



## MINUTES

### BEAR RIVER COMMISSION REGULAR MEETING ONE HUNDRED TWENTY-FIRST COMMISSION MEETING NOVEMBER 13, 2012

## BEAR RIVER COMMISSION

106 West 500 South  
Suite 101  
Bountiful, Utah 84010-6203  
801-292-4662  
801-524-6320 fax

#### CHAIR

Dee C. Hansen

#### IDAHO COMMISSIONERS

Gary Spackman  
Marcus J. Gibbs  
Kerry Romrell

#### UTAH COMMISSIONERS

Dennis J. Strong  
Blair Francis  
Charles W. Holmgren

#### WYOMING COMMISSIONERS

Sue Lowry  
Sam Lowham  
Gordon Thornock

ENGINEER-MANAGER  
Don A. Barnett

**I. Call to order** – The regular meeting of the Bear River Commission was called to order by Chairman Dee Hansen at 1:30 p.m. on Tuesday, November 13, 2012, at the Utah Department of Natural Resources building in Salt Lake City, Utah. This was the one-hundred and twenty-first meeting of the Commission. Hansen welcomed everyone to the meeting and noted that Randy Budge was sitting in for Marc Gibbs from Idaho and that Jade Henderson is an alternate from Wyoming and was sitting in for Gordon Thornock. He also mentioned that Sue Lowry had been appointed as a Commissioner from Wyoming. Chairman Hansen then asked that all in attendance introduce themselves. An attendance roster is attached to these minutes as Appendix A.

**1.B. Recognitions** – Sue Lowry reported that Pat Tyrrell, the State Engineer for Wyoming who had served on the Commission for many years, had made a decision to step down from the Commission due to his many other responsibilities and the need to be more efficient within the budget constraints of the State of Wyoming. She reported that he had enjoyed his time with the Commission and that this was a hard decision for him to make. She read a resolution of appreciation which had been prepared for Mr. Tyrrell and moved that the Commission pass this resolution. It was unanimously approved.

**1.C. Approval of agenda** – Chairman Hansen then addressed the agenda for the meeting. The agenda was approved without change, and a copy is attached to these minutes as Appendix B.

**II. Approval of minutes of last Commission meeting** – Hansen asked if there were any changes to the minutes of the previous Commission meeting held on April 17, 2012, in Salt Lake City, Utah. As there were no changes, the minutes were approved.

**III. Reports of Secretary and Treasurer** – Secretary Dennis Strong noted that he had nothing to report and turned the time over to Randy Staker for the Treasurer's report. Staker referred to handouts on income and expenditures for the Commission (see Appendix C). He noted that at the end of FY2012 the Commission was under budget by almost \$5,800 with total expenditures of \$130,638.38 and a carryover of \$103,579.01. For FY2013 to date, expenses have been just under \$86,000. There was a motion to approve the report of the Treasurer which motion passed unanimously.

**IV. Report of the Technical Advisory Committee on depletions update efforts** – Don Barnett reported that the Technical Advisory Committee (TAC) and the GIS representatives from the states had moved ahead on depletion efforts and had spent a significant amount of time on determining how to update the 1976 irrigated acreage maps with current information. The effort was nearing completion. He referred to a draft technical memorandum being compiled with input from members of the TAC which includes an explanation of the common efforts between the states to update the irrigated acreage, as well as unique issues for each of the three states. There is also a section on how they calculated depletions associated with supplemental water rights and separate sections for each state regarding municipal and industrial depletion calculations. Barnett invited each state to give a verbal report on their efforts and findings.

Gary Spackman from Idaho commented that they had been involved in this analysis for several years and had worked with the TAC and the Management Committee on how to make these numbers consistent, that is new acres counted towards depletions as described in the Compact. He explained that in Idaho, a lot of the analysis was done by remote sensing and by geographic information systems comparing what they previously had in base values with what they now have. He noted from the technical memorandum that in the Central Division they show an additional 851 acres that are being irrigated, and in the Lower Division an additional 2,303 acres. There are also some supplemental acres, but the depletion was not significant. He wanted to point out that, for the State of Idaho, the Central Division was of significant importance because of a 2,000 acre-foot limitation on additional depletions.

Todd Adams from Utah agreed with Commissioner Spackman on the struggle the TAC has had with new technologies and old technologies and all the details that had to be considered. He noted that they were really close on having final numbers. He reported that Utah has had an increase of about 421 acres of irrigated lands and 705 acres in supplemental irrigation in the Upper Division. In the Lower Division, they subtracted about 8,500 acres of irrigated lands that have been converted mostly to M&I uses and added about 6,000 acres in supplemental acreage. He expressed appreciation for the great work the GIS folks had done on this effort. He added that there were approximately an additional 20,600 acre-feet of M&I depletions in the total Basin.

Sue Lowry from Wyoming took the opportunity to introduce Jodee Pring who is transitioning into doing more of the TAC work as Lowry takes on the Commission responsibilities. Lowry noted that they had used the NAIP photography which, fortunately, was available to all three states in 2009. They also had some irrigated land coverages through their water planning effort which Beth Hoobler was able to use in making an initial cut at the irrigated lands. Through modern technology, she was able to, with the Cokeville office and others, add on-the-ground information that was not obvious through aerial photography. Lowry noted that with the increase in GIS capabilities since the early 1990s, the TAC had struggled with the fact that things hadn't necessarily changed, but the ability to map them had become more sophisticated and more accurate. She reported a decrease in acreage in the Evanston area and an increase of about 1,600 acres in the Cokeville sub-area. There were also some supplemental irrigation increases in both the Evanston and Cokeville areas. Wyoming is feeling pretty comfortable with their mapping. As far as M&I, Lowry noted that they would need to go back and check the M&I numbers, especially since the town of Bear River was newly incorporated since 1976. That will be accomplished before the TAC meets in January.

**V. Direction to the Technical Advisory Committee on depletions** – Dennis Strong commented that a lot of work had been done and it was time to prepare the final report on the municipal and industrial use and the irrigated acreage. He suggested that the Commission direct the TAC and Don

Barnett that they would like the technical memorandum completed and ready for consideration and/or approval by the Commission at the April 2013 meeting. He noted that it should be given to the Commissioners by early March so that they would have time to review and respond to the information and be prepared to act on it at the April meeting. The Commission concurred with Strong's suggestion.

Strong then added that in addition to the municipal and industrial use and the irrigated acres, there were three other items to be considered. They included evapo-transpiration, the crop mix and the shortage rate for supplemental irrigation. He felt that those three items should be assigned to the TAC so they could start the process of helping the Commission decide what to do in these areas. Strong felt the most important was the shortage rate for supplemental irrigation, which is how much water is necessary for irrigation where you don't have a full supply. He believed the numbers in the current procedures were the best estimates at the time, but that they should be verified and the rate agreed upon by the states. The next item would be evapo-transpiration rates. Strong suggested that the TAC give some guidance on possible options, including using the current ET rates, using rates established by Dr. Bob Hill from Utah State University, or contracting with a firm to determine better numbers for the ET rates. He felt they should have an open discussion about the merits, benefits and costs of pursuing these options and moving forward with determining ET rates. Strong commented that crop mix is a very elusive thing because it can change every year and certainly changes over time. The crop mix definitely affects the total water use in the Basin and crop mix numbers are associated with the calculation of depletions.

Spackman suggested that the Commission consider severing these three additional components from the original two items (municipal and industrial use and the irrigated acres). The Management Committee felt that there had been enough time spent on the original two items and they were at a point where they could complete that effort and not spend any more time on it. The TAC could then focus on these three additional components presented by Strong.

Lowry added that another part of the original effort which was discussed by the Management Committee would be how the effort was memorialized for future generations who would be revisiting these issues in future years with continually improving technology. She suggested that this should be included in the report that would be available to the Commission in early March. Barnett asked for clarification on whether the technical memorandum should go to the Management Committee first in early March and then to the full Commission, or if it should go straight to the Commission members. It was agreed that the Management Committee would review it first and then move it to the Commission.

**VI. Changes to the depletion procedures** – Strong reported that Barnett had passed out a redlined copy of the Commission Procedures showing a couple of suggested minor changes to the depletion procedures that would provide better direction to the TAC as they complete the assignment on the depletions update. It was also suggested that the map in Appendix A be revised and updated. Appendix C would also be revised to show the new shortage rate numbers for Idaho which would make them consistent with the numbers for Utah and Wyoming. (The handouts are attached hereto as Appendix D.) Strong recommended these changes and made a motion to adopt them as a Commission. Lowry commented that she noticed a boundary line on the map between the Randolph and Evanston sub-basins that was in question. Barnett agreed to resolve the boundary line question and modify the map accordingly. The motion to approve these changes in the procedures with the corrected boundary line was passed by the Commission.

**VII. Paris Hills Phosphate Project** – Jim Geyer and Dan Thompson from Paris Hills Agricom were in attendance at the Commission meeting to make a presentation on their phosphate mining efforts near Paris, Idaho. Thompson shared a PowerPoint presentation giving an overview of the project and a snapshot of the current status. The presentation included surface water monitoring, surface water runoff control, the geochemistry program and the groundwater program. The pre-feasibility study was completed in March 2012 with positive results, and the definitive feasibility study will be completed in December 2012. Thompson's PowerPoint is attached to these minutes as Appendix E.

The Commission then took a short break.

