



BEAR RIVER COMMISSION

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CHAIR

Jody Williams

IDAHO COMMISSIONERS

Gary Spackman
Kerry Romrell
Curtis Stoddard

UTAH COMMISSIONERS

Eric Millis
Blair Francis
Charles W. Holmgren

WYOMING COMMISSIONERS

Pat Tyrrell
Sam Lowham
Tim Teichert

ENGINEER-MANAGER

Don A. Barnett

MINUTES

BEAR RIVER COMMISSION REGULAR MEETING ONE HUNDRED TWENTY-NINTH COMMISSION MEETING NOVEMBER 22, 2016

I. Call to order – The annual meeting of the Bear River Commission was called to order by Chairwoman Jody Williams at 1:30 p.m. on Tuesday, November 22, 2016, at the Utah Department of Natural Resources building in Salt Lake City, Utah. This was the one-hundred twenty-ninth meeting of the Commission. Williams recognized Tim Teichert, a new commissioner from Wyoming, and welcomed him to the Commission. Williams asked the Commissioners and audience to introduce themselves. An attendance roster is attached to these minutes as Appendix A.

Williams then addressed the agenda for the meeting. Pat Tyrrell explained that with the retirement of Gordon Thornock, the position of Vice Chair to the Commission became vacant. The Commission moved to add the election of a new Vice Chair to the agenda. The agenda was approved with this addition. A copy of the agenda is attached to these minutes as Appendix B.

Tyrrell then offered a Resolution of Appreciation for the service of Gordon Thornock and read it to the group. The resolution was approved by acclamation of the Commission.

The Commission then considered filling the position of Vice Chair. Blair Francis was nominated for that position. The motion to accept Blair Francis as the Vice Chair was approved by the Commission.

II. Approval of minutes of last Commission meeting – Williams asked if there were any changes to the draft minutes of the previous Commission meeting held on April 19, 2016, in Salt Lake City, Utah. A motion was made to approve the minutes with no changes. The motion was seconded and passed.

III. Reports of Secretary and Treasurer – Eric Millis reported that the Commission closed out the 2016 budget in good shape. He noted that a correction had been made to the 2017 budget that was handed out at the spring meeting. The corrected stream gaging amount for FY 2017 is \$40,755.

Randy Staker reviewed the financial statement for FY 2016. Expenses were \$128,114.57 and the remaining cash balance was \$109,238.53. He noted that the statement for FY 2017 includes the Wyoming Water Quality payment for FY 2016 and that the invoices for FY 2017 had recently been sent out to all three states. Total expenses to date were \$71,413.53, leaving a cash balance of \$161,051.54 for the remainder of the fiscal year. A motion to accept the financial reports was approved by the Commission. The budget and financial statements are attached as Appendix C.

IV. Paris Hills Phosphate Mine – Dan Thompson gave a presentation on the progress of their Paris Hills project (see Appendix D). They have been working on this project for several years and are pleased to have some new financing to help move it along. This is an underground phosphate mine project located just west of the towns of Bloomington and Paris in Idaho and just northwest of Bear Lake. He shared some history of their progress since they acquired the property in 2009. Things slowed down in 2013 when they started a pump test and discovered that they didn't have a good handle on the groundwater situation. A pump test in 2015 gave them more information to work with and they are moving forward. Thompson explained how they plan to haul the ore. They will be using trucks, with one going out every six minutes during the day, six days a week.

Thompson then addressed how they will handle the groundwater to dewater the mine in advance of mining. They will begin by pumping 25,000 gallons per minute for the first few years, then taper down to 10,000 gallons per minute by year 12. They are envisioning 10-15 dewatering wells. Tests show that it is a very permeable system and should dewater fairly readily, allowing for flexibility in the location of the wells. There are some natural formations that form a boundary around the area which will keep the dewatering localized in the mining area. Thompson noted on a map the proposed pipeline which will be 36 inches in diameter and 7 miles long, discharging directly into the Bear Lake Outlet Canal. Thompson explained that it would be easier to run the pipeline across the Refuge to the Outlet Canal, however the Refuge said that nationally it was their policy not to allow any private infrastructure into the Refuge. He mentioned that there had been a lot of discussion about the discharge location, with many people preferring that the water be discharged into Bear Lake. Those discussions are ongoing.

As there were several deep technical questions asked by the group, Don Barnett suggested that perhaps some of the state technical people have a meeting with the technical people of Paris Hills to explore in greater detail these kinds of questions. Thompson was willing to help put that together.

V. PacifiCorp Bear River Capacity Project – Connely Baldwin referred to an invitation sent by Rocky Mountain Power to landowners in Gentile Valley, between Grace and Oneida (see Appendix E). These meetings would be to introduce the Bear River Capacity Project which would begin the following year. The flyer discusses the challenge to integrate wind and solar power into the energy supply. Baldwin explained that these sources of power are increasing while the thermal resources from coal are decreasing. They recently decommissioned a carbon plant near Helper, Utah. In order to accommodate the challenge from the sources that are variable, there are times when spare capacity is needed. Generally, when hydro plants are generating, the available flow doesn't use all of the plant's capacity. This excess capacity is termed "spinning reserve," so if one of their other larger units were to trip, they could very quickly bring that hydroelectric generator up to full load to deal with the energy emergency. Baldwin noted that at Oneida it only happens once a year on average. They also operate for spinning reserve at Cutler. This is actually a very valuable use of the hydroelectric generation. For every load that comes on and for all the generators that are online, there is a need to provide some of that spinning reserve. Spinning reserve is generally limited to a one or two-hour period, after which other sources can be brought online. Potentially there could be longer-term needs which could extend up to a day. Baldwin explained that one of the constrictions at the Soda plant, where they don't currently operate for spinning reserves, is that the maximum typical flow capacity of the river between Grace and Oneida through Gentile Valley is 1500 cfs, and the full plant capacity at Soda is 2600 cfs. There is a mismatch there and they operate to 1500 cfs for energy releases, but also for Bear Lake flood control operations, especially spring releases. Their goal is to increase the channel capacity. This could be accomplished by purchasing the land and potentially leasing it back to the landowners. There could also be other flood easements or accommodations made. Another idea would be to do some bank stabilization work in areas where

the bank is caving. Baldwin noted that it is early in the process and that is why they are holding these meetings in Grace for the local landowners and the legislative representatives from that area.

VI. Twin Lakes FERC EIS – Jack Barnett noted that the Commission had been following this project for a long time. The Twin Lakes project, as it moved ahead, required an Environmental Impact Statement (EIS), which study was done by the Federal Energy Regulatory Commission (FERC). Barnett explained that since the last Commission meeting, FERC came out with its EIS and then its denial of the Twin Lakes project as proposed by the canal company. The canal company determined not to ask for reconsideration, so it appears that the project is dead. Barnett indicated that FERC decided to deny the project because having a dam in that area was inconsistent with BLM's plan to manage the resources in this area which they have adopted and which they call the Oneida Narrows Research Natural Area.

VII. Last Chance Canal Company – Diversion Dam Improvements – Eric Franson reported on the rehabilitation of the Last Chance diversion dam, located near Grace, Idaho, which was engineered by Franson Civil Engineering and constructed by Whitaker Construction. He noted that they made a conscious effort to document the construction with photos (see Appendix F). They also mounted cameras and took pictures from 3 different angles every 15 minutes for the duration of the project. From these pictures they prepared a time lapse video that shows the construction from start to finish.

Franson explained that this was a very old structure, originally built in 1908 and made of wood timbers formed in a log cabin-type structure and filled with large boulders and rocks to hold it in place. The dam services the Last Chance Canal Company with some of their water and also services a hydropower facility that has been put in place since 1981. Because of the hydropower facility, FERC had jurisdiction over the construction of this diversion dam, so they had to work with the dam safety office in Portland to get approvals to rehabilitate this structure. With the Alexander Reservoir just upstream, they were able to control flows to help in dewatering during construction. The bypass channel was designed to handle 1,000 cfs and during the spring runoff it got up to about 800 cfs. They brought in 3400 cubic yards of roller-compacted concrete on conveyor belts to build the dam which is about 26 feet tall and 180 feet wide. The cost to build the dam was about \$3 million, with PacifiCorp sharing in some of the costs. Franson then showed the time lapse video to the group.

