid, Citizen	Member
Steve Wolff, Administrator, ISS	Alternate
Lindsay Patterson, Water Quality Division, DEQ	Alternate
Charlie Ferrantelli, River Basin Coordinator, ISS	Member, Work Group
Mike Thomas, Water Quality Division, DEQ	Member, Work Group
Keenan Hendon, Water Development Commission	Member, Work Group

GLEN CANYON ADAPTIVE MANAGEMENT PROGRAM

NAME, TITLE	POSITION
Steve Wolff, Administrator, ISS	Wyoming Representative, Adaptive Management Work Group & Technical Work Group
(Vacant)	Alternate

UPPER COLORADO RIVER ENDANGERED FISH RECOVERY PROGRAM

NAME, TITLE	POSITION
Steve Wolff, Administrator, ISS	Wyoming Representative, Implementation Committee
Steve Wolff, Administrator, ISS	Wyoming Representative & Chairman - Management Committee
Pete Cavalli, Wyoming Game and Fish Department	Wyoming Representative, Biology Committee

MISSOURI RIVER RECOVERY IMPLEMENTATION COMMITTEE

NAME, TITLE	POSITION
Beth Callaway, River Basin Coordinator, ISS	Member

YELLOWSTONE RIVER COMPACT COMMISSION

(Montana, North Dakota and Wyoming)

NAME, TITLE	POSITION
Patrick T. Tyrrell, State Engineer	Commissioner
Beth Callaway, River Basin Coordinator, ISS	Advisor & Technical Committee Member
David Schroeder, Superintendent, Division II	Advisor & Technical Committee Member
Loren Smith, Superintendent, Division III	Advisor & Technical Committee Member

BELLE FOURCHE RIVER COMPACT

(South Dakota and Wyoming)

NAME, TITLE	POSITION
Patrick T. Tyrrell, State Engineer	Member
Steve Wolff, Administrator, ISS	Advisor

UPPER NIOBRARA RIVER COMPACT
(Nebraska and Wyoming)

NAME, TITLE	POSITION
Patrick T. Tyrrell, State Engineer	Member
Brian Pugsley, Superintendent, Division I	Advisor
Jeff Cowley, River Basin Coordinator, ISS	Advisor
Charlie Ferrantelli, River Basin Coordinator, ISS	Advisor

NORTH PLATTE DECREE COMMITTEE

NAME, TITLE	POSITION
Patrick T. Tyrrell, State Engineer	Wyoming Representative
Brian Pugsley, Superintendent, Division I	Alternate, Wyoming Representative; Member, Crest Control Subcommittee
Jeff Cowley, River Basin Coordinator, ISS	Chair, Finance Subcommittee; Member, Replacement Water Subcommittee; Member Official Files Subcommittee
George Moser, Ground Water Division	Chair, Groundwater Wells Subcommittee
Charlie Ferrantelli, River Basin Coordinator, ISS	Member, Consumptive Use Subcommittee

PLATTE RIVER RECOVERY IMPLEMENTATION PROGRAM

NAME, TITLE	POSITION
Harry LaBonde, Water Development Commission	Wyoming Representative, Governance Committee; Member, Finance Committee; Member, Alternate Land Advisory Committee
Bryan Clerkin, Water Development Commission	Alternate, Governance Committee; Alternate, Water Advisory Committee, Scoring Subcommittee
Jason Mead, Water Development Commission	Alternate, Governance Committee
Jeff Cowley, River Basin Coordinator, ISS	Alternate, Water Advisory Committee; Alternate, Scoring Subcommittee
Brian Pugsley, Superintendent, Division I	Member, Environmental Account Committee / Reservoir Coordinating Committee
Lee Arrington, Surface Water Division	Member, Land Advisory Committee
Andrea Odell, Water Development Commission	Alternate, Finance Committee
Barry Lawrence, Water Development Commission	Member, Technical Advisory Committee; Member, Adaptive Management Group
Jason Feltner, Surface Water Division	Alternate, Environmental Account Committee/Reservoir Coordinating Committee
Liberty Blain, Groundwater Division	Alternate, Technical Advisory Committee; Member, Adaptive Management Group

SNAKE RIVER COMPACT
(Idaho and Wyoming)

NAME, TITLE	POSITION
Patrick T. Tyrrell, State Engineer	Member
Steve Wolff, Administrator, ISS	Advisor
Beth Callaway, River Basin Coordinator, ISS	Advisor