**VIII. Records & Public Involvement Committee report** – Jade Henderson presented the report for the Records & Public Involvement Committee in place of Gordon Thornock, Chairman of the committee. Henderson reported that they had talked about the stream gages and noted that of the 32 total stream gages, the Commission participates in funding for seven of the gages. The water quality agencies from each of the states now carry 20 percent of that cost. There were brief reports from the different areas of the River Basin on telemetry, and most of the telemetry that is anticipated is probably installed. There are a few small additions that may be made in the coming years. Rock Holbrook from Idaho reported that he is retiring and will be replaced by Josh Hanks as a watermaster in the Central Division. The committee reviewed the Commission's website online and learned more about what is available on the site. They discussed the WIS (Water Information System) which is housed at USU and is accessible from the Commission website. They noted that the Mud Lake Symposium scheduled for 2012 was canceled, and they weren't aware of any additional public events scheduled. The Engineer-Manager reported that they have a contract extension with MetriDyne until at least July on the real-time data collection.

Henderson then reported on three particular items of discussion from the Records Committee to bring to the Commission members. From a discussion of the 17<sup>th</sup> Biennial Report for 2011 and 2012, it was pointed out that after the water year ends on September 30<sup>th</sup>, there is often continued seasonal reporting and water distribution going on, particularly in the Lower Division. The question was raised as to whether or not the traditional date for record keeping for the water year that ends on September 30<sup>th</sup> should be adjusted to include the activity that occurs in October and sometimes into November rather than including these numbers in the following water year. They were looking for guidance on this issue for the Management Committee and/or the TAC to consider.

Another item concerns the Commission-approved procedures. Presently there is a main document which contains more than one procedure and additional separate procedure documents. The Engineer-Manager recommended that they be broken into separate documents so that each procedure is isolated in its own document. Thus when a procedure needs to be amended, it can be dealt with on its own.

The third item involved a document that was brought to the attention of the committee by PacifiCorp and Jack Barnett. It was a draft Bear Lake Wildlife Refuge Comprehensive Conservation Plan and Environmental Assessment from the U.S. Fish & Wildlife Service. It is a pretty significant document of 900 pages which is available online. The public comment period has ended. The committee was concerned that the Agency had not consulted or even alerted the Bear River Commission, the interstate agency which oversees the Basin. The committee wondered if there should be some kind of statement made from the Commission to the Fish & Wildlife Service and some involvement, perhaps urgently, to review that big document and ask for the opportunity to have some input there. Charles Holmgren added that the committee would like the Fish & Wildlife

Service to identify a specific individual as a contact person between them and the Commission. Henderson mentioned that an idea from the Records Committee would be to send a letter from the Commission, under the signature of the Commission Chairman, asking them to identify a contact person to integrate with the Commission. Randy Budge suggested going a step further to not only ask the Fish & Wildlife Service to identify a contact person, but also to express the concern that the Commission was not part of the collaborative process and to indicate that we have not had an opportunity to review that extensive document. The Commission should ask for an opportunity to review it and submit additional comments that may be appropriate based upon potential impacts on water rights in the three states and/or to correct any errors that might be identified, as was noted by PacifiCorp based on their initial review. This idea was presented as a motion which was passed by the Commission.

Lowry then addressed the first item presented by Henderson concerning the end of the water year. Her suggestion was that the TAC be assigned to take a look at the options and communicate with PacifiCorp on how they keep their books regarding this subject and how often there is activity later into the water year. They could then come back to the Commission in April with suggestions based on what they discover and how to track those activities. Will Atkin suggested that it would be a good idea to check the Commission bylaws and procedures to see if those dates can be altered. The Commission agreed to make this assignment to the TAC.

Holmgren brought up the other item regarding the procedures documents. Barnett explained that currently there is a mixed bag which can be confusing. There are five different documents, but one document names itself as "the Procedure" and it has two different procedures in it. Then there are four additional documents that are independent procedures. The goal is to be uniform one way or another, either all in one document as six separate chapters or six separate documents. The TAC was assigned to review the procedures and come back with a suggestion for the Commission.

**IX. Operations Committee Report** – Blair Francis presented the report for the Operations Committee in place of Marc Gibbs, Chairman. He mentioned that their major agenda items regarding depletions and the post-September 30<sup>th</sup> water year had already been discussed by the Commission. Therefore, he focused his report on some of the nuts and bolts of how the year went. He reported that there was no regulation necessary in the Upper Division during the past water year due to the great cooperation between Utah and Wyoming. The hay crop averaged around 50 percent this year, with some areas up to 75 percent and others down to 35 percent. In addition to the water shortage, the temperature was also a factor. Regarding the delivery of Woodruff Narrows storage downstream of Pixley in Wyoming, by the time the point of use went out of direct flow priority in the Central Division, Woodruff was no longer running, so it was not an issue. In the Central Division Rock Holbrook reported that, due to the flooding of the previous year, a large percentage of the diversions had damage. They only had about 30 percent of the normal amount of water, so the alfalfa production was around 50 percent and the meadow hay about 75 percent. In the Lower Division there was no regulation. Francis made note of a few areas where there was new use.

**IX.A. PacifiCorp operations** – Connely Baldwin referred to a handout on 2012 Bear Lake Operations (see Appendix F). They started off the year with Bear Lake fairly high and released water for flood control through the winter. In January, when the water supply forecast came out, the target was changed to 5920 and they began storing water. During the summer, they did provide quite a bit of storage for irrigation, lowering Bear Lake 4.9 feet from the spring maximum. Baldwin reported that some repair work was done at Alexander reservoir at the end of the irrigation season,

so they released that water for irrigation downstream and curtailed the flows from Bear Lake, then refilled the reservoir when the work was finished. The seasonal low elevation for Bear Lake was 5915.5 feet on November 9, 2012. For the coming 2013 water year, the irrigation allocation will be the maximum possible since Bear Lake is already above the 5914.7 foot mark. Baldwin noted some graphs on the back of the handout which illustrate some comparisons between the last two years.

**IX.B. Activities of the Bear River Water Users Association** – Carly Burton commented that the best way to sum up the past water year was that the irrigators “survived” due to the enormous amount of storage in Bear Lake from the previous year. He felt that, in spite of modern technology, luck plays a big part on the operation of the Bear River system. It was his belief that you don’t “tame” the Bear River, but the best you can hope for is to minimize the extremes that occur in terms of water supply and storage capability within the system. Burton commented that we were fortunate to have a large amount of storage available to minimize the effect of the water shortage this year and expressed appreciation to irrigators who continue to promote conservation for the benefit of all who use Bear Lake. Burton mentioned the WaterSmart program by the Bureau of Reclamation. Notification has been sent out for the funding of grants under this program for FY2013 in the amount of \$21.5 million. The objective of this program is to invite entities to partner in a cost-sharing program with the Bureau in conserving water, improve energy efficiency, etc. Burton also reported that Bear Lake Watch sponsored a fund raising event at Bear Lake during the summer which raised around \$40,000 for future scientific studies on Bear Lake. It was a huge success.

Gary Spackman commented that, in light of the discussions regarding US Fish & Wildlife and Mud Lake and environmental issues and the impacts those changes might have on the quality of Bear Lake and the river system, he felt that the Commission ought to have a discussion on being proactive instead of being reactionary. He expressed appreciation to the Cottles with Bear Lake Watch and the Bear River Water Users Association for their proactive efforts to improve things in the Bear River Basin.

**X. Water Quality Committee Report** – Walt Baker reported on the meeting of the Water Quality Committee which was held a month earlier. Karl Fleming from USFWS spoke about a program they had with limited funding to do projects for water management improvement. No match is required and projects are limited to a maximum of \$20,000. Bill Hopkin with the Utah Department of Agriculture made a presentation on the Rich County Grazing Improvement Project. It uses as a template the LDS Church’s Deseret Land and Livestock operation, an innovative and holistic approach to grazing management and watershed protection. The idea is to get a consortium of those who have grazing operations and get them to sign into a cooperative so that they are not individually managing their grazing programs, but doing it as a group. Through a rotation into different areas, it can better protect and not overgraze the land. They want good quality abundant water and a well-managed habitat that will be sustainable. They had lined up agreements to fund the capital improvements, but they lacked money for O&M. The Water Quality Board in Utah has provided a \$1 million grant over ten years for the O&M. It is a massive project and will help control non-point source pollution. They are going through the NEPA process currently and hope to begin the project in the summer.

Baker also mentioned that the committee had discussed the Water Information System (WIS). Representatives from USU were there to answer some questions. A great amount of dollars and effort and resources were put into developing the WIS and not a whole lot of thought was put into how to keep it fresh and updated. The water quality agencies of the three states have contributed

some money to manage the system, and the cost of maintaining and updating it should be fairly nominal. They are planning to implement a memorandum of agreement between the three water quality agencies to contribute the dollars to Utah State. They would do that for seven to ten years. The WIS has been a very useful tool.

The tri-state water quality Bear River monitoring initiative is still ongoing. It is in its seventh year. Rather than have the three states independently doing the same thing, it was determined that it would be more efficient to pool resources. Idaho does the monitoring, Utah pays for the lab work and Wyoming contributes dollars, as do the other states. It is done four times a year to get the pre-runoff, peak runoff, summer base flows and post-irrigation. They need to determine if this program should be continued and if there is value added, so the staffs are looking at it. Idaho is very supportive, Wyoming is a little tepid and Utah is somewhere in-between. Utah has a great amount of water quality data and is not sure that they are gaining a lot from the effort. They will evaluate the program, and Baker suspected that it would be continued.