The Commission then took a break.

VIII. Records & Public Involvement Committee report – Liz Cresto reported on the meeting of the Records & Public Involvement Committee held earlier in the day. She noted that the USGS reported that there would be a 1.25 percent increase in stream gaging costs for FY 2018 and perhaps 2.5 percent for the following year. The water quality agencies in the three states will continue to support the stream gaging efforts financially. There was some discussion of the Hillyard area moving a point of diversion on the Bear River. This could impact the long-term gage at the Utah-Wyoming stateline, so they will keep updated on that situation. Changes to procedures were passed out so everyone could update their binders. There was a report that the Commission library had been updated and organized, and a spreadsheet of all the publications was made available. Regarding the biennial report, the 2015 chapter is almost complete and information is needed for the 2016 chapter from those who contribute to the report. Updates to the Commission's website include the posting of newspaper articles. There is a lot of valuable information on the WIS website and a desire to continue supporting that. There was a recap of the Upper Basin tour held in June and a discussion of a possible Central Division tour next year.

IX. Operations Committee report – Blair Francis reported that the Operations Committee reviewed events of the past year along the river. In the Upper Division there was pretty good water and good cooperation, and they did not go into regulation. He was happy to learn that Bear Lake had reached the 5911 foot mark so they don't have to worry about that restriction. In the Central Division there was a report about moving Woodruff Narrows storage water from the Upper Division to the Central Division. They have let it happen in one area this year, which was not significant, but have not yet determined how they will deal with it in the future. The Central Division had interstate regulation beginning in mid-July. The Committee discussed depletion and the procedures. He reported that they had pretty well solved depletion numbers for municipal and crop mix, but are still working on supplemental water depletion. The State of Wyoming is kind of taking the lead in formulating a method whereby they can account for that. Francis reported that the committee also discussed the Paris Hills project and Twin Lakes.

Connely Baldwin referred to his handout on Bear Lake operations, which is attached as Appendix G. He reported that Bear Lake was currently at 5911.14 ft. He mentioned that the snowpack accumulation and melt for water year 2016 was as close to the median as possible, so it was a pretty normal year. But the interesting fact is that the net runoff for Bear Lake, which is the best indication of the water year as a whole, was only 58 percent of normal. A key statistic shows Bear Lake storage release at 166,000 af. In terms of next year's scenario, even if we have a very bad winter, the storage water allocation for irrigation would still be around 213,000 af.

X. Water Quality Committee report – In the absence of Walt Baker, Erica Gaddis, Assistant Director of the Utah Division of Water Quality, gave the report on the meeting of the Water Quality Committee which was held the previous day. They discussed the Watershed Information System (WIS) platform and want to encourage people to load information and make it a very active website for all the Bear River partners. They talked about stream gaging and the water quality departments continuing to fund that effort. There was a discussion about the potential sensoring of some of the existing gages with water quality probes, and they would like to have USGS come to a future meeting to discuss this topic. They would also like to hear from iUtah, which is an academic consortium in Utah that sensors a number of tributaries to the Bear River. The committee discussed the three-state effort for monitoring. Wyoming is no longer able to fund that work, so there have been three sites dropped in Wyoming. There was a report from Jim DeRito of Trout Unlimited about a project on the Bear River in Wyoming, the Booth Diversion. Currently there is a huge push-up diversion dam which is being replaced with a rock structure. The project will also include some re-contouring and bank stabilization of the stream channel. This will benefit fish passage, water quality and the diversion needs of the irrigators. It is expected that this project will result in a 600 tons-per-year reduction in sediment load. They also discussed some work going on in the East Fork Hillyard Canal. Dave Cottle reported on a Lidar flyover project which included some brilliant photography of Mud Lake and Bear River during the summer. Also, there is a coring study going on in partnership with FWS which aims to look at how sediment delivery has changed over time to the Refuge, to Mud Lake and to Bear Lake. There was an update given by Mitch Poulsen on the Bear River Water Quality Task Force. He also talked about the work that Trout Unlimited is doing on a canal and the restoration work that the Forest Service is doing in the East Fork of the Bear River following a 14,000 acre fire, as well as FWS work being done upstream by Cokeville. Another topic of discussion was the summer tour and a possible tour again next year. Connely Baldwin reported on the Bear River Capacity Project and also gave an update on a bathymetry study he has done at the inlet at the Lifton Plant on the Bear Lake side. There was a dredging project that was done in 2003. They have been monitoring the sedimentation rates since then, and it looks like they may need to dredge again in 2018. They heard a report on the Paris Hills

project. Don Barnett reported on the Bear River Comprehensive Management Plan, which is led by the Utah Division of Forestry, Fire and State Lands. The concerns that have been voiced have been around the need to permit infrastructure that is on State sovereign land and some concerns from irrigators about the need to potentially permit pumps.

Each state gave a report. Idaho is working on some new standards with respect to human health criteria based on fish consumption rates. Idaho's lower arsenic standard was recently disapproved. They have also been looking at their copper standard with FWS around endangered species. Idaho is getting closer to obtaining primacy under EPA so they would be able to issue discharge permits. They expect to have that approval by June 2018.

Utah's report included some new legislation in Utah related to peer review, which allows any permittee to challenge any decisions made by the Division of Water Quality. They talked about Great Salt Lake levels which are at historic lows and about the Union Pacific Railroad which will be breaching the causeway that crosses the Great Salt Lake. As lake levels go down, salinity goes up, so they are starting to rethink what baseline conditions should look like as they develop water quality standards for the Great Salt Lake. There was a report on another project that Forestry, Fire and State Lands is leading in partnership with the Utah State water entities. This is an integrative water resources management modeling tool focusing on water quality for the Great Salt Lake system, including the Bear River. There have been several spills related to abandoned mines, which has prompted a closer look at permitting of abandoned mines in Utah. A hot topic in Utah continues to be nutrients and harmful algal blooms. There have been a number of algal blooms around the state this year which have been quite disruptive to local communities, so they will continue to work on their nutrient reduction program.

Wyoming reported on an eight-year effort to develop a usability analysis for recreational uses that allows them to designate all of their streams in terms of primary or secondary contact recreation based on a model. They are looking at using GIS for development of other water quality criteria, such as temperature. Wyoming is putting a lot of focus on QAQC requirements as part of the Governor's water strategy. They are also working on data that comes from third parties, especially NGOs, and how to handle, how to manage and how to use that data in their regulatory decisions. David Waterstreet also gave an update on a fish kill that occurred on the Shoshone River, which was a result of repairs on an irrigation diversion. The take-home message was that it brought partners together that hadn't previously been working together to make sure that these sorts of diversion projects get constructed and repaired in a way that protects water quality and aquatic life.

Gaddis reported that the next meeting of the Water Quality Committee is scheduled for April 10, 2017, at 9:00 a.m., a week ahead of the Bear River Commission meeting.