SNAKE RIVER COMMITTEE OF NINE (IDAHO)

NAME, TITLE	POSITION
Steve Wolff, Administrator, ISS	Advisory Member

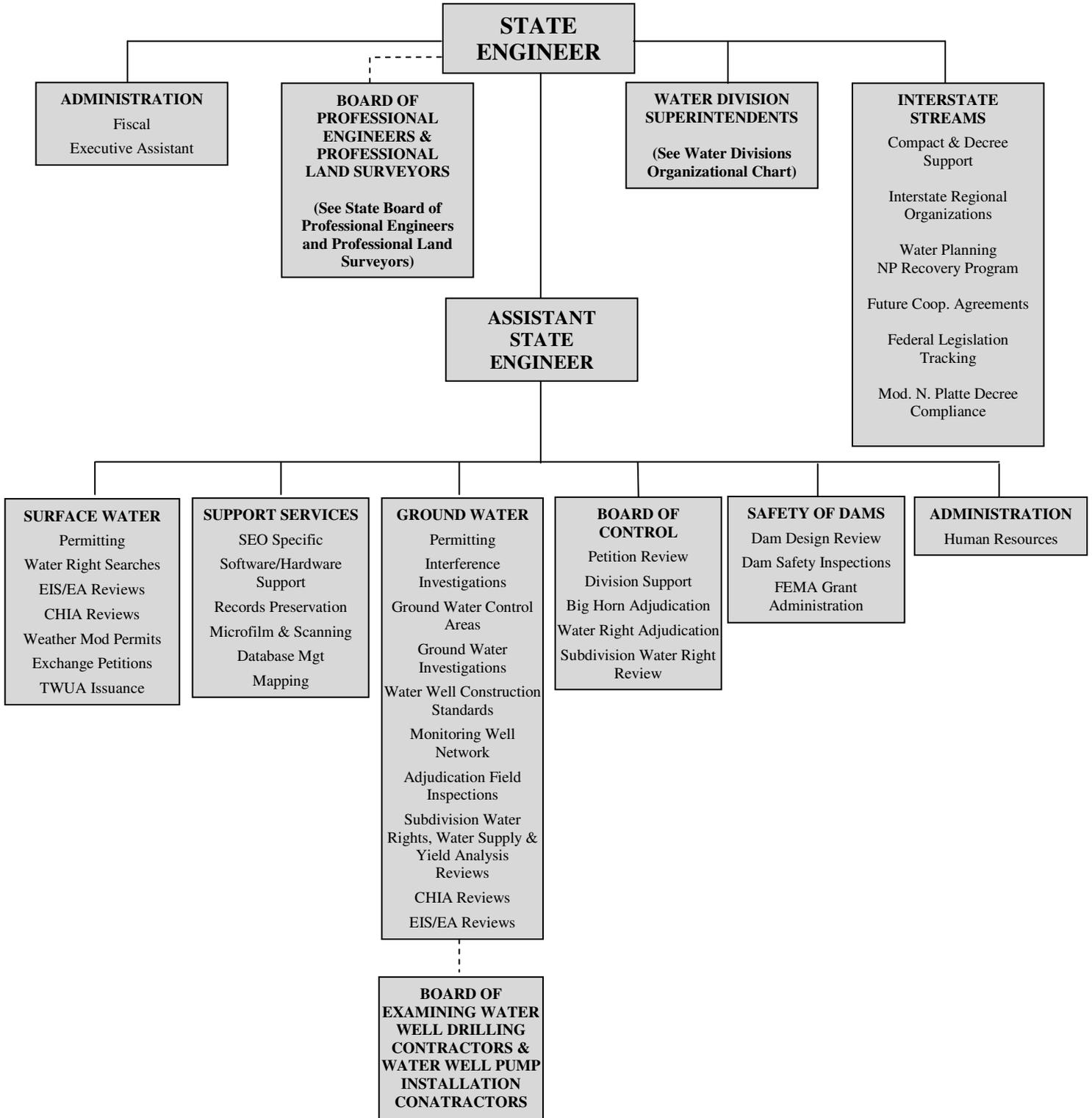
WESTERN STATES WATER COUNCIL

NAME, TITLE	POSITION
Matthew H. Mead, Governor	Governor Member
Patrick T. Tyrrell, State Engineer	Member
Chris Brown, Senior Assistant. Attorney General, Attorney General's Office	Member
Todd Parfitt, Administrator, Department of Environmental Quality	Member
Steve Wolff, Administrator, ISS	Alternate
Kevin Fredrick, Administrator, Water Quality Division, Department of Environmental Quality	Alternate
Harry LaBonde, Administrator, Water Development Commission	Alternate