Baker reported on updates from the states. In Wyoming a TMDL is being completed from Woodruff upstream 36 miles. They are also doing a GIS-based look at their recreational standards to see if their recreational waters are actually used for recreational purposes. They want to avoid having to do use attainability analysis to please EPA if it is not necessary. Idaho is just starting an effort to look at human health criteria for toxics. A revision of the Bear River TMDL has been submitted. Mostly that will pertain to waste water treatment plants and the load allocations associated with the plants. In Utah some changes of ammonia standards have occurred which has necessitated some limits for ammonia in waste water treatment plants to be throttled down. It has greatly affected Logan City as they are in the middle of upgrading their waste water treatment plant by bringing in a mechanical component to satisfy the terms of the TMDL in Cutler Reservoir. They will have to do more than they anticipated to satisfy this requirement. Studies on the Willard Spur, right outside the Bear River Migratory Bird Refuge, are ongoing. The study is to determine if nutrients are having a negative effect on Willard Spur and if they have the use classification correct for that area. Baker also reported that Utah is in the middle of developing numeric nutrient criteria, as many other states are doing, and that will have an impact as far as which waters may be impaired relative to phosphorus and nitrogen pollution.

**XI. Management Committee Report** – There was nothing to report on this agenda item.

**XII. Engineer-Manager's Report** – Barnett said that he had nothing new to report, except that he was keeping track of assignments for the Technical Advisory Committee. These assignments include depletions and the five different components that are included in the update effort. They discussed how the first two will be memorialized and that a memo would be forthcoming on those efforts. There was a pecking order for the three remaining items for the TAC to consider. The TAC has been assigned to look at post-September 30<sup>th</sup> reporting of water deliveries in the biennial and other reports and also to report back on how the procedures documents of the Commission might be assembled. Following the letter from the Chair to USFWS, the TAC would be considering how to evaluate the large report and react to the document, as well as other documents which might be forthcoming. The TAC will also consider how the Commission might be more proactive in things that might affect the Bear River Basin.

**XIII. State Reports – Wyoming** – Sue Lowry announced that Greg Lanning has accepted the position as Deputy to the State Engineer and they are pleased to have him on board. She reported that, with regard to the Montana vs. Wyoming litigation, it is moving ahead. Depositions have been

taken of the field staff in Sheridan, which will also be done soon in the Cheyenne area. Lowry mentioned that the Governor had asked each agency to come up with a plan for an 8 percent budget cut which, unless natural gas prices make a tremendous rebound, will likely be required following the meeting of the Legislature in January. She felt it would not mean a lot of people layoffs, but would affect outside funding. Also the Water Development Commission, their funding agency, is looking at moving forward with their level two studies on the Sublette Reservoir just south of Cokeville.

**XIII. State Reports – Idaho** – Gary Spackman reported that their Watermaster, Rock Holbrook, has decided to retire from his position. He mentioned that Idaho has come a long way in technical competency and water measurement and reporting. Spackman is a real proponent of data disclosure and transparency which he feels reduces suspicion and problems between water users. He applauded Holbrook for his part in that effort. He mentioned that Josh Hanks, who has a lot of experience in that area, would likely be taking Holbrook's place, but that he had to go through the required process to be approved.

**XIII. State Reports – Utah** – Dennis Strong reported that Utah continues to work with the three water conservancy districts and the Cache Valley Council in development of the Bear River. They still have plans for using their unused allocation in the Bear River. They are looking at additional dam sites, as well as rights-of-way to protect their ability to move that water.

**XIV. Other/Public Comment** – There was no public comment.

**XV. Next Commission Meeting** – Chairman Hansen commented that in the many years he has been involved on the Bear River, he has seen a significant improvement in the cooperation among the states, and he commended everyone for that. He announced that the next Commission meeting will be held on April 10<sup>th</sup>, 2013. Barnett noted that, according to the Bylaws, the meeting should be held on the third Tuesday of April. There was a request made, because of a conflict, that the meeting be moved a week earlier. It will be held on April 10<sup>th</sup>, which is actually a Wednesday instead of a Tuesday.

The Commission meeting was adjourned at 4:00 p.m.

# **ATTENDANCE ROSTER**

## **BEAR RIVER COMMISSION REGULAR MEETING**

Utah Department of Natural Resources Building  
Salt Lake City, Utah  
November 13, 2012

### **IDAHO COMMISSIONERS**

Gary Spackman  
Kerry Romrell  
Randy Budge (Alternate)

### **WYOMING COMMISSIONERS**

Sue Lowry  
Sam Lowham  
Jade Henderson (Alternate)

### **FEDERAL CHAIR**

Dee Hansen

### **UTAH COMMISSIONERS**

Dennis Strong  
Charles Holmgren  
Blair Francis

### **ENGINEER-MANAGER & STAFF**

Don Barnett  
Jack Barnett  
Donna Keeler

### **OTHERS IN ATTENDANCE**

#### **UTAH**

Walt Baker, Division of Water Quality  
Will Atkin, Division of Water Rights  
Ben Anderson, Division of Water Rights  
Jared Manning, Division of Water Rights  
Todd Adams, Division of Water Resources  
Randy Staker, Division of Water Resources  
Ron Hoffman, Upper Utah Water Commission

#### **WYOMING**

Mike Johnson, State Engineer's Office  
Don Shoemaker, State Engineer's Office  
Kevin Payne, State Engineer's Office  
Jodee Pring, State Engineer's Office

#### **OTHERS**

Connely Baldwin, PacifiCorp Energy  
Claudia Conder, PacifiCorp Energy  
John Mabey, PacifiCorp Energy  
Cory Angeroth, U.S. Geological Survey  
Carly Burton, Bear River Water Users Association  
Darin McFarland, Bear River Canal Company  
Bob Fotheringham, Cache County  
Scott Clark, Barnett Intermountain Water Consulting  
Josh Hanks  
Jim Geyer, Paris Hills  
Dan Thompson, Paris Hills  
Bill Nelson, IdaMont Farms

**BEAR RIVER COMMISSION REGULAR MEETINGS  
November 13, 2012**

**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**

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**COMMISSION AND ASSOCIATED MEETINGS**

**October 15**

10:00 a.m. Water Quality Committee Meeting – Red Rock Conference Room

**November 13**

9:00 a.m.	Records & Public Involvement Committee Meeting – Room 314	Thornock
10:00 a.m.	Operations Committee Meeting – Room 314	Francis
11:30 p.m.	Informal Meeting of Commission – Room 314	D. Barnett
11:45 p.m.	State Caucuses and Lunch	Spackman/Strong/Lowry
1:30 p.m.	Commission Meeting – Main Floor Auditorium (Rms. 1040/1050)	Hansen

**PROPOSED AGENDA**  
**REGULAR COMMISSION MEETING**

**November 13, 2012**

**Convene Meeting:** 1:30 p.m.

**Chairman:** Dee Hansen

- |              |  |                    |
|--------------|--|--------------------|
| I.           | Call to order  | Hansen             |
|              | A. Welcome of guests and overview of meeting                           |                    |
|              | B. Recognitions  |                    |
|              | C. Approval of agenda  |                    |
| II.          | Approval of minutes of last Commission meeting (April 17, 2012)        | Hansen             |
| III.         | Reports of Secretary and Treasurer                                     | Strong/Staker      |
|              | A. 2012 Expenditures   |                    |
|              | B. Other   |                    |
| IV.          | Report of the Technical Advisory Committee on depletions update effort |                    |
|              | A. Depletions update efforts   | Barnett            |
|              | B. Reports from the states   | Idaho/Utah/Wyoming |
| V.           | Direction to the Technical Advisory Committee on depletions            | Strong             |
| VI.          | Changes to the depletion procedures                                    | Strong             |
| VII.         | Paris Hills Phosphate Project  | Thompson           |
| <b>Break</b> |  |                    |
| VIII.        | Records & Public Involvement Committee report                          | Thornock           |
| IX.          | Operations Committee report  |                    |
|              | A. Committee meeting   | Francis            |
|              | B. PacifiCorp operations   | Baldwin            |
|              | C. Activities of the Bear River Water Users Association                | Burton             |
| X.           | Water Quality Committee report   | Baker              |
| XI.          | Management Committee report  | Strong             |
| XII.         | Engineer-Manager's report  | Barnett            |
| XIII.        | State reports  |                    |
|              | A. Wyoming   | Lowry              |
|              | B. Idaho   | Spackman           |
|              | C. Utah  | Strong             |
| XIV.         | Other / Public comment   | Hansen             |
| XV.          | Next Commission meeting (April 10, 2013)                               | Hansen             |

**Anticipated adjournment:** 4:00 p.m.

BEAR RIVER COMMISSION

STATEMENT OF INCOME AND EXPENDITURES

FOR THE PERIOD OF JULY 1, 2011 TO JUNE 30, 2012

INCOME	CASH ON HAND	OTHER INCOME	FROM STATES	INCOME
Cash Balance 07-01-11	98,788.15			98,788.15
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*		6,241.00		6,241.00
US Fish & Wildlife		8,318.79		8,318.79
Interest on Savings		869.45		869.45
 TOTAL INCOME TO				
30-Jun-12	98,788.15	15,429.24	120,000.00	234,217.39

\*Idaho's 2013 Water Quality payment was received in June and was included as 2012 revenue.