XI. Management Committee Report – Gary Spackman reported that the Management Committee discussed the depletion values for supplemental use. He noted that the TAC has struggled over the past couple of years to establish competent and uniform depletion values in this area. He reported that the staff in Cokeville, along with staff of the Wyoming State Engineer's office, has been working on this. The Engineer-Manager has met with them. They have been measuring diversions from wells, and then, based on those measurements and the number of days of diversion, they have been able to establish a numerical method of determining what those percentage depletion values are. There are a number of alternatives that can be proposed as a result of this work by the State of Wyoming. Spackman expressed the appreciation of the Management Committee to Kevin Payne and his staff and Pat Tyrrell for dedicating staff time for this analysis. As a result of their efforts, it

is likely that the three states will be able to agree on a method to determine the supplemental depletions that can be employed by the three states above Bear Lake. He emphasized “above Bear Lake” because there are a lot of additional pumps downstream of Bear Lake. The Management Committee felt that it was important to establish depletion values very carefully above Bear Lake, but there wasn’t a need for that same rigor in establishing depletion values in the Lower Division. They will work on establishing some other numerical number for supplemental uses in the Lower Division. Spackman noted that the Engineer-Manager will continue to work with the State of Wyoming to develop those alternatives and then present them to the Technical Advisory Committee. As to the timing of a report to the Commission and a final decision, Don Barnett indicated that it would depend on whether or not there will be a need to do some additional measurement during the next summer or if the values will be close enough that a report can be given at the spring meeting.

Spackman also reported on the Management Committee’s discussion of the 20-year Compact review. The Compact assigns the Commission the responsibility to review the Compact every 20 years and propose any amendments they would like to make to the Compact. It will be 20 years in November 2017 since the last review, so the Management Committee felt that the review should at least be initiated prior to November 2017. Spackman indicated that the TAC will review the Compact and identify any technical issues that they feel may need to be addressed in the operations of the Compact. A second assignment would be for the Management Committee to discuss the process for this review and determine how to approach the public on their possible input and how to deal with the possibility of some side issues affecting these public meetings. The Management Committee would need to address this prior to the next Commission meeting in order to have a direction to follow at the meeting. Don Barnett said he would work on some ideas to send out that would stimulate thoughts on how to proceed.

XII. Engineer-Manager’s report – Barnett reported that since the very detailed report at the last Commission meeting from Utah Division of Forestry, Fire and State Lands regarding their efforts to initiate a Comprehensive Management Plan of the Bear River, the effort has been moving ahead. The Comprehensive Management Plan will address the permitting of uses in the bed of the Bear River from ordinary high water mark to ordinary high water mark from the Idaho-Utah state line all the way down to the Great Salt Lake. Barnett reported that he was serving on a steering committee along with Will Atkin and Todd Adams. Public meetings were held in July and August in Box Elder and Cache Counties. Following those meetings, they determined to have user group-specific stakeholder meetings. There will be meetings with the recreationist community, the environmental community, and the irrigation community. These meetings were coming up the next week and would involve dialoguing and receiving input from these groups, as well as answering questions. Forestry, Fire and State Lands then plans to get a draft Comprehensive Management Plan out by January/February for public comment, with the hope to have a final plan adopted around April 2017.

XIII. State Reports – Wyoming – Pat Tyrrell reported that Wyoming’s state budget is suffering. There have been significant cuts. He noted that his agency is down 12 positions, which is 8 percent. They have struggled a bit, but so far they have been able to keep the equipment in the field that they need for their work. It has hit them pretty hard, and they don’t know if it’s over yet. There was about a 30 percent turnover in legislators at the recent election, so they will be very interested to see how the next legislative session goes. Tyrrell noted that they just don’t have contracting dollars or funds for organizations like the Commission any more. In fact, they don’t have specific programs, just a mission and a staff. Most other agencies have met their 8 percent cut by cutting programs and not necessarily people.

Tyrrell announced that Steve Wolff has been named as the Administrator of their Interstate Streams Division, taking the place of Sue Lowry who retired. He commented that he didn't think they had lost a beat moving from Sue to Steve, which is a compliment to Steve because Sue's shoes were pretty hard to fill.

Tyrrell reported on their Yellowstone River Compact. For the second year in a row, after being involved in some litigation, they had an interstate call on the river due to low snowpack and the need to fill Tongue River Reservoir. These two years were the only times in history when there has been an interstate call on the Tongue River. This has been a result of the Supreme Court decision.

Tyrrell reported that the Herschler Building and the State Capitol were undergoing major reconstruction in Cheyenne. The Capitol Building has been vacated and is cloaked behind construction barricades while they gut it and put in new fire systems, electronics, etc. They are actually going to try and restore a lot of the inner part of the Capitol to appear as it was 100 years earlier. He explained that they have moved their offices from the east wing to the west wing of the Herschler Building while construction is underway there. The east wing is just a shell, showing only the girders. They are going to rebuild it from the inside out. Consequently they are dealing with a lot of construction noise and debris as they work.

Tyrrell also reported that the Wyoming Water Development Commission did not approve a project that had been in front of them for a number of years on Sublette Creek. He noted two reasons that he had read in a newspaper article. There was resistance by Wyoming Game and Fish about dewatering of the Smiths Fork and there was also concern about the cost and ability to pay. It doesn't affect Wyoming much, other than setting the Cokeville Development Company back a little bit, but they still have 4100 af of uncommitted original Compact storage.

Beth Callaway added to the report from Wyoming. She reported that the Wyoming Water Development office had just concluded its Bear River Watershed Study. This is a level one study that looks at potential improvement projects throughout the watershed, only on the Wyoming side. They had a draft report ready and expected the final report to be completed by the first week of December. This study looks at potential improvements that could be made within the watershed, and they identify about 140 different watershed improvement projects that could be on the ground, totaling about \$4.5 million. Most of them qualify under the state's Small Water Project Program, which is \$135,000 or less. She noted that people could check their website, bearriverwatershedstudy.com, where the final report should soon be posted.

XIII.State Reports - Idaho - Gary Spackman reported that the water users and legislators continue to argue about whether they will have an adjudication for water rights in the Bear River Basin. They will wait and see.

XIII.State Reports - Utah - Eric Millis talked about the record low levels in the Great Salt Lake. With the upcoming causeway breach, they expect to see the south arm of the lake drop below the 1963 low, which is of concern to a lot of people, including the mineral companies, the brine shrimpers, the environmental groups, the wildlife managers, the water quality managers, the water developers and water users. Bear River provides 60 percent of the inflow to the Great Salt Lake. There is concern by some as to why the State of Utah would be looking at a water development project which might take more water out. However, they feel that the Bear River Development project is an option for the future that they need to keep the door open on, even though that project is not needed for another 25-30 years. Millis reported that they had an audit of their water use and

water supply data about a year and a half ago, and they are working to improve the quality of their data collection program, data reporting program, etc. This helps to determine whether the best decisions are being made on their large and small water development projects that are being considered throughout the state. They have also been working on the creation of regional water conservation goals for municipal and industrial water use and taking another look at the criteria for evaluating state water programs.

Millis reported that after many tries and many years, Cache County was able to get a water conservancy district approved in the last election. This will be a big benefit to Cache County and their management, their conservation, their development, everything relating to their water resources. That's big news for Cache County.

XIV. Public Comment – Carly Burton from the Bear River Water Users Association talked about water supply and operation at Bear Lake. He was disappointed in the Bear Lake runoff, which was 58 percent this year. But in spite of that, the irrigators have had a good storage supply and there have been great conservation efforts as well. Total storage release was 166,000 af, leaving 58,000 af for lake recovery. Just the last three years, if you add them together, that's almost 300,000 af, or 4.5 feet in elevation of the lake. He felt that this was an enormous benefit to everyone who uses the lake and felt a need for everyone to be conservation minded during these crazy years.

Regarding the Forestry, Fire and State Lands initiative, Burton noted the management objectives are to protect navigation, fish and wildlife habitat, aquatic beauty, public recreation and water quality. He was concerned that there was no mention of agriculture and irrigation, and there are over 100 pumpers in Cache Valley who are very concerned about this. They have developed a white paper which addresses their concerns. They have also brought in legal counsel as they feel there are a lot of legal issues involved in this program. They will continue to address their concerns and deal with it as best they can.

Regarding the spinning reserve and peaking program for the Bear River, Burton reported that they had met with PacifiCorp and are discussing issues that may be of concern to some of their members in Gentile Valley. They will continue that dialogue with PacifiCorp and hopefully come to a resolution on that.