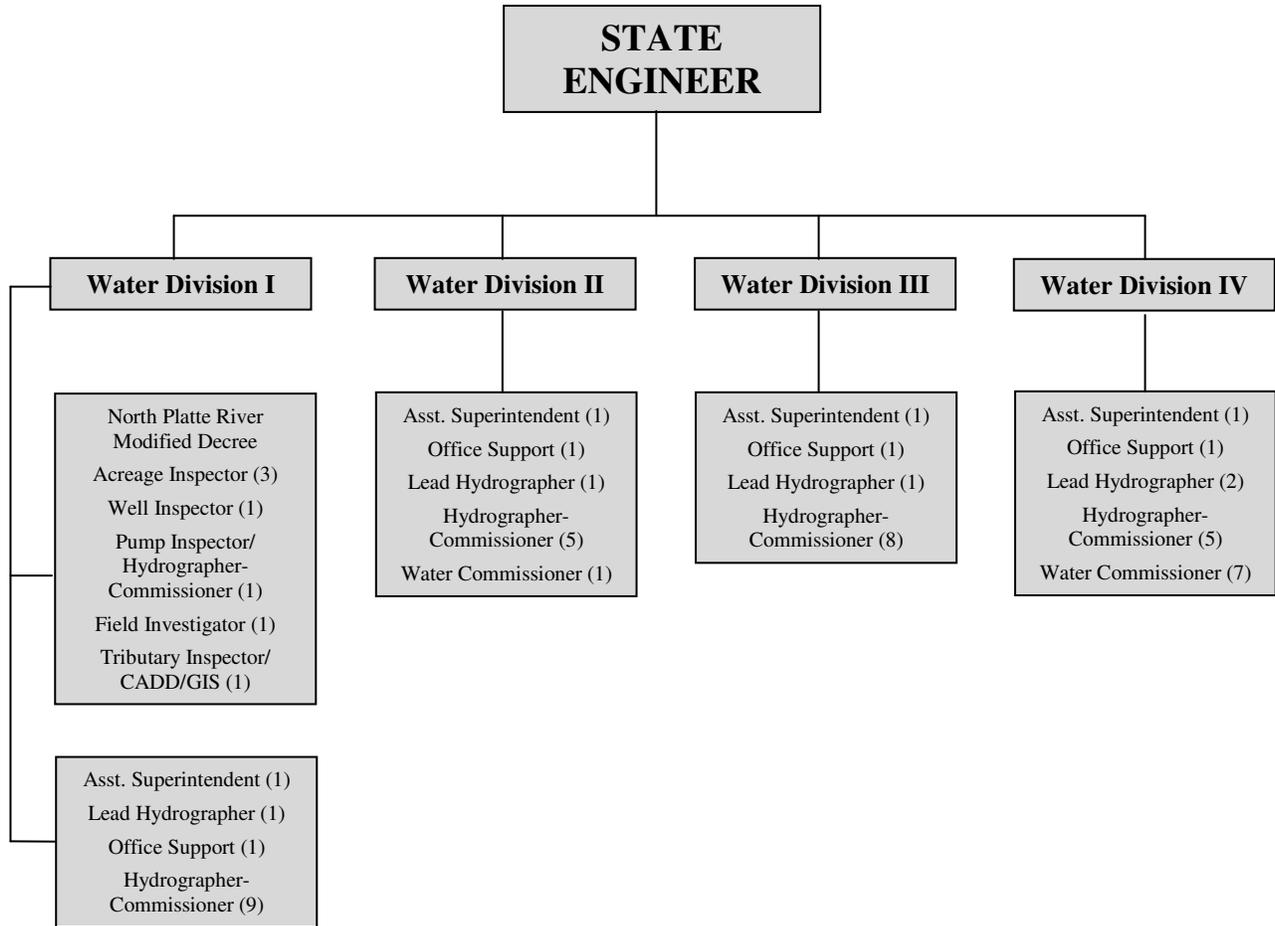
WYOMING STREAMBANK MITIGATION INTERAGENCY REVIEW TEAM

NAME, TITLE	POSITION
Jeff Cowley, River Basin Coordinator, ISS	Member

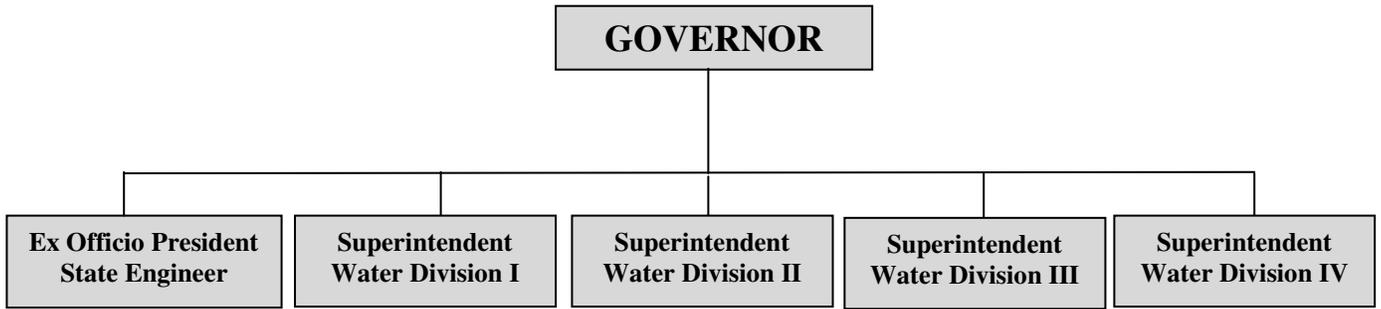
STATE ENGINEER'S OFFICE WY2018 ORGANIZATIONAL CHART



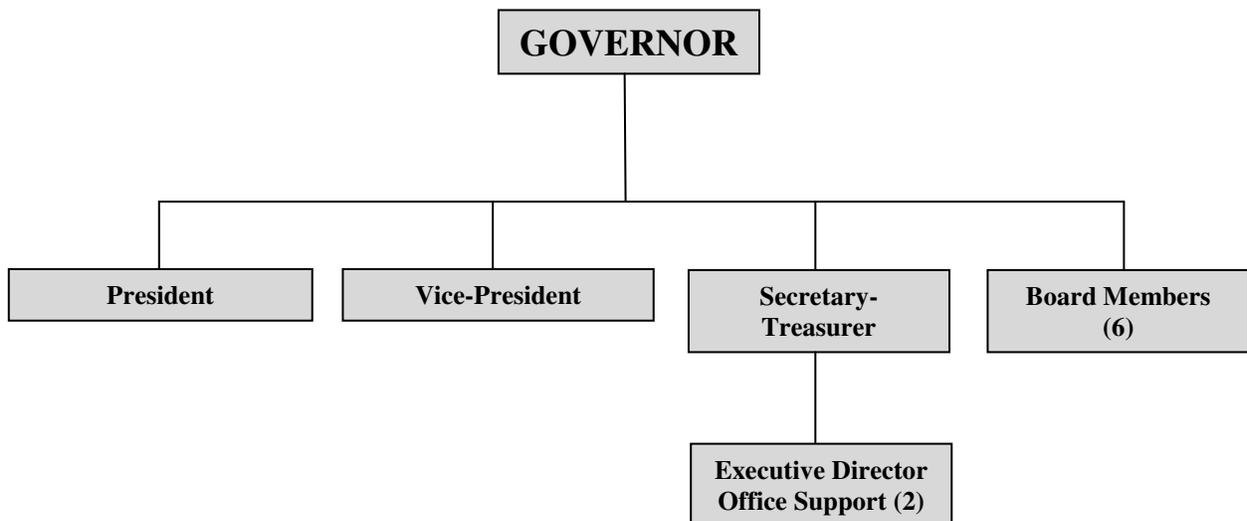
**WATER DIVISIONS
WY2018 ORGANIZATIONAL CHART**



**WYOMING BOARD OF CONTROL
WY2018 ORGANIZATIONAL CHART**



**STATE BOARD OF
PROFESSIONAL ENGINEERS AND PROFESSIONAL LAND
SURVEYORS
WY2018 ORGANIZATIONAL CHART**



**STATE BOARD OF
EXAMINING WATER WELL DRILLING CONTRACTORS AND WATER
WELL PUMP INSTALLATION CONTRACTORS
WY2018 ORGANIZATIONAL CHART**