DEDUCT OPERATING EXPENSES

	APPROVED BUDGET	UNEXPENDED BALANCE	EXPENDITURES TO DATE
Stream Gaging/USGS Contract	54,520.00	-	54,520.00
SUBTOTAL	54,520.00	-	54,520.00
 EXPENDED THROUGH COMMISSION			
Personal Services BIWC	58,700.00	(0.04)	58,700.04
Travel (Eng-Mgr)	1,200.00	364.65	835.35
Office Expenses	1,600.00	521.30	1,078.70
Printing Biennial Report	1,000.00	251.60	748.40
Treasurer Bond & Audit	1,400.00	1,300.00	100.00
Printing	1,600.00	360.10	1,239.90
Realtime Web Hosting	8,400.00	(15.99)	8,415.99
Clerical	5,000.00	-	5,000.00
Contingency	3,000.00	3,000.00	-
SUBTOTAL	81,900.00	5,781.62	76,118.38
 TOTAL EXPENSES	 136,420.00	 5,781.62	 130,638.38
 CASH BALANCE AS OF 06/30/2012			 103,579.01

BEAR RIVER COMMISSION

DETAILS OF EXPENDITURES

FOR PERIOD ENDING JUNE 30, 2012

737	USGS	54,520.00
738	BIWC	4,891.67
739	BIWC	10,470.93
740	MOKI SYSTEMS	2,100.00
741	BIWC	5,363.31
742	MOKI SYSTEMS	2,100.00
743	BIWC	6,039.30
744	BIWC	5,481.16
745	VOID	
746	VOID	
747	VOID	
748	BIWC	14,116.53
749	BIWC	9,869.07
750	CNA SURETY	100.00
751	STONEFLY TECH	4,215.99
752	BIWC	11,284.38
753	BIWC	86.04

TOTAL EXPENSE 130,638.38

BANK RECONCILIATION

Cash in Bank per Statement 06-30-2012	4,124.32
Plus: Intransit Deposits	
Less: Outstanding Checks	
Total Cash in Bank	4,124.32
Plus: Savings Account-Utah State Treasurer	99,454.69
TOTAL CASH IN SAVINGS AND IN CHECKING ACCOUNT	103,579.01

BEAR RIVER COMMISSION

STATEMENT OF INCOME AND EXPENDITURES

FOR THE PERIOD OF July 1, 2012 to November 5, 2012

INCOME	CASH ON HAND	OTHER INCOME	FROM STATES	INCOME
Cash Balance 07-01-11	103,579.01			103,579.01
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		6,306.00		6,306.00
US Fish & Wildlife		2,090.01		2,090.01
Interest on Savings		317.90		317.90
 TOTAL INCOME TO 05-Nov-12	 103,579.01	 8,713.91	 120,000.00	 232,292.92

DEDUCT OPERATING EXPENSES

	APPROVED BUDGET	UNEXPENDED BALANCE	EXPENDITURES TO DATE
Stream Gaging/USGS Contract	55,660.00	-	55,660.00
SUBTOTAL	55,660.00	-	55,660.00
 EXPENDED THROUGH COMMISSION			
Personal Services BIWC	60,500.00	35,291.65	25,208.35
Travel (Eng-Mgr)	1,200.00	1,103.52	96.48
Office Expenses	1,600.00	1,568.18	31.82
Printing Biennial Report	1,000.00	1,000.00	-
Treasurer Bond & Audit	1,400.00	1,400.00	-
Printing	1,600.00	1,484.40	115.60
Realtime Web Hosting	8,400.00	4,800.00	3,600.00
Clerical	5,000.00	3,820.00	1,180.00
Contingency	3,000.00	3,000.00	-
SUBTOTAL	83,700.00	53,467.75	30,232.25
 TOTAL EXPENSES	 139,360.00	 53,467.75	 85,892.25
 CASH BALANCE AS OF 11/05/2012			 146,400.67

BEAR RIVER COMMISSION

DETAILS OF EXPENDITURES

FOR PERIOD ENDING NOVEMBER 5, 2012

754	STONEFLY TECH	1,800.00
755	BIWC	15,427.93
756	USGS	55,660.00
757	STONEFLY TECH	1,800.00
758	BIWC	5,125.69
759	BIWC	6,078.63

TOTAL EXPENSE 85,892.25

BANK RECONCILIATION

Cash in Bank per Statement 11-05-2012	6,532.88
Plus: Intransit Deposits	
Less: Outstanding Checks	
Total Cash in Bank	6,532.88
Plus: Savings Account-Utah State Treasurer	139,867.79
TOTAL CASH IN SAVINGS AND IN CHECKING ACCOUNT	146,400.67

# AMENDED BEAR RIVER COMPACT COMMISSION-APPROVED PROCEDURES

November ~~13, 2012~~<sup>1993</sup>

## I. INTRODUCTION

The Amended Bear River Compact was ratified by Congress in 1980 and established depletion amounts to which states were entitled. The Amended Compact did not spell out in detail how depletions would be calculated, nor how and when additional storage would take place depending upon Bear Lake operations. Instead, the Amended Compact directed that these depletion calculations and additional storage determinations would be completed in accordance with "Commission-approved procedures." In November of 1989, the Commission adopted interim approved procedures with an understanding that with time and experience, the States may choose to amend the approved procedures. This document constitutes the current procedures approved by the Commission.

The phrase "Commission-approved procedure" is found three places within the Amended Bear River Compact. These places are as follows:

Article V.C.: "Water depletions permitted under provisions of subparagraphs (1), (2), (3), and (4) above, shall be calculated and administered by a *Commission-approved procedure*."

Article VI.B.: "Water depletions permitted under this Paragraph B shall be calculated and administered by a *Commission-approved procedure*."

Article VI.C.: "The availability of such water and the operation of reservoir space to store water above Bear Lake under this paragraph shall be determined by a *Commission-approved procedure*."

These procedures will set out how water depletions and additional storage based on Bear Lake operations will be determined. These procedures are set forth as general guidelines to be used by the states to report to the Bear River Commission (Commission) the additional depletions that have occurred as provided for under the Amended Bear River Compact. The Commission will account for depletions forward from January 1, 1976. A Commission-approved mapping project was completed and approved April 1992 to establish base data from which future maps and tabulations of new depletions could be prepared.

To account for the irrigation requirements of crops grown in the Bear River Basin, the Commission contracted with Utah State University, in cooperation with the University of Idaho and the University of Wyoming, to estimate irrigation depletions for subbasins within the Bear River basin. A map of the subbasins and Compact division boundaries is shown in Appendix A. Appendix B shows the amount of depletion per acre that was estimated for each subbasin. The

following procedures will describe methods for determining depletions for new irrigation, supplemental irrigation, municipal and industrial use, and also determining when additional storage may take place above Bear Lake.

Depletions from both surface water and groundwater sources will be reported. In order for groundwater depletions to be exempt from compact allocation, the state must provide documentation acceptable to the Commission to show the source of water for the depletions is not tributary to the Bear River.

## II. DEPLETION PROCEDURES

### A. Irrigation Depletion

#### 1. New Irrigated Lands

Depletion amounts from new irrigated lands, put in production since January 1, 1976, will be determined by multiplying the acreage brought into production by the irrigation depletion of the crop mix within a subbasin. The irrigation of new lands will be charged an irrigation depletion based on the values reported in Table 15 of Research Report #125, by Robert W. Hill, Charles E. Brockway, Robert D. Burman, L. Niel Allen and Clarence W. Robinson, Utah Agricultural Experiment Station, Utah State University, in cooperation with the University of Idaho and the University of Wyoming, January 31, 1989.

The depletion values in Research Report #125 are based on the weighted average crop mix for each subbasin. These values are summarized in Appendix B. Depletion values from the above referenced report will be used, but may be modified by the Commission. Modifications will require supporting information, and appropriate adjusted tables to verify depletion values. Any modifications made by a state will be documented to the satisfaction of the other two states. Justification as to why the modification was desirable will be included in the documentation and approved by the Commission.

An example depletion calculation for new acreage brought into irrigated agricultural production is made as follows:

Example area - Thomas Fork Subbasin:

Criteria: 40 new acres of irrigation brought into production

40 acres x 1.04 acre-feet\* = 41.6 acre-feet of  
annual depletion

\*(Based on Estimated Depletion from Appendix B)

By definition, depletion by the native vegetation or dryland crops is equal to the effective precipitation. No adjustment of the calculated depletion to account for prior use of the land, such as dryland agriculture converted to irrigation, will be required. Lands classified by the Commission as "meadow/wetland" which are drained and then irrigated will not be assessed an additional depletion.

2. Supplemental Supplies from New Water Development

a. Project Developments

To evaluate supplemental use of water on lands irrigated prior to 1976, any change in use will require documentation from the state proposing the change in use and quantifying the additional depletion. The documentation should address the area, extent of lands to receive supplemental supply, source of the water, and other necessary information. This paragraph refers to areas of land whose supplemental supplies are being developed as a project to supply supplemental water. Depletion estimates will be made from system design and operation studies submitted to and approved by the Commission.

b. Other Development

The depletion assigned to the smaller supplemental rights or filings may be calculated through a similar procedure as for new lands, i.e., take 40 acres in Thomas Fork that previously had an irrigated right, for which an applicant chooses to make an application to firm the supply. The depletion of 41.6 acre-feet would then be multiplied by the average shortage rate in the subbasin of the Bear River. Shortage rates by subbasin are listed in Appendix C. Any supplemental filing or right that is supplementing lands with an original supply right having a priority date post January 1, 1976 need not have a depletion allocation assigned to it.