Claudia Cottle from Bear Lake Watch shared their newsletter with the Commission. It contained an overview of the State of Bear Lake conference that they held in the spring. One of the things discussed in that conference was the need for higher goals and overreaching long-term management strategies. She felt that management plans of individual agencies may not represent and may not even be guided by overriding goals. She felt that this is something that we all need to be looking at and pushing for. She noted that it is important maintain and take care of Bear Lake as those facilities are being used. She expressed her appreciation to be included in the discussions affecting Bear Lake and to be a part of the Bear Lake/Bear River family.

XV. Next Commission meeting – Chair Williams announced that the next meeting of the Bear River Commission will be held on Tuesday, April 18, 2017.

The Commission meeting was then adjourned.

ATTENDANCE ROSTER

BEAR RIVER COMMISSION REGULAR MEETING

Utah Department of Natural Resources
Salt Lake City, Utah
November 22, 2016

IDAHO COMMISSIONERS

Gary Spackman
Kerry Romrell
Curtis Stoddard

WYOMING COMMISSIONERS

Pat Tyrrell
Sam Lowham
Tim Teichert
Kevin Payne (Alternate)

FEDERAL CHAIR

Jody Williams

UTAH COMMISSIONERS

Eric Millis
Charles Holmgren
Blair Francis
Norm Weston (Alternate)
Joe Larsen (Alternate)

ENGINEER-MANAGER & STAFF

Don Barnett
Jack Barnett
Donna Keeler

OTHERS IN ATTENDANCE

IDAHO

James Cefalo, Department of Water Resources
Liz Cresto, Department of Water Resources
Josh Hanks, Water Master

UTAH

Erica Gaddis, Division of Water Quality
Will Atkin, Division of Water Rights
Ben Anderson, Division of Water Rights
Carl Mackley, Division of Water Rights
Todd Adams, Division of Water Resources
Randy Staker, Division of Water Resources
Feng Pan, Division of Water Resources

WYOMING

Beth Callaway, State Engineer's Office
Mike Johnson, State Engineer's Office
Travis McInnis, State Engineer's Office
Levi Walker, State Engineer's Office

OTHERS

Connely Baldwin, PacifiCorp Energy
Claudia Conder, PacifiCorp Energy
John Mabey, PacifiCorp Counsel
Cory Angerth, U.S. Geological Survey
Darin McFarland, Bear River Canal Company
Curtis Marble, Bear River Canal Company

Claudia Cottle, Bear Lake Watch
David Cottle, Bear Lake Watch
Carly Burton, Bear River Water Users Association
Scott Clark, Barnett Intermountain Water Consulting
Jim DeRito, Trout Unlimited
Dan Thompson, Paris Hills
Eric Franson, Franson Civil Engineering
Ann Neville, The Nature Conservancy
Adrian Hunolt, Whitney Reservoir



BEAR RIVER COMMISSION REGULAR MEETINGS

November 21-22, 2016

Water Quality Committee Meeting
Utah Department of Environmental Quality
195 North 1950 West
Salt Lake City, Utah

All Other Meetings
Utah Department of Natural Resources
1594 West North Temple
Salt Lake City, UT

COMMISSION AND ASSOCIATED MEETINGS

November 21

9:00 a.m. Water Quality Committee Meeting – Red Rock Conference Room Burnell

November 22

9:00 a.m. Records & Public Involvement Committee Meeting – Room 314 Stoddard

10:00 a.m. Operations Committee Meeting – Room 314 Francis

11:30 p.m. Informal Meeting of Commission – Room 314 D. Barnett

11:35 p.m. State Caucuses and Lunch Spackman/Millis/Tyrrell

1:30 p.m. Commission Meeting – Main Floor Auditorium (Rms. 1040/1050) Williams

APPROVED AGENDA
REGULAR COMMISSION MEETING

November 22, 2016

Convene Meeting: 1:30 p.m.

Chair: Jody Williams

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| I. | Call to order | Williams |
| | A. Welcome of guests and overview of meeting | |
| | B. Approval of agenda | |
| | C. Resolution of Appreciation | |
| | D. Election of Vice Chair to the Commission | |
| II. | Approval of minutes of last Commission meeting (April 19, 2016) | Williams |
| III. | Reports of Secretary and Treasurer | Millis/Staker |
| | A. 2016 budget closeout | |
| | B. 2017 expenditures to date | |
| | C. Other | |
| IV. | Paris Hills Phosphate Mine | Thompson |
| V. | PacifiCorp Bear River Capacity Project | Baldwin |
| VI. | Twin Lakes' FERC EIS | J. Barnett |
| VII. | Last Chance Canal Company – diversion dam improvements | Franson |

BREAK

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| VIII. | Records & Public Involvement Committee report | Stoddard |
| IX. | Operations Committee report | |
| | A. Committee meeting | Francis |
| | B. Operations in 2016 | Baldwin |
| | C. PacifiCorp operations | Baldwin |
| X. | Water Quality Committee report | Gaddis |
| XI. | Management Committee report | Spackman |
| XII. | Engineer-Manager's report | Barnett |
| | A. Utah Bear River Comprehensive Management Plan | |
| XIII. | State reports | |
| | A. Wyoming | Tyrrell |
| | B. Idaho | Spackman |
| | C. Utah | Millis |
| XIV. | Other / Public comment | Williams |
| | A. Activities of the Bear River Water Users Association | Burton |
| | B. Bear Lake Watch | Cottle |
| | C. Other | |
| XV. | Next Commission meeting (Tuesday, April 18, 2017) | Williams |

Anticipated adjournment: 4:00 p.m.

BEAR RIVER COMMISSION

AMENDED BUDGET FOR FY2016 & FY2017 AND PROPOSED BUDGET FOR FY2018

	FY2016 AMENDED BUDGET	FY2017 AMENDED BUDGET	FY2018 PROPOSED BUDGET
	-INCOME-	-INCOME-	-INCOME-
BEGINNING BALANCE	110,928.87	110,656.87	109,065.87
IDAHO	40,000.00	40,000.00	40,000.00
UTAH	40,000.00	40,000.00	40,000.00
WYOMING	40,000.00	40,000.00	40,000.00
WATER QUALITY	8,151.00	8,254.00	8,254.00
INTEREST ON SAVINGS	800.00	800.00	800.00
TOTAL INCOME	<u>239,879.87</u>	<u>239,710.87</u>	<u>238,119.87</u>
	-EXPENDITURES	-EXPENDITURES-	-EXPENDITURES-
STREAM GAGING-U.S.G	40,755.00	40,755.00	41,270.00
PERSONAL SERVICES C	63,088.00	64,350.00	65,640.00
TRAVEL	1,200.00	1,200.00	1,200.00
OFFICE EXPENSES	1,600.00	1,600.00	1,600.00
BIENNIAL REPORT	1,000.00	1,000.00	1,000.00
TREASURER'S BOND & AUDIT	1,400.00	1,400.00	1,400.00
PRINTING	1,600.00	1,600.00	1,600.00
REALTIME WEB HOSTING	8,400.00	8,400.00	8,400.00
CLERICAL	8,180.00	8,340.00	8,510.00
TOUR	2,000.00		
CONTINGENCY	2,000.00	2,000.00	2,000.00
TOTAL EXPENDITURES	<u>131,223.00</u>	<u>130,645.00</u>	<u>132,620.00</u>
	<u>110,656.87</u>	<u>109,065.87</u>	<u>105,499.87</u>

BEAR RIVER COMMISSION

STATEMENT OF INCOME AND EXPENDITURES

FOR THE PERIOD OF July 1, 2015 to June 30, 2016

INCOME	CASH ON HAND	OTHER INCOME	FROM STATES	INCOME
Cash Balance 07-01-15	110,928.87			110,928.87
State of Idaho			40,000.00	40,000.00
State of Utah			40,000.00	40,000.00
State of Wyoming			40,000.00	40,000.00
Water Quality		5,434.00		5,434.00
Interest on Savings		990.23		990.23
 TOTAL INCOME TO				
30-Jun-16	110,928.87	6,424.23	120,000.00	237,353.10