Any change in shortage rate will be reported to the Bear River Commission by each state with appropriate documentation to substantiate the numbers provided. The shortage rate is the value (percentage divided by 100) applied to account for an average water requirement deficiency in each subbasin. Depletion estimates and any shortage rate changes will be submitted to and approved by the Commission.

A state may also account for their supplemental supply uses by monitoring measuring devices installed by individual irrigators using supplemental rights, or by an alternative accounting method accepted by the Commission.

3. Irrigation Depletion Accounting Procedure

Each state will be responsible for obtaining, analyzing, and reporting its own data. An accepted standard mapping and database manager will be used. All map and tabular information will be submitted in a form and format approved by the Commission.

The following data elements should be used in developing the data for the state reports:

- a. State
- b. Compact division
- c. Subbasin from Appendix A
- d. ~~Section, township, and range (quarter-quarter of section optional but preferred)~~
- e. New acreage put into production or acreage receiving supplemental supply
- f. For supplemental supplies, the shortage rate for the subbasin (from Appendix C)
- g. Irrigated land, in acres, taken out of production (negative acreage value for banking, as described under II.D.)
- h. Irrigation depletion in acre-feet per acre from Appendix B
- i. Depletion by Compact section: This value is the sum of acreage within a section. A section may have a negative acreage value if a majority of the land was taken out of production. The acreage values from elements "e" and "g" are multiplied by the irrigation depletion (element "h") and shortage rate (element "f") for supplemental, and input to element "i."
- j. Division totals: This is the summation of all the depletion attributable to a state by Compact division. Compact division boundaries are shown on the approved 1976 base maps.
- k. Number of acres held in water rights banked by State and Compact division

#### B. Municipal Depletion

The definition for "municipal" use in the calculation of depletions is "any organization that supplies potable water and is required to report its activity as per the National Safe Drinking Water Act." The Amended Bear River Compact specifically exempts self-supplied domestic and stockwater use in the Upper and Central divisions from depletion charges. In order to be consistent, this exemption is extended to the Lower Division as well.

The increased or decreased depletion attributed to municipal uses since January 1, 1976, will be calculated, tabulated, and reported as provided for under Section F. The reports should consider including the following information elements:

1. Name of municipality or water-using group
2. Total diversion rate prior to January 1, 1976, known or estimated, in acre-feet
3. Diversion rate in acre-feet as of current reporting date
4. Total diversion increase or decrease in acre-feet since 1976
5. Total depletion increase or decrease in acre-feet since January 1, 1976, the depletion will be an agreed-upon factor representing the percent of the diversion which is consumed, times the total diversion increase or decrease.
6. State and division

Division totals within each state will be reported.

Where measured or metered data are not available, estimated use based on population or other indirect methods may be used and a mathematical calculation made to determine water use increase or decrease after January 1, 1976. The Commission will require that documentation be submitted which outlines the process the state used to determine the depletion. Municipal depletions will be submitted to and approved by the Commission.

#### C. Industrial Depletion

Changes in industrial use will be accounted for by the states, and a total increase or decrease in water use by division and state will be compiled. Reports produced by each state should include the following information elements:

1. Name of the industrial or commercial establishment
2. Type of use (Standard Industrial Code [SIC] preferred)
3. Total diversion in acre-feet prior to January 1, 1976, estimated or known
4. Diversion rate in acre-feet as of current reporting date
5. Total diversion increase or decrease in acre-feet since January 1, 1976 (decrease will be a negative value)
6. Total depletion increase or decrease in acre-feet since 1976
7. Location, latitude, and longitude, and/or section, township, and range (quarter-quarter section optional but preferred) for place of use
8. State and division

These data will be reported in such a way that totals for divisions within a state will be shown.

Where data are not available to document use as of January 1, 1976, current use data may be used and a mathematical calculation made to determine water use changes since January 1, 1976. The Commission will require that documentation be submitted which outlines the process the state used to determine the depletion. Documentation will be reviewed and approved by the Commission.

D. Banking Procedures

When water uses with a pre-1976 state water right are discontinued, the state may transfer the depletion from that water right to uses with post-1976 priorities without a new depletion charge, or the water may be "banked." Each state will be responsible for maintaining an accounting system documenting the transferred water right and the post-1976 priorities to offset any new depletion. Any pre-1976 depletions that have not been "re-appropriated" to a post-1976 water right may be "banked."

Prior to banking allotments approved by the Commission, the state requesting the allotments will prepare a document for presentation to the Commission showing the process by which the water will be accounted. This report will include the procedures used and provide data, including water use, place of use, associated water rights, and previous depletions. Banked water must be approved by the Commission.

E. Reservoir Evaporation

There will be an accounting for any change in net evaporation as a result of increased storage. Any decrease in evaporation from reservoir abandonment or reduced storage may be banked. Evapotranspiration from inundated lands may also be included in determining net evaporation at the storage site. The state accounting for the net evaporation change will use acceptable procedures, and those procedures will be reported to the Commission.

F. Reporting Requirements

1. Reporting of Depletion Amounts

a. Background

As a part of the base mapping project completed by the Commission in 1992, an estimation was made of the changes in irrigation, municipal and industrial uses in each Compact division from 1976 to 1990. These estimates were reported to the Commission at their April 1992 meeting. There was wide variation in the percentages of allocation being put to beneficial use in the various divisions. Idaho's portion of the Central Division was the closest to reaching the allocation amount, with 64 percent of their allocation being depleted. At the other end of the spectrum was the Lower Division, where between 2-6 percent of their allocation to Utah and Idaho are being depleted. Because of this dichotomy, the reporting requirements for the Compact divisions will vary.

b. Reporting Intervals

Every five years, or as determined by the Commission, a review of the changes in depletions since 1976 occurring in the Central Division portion in Idaho will be determined. Every ten years, or as determined by the Commission, a determination of the depletion changes occurring in the Upper Division, the Wyoming portion of the Central Division, and the Lower Division will be made.

The determinations will include depletions from both new irrigation development and supplemental irrigation, and municipal and industrial uses. The determinations may utilize aerial photography, satellite imagery, or other remote sensing data for the estimation of any changes in land use since 1976. Municipal and industrial uses will be calculated as described in these procedures. An updated map showing the changes will be produced if the Commission determines that the changes were significant enough to warrant an update.

Each state will submit a report summarizing the information required in Section II. The report will also include a comparison of total depletions and the Compact allotments by division for each state. A report will be sent by the states to the Engineer-Manager, as directed by the Commission. The Engineer-Manager will circulate the report to Commission members four weeks prior to the Commission meeting at which the report is to be presented. If the report is acceptable, it will be adopted by the Commission as the official depletion estimate record. If there are questions regarding the states' methodology or total depletion estimates, the concerns will be addressed by the states, and a report will be resubmitted at the next Commission meeting.

If a mapping update is deemed necessary by the Commission, the update will show the new lands added and lands taken out of production since January 1, 1976. This information will be provided by each state using an acceptable database manager and sent to the Engineer-Manager. Each state will document how the map products were derived and how the information was verified. At the Commission's direction, map information will be compiled and merged to form updated 1:100,000 scale maps.

There may be a variety of future potential uses for Bear River water by the three states that are not presently known. It is not the intent to limit future uses with these depletion procedures. Depletion from uses such as out-of-basin exports, depletion from wildlife or aesthetic uses will be estimated by the respective states as new uses occur. The Commission-approved procedures will be revised as necessary to accommodate these new uses.

## 2. Article XI Reporting Requirement

Article XI states that, "The official of each State in charge of water administration shall, at intervals and in the format established by the Commission, report on the status of use of the respective allocations." The Commission has determined that the Commission's Biennial Report shall serve as the mechanism for fulfilling this reporting requirement. Each state will, in cooperation with the Engineer-Manager, compile an annual narrative report of significant water-related activities for each of the past two water years. From the state reports, the Engineer-Manager will determine which issues are of interest to the Commission and will include them in the Biennial Report. This report may not necessarily include the numeric amounts of new depletions during the biennium, but will highlight the major water-related activities in the Basin. The Biennial Report will also include a table showing the latest depletion estimates for each state by Compact division.

### **III. BEAR LAKE SPILLS**

Article VI, Paragraph C, states, "In addition to the rights defined in Article VI, Paragraphs A and B, Idaho, Utah and Wyoming are granted the right to store and use water above Stewart Dam that otherwise would be bypassed or released from Bear Lake at times when all other direct flow and storage rights are satisfied."

No single physical observation or measurement can be made to assess when additional Article VI storage may take place. Both senior and junior appropriators of Bear River waters will be diverting to storage during peak run-off. Use of Article VI water is not to be included in the storage and depletion allowances above Stewart Dam if the Commission determines that additional storage waters are available under Article VI, Paragraph C of the Compact.