DEDUCT OPERATING EXPENSES

	APPROVED BUDGET	UNEXPENDED BALANCE	EXPENDITURES TO DATE
Stream Gaging/USGS Contract	40,755.00	-	40,755.00
SUBTOTAL	40,755.00	-	40,755.00
 EXPENDED THROUGH COMMISSION			
Personal Services BIWC	63,088.00	-	63,088.00
Travel (Eng-Mgr)	1,200.00	194.99	1,005.01
Office Expenses	1,600.00	657.16	942.84
Printing Biennial Report	1,000.00	937.00	63.00
Treasurer Bond & Audit	1,400.00	1,300.00	100.00
Printing	1,600.00	(80.70)	1,680.70
Realtime Web Hosting	8,400.00	(615.99)	9,015.99
Clerical	8,180.00	(0.02)	8,180.02
Tour	2,000.00	20.16	1,979.84
Contingency	2,000.00	695.83	1,304.17
SUBTOTAL	90,468.00	3,108.43	87,359.57
 TOTAL EXPENSES	131,223.00	3,108.43	128,114.57
 CASH BALANCE AS OF 06/30/2016			109,238.53

BEAR RIVER COMMISSION

DETAILS OF EXPENDITURES

FOR PERIOD ENDING June 30, 2016

811	STONEFLY	1,800.00
812	processed in previous year	
813	BIWC	10,514.68
814	VOID	
815	STONEFLY	1,800.00
816	USGS	40,755.00
817	BIWC	10,768.38
	bank service charge	59.00
818	VOID	
819	BIWC	5,773.59
820	VOID	
821	BIWC	14,456.02
822	STONEFLY	1,800.00
823	STONEFLY	1,800.00
824	BIWC	5,731.47
825	STONEFLY	15.99
826	BIWC	11,295.34
827	C N A Surety	100.00
828	VOID	
829	STONEFLY	1,800.00
830	BIWC	15,115.09
831	BIWC	4,530.01
		128,114.57

BANK RECONCILIATION

Cash in Bank per Statement 06/30/16	(3,493.37)
Plus: Intransit Deposits	
Less: Outstanding Checks	
Total Cash in Bank	(3,493.37)
Plus: Savings Account-Utah State Treasurer	112,731.90
	109,238.53

BEAR RIVER COMMISSION

STATEMENT OF INCOME AND EXPENDITURES

FOR THE PERIOD OF July 1, 2016 TO November 15, 2016

INCOME	CASH ON HAND	OTHER INCOME	FROM STATES	INCOME
Cash Balance 07-01-15	109,238.53			109,238.53
State of Idaho			40,000.00	40,000.00
State of Utah			40,000.00	40,000.00
State of Wyoming			40,000.00	40,000.00
Water Quality		2,717.00		2,717.00
Interest on Savings		509.54		509.54
 TOTAL INCOME TO				
15-Nov-16	109,238.53	3,226.54	120,000.00	232,465.07

DEDUCT OPERATING EXPENSES

	APPROVED BUDGET	UNEXPENDED BALANCE	EXPENDITURES TO DATE
Stream Gaging/USGS Contract	40,755.00	-	40,755.00
SUBTOTAL	40,755.00	-	40,755.00
 EXPENDED THROUGH COMMISSION			
Personal Services	64,350.00	37,537.50	26,812.50
Travel (Eng-Mgr)	1,200.00	883.22	316.78
Office Expenses	1,600.00	1,412.28	187.72
Printing Biennial Report	1,000.00	1,000.00	
Treasurer Bond & Audit	1,400.00	1,400.00	
Printing	1,600.00	1,528.40	71.60
Realtime Web Hosting	8,400.00	6,600.00	1,800.00
Clerical	8,340.00	6,870.07	1,469.93
Tour	-	-	
Contingency	2,000.00	2,000.00	
SUBTOTAL	89,890.00	59,231.47	30,658.53
 TOTAL EXPENSES	 130,645.00	 59,231.47	 71,413.53
 CASH BALANCE AS OF 11/15/2016			 161,051.54

BEAR RIVER COMMISSION
 DETAILS OF EXPENDITURES

FOR PERIOD ENDING November 15, 2016

832	VOID	-
833	BIWC	10,725.00
834	VOID	-
	Bank Service Fees	27.00
835	BIWC	6,126.25
836	USGS	40,755.00
837	STONEFLY	1,800.00
838	BIWC	6,421.15
839	BIWC	5,559.13

71,413.53


BANK RECONCILIATION

Cash in Bank per Statement 11/15/2016	17,810.00
Plus: Intransit Deposits	
Less: Outstanding Checks	
Total Cash in Bank	17,810.00
Plus: Savings Account-Utah State Treasurer	143,241.44
	161,051.54


PARIS HILLS
 AGRICOM INC.




Update of the Paris Hills Underground
 Phosphate Mine Project
 November 22, 2016



PARIS HILLS
 AGRICOM INC.

Project Location

- Site located in the foothills west of Paris & Bloomington, Idaho
- 15 miles south of Montpelier, ID
- 45 miles south of the Soda Springs phosphate mining area




2


PARIS HILLS
 AGRICOM INC.

Project History/Highlights

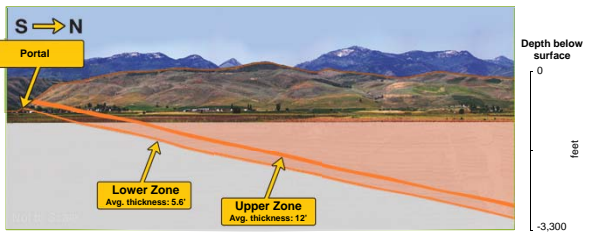
- Acquired property in 2009
- Baseline surface water monitoring since 2010 from 20 stations
- Exploration drilling from 2010 to 2012
- Feasibility Study completed in Dec. 2012
- Baseline groundwater monitoring since 2013 from 8 wells
- Initiated project permitting with Idaho in 2013
- Thirty-day aquifer pump test in July 2015
- Submit permit applications in early 2017

3


PARIS HILLS
 AGRICOM INC.


Cross Section of Phosphate Zones

Looking west



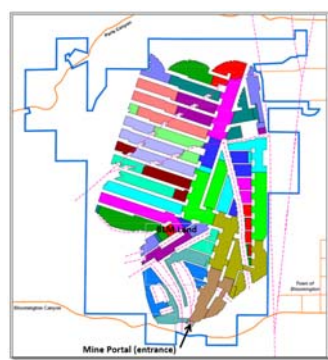
- Feasibility Study completed in 2012
 - Targeted the Lower Phosphate Zone only
 - 19 year mine life and 300 employees during peak years
 - Upper zone likely to be added in future studies


4


PARIS HILLS
 AGRICOM INC.


Underground Mine

Project will utilize common mining techniques






Continuous Miner




Shuttle Car



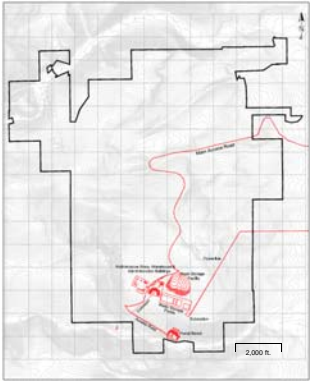
Roof Bolter

5


PARIS HILLS
 AGRICOM INC.

Surface Facilities

- Small surface disturbance footprint
- Direct ship product, no processing facility on site
- The Rock Storage Facility will be a permanent facility containing 1 million tonnes



6

Surface Facilities

PARIS HILLS AGRICOM INC

- Small surface disturbance footprint
- Direct ship product, no processing facility on site
- The Rock Storage Facility will be a permanent facility containing 1 million tonnes

7

Truck Transportation Route and Rail Loadout Facility

PARIS HILLS AGRICOM INC

- Hwy. 89 trucking route to Soda Springs through Montpellier.
- Potential Rail Loadout Facility located SW of Montpellier.