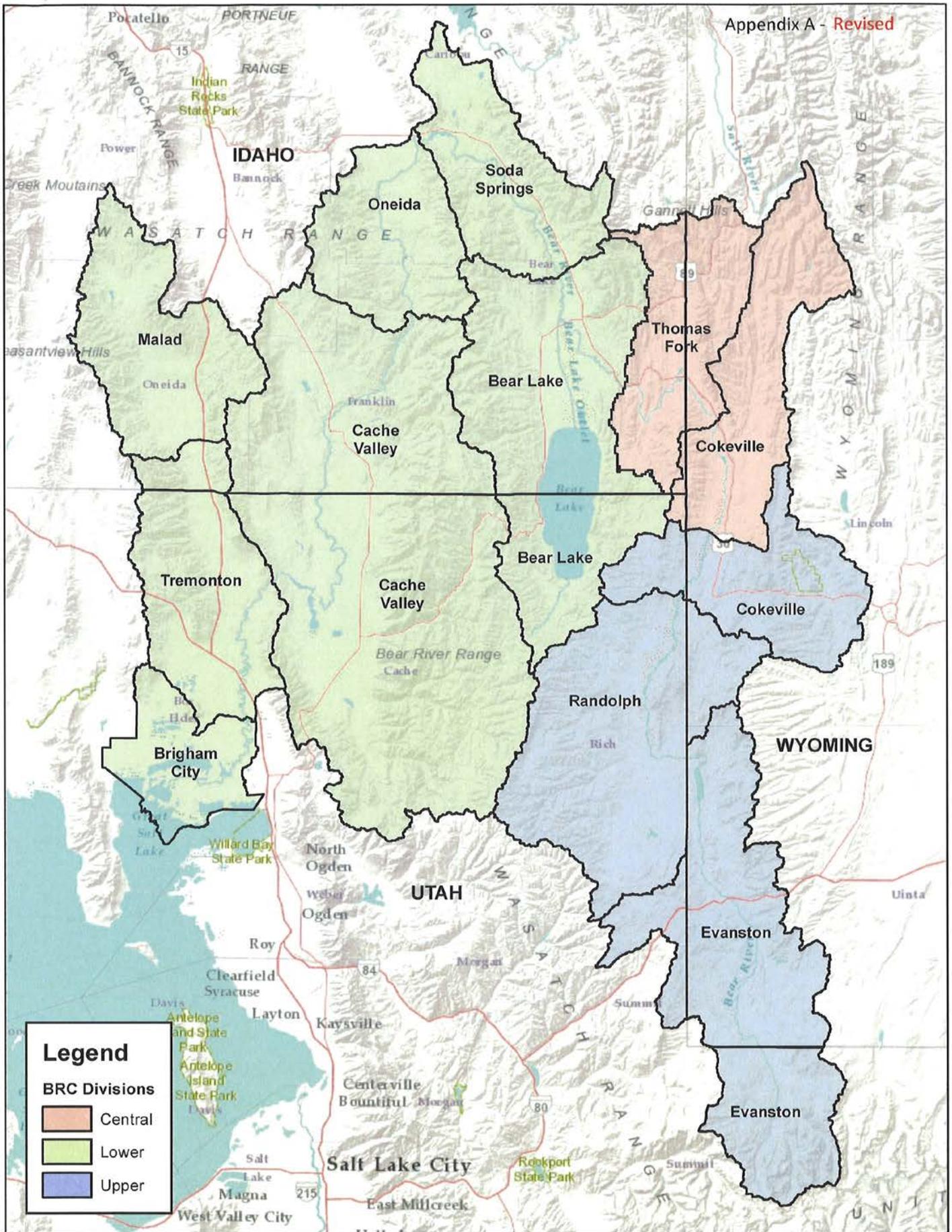
To ensure that prior rights are delivered their full requirement of water, the following procedure will be followed. The Engineer-Manager will act as chairperson of a Bear Lake Spills Subcommittee of the Bear River Commission. The Subcommittee will be comprised of the Operations Committee, a representative of Utah Power, and the Engineer-Manager. This Subcommittee will be responsible for obtaining the necessary data through cooperation with federal, state and private organizations to assess the hydrologic situation of the Bear River system and determine if there is potential for additional rights being defined as provided for under Article VI, Paragraph C of the Compact. The Subcommittee may determine that waters are not going to be available for these additional rights. The Subcommittee may review storage that has occurred and determine whether additional waters are available. If the Subcommittee determines that additional waters were stored and additional rights were not available, then the Subcommittee will instruct the Engineer-Manager concerning how to release the unauthorized storage into the system. The Subcommittee will report to the Commission any of its actions and or findings at the next Commission meeting.

The Subcommittee should evaluate at least the following criteria:

1. Bear Lake elevation
2. Storage space available upstream from Bear Lake.
3. The amount of water stored weekly in each reservoir during the run-off period from March through June of each year
4. An estimation of the probable Article VI, Paragraph C water
5. The time interval in which storage of water may occur
6. The time interval in which stored water may be released to prior appropriators
7. An accounting system for tracking stored water
8. Any of the signatory states of the Amended Bear River Compact, upon showing of importance, may have other criteria evaluated by the Bear Lake Spills Subcommittee during meetings of the Subcommittee
9. Stewart Dam and Rainbow Canal flows

#### **IV. CONCLUSIONS**

The Commission was to establish "Commission-approved procedures" for estimating depletion and determining when additional storage may take place based on Bear Lake operations, as mandated by the Amended Bear River Compact. These procedures may be revised by the Commission at a regular or annual Commission meeting should changes in the Commission-approved procedures be necessary.



**APPENDIX B**  
**No Changes**

**ESTIMATED DEPLETION FOR VARIOUS SUBBASINS OF THE BEAR RIVER BASIN**  
As Based on Calibrated Crop Coefficients  
Used With the SCS Blaney-Criddle Equation  
For Water Years 1976-1987

YEAR	SUBBASIN										
	Evanston 01	Randolph* 02	Cokeville 03	Thomas Fork 04	Bear Lake 05	Soda 06	Oneida 07	Cache Valley 08	Malad 09	Tremonton 10(b&c)	Brigham City 10(a)
	INCHES										
1976	13.1	16.7	12.6	12.5	11.6	13.5	13.3	14.2	13.7	15.4	15.8
1977	15.1	19.1	13.8	13.6	13.2	11.2	15.7	15.5	18.0	16.0	16.2
1978	10.9	15.1	10.8	10.7	11.1	12.4	13.3	11.9	14.4	13.5	14.0
1979	16.0	20.3	15.9	15.8	16.8	13.9	17.2	16.8	16.3	15.6	18.1
1980	11.7	15.5	11.2	11.1	9.2	10.0	7.9	9.4	11.5	9.0	9.1
1981	14.0	18.3	16.3	16.1	15.2	15.5	14.0	15.6	19.9	18.7	18.7
1982	8.4	12.0	9.7	9.6	7.0	11.7	10.2	8.0	7.8	10.5	8.0
1983	6.1	12.2	8.3	8.2	7.1	10.6	7.7	6.2	8.9	6.6	8.7
1984	9.6	13.7	9.7	9.6	11.9	10.1	8.8	8.1	9.3	8.5	12.0
1985	16.2	18.1	15.4	15.3	15.3	11.9	12.6	12.8	17.5	14.2	15.8
1986	12.6	15.9	12.4	12.3	13.2	10.9	10.1	11.1	14.4	11.8	14.0
1987	16.7	17.9	14.4	14.3	13.5	13.8	13.3	14.3	18.0	16.9	16.7
Inches **	12.5	16.2	12.5	12.4	12.1	12.1	12.0	12.0	14.1	13.1	13.9
AF/A **	1.04	1.35	1.04	1.04	1.01	1.01	1.00	1.00	1.18	1.09	1.16

\*Depletion amounts for Randolph sub-area have been modified by the Technical Advisory Committee to 1.2 acre-feet based on request by Utah.

\*\*An average of the specified units for all 12 years.

**APPENDIX C**  
**Revised**

**COMMISSION-APPROVED SHORTAGE RATE TABLE\***

SUB-BASIN	IDAHO	UTAH	WYOMING
Evanston	---	0.065	0.065
Randolph	---	0.093	0.093
Cokeville	---	0.028	0.028
Thomas Fork	0.023	---	0.023
Bear Lake	0.082	0.082	---
Soda**	0.062	---	---
Oneida**	0.062	---	---
Cache Valley	0.042	0.042	---
Malad	0.111	0.111	---
Tremonton	0.045	0.045	---
Brigham City	---	0.140	---

\* Numbers in this table reflect rates used in the 2009 depletion estimates.

\*\*Average of Bear Lake and Cache Valley.

Source: Hydrologic Inventory of the Bear River Study Unit, Utah Water Research Laboratory, Utah State University, Logan, Utah, February 1973.