8

2012 Feasibility Study Fertilizer Pilot Plant Test

PARIS HILLS AGRICOM INC

N-P-K ASSAY RESULTS
From in-situ Lower Zone material

Paris Hills MAP:	12 – 56 – 0
Industry Specifications:	11 – 52 – 0
Paris Hills DAP:	19 – 50 – 0
Industry Specifications:	18 – 46 – 0

- N-P-K assay results for MAP and DAP meet industry specs
- Lab test done on 105-Kg in-situ sample
- Sample not processed (beneficiated) prior to test
- Results support plans for an underground mine producing direct-ship concentrate-quality phosphate rock

9

Groundwater

PARIS HILLS AGRICOM INC

10

Cross Section of Phosphate Zones

PARIS HILLS AGRICOM INC

Looking west

- Groundwater pumping ahead of mining is required to ensure a safe, productive operation.
- Pumping estimates based on 30-day pump test conducted in July 2015.

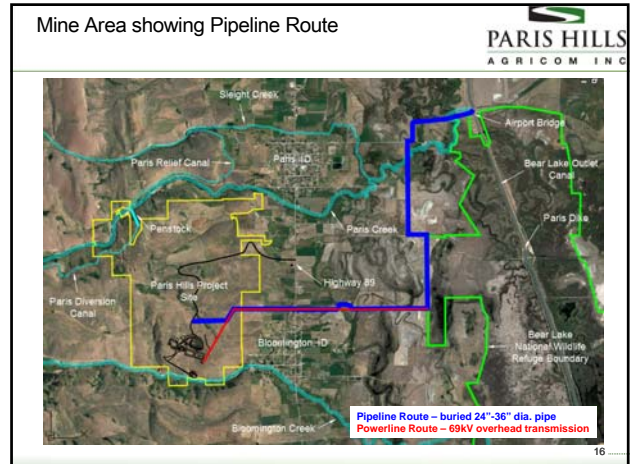
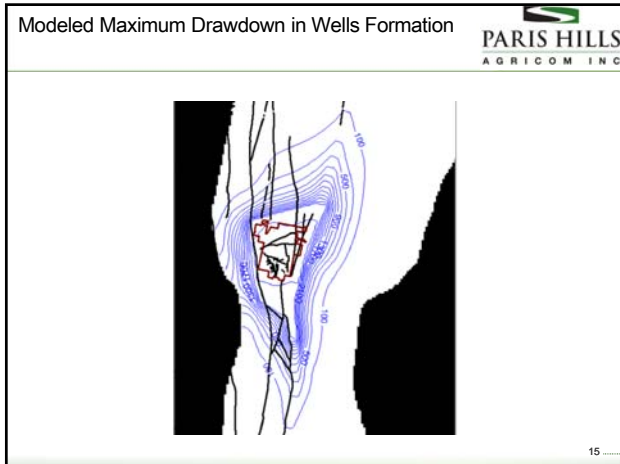
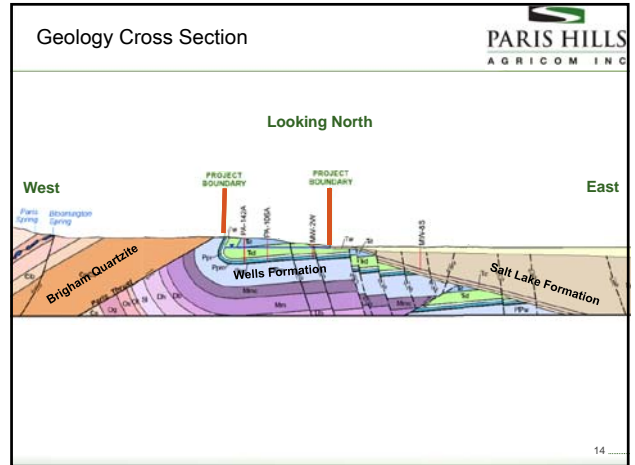
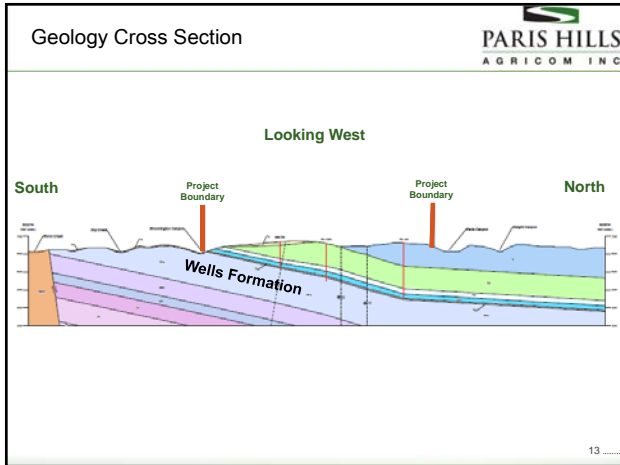
11

Estimated Mine Dewatering Rates by Year

PARIS HILLS AGRICOM INC

2012 Feasibility Study Mine Timing		
Mining Year	Total Discharge (gpm)	Total Discharge (cfs)
-1	25,000	56
1	25,000	56
2	25,000	56
3	24,000	53
4	19,500	43
5	19,500	43
6	19,000	42
7	17,500	39
8	17,500	39
9	17,500	39
10	16,250	36
11	12,500	28
12	10,000	22
13-19	-	-

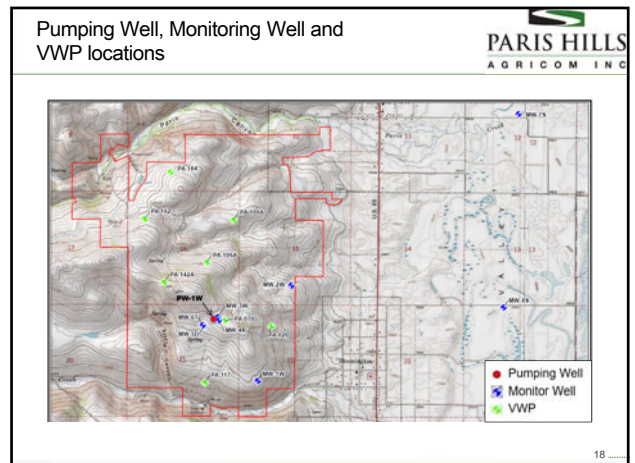
12




PARIS HILLS AGRICOM INC

Groundwater Quality

17




Groundwater Quality



- Sampling completed every 6 weeks between Dec. 2012 & Jan. 2015
- Sampling continues twice annually.
- Monitoring data indicate that groundwater in the Wells Formation Aquifer generally meets Idaho groundwater standards and federal drinking water standards
- Sporadic exceptions exist for: pH, aluminum, manganese and iron.

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Summary Statistics for Monitoring Wells completed in the Wells Formation Aquifer




Parameters	Units	Combined Monitoring Wells MW-1W, MW-2W, and MW-3W (Greater Teton Wells Formation)									
		Number of Samples	Number of Non-Detect Results	Percent Non-Detect	Minimum	Maximum	Mean	Median	Standard Deviation	Skewness	Statistical Method
Major Ions and Substition Parameters											
pH lab	u.n.	58	0	0.0%	8.1	8.7	8.32	8.3	0.13	0.4271	GSU
pH field	u.n.	60	0	0.0%	7.1	9.1	8.03	8	0.41	0.3214	GSU
Alkalinity (as CaCO ₃)	mg/l	59	0	0.0%	111	219	165.8	159	28.7	0.4981	GSU
Bicarbonate (as CaCO ₃)	mg/l	59	0	0.0%	111	219	159.5	152	26.8	0.8514	GSU
Carbonate (as CaCO ₃)	mg/l	59	30	51.7%	<2.0	21.7	4.6	<2.0	NC	NC	LogROS
Hydroxide (as CaCO ₃)	mg/l	59	59	100.0%	<2.0	<2.0	NC	NC	NC	NC	ND
Hardness (as CaCO ₃)	mg/l	59	0	0.0%	142	205	166.9	156	29.6	1.5819	GSU
Calcium, dissolved	mg/l	59	0	0.0%	28.9	47.9	38.16	36.0	4.28	1.5163	GSU
Magnesium, dissolved	mg/l	59	0	0.0%	13.9	23.0	17.39	16.0	2.99	1.9914	GSU
Sodium, dissolved	mg/l	59	0	0.0%	4.5	79.0	35.01	37.0	21.78	-0.2741	GSU
Potassium, dissolved	mg/l	59	0	0.0%	1.2	<2.8	0.93	1.7	0.82	1.4022	GSU
Chloride	mg/l	59	0	0.0%	7.30	37.50	17.010	19.50	8.080	-0.9232	GSU
Fluoride	mg/l	58	1	1.7%	<0.20	<0.5	0.360	0.4	0.0700	0.5581	IDE
Bromide	mg/l	58	33	60.3%	<0.10	<0.30	0.100	0.1	0.0300	1.7440	LogROS
Sulfate	mg/l	59	0	0.0%	23.80	148.00	63.750	48.50	43.150	1.2519	GSU
Total Dissolved Solids	mg/l	59	0	0.0%	140	410	283.2	290	83.5	-0.3278	GSU
EC lab	uS/cm	59	0	0.0%	110	640	489.9	517	133.0	-0.6123	GSU
Total Organic Carbon	mg/l	58	47	81.0%	<1.00	4	NC	NC	NC	NC	ND
Total Suspended Solids	mg/l	59	54	91.5%	<5.0	11	NC	NC	NC	NC	ND
Turbidity lab	NTU	58	3	5.2%	0.10	24.3	4.67	0.4	7.19	1.7850	IDE
Cyanide	mg/l	10	10	100.0%	0.0	0.0	NC	NC	NC	NC	ND
Nutrients											
Nitrate-Nitrite as N	mg/l	59	38	64.4%	<0.02	<0.11	0.041	0.02	0.0297	0.8770	LogROS
Nitrogen, ammonia	mg/l	59	55	93.2%	<0.05	0.08	NC	NC	NC	NC	ND
Phosphorus, dissolved	mg/l	54	31	57.4%	<0.01	<0.02	0.009	0.01	0.0049	1.3310	LogROS
Phosphorus, total P	mg/l	53	26	49.1%	<0.02	0.03	0.01	0.02	0.005	1.4206	KS4

Notes: NC = not calculated; ND = non-detect; NA = not applicable; GSU = standard formulas; LogROS = Log normal regression on order statistics; KM = Kaplan Meier; IS = insufficient number of samples to calculate meaningful statistic; SDL = substitution of method detection limit for non-detect values for datasets containing >15% non-detect values; highlight for analyte concentration that exceed a standard see: Federal MCL (green), Federal SMCL (red), Idaho groundwater primary standard (orange), Idaho groundwater secondary standard (yellow).

20

Summary Statistics for Monitoring Wells completed in the Wells Formation Aquifer




Parameters	Units	Combined Monitoring Wells MW-1W, MW-2W, and MW-3W (Greater Teton Wells Formation)									
		Number of Samples	Number of Non-Detect Results	Percent Non-Detect	Minimum	Maximum	Mean	Median	Standard Deviation	Skewness	Statistical Method
Metals, Dissolved											
Aluminum	mg/l	59	56	94.9%	<0.01	0.008	NC	NC	NC	NC	ND
Antimony	mg/l	59	52	88.1%	<0.0004	0.0100	NC	NC	NC	NC	ND
Arsenic	mg/l	59	11	18.6%	<0.0002	0.00710	0.00220	<0.0020	0.00150	0.4114	KM4
Barium	mg/l	59	0	0.0%	0.023	0.097	0.0610	0.060	0.0352	0.1233	GSU
Beryllium	mg/l	59	59	100.0%	<0.00010	<0.00100	NC	NC	NC	NC	ND
Boron	mg/l	59	0	0.0%	<0.01	0.17	0.098	<0.11	0.054	-0.7962	GSU
Calcium	mg/l	59	57	96.6%	<0.0001	0.0030	NC	NC	NC	NC	ND
Chromium	mg/l	59	59	100.0%	<0.0005	<0.0100	NC	NC	NC	NC	ND
Copper	mg/l	59	57	96.6%	<0.001	<0.010	NC	NC	NC	NC	ND
Iron	mg/l	58	25	43.1%	0.02000	0.360	0.050	0.03	0.0601	1.0083	KM4
Lead	mg/l	59	59	100.0%	<0.0001	0.0030	NC	NC	NC	NC	ND
Manganese	mg/l	59	0	0.0%	<0.00	0.308	0.036	0.0234	0.0250	-0.3117	GSU
Mercury	mg/l	59	58	98.3%	<0.0002	0.0002	NC	NC	NC	NC	ND
Molybdenum	mg/l	59	52	88.1%	0.0100	0.1000	NC	NC	NC	NC	ND
Nickel	mg/l	59	58	98.3%	<0.0003	0.0200	NC	NC	NC	NC	ND
Selenium	mg/l	58	11	19.0%	<0.00	<0.04	0.004	0.001	0.0078	1.0337	KM4
Silver	mg/l	58	56	96.6%	<0.0000	<0.00	NC	NC	NC	NC	ND
Thallium	mg/l	59	38	64.4%	<0.000100	<0.00010	0.000	0.0001	0.0000	1.3710	LogROS
Vanadium	mg/l	58	16	27.4%	<0.000	<0.004	0.001	0.0016	0.0008	-1.1810	KM4
Zinc	mg/l	59	28	47.5%	<0.000	<0.002	0.001	0.0006	0.0011	0.3818	KM4
Zinc	mg/l	59	30	50.9%	<0.002	<0.050	0.004	0.004	0.0033	3.8230	LogROS

Notes: NC = not calculated; ND = non-detect; NA = not applicable; GSU = standard formulas; LogROS = Log normal regression on order statistics; KM = Kaplan Meier; IS = insufficient number of samples to calculate meaningful statistic; SDL = substitution of method detection limit for non-detect values for datasets containing >15% non-detect values; highlight for analyte concentration that exceed a standard see: Federal MCL (green), Federal SMCL (red), Idaho groundwater primary standard (orange), Idaho groundwater secondary standard (yellow).