Overview of the Paris Hills Phosphate Mine Project for the  
Bear River Commission

November 13, 2012



**Paris Hills Phosphate Mine Project**

- Project Overview
- Surface Water Monitoring
  - Brown & Caldwell – Boise, ID
- Surface Water Runoff Control during exploration
- Geochemistry Program
  - Whetstone Associates – Gunnison, CO
- Groundwater Program
  - Whetstone Associates – Gunnison, CO



**Paris Hills Project**

- Located in the foothills of the Bear River Range, Bear Lake County
- Located 45 miles south of active phosphate mining in Soda Springs area
- Pre-feasibility Study completed in March 2012, positive results
- Definitive Feasibility Study to be completed in December 2012

Property comprised of: Idaho Department of State Lands, private land and BLM, ~2,500 acres

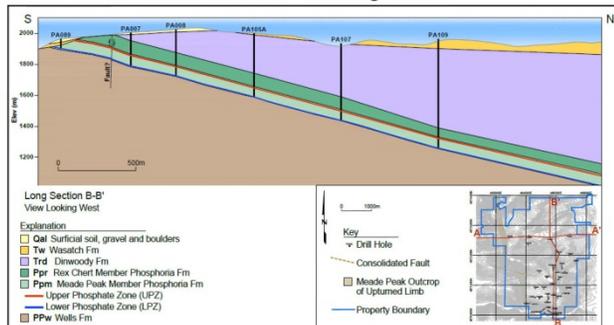


**Pre-Feasibility Study Highlights**

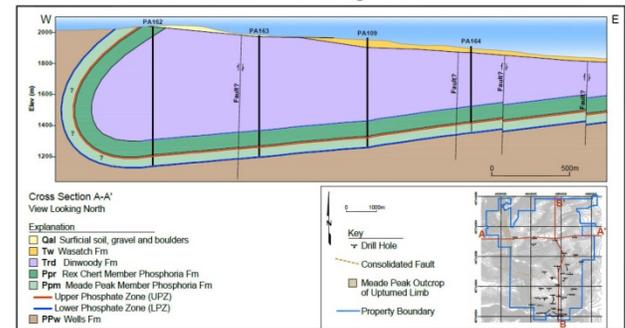
- Exploration began in September 2010
- Study targeted the Lower Phosphate Zone only
- Underground Mine
- Direct Ship Rock, no processing or tailings facilities on site, small waste rock facility
- Rock will be transported by highway truck to local markets or by rail to distant markets
- Eleven (11) million tons of minable reserve at a grade of 29.4% P<sub>2</sub>O<sub>5</sub>
- Fourteen (14) year mine life
- Estimated 326 employees during peak year 8
- Mine life expected to increase due to recent exploration drilling

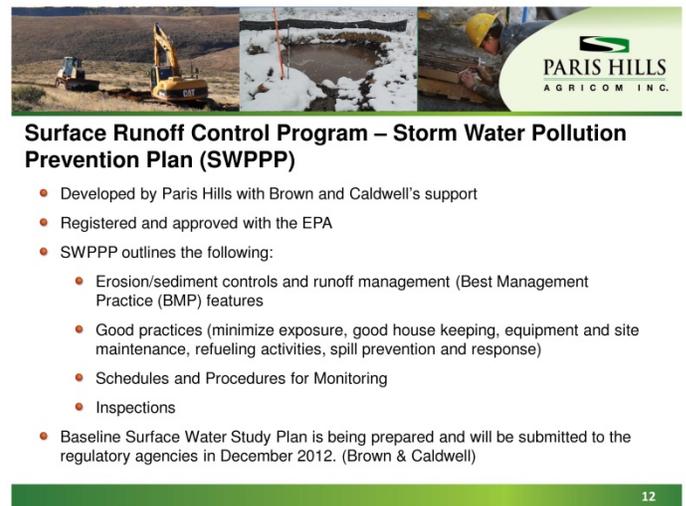
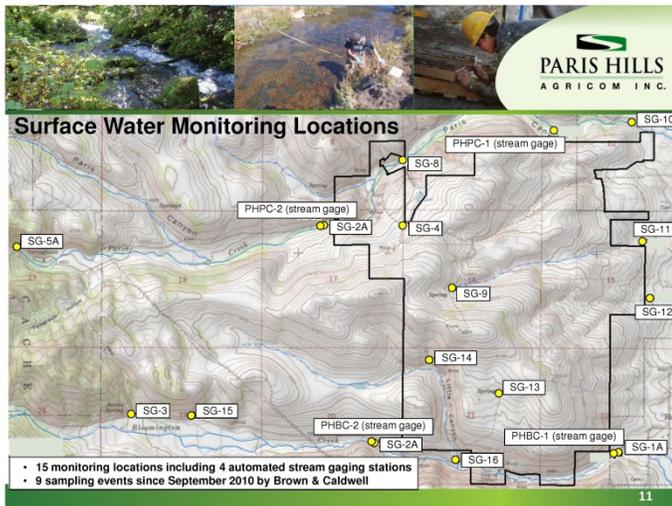
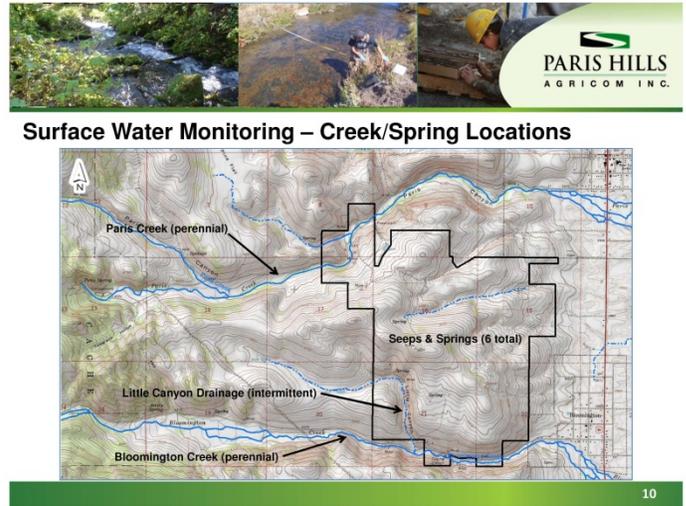
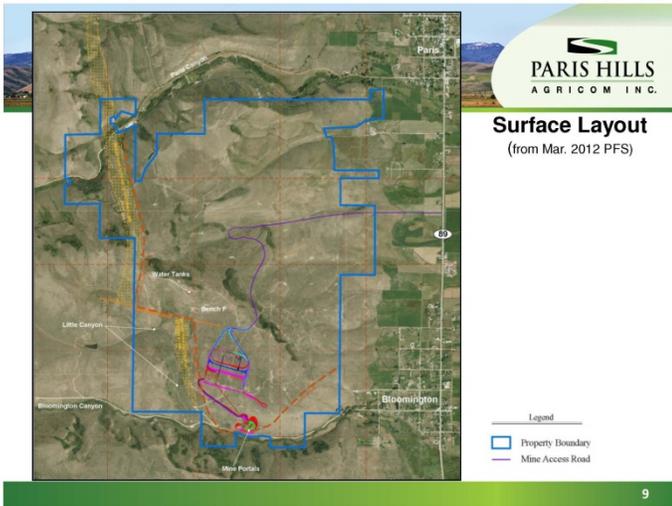
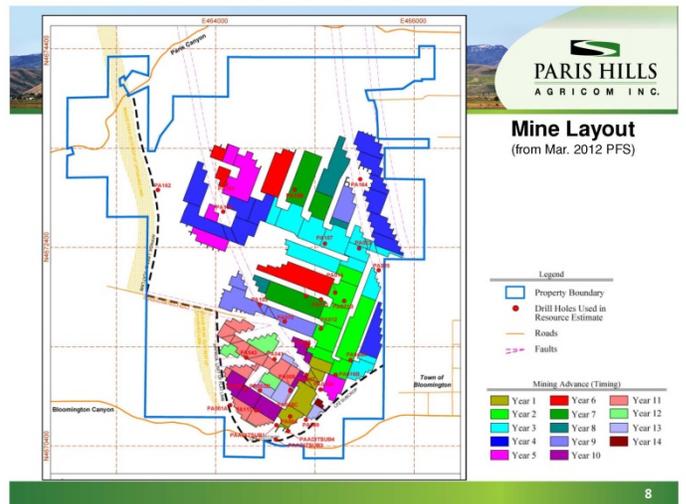
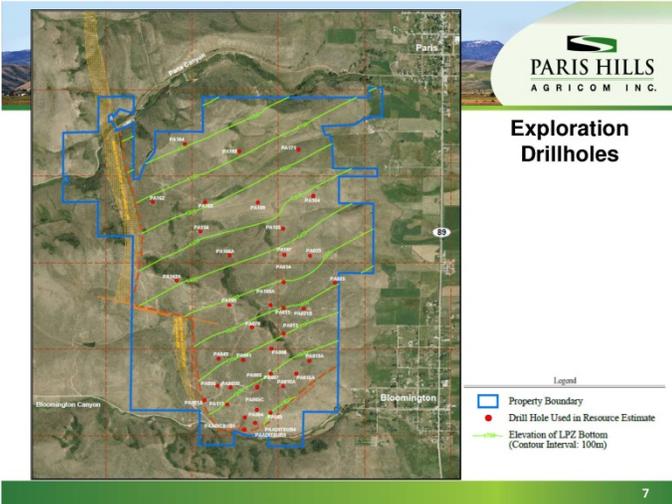


**North-South Cross Section – looking west**



**East-West Cross Section – looking north**







### Surface Runoff Control Program

- Rubber water bars and sediment pond



13



### Surface Runoff Control Program

- Erosion control within natural drainage



14



### Surface Runoff Control Program - Reclamation

- In areas of disturbance the surface is re-contoured and reseeded
- Reclamation is concurrent, completed as soon as possible after drilling



15



### Geochemistry Program

- Purpose of Geochemistry program:
  - Document and describe the geochemical and mineralogical characteristics of the phosphate rock
  - Evaluate the potential mobility of the Constituents of Potential Concern (COPCs)
  - Develop a conceptual geochemical model that describes the occurrence and mobility of the COPCs
  - Develop data that can be used to evaluate potential impacts from the project and identify potential mitigation strategies
- Baseline Geochemistry Study Plan was submitted to the regulatory agencies (IDEQ, IDL, BLM) in September 2012 (Whetstone)

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### Geochemistry Program

- Geochemistry analysis is in progress:
  - 738 samples from 39 drill holes; 117 composite samples based on material types (phosphate bed, roof & floor).
- Analysis performed:
  - Whole rock geochemistry
  - Acid Based Accounting (ABA) for sulfur speciation and organic carbon
  - Synthetic Precipitation Leaching Procedure (SPLP) for single contact leaching tests to evaluate spatial variability in mobile contaminants
- Column Leaching Tests – to commence in Dec. for 6 month duration
  - Unsaturated column to represent waste rock pile
  - Unsaturated column to represent ore stockpile
  - Saturated column to represent wall rocks for post mining/dewatering

17



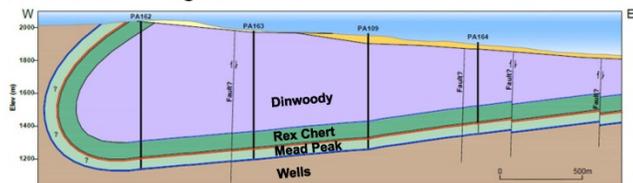
### Groundwater Program

- Purpose of Groundwater program:
  - Identify and describe groundwater flow systems; determine flow directions and hydraulic gradients
  - Provide water level and water quality data to support permit applications
  - Provide data that can be used to support engineering design of the operation
- Baseline Groundwater Study Plan was submitted to regulatory agencies (IDEQ, IDL, BLM) in September 2012 (Whetstone)
- Groundwater will be pumped ahead of mining and injected or infiltrated back into the aquifer at distances adequate to prevent recharge into the mine
- Groundwater that comes in contact with mine workings (underground or surface) will be treated then injected or infiltrated

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### Groundwater Program – Cross Section



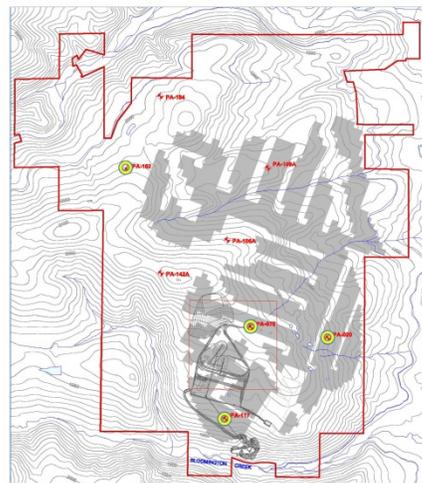
- Groundwater exists in the Dinwoody (perched), Rex Chert and Wells formations. The Mead Peak Member acts as an aquitard.
- Based on the PFS, estimated groundwater flow is 15,000 gpm for dewatering and 500 gpm into the underground mine.
- The DFS will refine these estimates but are expected to be similar.

### Groundwater Program

VWP and Packer Test Locations

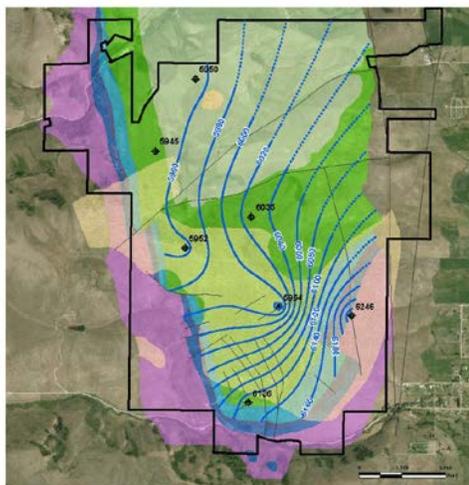
- Sixteen (16) vibrating wire piezometers (VWPs) installed in eight (8) drill holes
- Twenty one (21) packer permeability tests in four drill holes

● Packer Test Holes



### Groundwater Program

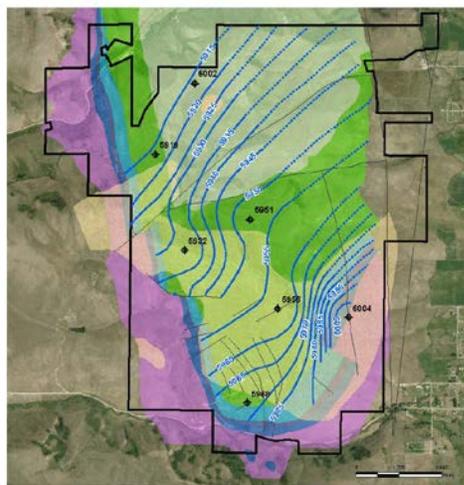
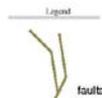
- Potentiometric Surface – Rex Chert Formation



### Groundwater Program

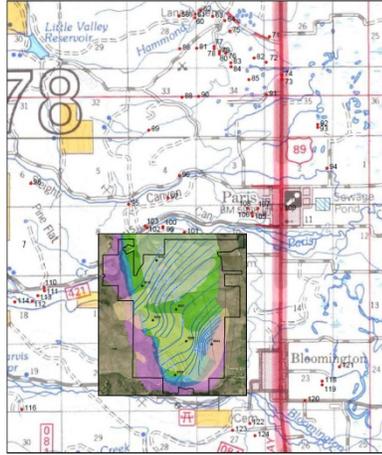
- Potentiometric Surface – Wells Formation

- VWPs indicate groundwater communication between the Rex Chert and Wells formations in south portion of the deposit due to faulting
- Significantly less groundwater communication in the north portion of the deposit with absence of faulting



## Groundwater Program

- Map showing IDWR well locations.
- Hydrology modeling is progressing
- Potential impact to local wells (south & east of property) due to mine dewatering
  - Groundwater monitoring and potential mitigation is planned during the mining operation
- Potential impact to Springs on or adjacent to property due to mining
- No impact expected to Paris or Bloomington creeks
- Water usage during operations expected to be minimal (~250 gpm). Water rights will be purchased locally



## SUMMARY OF WATER YEAR 2012 BEAR LAKE OPERATIONS

Date	Hydrologic Information/Event	Contents (% of Full) Discharge (% of Normal)
10-01-11	Bear Lake Beginning Elevation - 5,919.94 ft.	1,160,796 af (82%)
01-06-12	Bear Lake Low Elevation - 5,918.73 ft. (see note 1)	1,076,494 af (76%)
	Rainbow Inlet Canal Discharge	156,569 af (67%)
	Bear River Discharge Below Stewart Dam	3,700 af
	Bear Lake Net Runoff (Computed Total Inflow less Lake Evaporation)	94,800 af (29%)
05-10-12	Bear Lake High Elevation - 5,920.40 ft.	1,192,933 af (84%)
	Outlet Canal Releases:10/1/11-1/6/12 (flood control); 5/10/12-10/11/12 (irrigation)	367,883 af
06-28-12	Outlet Canal Maximum Release - 1,600 cfs	
	Bear Lake Storage Release (see note 2)	218,400 af
09-30-12	Bear Lake Ending Elevation - 5,915.92 ft.	883,199 af (62%)
	Bear Lake Settlement Agreement "System Loss" Volume (see note 3)	29,400 af

**Notes:**

1 - Low contents prior to start of storage.

2 - Includes storage releases made through October 11, 2012 for use by Bear River Canal Company, includes water released from Alexander reservoir for irrigation use that was replaced by water from Bear Lake from October 31 to November 5, 2012.

**Notable Events**

The PacifiCorp Target Elevation was 5918' at the beginning of the water year and flood control releases were made from Bear Lake until the target elevation was changed to 5920' on January 6, 2012 when flood control releases ceased. On March 31, 2012, the date the target elevation should ideally be reached, the elevation was 5919.78 feet.

Bear Lake net runoff was only 29% of normal and the water level at Bear Lake decreased nearly 5 feet from the spring maximum elevation of 5920.40 feet.

Nine scheduled recreational releases were made into the Black Canyon below Grace Dam.

During the irrigation season PacifiCorp released 218,400 AF of storage water for irrigators, 29,400 AF of which passed below Cutler and was accounted for as system loss under the Bear Lake Settlement Agreement, so it was not counted against the irrigator's allocation. The net Bear Lake storage release for the irrigators was 189,000 AF, and 56,000 AF of the irrigator's allocation was saved for recovery of Bear Lake.

Alexander reservoir was drawn down for maintenance and repairs at the end of the irrigation season and the water was delivered to irrigators in place of Bear Lake water by reducing the flow from the Bear Lake Outlet canal. The reservoir was subsequently refilled with an equivalent volume of water (6,500 AF) that was released from the Bear Lake Outlet Canal October 31 to November 5, 2012.

The Bear River Bird Refuge and Bear River Canal Company failed to reach a verbal agreement to share the natural flow at the end of the irrigation season, so Bear Lake storage water releases were extended into October.

**Current Status**

Bear Lake elevation as of November 11, 2012 was 5915.52 feet. The seasonal low elevation of 5915.50 feet occurred on November 9, 2012. The flow in the Rainbow Inlet Canal is 160 cfs, the causeway is open and the water is entering Bear Lake.

**Scenario for 2013**

Despite the reduction in water level at Bear Lake, the irrigation allocation will still be the maximum possible regardless of the volume of spring runoff since Bear Lake is already above 5914.7, the elevation at which the allocation begins to be decreased. A full allocation for Irrigators is 245,000 AF less delivery losses for a total of 236,303 AF.

Graphs of Water Year 2012, 2011 and Recent 15-year Average Conditions