21

Summary Statistics for Monitoring Wells completed in the Wells Formation Aquifer



Parameters	Units	Combined Monitoring Wells MW-1W, MW-2W, and MW-3W (Greater Teton Wells Formation)									
		Number of Samples	Number of Non-Detect Results	Percent Non-Detect	Minimum	Maximum	Mean	Median	Standard Deviation	Skewness	Statistical Method
Metals, Total											
Aluminum	mg/l	59	55	93.2%	0.03	0.3	NC	NC	NC	NC	ND
Antimony	mg/l	59	40	67.8%	0.0004	0.011	NC	NC	NC	NC	ND
Arsenic	mg/l	58	0	0.0%	0.0004	0.0018	0.0012	0.0019	0.0014	0.3904	GSU
Barium	mg/l	59	0	0.0%	0.026	0.098	0.062	0.059	0.0273	0.354	GSU
Beryllium	mg/l	59	59	100.0%	0.00001	0.00001	NC	NC	NC	NC	ND
Boron	mg/l	59	0	0.0%	0.002	0.18	0.0998	0.11	0.0563	-0.5421	GSU
Calcium	mg/l	59	58	98.3%	0.0001	0.0005	NC	NC	NC	NC	ND
Chromium	mg/l	59	48	81.3%	0.0005	0.0156	NC	NC	NC	NC	ND
Copper	mg/l	59	54	91.5%	0.0005	0.0025	NC	NC	NC	NC	ND
Iron	mg/l	58	18	31.0%	0.02	0.40	0.0919	0.03	0.0774	1.2284	KM4
Lead	mg/l	59	55	93.2%	0.0001	0.0002	NC	NC	NC	NC	ND
Manganese	mg/l	59	0	0.0%	0.0006	0.0079	0.0298	0.032	0.0241	-0.4227	GSU
Mercury	mg/l	59	59	100.0%	0.0002	0.0002	NC	NC	NC	NC	ND
Molybdenum	mg/l	59	50	84.7%	0.01	0.1	NC	NC	NC	NC	ND
Nickel	mg/l	59	59	100.0%	0.01	0.01	NC	NC	NC	NC	ND
Selenium	mg/l	59	28	47.5%	0.0001	0.0014	0.0004	0.0002	0.0004	1.7409	KM4
Silver	mg/l	59	59	100.0%	0.0001	0.0001	NC	NC	NC	NC	ND
Thallium	mg/l	59	40	67.8%	0.0001	0.0002	0.0001	0.0001	0.0000	1.5200	LogROS
Vanadium	mg/l	58	9	15.5%	0.0001	0.0035	0.0012	0.0014	0.0009	-0.5689	KM4
Zinc	mg/l	58	17	29.3%	0.0002	0.0019	0.0009	0.0007	0.0011	0.6543	KM4
Zinc	mg/l	58	17	29.3%	0.0020	0.010	0.0040	0.0015	0.0023	0.6753	KM4

Notes: NC = not calculated; ND = non-detect; NA = not applicable; GSU = standard formulas; LogROS = Log normal regression on order statistics; KM = Kaplan Meier; IS = insufficient number of samples to calculate meaningful statistic; SDL = substitution of method detection limit for non-detect values for datasets containing >15% non-detect values; highlight for analyte concentration that exceed a standard see: Federal MCL (green), Federal SMCL (red), Idaho groundwater primary standard (orange), Idaho groundwater secondary standard (yellow).

22

You're invited



Meeting to discuss Bear River capacity

Rocky Mountain Power is exploring ways to increase the maximum river flow in the Bear River through Gentile Valley in southeastern Idaho and is looking for public input. The company is facing two challenges that could be met by increasing the maximum river flow through the Gentile Valley and would like to invite you to an initial discussion.

December 6 and 7, 2016
6 – 8 p.m.

American Legion Hall
105 North 1st West
Grace, ID 83241

Challenges

The first challenge is to efficiently integrate wind and solar power into the energy supply. As the energy supply continues to include more variable renewable energy sources (primarily wind and solar) there is an increased need for other energy resources that can respond quickly to the intermittent nature of wind and solar.

Rocky Mountain Power's Bear River hydroelectric plants have the capacity to assist with the delivery of variable renewable energy. This can be done by using the additional generating capacity at the hydro plants to provide backup energy in a form called spinning reserves.

A hydroelectric unit, when rotated with a low flow of water, can be ready to deliver energy on short notice. When the generating units are rotating and ready to generate, this is called spinning reserve. The more renewable energy resources brought on-line, the more spinning reserves required to assure network reliability. Bear River hydroelectric plants can potentially provide those spinning reserves; however, the Bear River needs to be able to accommodate the potential increase in flows should the backup generation be needed.

The second challenge is being able to manage higher rainfall years better and store additional water in Bear Lake.

Bear Lake is typically filled from the Bear River outside of the irrigation season. In wet years, because of the restriction on maximum river flow through the Gentile Valley, water releases to conservatively manage high spring flows have to start earlier than normal. With a higher flow capacity through the Gentile Valley, together with careful management of Bear Lake, flood releases can be delayed to see how run-off and spring precipitation develops, potentially avoiding unnecessary releases of water from Bear Lake. This means additional water may be retained and stored in Bear Lake.

Next steps

Rocky Mountain Power hopes that you will join us in an initial discussion of these challenges. We are committed to exploring ways to address these challenges and would like your involvement in the discussion. If you have questions, you may email bearriver@pacificorp.com or call Mark Stenberg, Rocky Mountain Power's local contact for this project at 208-852-5507.



Last Chance Diversion Dam Rehabilitation

History – Timber Crib Dam



Demolition



Canal Intake



Concrete Work



Roller-Compacted Concrete (RCC)







SUMMARY OF WATER YEAR 2016 BEAR LAKE OPERATIONS AND IRRIGATION ALLOCATION FOR 2017

Date	Hydrologic Information/Event	Contents (% of Full) Discharge (% of Normal)
10-01-15	Bear Lake Beginning Elevation - 5,911.55 ft.	592,476 acre-feet (42%)
12-09-15	Bear Lake Low Elevation - 5,911.18 ft. (see note 1)	568,444 acre-feet (40%)
	Rainbow Inlet Canal Discharge	193,000 acre-feet (74%)
	Bear River Discharge Below Stewart Dam	2,300 acre-feet
	Bear Lake Net Runoff (Computed Total Inflow less Lake Evaporation)	188,000 acre-feet (58%)
06-24-16	Bear Lake High Elevation - 5,914.44 ft.	783,421 acre-feet (55%)
	Outlet Canal Releases: 6/2 – 9/23	216,000 acre-feet
07-01-16	Outlet Canal Maximum Release - 1,596 cfs	
	Bear Lake Storage Release (see note 2)	166,000 acre-feet
09-30-16	Bear Lake Ending Elevation - 5,910.68 ft.	536,093 acre-feet (38%)
	Bear Lake Settlement Agreement “System Loss” Volume (see note 3)	12,900 acre-feet

Notes:

- 1 - Low contents prior to start of storage.
- 2 - Net irrigation storage release from Bear Lake, subtracting Rainbow inflow and the decreed adjustment for the natural yield of Bear Lake and Mud Lake area. **Includes system loss volume.**
- 3 - Due to uncontrolled flow from (welcome) rain events. Whenever water flows below Cutler during the irrigation season any storage water in the system at Cutler is the first water out. Natural flow goes to irrigators.

Current Status

Bear Lake elevation as of November 21, 2016 was 5911.14 feet. The recent seasonal low elevation occurred on September 25, 2016 at 5910.61 feet (abnormally early due to Mud Lake drawdown). The Bear Lake Outlet Canal is closed. There is 218 cfs in the Rainbow Inlet Canal and the flow through the Causeway into Bear Lake is estimated to be 275 cfs.

Summary of Water Year 2016

The Bear Lake Irrigation Water Allocation for 2016 was 224,000 acre-feet. Despite normal snowpack amounts and runoff timing, overall Bear Lake net runoff was only 58% of normal. The Bear Lake Outlet Canal was opened on June 2nd, which is about two weeks earlier than normal. Bear Lake Irrigation water use was 166,000 acre-feet and a balance of 58,000 acre-feet was retained for Bear Lake recovery, also typical for years with similar Bear Lake Net Runoff, 58% of normal annual runoff.

Scenario for Water Year 2017

In 2017, under a worst-case scenario, assuming a one-foot increase from the fall low, around 213,000 acre-feet would be the irrigation allocation for 2017.

Operational Notes

- *Last Chance Canal Company Diversion Dam Coordination* – Spring flows cooperated and Black Canyon recreational releases were accommodated with a slightly lower flow at the end of the 6-hour release window.
- *Bear River Black Canyon Recreational Water Releases* – occurred in 2016 and planned for 2017.

- *2016 Oneida Narrows Reservoir Drawdown* – Oneida Narrows Reservoir was drawn down during the irrigation season to prepare for Oneida intake gate hoist work and bank improvement. The water released from storage was delivered for irrigation purposes in place of Bear Lake storage.
- *2017 Oneida Narrows Reservoir Drawdown* – Oneida Narrows Reservoir will be drawdown in 2017 to complete intake gate hoist installation.
- *2016 Mud Lake Drawdown* – 10/06/2016 through 11/04/2016 for LIDAR flyover.

